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Introduction

In the autumn of 2005, we celebrated the 100th anniversary of the University of Amsterdam Medical School and the Centre for Medical Education (VUMC). The merger of these two institutions created a new entity, the VUMc, which would bring together the strengths of both organizations. The merger was hailed as a unique selling point, with the new VUMc having a strong focus on diabetes patients.

In February 2006, we inaugurated the new VUMc, which has also allowed for more integration between clinical departments. The merger has also enhanced patient safety and secondary care, as well as general practice and the academic networks for both. The organisational structure has been strengthened, and general practice would probably not even exist without the VUMc. This time, we are confident that one of the VUMc’s “crown jewels” will be the integration of all these efforts.
In 2005, the EMGO Institute turned 18, and our future looks brighter than ever. In the autumn of 2005, we celebrated the fifth anniversary of the VU University Medical Center (VUmc), created by the merger of the medical school and the university hospital. Luckily, the worries that EMGO would be harmed by the merger never materialised. To the contrary: the board members of the new VUmc have had the wisdom to appreciate EMGO’s focus on extramural healthcare as an unique selling point. In fact, the VUmc has enabled substantial growth in managed care for diabetes patients. We are already working in West Friesland and Amsterdam, and in February 2006, we will inaugurate the new Diabetes Research Centre in Hoorn. The merger has also allowed more intensive collaborations between EMGO and various clinical departments with which we are jointly researching patient safety and secondary fall prevention. Without the merger, the university’s general practice and the academic networks for community medicine, occupational medicine, and general practice would probably not even exist. In 2006, the VUmc will review its organisational structure and, hoping to improve its financial situation, may merge with another Amsterdam hospital. This time, we are confident that the EMGO Institute will remain one of the VUmc’s “crown jewels”.

The past year brought sad news. On March 1, Hans A. Valkenburg passed away. He was – after his retirement from Erasmus University Rotterdam – the director of the EMGO Institute from 1988 to 1991. Hans was our pilot while EMGO was first taking off. Without his inspiring leadership and motivation, EMGO would never have survived its first five-year review in 1990. He also initiated the Hoorn study of type 2 diabetes and research on falls and osteoporotic fractures. Hans was an important role model for the senior staff; his open, critically constructive attitude and his pragmatic approach to epidemiological research remains characteristic of EMGO. We remember him in gratitude.

Hans Valkenburg. Foto: Mayke Arts
INSTITUTIONAL REVIEW

In November 2004, EMGO was visited by an internationally composed review committee. In early 2005, that committee returned a very positive verdict. EMGO as a whole was rated “excellent”, the highest possible category, which is defined as: “work that is at the forefront internationally, and which most likely will have an important and substantial impact in the field; the institute is considered to be an international leader”. The full text of the review report is available at our website.

The review committee’s report also contained several specific and constructive recommendations meant to stimulate EMGO’s further development and to ensure a continuing high level of performance. These recommendations have been discussed by various EMGO committees and at several meetings. The review committee’s chairman, Prof. dr. J.A. Knottnerus, discussed the recommendations with us at our annual two-day seminar in January. In July, during EMGO’s Policy Day, 25 selected staff members contemplated the recommendations, which were grouped under the headings Culture, Structure, and Performance. In the resulting Policy Paper 2006-2008 (also available at our website), we set out our intentions in a manner as SMART (specific, measurable, attainable, realistic, and time-bound) as possible.

One of the review committee’s most important recommendations was that EMGO reconsider its mission statement. You will find the result of this reconsideration in Chapter 2. The three most important changes are that we now 1) put less emphasis on the extramural setting, 2) stress the importance of the societal relevance of our research, and 3) explicitly state as one of our aims the training of researchers. A consequence of the first point is that we no longer call ourselves the Institute for Research in Extramural Medicine, but simply the EMGO Institute. Based on other recommendations, in 2006 we will create an innovation fund to promote, through international exchanges and visiting professorships, the influx of new ideas. We will also offer an annual postdoc grant for excellent PhD students. Other policy innovations concern training and intervision groups for supervisors of PhD students, improvements in bio-banking, and a more active involvement in masters programmes with a focus on research. More details on our policy intentions can be found in Chapter 3.

MILESTONES

In 2005, three new professors were appointed in EMGO: Maurits van Tulder (health technology assessment in public health), Luc Deliens (public health and palliative care), and Johan Legemate (health law). Theresa Marteau gave her inaugural lecture on individual choices in healthcare, while Daniëlle Timmermans was appointed associate professor in decision analysis. Remy Hira Sing’s part-time, temporary chair in youth healthcare became a full-time, tenured position. As of January 1, 2006, Daniëlle van der Windt will spend 50% of her professional time in Keele (UK) as a reader in general practice research. In 2005, Raymond Ostelo gave his public lecture on allied health research as an associate professor (‘lector’) at the Amsterdam School of Allied Health Care Education.

Luc Deliens received the very prestigious De Beys Award in Brussels for his research on end-of-life care. The European Association for the Study of Diabetes gave Coen Stehouwer the 20th Castelli-Pedroli /Camillo Golgi Award for his “outstanding contributions in the field of complications of diabetes”. He is the first Dutch scientist to receive this award, predominantly for his participation – currently from Maastricht University – in the Hoorn Study. Marieke Snijder took home no fewer than two awards in 2005: the European Association for the Study of Diabetes Young Investigators Award for Basic Science and the PhD thesis award of the Netherlands School of Primary Care Research. Anke Wegman also received a PhD thesis award from the Netherlands Society for Clinical Pharmacology and Biopharmacy for her work on n-of-1 trials. Brenda Penninx was honoured with a membership in the prestigious Young Academy of the Royal Dutch Academy of Arts and Sciences. Last, but by no means least, Jos Twisk got the first Netherlands School of Primary Care Research Education Award for his outstanding teaching.

And the winner is...
In 2005, two new research groups joined EMGO. Investigators from the Department of Clinical Psychology of the Faculty of Psychology and Pedagogy, under the leadership of Pim Cuijpers, joined EMGO's Common Mental Disorders programme. Furthermore, the VUmc's audiology research group, which designed the Dutch National Hearing Test, is now active in EMGO's Care and Prevention programme. EMGO's infrastructure has been strengthened with the addition of the Research Centre for Overweight Prevention in Zwolle and the Research Centre for Insurance Medicine, which is commissioned by the National Institute for Employee Benefits (UWV) and consists of a joint venture with the University of Amsterdam's Coronel Institute. More information on both new centres can be found in Chapter 7.

ANNUAL REPORT 2005

The three tables below are intended primarily to offer readers of this annual report a quick impression of the type of research EMGO undertakes. Table 1, which lists EMGO's citation toppers, provides an insight into the research that is most often cited by scientific peers, but the list, clearly biased towards older publications and those fields of research with an intense citation culture, should by no means be read as an arbiter of the scientific quality – and even less, the societal impact – of our work. Tables 2 and 3 offer alternative views, albeit also fragmental, by presenting the PhD articles that have won the EMGO Award (Table 2) and the research products or activities that have won our annual Societal Impact Award (Table 3).

Following this introductory chapter, you will find a wealth of information about EMGO and its activities. Chapters 2 and 3 explain EMGO's mission, its current trends, and its future perspectives. Chapter 4 briefly describes the organisation of our activities. Chapter 5 reports on the societal impact of EMGO's research programmes, while Chapter 6 provides information on our four programme areas, including a description of each programme, policy intentions, a list of staff, and ongoing research projects. Structured abstracts of these projects are available at our website. Chapter 7 focuses on longitudinal research, providing information on EMGO's four large cohorts and other elements of our research infrastructure.

Chapter 8 reports on EMGO activities that fall within the scopes of the scientific, PhD, education, and quality committees. Chapter 9 lists 2005 publications in the familiar categories of scientific prestige, separately for each of the four research programmes. Appendix 1 lists the members of EMGO's advisory board and staff, Appendix 2 contains the PhD theses currently in preparation, and Appendix 3 records the trends in input (budgets and personnel) and output (publications) over the past five years.

We hope that you find our 2005 annual report informative, and we look forward to receiving your comments, suggestions, or requests for more detailed information (e-mail: info.emgo@vumc.nl). Please also visit our site on the Internet (www.emgo.nl).
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Note: This listing contains articles on projects embedded in the EMGO Institute mentioned in any of the Annual Reports of which at least one of the authors is still working as a senior researcher at the EMGO Institute. Only articles with a total of 100 citations or more, according to the (Social) Science Citation Index on 8 March 2006, are included in the Table.
<table>
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<th>Year</th>
<th>Reference</th>
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</table>
### TABLE 2. ARTICLES THAT HAVE WON THE EMGO AWARD (continuation)

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<th>year</th>
<th>reference</th>
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</table>

*Note:* This list contains all articles that have won the annual EMGO Award. For this competition, junior researchers at the EMGO Institute may submit one article published or accepted for publication during the year prior to the deadline for submission. Members of the advisory board and the scientific committee judge the articles according to a predefined criteria list, with strong emphasis on the relevance for extramural healthcare.

### TABLE 3. RESEARCH PRODUCTS OR ACTIVITIES THAT HAVE WON THE SOCIETAL IMPACT AWARD

<table>
<thead>
<tr>
<th>year</th>
<th>reference</th>
</tr>
</thead>
</table>
| 2006 | Ms. B.A.M. The, PhD  
In de wachtkamer van de dood. (In the waiting room of death; ISBN 9080811378) |
| 2005 | Ms. R.M. Droës, PhD and Ms. F.J.M. Meiland, PhD  
Conditions for successful implementation of meeting centres for people with dementia and their carers. |
| 2004 | Ms. H.R.W. Pasman, MA  
Final report: Withholding or withdrawing artificial food and fluids in nursing home patients. |
| 2003 | Ms. G.E. Bekkering, MSc  
A training programme for physiotherapists to facilitate the implementation of the national physiotherapy guidelines for low back pain. |
Freedom is just another word for nothing left to lose. Janis Joplin.
Mission
MISSION
Excellence in research in public and occupational health, primary care, rehabilitation, and long-term care.

STRATEGY
EMGO contributes to the evidence base of prevention and care by generating and disseminating evidence. Our aim is to perform multidisciplinary research of both high scientific quality and high societal relevance. The main focus is on applicability and on outcomes relevant to individuals. EMGO also provides masters and PhD programmes in epidemiology and public health research.

OPERATIONALISATION
EMGO consists of investigators, research groups, and departments of the VU University Medical Center and the Vrije Universiteit Amsterdam. All research projects are embedded in one of four programmes, of which the coordinators advise the directorate on research prioritisation. A scientific committee advises on quality and relevance - and consequently on the acceptability - of research projects. A quality committee monitors and advises on the quality of the process of research. EMGO offers training in research methods, statistical consultation, and support in data management and financial project management.

To prioritise research we apply the following criteria:
1) relevance in terms of study impact on severity, frequency, and costs involved;
2) contribution to Dutch healthcare;
3) efficient utilisation of the expertise available within EMGO;
4) international scientific appeal;
5) collaboration with strong research groups outside EMGO; and
6) good funding opportunities.

A specific research project is acceptable if it:
1) fits in one of the four programmes;
2) is of adequate methodological quality;
3) has a health outcome as primary dependent variable;
4) leads to applicable results;
5) has an adequate budget; and
6) has been approved by the VUmc medical ethics review board.

Lex Bouter presenting EMGO’s strategy for the coming five years.
Current trends and future perspectives
CURRENT TRENDS

The trends in EMGO’s external grants, expenditures, scientific staff, and output are presented in Figures 1 – 4. Ignoring minor annual fluctuations, one clearly observes overall linear growth. In the new millennium, however, the growth rate seems to level off somewhat. This can be seen in the decreasing difference between external funding received (Figure 1) and research expenditures dispersed (Figure 2). Substantially less funding is coming in for individual projects, although this has been compensated so far by some large programme grants. Still, we currently have to supplement most budgets from EMGO’s rapidly shrinking reserves. Institutes such as ours, which depends on external funding for 75% of its budget, are especially vulnerable. EMGO’s challenge will be the acquisition of more stable and longer-lasting funding. Diversification of funding sources is highly desirable. This includes seeking funding from agencies in other countries, as we currently depend strongly on Dutch governmental health research budgets. We will specifically put more effort into obtaining additional funding from the European Union. Although we are confident that we can maintain a healthy amount of new funding, further growth of EMGO is rather improbable.
The slow-down of EMGO’s growth need not be viewed as a negative phenomenon. We are aiming for a healthy, but stable dynamic in which at least 25% of the total scientific staff will be senior and tenured. The fact that the number of tenured senior staff funded by internal university funds has remained almost constant during the past decade (Figure 3) is a good sign. The growth in 2005 is due to the participation of new groups (clinical psychology and audiology; see Chapter 1 and Appendix 3) in EMGO.

When evaluating trends in EMGO’s output (Figure 4), one must take into account a built-in lag of about five years. Between 1998 and 2001, the number of PhD students and postdocs grew rapidly, but much of their research is only now being published. And while it is tempting to measure output as the annual research budget divided by the number of papers published (the average cost per publication), we would not advocate such a one-dimensional assessment of scientific research. It is very difficult, in any case, to interpret such figures. Nonetheless, Figure 4 and the related bibliometric indicators presented in Chapter 9 (Table 7) are to some extent informative. Within specific fields of research, trends in counts of publications and citations in journals covered by the Scientific and Social Sciences Citation Indexes roughly measure quality. Similarly, trends in counts of publications in peer-reviewed Dutch journals are a primitive indicator of societal impact.
To recognise quality not apparent from publication counts, EMGO has, since 2003, presented a Societal Impact Award for a product or activity that disseminates and implements research in the real world. Chapter 5 further underlines this issue, reporting on indicators of societal impact in EMGO’s output in 2005.

SWOT ANALYSIS

As part of EMGO’s self-evaluation, we presented to the review committee in November 2004 an analysis of EMGO’s strengths, weaknesses, opportunities, and threats (SWOT analysis). This analysis, presented below, provides a condensed overview of our current position. We intend to regularly discuss and update our SWOT analysis in order to keep a clear focus on a healthy future.

<table>
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<th>TABLE 4. SWOT ANALYSIS OF THE EMGO INSTITUTE</th>
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<tr>
<td><strong>STRENGTHS</strong></td>
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<tr>
<td>- high scientific quality</td>
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<tr>
<td>- strong societal impact</td>
</tr>
<tr>
<td>- stimulating academic atmosphere</td>
</tr>
<tr>
<td>- multidisciplinary collaboration</td>
</tr>
<tr>
<td>- methodological expertise</td>
</tr>
<tr>
<td>- talented and highly motivated investigators</td>
</tr>
<tr>
<td>- quality assurance</td>
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<tr>
<td>- well organized infrastructure</td>
</tr>
<tr>
<td>- strong reputation</td>
</tr>
<tr>
<td>- dependency on external funding from a few sources</td>
</tr>
<tr>
<td>- tension between professional disciplines and multidisciplinary programmes</td>
</tr>
<tr>
<td>- small reserves and under-funded projects</td>
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<tr>
<td>- understaffed financial project management</td>
</tr>
<tr>
<td>- poor ICT support</td>
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<tr>
<td>- small tenured staff</td>
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<tr>
<td>- small support staff</td>
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| OPPORTUNITIES                                 |
| - demand for evidence-based primary care and public health, including occupational health |
| - international interest in GP as gatekeeper to the healthcare system |
| - growing attention for obesity and physical activity |
| - master programmes and research in health sciences on campus |
| - changes in social security and the organisation of healthcare |
| - decreasing availability of external funding |
| - cuts in core budgets                        |
| - dependency on research programming of external granting agencies |
| - granting agencies focused on fast results and implementation |
| - granting agencies shifting attention to more fundamental biomedical research |

FUTURE PERSPECTIVES

During the past decade, EMGO has become an important research institute, nationally and internationally. EMGO’s scientific quality and societal impact have been established beyond doubt, as reflected in the review committee’s proclamation of excellence. Our greatest strength – multidisciplinary applied research in healthcare – should remain very relevant in the next ten years. We will continue to concentrate on aging and chronic diseases, as well as on further developing and extending academic networks for general practice, nursing-home medicine, and social medicine.

We also anticipate that primary healthcare will increasingly operate according to the principles of evidence-based medicine, which has applied research at its core. In addition to evidence of clinical efficacy, data on cost-effectiveness will also play an increasingly important role. The resulting guidelines for prevention, diagnosis, and therapy will often transverse the traditional boundaries between extramural and intramural care. The VUmc is well positioned to lead the way – regionally, nation-
ally, and internationally – as it already embraces intensive collaborations between extramural disciplines and the departments of endocrinology, general internal medicine, psychiatry, clinical psychology, medical psychology, rehabilitation medicine, clinical genetics, ophthalmology, otorhinolaryngology, and clinical epidemiology and biostatistics.

EMGO is eager to collaborate further with the other four VUmc research institutes, and all signs indicate that the interest is mutual. In our opinion, this will be essential to achieve new additional focus on transmural research, but extending the already existing collaboration is also an attractive option. We already collaborate with the Cardiovascular Institute on diabetes, obesity, and its cardiovascular complications. Joint projects with the Institute for Neuroscience focus predominantly on dementia, depression, and anxiety. With the emerging Institute for Movement Disorders, we have already collaborated on projects regarding repetitive strain injury, and we envisage further projects in which they focus on translational research and we on applied research. Our work with the Oncology Institute has so far been limited, but collaborative efforts could look at screening, monitoring, and end-of-life care. Methodological collaboration with all four institutes seems feasible – indeed, highly desirable – in clinimetrics, economic analyses, and cohort facilities.

As already discussed in Chapter 1, EMGO has formulated a future policy in response to recommendations made by the review committee. In our Policy Paper 2006–2008, we formulate our ten general policy intentions for the coming years in a manner as SMART (specific, measurable, attainable, realistic, and time-bound) as possible. This document is available at our website. Table 5 provides a summary of the ten general policy intentions. Programme-specific policy intentions will be discussed in Chapter 6.

**TABLE 5. GENERAL POLICY INTENTIONS 2006–2008**

| 1) | Improve the (international) training and stimulate the creativity of PhD students. |
| 2) | Promote innovation and theoretical reflection. |
| 3) | Make the meetings schedule more efficient. |
| 4) | Improve ICT facilities and support. |
| 5) | Offer training in management and supervision skills. |
| 6) | Improve bio-banking facilities. |
| 7) | Stimulate a better use of available cohort data. |
| 8) | Get more (European) funding. |
| 9) | Develop academic networks further. |
| 10) | Become more active in masters programmes. |

Taken together, our policy intentions constitute an ambitious programme. EMGO’s directorate will monitor progress on a regular basis and interact with the persons or committees responsible for specific policy intentions. We as an institution will evaluate our progress on Policy Day in 2007. Because changes occur and new needs arise, we will regularly revise and update our list of policy intentions. We will organise further Policy Days if necessary and at least every three years in the context of the self-evaluations required under the Standard Evaluation Protocol.
Organisation
EMGO is one of five research institutes in the VUmc, for which the VUmc board guarantees relative stability of senior staff and university budgets. The daily responsibility for and management of EMGO are delegated to the scientific director, who is supported by the vice-director and financial manager. The advisory board monitors progress in implementing the research policy and offers guidance in matters concerning EMGO’s organisation and management (Figure 5). EMGO is one of the founding participants of the Netherlands School of Primary Care Research (CaRe), which was re-acknowledged in 2000 by the Royal Netherlands Academy of Arts and Sciences for a second period of five years.

Every EMGO research project is led by a senior investigator, while a tenured professor is responsible for the scientific content, the project management, and the dissertation expected if a PhD student or a junior investigator is involved. All projects receive statistical and methodological support from senior members of the Department of Clinical Epidemiology and Biostatistics. Similarly, all projects can avail themselves of assistance with the design and execution of data management.

Research projects that are closely related in subject matter, study population, research methodology, or type of intervention are grouped together in one of four EMGO programmes: 1) Diabetes and Overweight, 2) Common Mental Disorders, 3) Care and Prevention, and 4) Musculoskeletal Disorders. All four programmes are closely linked to topics studied by at least one other VUmc research institute, and also to research carried out by other participants in CaRe. In each programme, ten to twenty senior investigators, with their PhD students, junior investigators, and postdocs, work closely together on related multidisciplinary research projects, under the leadership of two programme coordinators (Table 6). Within each programme, regular meetings are organised to discuss new study proposals, preliminary results, methodological and practical problems, and new developments in that particular field of research. An important task for the programme coordinators is to maintain and further optimise the quality and quantity of the output of their programme. Furthermore, they participate actively in the development and implementation of EMGO’s research policy.

EMGO’s scientific committee, consisting of senior investigators, has the important task of advising the directorate on matters concerning new research proposals and research policy. New projects must comply with EMGO’s mission statement (see Chapter 2), fit into one of the four programmes, demonstrate good methodological quality, use a health outcome as the primary dependent variable, lead to applicable results, and have an adequate budget. Once a project is accepted and the budget is available, the financial management of the project becomes the responsibility of EMGO’s financial manager, who closely cooperates with the project leader and tenured professor who are responsible for the project. All procedures and regulations regarding project management are available in a regularly updated handbook (on our Intranet).

EMGO’s quality committee advises the directorate on matters concerning the quality of the primary process of conducting research. In principle, this consists of performing audits and formulating practical guidelines for research. The committee also seeks opportunities for quality improvement. All guidelines are available in a regularly updated quality handbook (also on our Intranet).

The PhD committee consists of two senior investigators and one PhD student. Its task is to advise the directorate on matters concerning the education, supervision, and assessment of PhD students. The PhD Committee works in close collaboration with the CaRe training committee. The education committee is responsible for the Post-initial Epidemiology Programme, a joint venture with the Department of Clinical Epidemiology and Biostatistics in which many of EMGO’s PhD students and junior investigators participate.
FIGURE 5. ORGANISATION OF THE EMGO INSTITUTE

BOARD OF THE VU UNIVERSITY MEDICAL CENTER
Prof. E.A. van der Veen, MD, PhD, Dean

DIRECTORATE
Prof. L.M. Bouter, PhD, Scientific Director
Prof. G. van der Wal, MD, PhD, Vice-Director
M.M. Telkamp, MA, Financial Manager

ADVISORY BOARD
Prof. J. van der Meer, MD, PhD, Chairperson

PhD COMMITTEE
Ms. M.N.M. van Poppel, PhD, Chairperson

SCIENTIFIC COMMITTEE
Ms. B.D. Onwuteaka-Phillipsen, PhD, Chairperson

QUALITY COMMITTEE
A.J. van der Beek, PhD, Chairperson

COMMITTEE OF PROGRAMME CO-ORDINATORS

DIABETES AND OVERWEIGHT
Ms. J.M. Dekker, PhD
Prof. W. van Mechelen, MD, PhD
Prof. J.C. Seidell, PhD

COMMON MENTAL DISORDERs
Prof. A.T.F. Beekman, MD, PhD
Prof. P. Cuijpers, PhD
Ms. B.W.J.H. Penninx, PhD

CARE AND PREVENTION
Ms. Prof. M.C. Cornel, MD, PhD
Ms. B.D. Onwuteaka-Phillipsen, PhD

MUSCULOSKELETAL DISORDERS
Prof. J. Dekker, PhD
Ms. Prof. H.C.W. de Vet, PhD
### TABLE 6. RESEARCH PROGRAMMES OF THE EMGO INSTITUTE

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<th>Research Programmes</th>
<th>Programme Co-ordinators</th>
<th>Senior investigators and postdocs</th>
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<tr>
<td><strong>Diabetes and Overweight</strong></td>
<td>Ms. J.M. Dekker, PhD*</td>
<td>M. Adrianae, PhD# Ms. G.A.M. Arents, PhD Ms. M.A.E. van Bokhorst, PhD Ms. S. Bot, PhD# Prof. L.M. Bouter, PhD Ms. M.C. de Bruin, MD, PhD Ms. J.M.M. Chin A Paw, PhD R. van Dun, PhD Ms. J.C. Dekkers, PhD# M. B. Diamant, MD, PhD* Ms. C. Doak, PhD# M.D. Dubbellman, PhD# Prof. R.J. Heine, MD, PhD Ms. I.J.H. Hendrikse, PhD E. den Hertog, PhD# Prof. R.A. Hira Sing, PhD# Ms. M. Hopman-Rock, PhD L.J. Koppers, PhD# P.J. Koestner, PhD Prof. A.J. Maassen, PhD M.G.A.A.M. Nijpels, MD, PhD* Ms. Prof. R.C.P. Polak, MD Ms. M.N.M. van Poppel, PhD F. Pouwer, PhD Ms. K.I. Proper, PhD# Ms. C.M. Renders, PhD Ms. J.M. Rijkehuijzen, PhD# Y.M. Smolders, MD, PhD Prof. F.J. Snoek, PhD Ms. M.B. Snijder, PhD# Ms. A.W. Spiekerman, PhD# Prof. W.A.B. Stalman, MD PhD Ms. I. Stroom, PhD Prof. M. van ’Tulder, PhD J.J.W. Tink, PhD* Ms. M. Visser, PhD* T.L.S. Vischer, PhD# F.J. Winters, PhD Prof. J.S. Ylvisaker, MD, PhD</td>
</tr>
<tr>
<td><strong>Common Mental Disorders</strong></td>
<td>Prof. A.T.F. Beekman, MD, PhD Prof. P. Cuipers, PhD Ms. B.W.I.H. Penninx, PhD*</td>
<td>H.J. Ader, PhD Prof. A.J.L.M. van Balkom, MD, PhD A.W.A. Braam, MD, PhD Ms. M.C. de Bruin, MD, PhD Ms. H.C. Comjus, PhD Prof. D.J.H. Dee, PhD Prof. J.J.M. Dekker, PhD Ms. M.G. Dik, PhD# Ms. R.M. Driess, PhD* Prof. R. van Dyck, MD, PhD Prof. J.A. Eefsting, MD Ms. S.W. Geerlings, PhD# C. Gundy, PhD Prof. M. de Haan, MD, PhD H.P.J. van Hout, PhD Prof. C. Jonker, MD, PhD D. van Kampen, PhD Prof. A.J.F. Kerkhof, PhD Prof. J.M. Koot, PhD H.W.J. van Marwijk, MD, PhD Ms. E. M. Meiland, PhD# Ms. P.C. van Oppen, PhD* Prof. H.M. van der Ploeg, PhD Ms. A.M. Pot, PhD Prof. M.W. Ribbe, PhD J.H. Snit, PhD* N. Smits, PhD Prof. W.A.B. Stalman, MD, PhD Ms. A. van Strat, PhD R.J. Tijds, PhD B. Terlouw, MD, PhD Prof. W. van Tilburg, PhD, MD S. Visser, PhD</td>
</tr>
<tr>
<td><strong>Care and Prevention</strong></td>
<td>Ms. Prof. M.C. Cornel, MD, PhD Ms. B.D. Onwuteaka-Philipsen, PhD*</td>
<td>P.D. Bezemer, PhD# M. de Boer, MD, PhD# Ms. M.A.E. van Bokhorst, PhD D.J. Bruinvels, MD, PhD Ms. J.M. Caperus-Bosma, MD, PhD, LLM Ms. Prof. D.J.H. Dee, PhD Prof. L. Deliens, PhD Prof. Th.A.H. Doreleijers, MD, PhD M.D. Dubbellman, PhD# M.A. Echhel, PhD# Prof. J.A. Eefsting, MD, PhD J.M. Fossum, PhD# Ms. B.J.M. Frederiks, PhD# Ms. A.A.M. Gerretsen, PhD# S.T. Goverts, MD, PhD Ms. L. Hennemann, PhD# G.L. van der Heijde, PhD C.M.P.M. Hertogh, MD, PhD Prof. R.A. Hira Sing, MD, PhD Prof. T. Hoogstraal, PhD# Ms. A.C.M. Huizinga, PhD# Prof. L.P. van Kere, MD, PhD Prof. H.C.G. Kemper, PhD Ms. S.J. Kers, PhD Ms. A.A.M. Kun, PhD# F.J.M. van Leerdam, MD, PhD Ms. Prof. F.E. Leeuw, PhD Prof. J. Legemate, PhD, LLM J. Lijsenga, MD, PhD Ms. Prof. Th. Marteau, PhD Ms. A.C. Moll, MD, PhD L.M.C. Nauta-Jansen, PhD M.E. Ooms, MD, PhD* Ms. I.H.R.W. Passman, PhD# Prof. G.H.M.B. van Rens, MD, PhD Prof. M.W. Ribbe, PhD Ms. M.L. Rurup, PhD# Prof. T. Smid, PhD Ms. N. Smid, PhD Ms. J.T. van der Steen, PhD# Ms. R.A.M. The, PhD, LLM Ms. D.R.M. Timmermans, PhD* Prof. R. Vermeeren, MD, PhD Prof. G. van der Wal, MD, PhD</td>
</tr>
<tr>
<td><strong>Musculoskeletal Disorders</strong></td>
<td>Prof. J. Dekker, PhD Ms. Prof. H.C.W. de Vet, PhD</td>
<td>J.R. Anema, MD, PhD Ms. G.A.M. Arents, PhD Prof. J.G. Becher, MD, PhD Ms. H. Beckerman, PhD A.J. van der Beek, PhD* Ms. C.M. Bernards, PhD# Ms. A. H. Blankenstijn, MD, PhD# Ms. B.M. Blatter, PhD A.J.P. Boeke, MD, PhD Ms. Prof. P.M. Bongers, PhD Prof. L.M. Bouter, PhD Ms. A.J. Dalmmeijer, PhD V.de Groot, PhD# M.W. Heyhmanns, PhD# V.H. Hildebrandt, PhD Ms. M. Hopman-Rock, PhD Ms. H.E. van der Horst, MD, PhD D.L. Knol, PhD Prof. G.J. Lankhorst, MD, PhD Prof. P.T.H.A.M. Laps, PhD Prof. W. van Mechelen, MD, PhD Prof. R.W.J.G. Ostelo, PhD Ms. E.E. Roelofsen, PhD# Ms. N.M. van Schoor, PhD Prof. T. Smid, PhD Ms. N. Smid, PhD Ms. J.T. van der Steen, PhD# Ms. R.A.M. The, PhD, LLM Ms. D.R.M. Timmermans, PhD* Prof. R. Vermeeren, MD, PhD Prof. G. van der Wal, MD, PhD</td>
</tr>
</tbody>
</table>

* Associate Professor; # Postdoc
Annual Outing 2005

On May 24, 2005, a balmy, overcast Tuesday, 72 members of the EMGO Institute gathered for our traditional annual outing. The locations of these outings are traditionally kept secret, so most members had no idea where they would end up as they mounted their bikes or boarded the metro. They soon found themselves in the very centre of Amsterdam, on the border of the Red Light District, where they were treated to ‘koffies verkeerd’, Earl Grey teas, or other bracing beverages in a café overlooking one of Amsterdam’s famous canals.

Refreshed, the EMGO members climbed the stairs to a large hall above the café, where the afternoon’s programme was finally revealed. They could choose one of three workshops: cooperative painting, African dance, or improvisational theatre. By the end of the afternoon, the painters had created three large canvasses, portraying scenes of morning, midday, and evening. The dancers, spurred on by drums, were happily exhausted. And the improvisers had laughed their way through several hilarious exercises.

After sharing these creative experiences, the colleagues moved on to their next destination: a dark mysterious restaurant. But there was more than just dinner on the menu. What started out as an innocent bingo game wound up a gruesome murder mystery. ‘Police officers’ interrogated dinner guests, disclosing personal information and possible motives of several ‘suspects’, who ranged from PhD students to EMGO’s Scientific Director, Lex Bouter. After dessert, Lex was let off the hook when one of the intern students was exposed as the murderer. And thus ended another action-packed annual outing. Who knows where we’ll find ourselves at the next one.

...for auction at Christie’s.

Raindance...
Societal Impact
EMGO produces excellent scientific research, but we really only fulfil our potential when that research benefits the society around us. Striving for societal impact not only justifies our use of public funds, but also gives us direction, guiding our research policy. To convey to our staff the message that societal impact is, alongside scientific quality, of utmost importance, we have, since 2003, presented an annual Societal Impact Award (see Chapter 1, Table 2).

Scientific quality is traditionally measured by the number of publications in international scientific journals and, in particular, by the number of citations made by peers to those publications. Measuring the societal impact of applied research, however, is still largely terra incognita. The contributions of EMGO’s research projects to improving public health, extramural healthcare, and general quality of life cannot be directly measured. We have therefore opted for a more pragmatic approach, borrowing the proxy measures of societal impact suggested by the Royal Netherlands Academy of Arts and Sciences (www.knaw.nl/publicaties/pdf/20021098.pdf).

The reader should bear in mind that little is known about the validity of these indicators of societal impact. Furthermore, the indicators may substantially overlap, and their correlation with indicators of scientific quality may be substantial. We have no strong opinions about the relative weight of these indicators of societal impact. We are also unsure as to which norms should be applied to the different indicators, because there is no available information on previous years or for similar institutes. We restrict ourselves in this chapter to output indicators, and refer to Chapters 2 and 6 for an assessment of the societal relevance of our mission and our research programmes, respectively. The amount and sources of external funding, reported in Appendix 4, may serve as another input indicator of societal relevance.

CLINICAL GUIDELINES AND HEALTH POLICY REPORTS

EMGO’s staff members serve on many committees established to develop clinical guidelines. In this era of evidence-based medicine and evidence-based public health, guidelines are a very important means for implementing research findings. Ideally, we would measure the influence of EMGO’s research on the content of clinical guidelines, but the lack of citation and content analysis of clinical guidelines makes this impossible. Instead, we use co-authorship of guidelines as a proxy measure. Some currently applicable (new, updated, or still valid) clinical guidelines that were co-authored by our staff are listed below, along with the topics in which EMGO has contributed research.
Clinical guidelines (currently applicable) count

Dutch College of General Practitioners 8
- depressive disorders, anxiety disorders, irritable bowel syndrome,
- low back pain, lumbosacral radicular syndrome, shoulder complaints,
- fluor vaginalis, rhinosinusitis

Royal Netherlands Association for Physiotherapy 5
- arthritis of hip or knee, low back pain, whiplash, repetitive strain injuries,
- stroke

Institute for Quality in Health Care 6
- psychiatric assessment, cystic fibrosis, osteoporosis,
- non-specific low back pain, falls of elderly, anxiety disorders

Youth Health Care 6
- hearing disorders, visual disorders, scoliosis, congenital heart disorders,
- child abuse, enuresis nocturna

Other clinical guidelines 8
- psychosocial diabetes care, homocysteïne and cardiovascular disease,
- problem behaviour, affective disorders, physical activity,
- consultation on euthanasia and physician-assisted suicide,
- dehydration and tube-feeding of psychogeriatric patients, obsessive compulsive disorder

Co-authorship of guidelines is not the only indication of influence. Staff members also sit on committees that commission and approve guidelines. Henriëtte van der Horst and Joan Boeke, for example, sit on the authorisation committee of the Dutch College of General Practitioners, while Remy Hira Sing is a member of the advisory board of the Dutch Association of Youth Health Care Physicians.

Guidelines are one form of research given effect; health policies are another. In 2005, EMGO staff were involved as committee members or co-authors in the publication of a number of health policy reports. Again, we would ideally trace the direct influence of EMGO research on policy decisions and on the healthcare system, but content citation in official reports, laws, regulations, and decisions made by health authorities, government, and parliament are, for the most part, unavailable. Co-authorships and committee memberships remain the proxy measures.

<table>
<thead>
<tr>
<th>Health policy reports (categorized bij topic)</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audiology</td>
<td>7</td>
</tr>
<tr>
<td>hard of hearing, auditory impairments, internet sound systems</td>
<td></td>
</tr>
<tr>
<td>Cancer</td>
<td>2</td>
</tr>
<tr>
<td>cancer and nutrition, cancer and physical activity</td>
<td></td>
</tr>
<tr>
<td>Common mental disorders</td>
<td>6</td>
</tr>
<tr>
<td>depression in the elderly, nursing home patients, prevention, care, detection</td>
<td></td>
</tr>
<tr>
<td>Juvenile and youth (health) care</td>
<td>3</td>
</tr>
<tr>
<td>obesity, juvenile offenders</td>
<td></td>
</tr>
<tr>
<td>Occupational health</td>
<td>5</td>
</tr>
<tr>
<td>risk factors</td>
<td></td>
</tr>
<tr>
<td>Others</td>
<td>4</td>
</tr>
<tr>
<td>patient safety, alcohol consumption and conception, health and social participation, health care control mechanisms</td>
<td></td>
</tr>
</tbody>
</table>
PUBLICATIONS NOT CONTRIBUTING TO CITATION ANALYSIS

Only publications in indexed international scientific journals contribute to citation analysis, which is currently the dominant indicator of scientific quality. In Chapter 9, all EMGO publications in 2005 are listed, and a rough bibliometric analysis is presented in Tables 7 and 8.

There are other publications, however, that we consider important for measuring the societal impact of our research. In addition to the guidelines and policy reports listed above, there are trial reviews, national journal articles, and books. Hereafter, an overview of EMGO’s publication of such texts in our four programme areas.

<table>
<thead>
<tr>
<th>Publication counts</th>
<th>Diabetes and Overweight</th>
<th>Common Mental Disorders</th>
<th>Care and Prevention</th>
<th>Musculo-skeletal Disorders</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cochrane Library</td>
<td>3</td>
<td>-</td>
<td>-</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>reviews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>protocols</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>National publications in journals</td>
<td>7</td>
<td>26</td>
<td>33</td>
<td>27</td>
<td>93</td>
</tr>
<tr>
<td>peer reviewed</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>not peer reviewed</td>
<td>5</td>
<td>9</td>
<td>19</td>
<td>21</td>
<td>54</td>
</tr>
<tr>
<td>Textbooks or handbooks</td>
<td>3</td>
<td>6</td>
<td>7</td>
<td>-</td>
<td>16</td>
</tr>
<tr>
<td>author or editor of book</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>author of chapter</td>
<td>12</td>
<td>25</td>
<td>26</td>
<td>8</td>
<td>71</td>
</tr>
</tbody>
</table>

PUBLICATION COUNTS IN SPECIFIC RESEARCH AREAS

The Cochrane Library publishes and regularly updates high-quality, systematic reviews of randomised controlled trials. These reviews are important sources for clinical guidelines and consequently an indicator of societal impact. In terms of influence on Dutch healthcare and healthcare policies, national publications such as Nederlands Tijdschrift voor Geneeskunde, Huisarts en Wetenschap, and Tijdschrift voor Gezondheidswetenschappen are much more widely read by Dutch physicians and policy-makers and are therefore more influential than articles published in even the most prestigious international journals, such as JAMA, the British Medical Journal, or The Lancet (although publications in those journals may very well have a societal impact abroad). Textbooks and handbooks also have a substantial societal impact as they shape the basic, vocational, and postdoctoral education of healthcare professionals. In 2005, EMGO staff members were involved as authors or editors of textbooks on diabetes mellitus, obesity in children and adolescents, psychogeriatric care, end-of-life home care, longitudinal data analysis, medical decision-making at the end of life, evidence-based medicine, somatisation, public health, and general healthcare.

MEDIA COVERAGE AND INVITED PRESENTATIONS

In 2005, the results of EMGO research projects attracted substantial attention from the media. Members of our staff were interviewed on television about 15 times, and some 15 radio interviews were broadcasted. Interviews and articles about research projects and their results were published locally or nationally in approximately 70 newspapers, 30 magazines, and 10 newsletters. Noteworthy topics that received considerable media coverage were the quality of life in nursing homes (Anne-Mei The), the prevention and treatment of obesity in children (Remy Hira Sing), the request for physician-assisted death of older people who are ‘tired of life’ (Mette Rurup), prevention of suicide (Ad Kerkhof), public health importance of affective disorders (Aartjan Beekeman), and alarm treatment in children with day-and night-time wetting (Frank van Leerdam).
Another indicator of societal impact is the number of invitations EMGO staff receive to deliver lectures before healthcare professionals and policymakers (over 175 in 2005) and non-professionals (around 15). Examples of the topics covered in these presentations are signalling overweight in children (Carry Renders and Anneke Bulk), prevention and treatment of repetitive strain injury (Paulien Bongers), communication with people with dementia (Cees Hertogh), public health and genetics (Martina Cornel), sub-threshold mental disorders (Willem van Tilburg), prenatal screening and the communication of risks (Daniëlle Timmermans), dilemmas in the care for mentally handicapped people (Brenda Frederiks), and obsessive compulsive disorders (Patricia van Oppen).

INFORMATION ON THE INTERNET
The Internet is becoming an increasingly important source of health information. Therefore, websites can be highly relevant for measuring the societal impact of EMGO’s research. We list some of our most important websites below. Of course, all links are also available at EMGO’s website.

Practical information for the public and for healthcare professionals can be found on the websites under the heading ‘Health information’. The other websites concern specific, and often also practice-oriented, information on ongoing research projects, our research infrastructure, and the partners with whom we collaborate.

<table>
<thead>
<tr>
<th>Health information</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.kennisnetwerkvalpreventie.nl">www.kennisnetwerkvalpreventie.nl</a></td>
<td>Prevention of falls among the elderly</td>
</tr>
<tr>
<td><a href="http://www.overgewicht.org">www.overgewicht.org</a></td>
<td>Prevention of obesity among children</td>
</tr>
<tr>
<td><a href="http://www.bedplassen.org">www.bedplassen.org</a></td>
<td>Bed-wetting among children</td>
</tr>
<tr>
<td><a href="http://www.diabetescentrum.nl/">www.diabetescentrum.nl/</a></td>
<td>Multidisciplinary treatment of diabetes</td>
</tr>
<tr>
<td><a href="http://www.hooronderzoek.nl">www.hooronderzoek.nl</a></td>
<td>Impact of hearing disability</td>
</tr>
<tr>
<td><a href="http://www.gendeaf.org">www.gendeaf.org</a></td>
<td>Impact of genetic deafness</td>
</tr>
<tr>
<td><a href="http://www.ontmoetingscentradementie.nl">www.ontmoetingscentradementie.nl</a></td>
<td>Meeting centres for people with dementia and relatives</td>
</tr>
<tr>
<td><a href="http://www.vokk.nl">www.vokk.nl</a></td>
<td>Children and retinoblastoma</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Research projects</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.abbastudy.nl">www.abbastudy.nl</a></td>
<td>Amsterdam Balance Board Ankle Study</td>
</tr>
<tr>
<td><a href="http://www.revalidatieensport.nl">www.revalidatieensport.nl</a></td>
<td>Rehabilitation and sport</td>
</tr>
<tr>
<td><a href="http://www.movb.nl">www.movb.nl</a></td>
<td>Amsterdam air disaster</td>
</tr>
<tr>
<td><a href="http://www.foodsteps.nl">www.foodsteps.nl</a></td>
<td>Physical activity and dietary habits</td>
</tr>
<tr>
<td><a href="http://www.alifeatwork.nl">www.alifeatwork.nl</a></td>
<td>Food and exercise at work</td>
</tr>
<tr>
<td><a href="http://www.pstproject.nl">www.pstproject.nl</a></td>
<td>Problem-solving treatment of emotional disorders by nurses</td>
</tr>
<tr>
<td><a href="http://www.doitproject.com">www.doitproject.com</a></td>
<td>Diet and physical activity in adolescents</td>
</tr>
<tr>
<td><a href="http://www.pam.com/vu">www.pam.com/vu</a></td>
<td>Physical activity monitor</td>
</tr>
<tr>
<td><a href="http://www.nesda.nl">www.nesda.nl</a></td>
<td>Course of depression and anxiety</td>
</tr>
<tr>
<td><a href="http://www.patientsafetyresearch.nl">www.patientsafetyresearch.nl</a></td>
<td>Patient safety</td>
</tr>
<tr>
<td><a href="http://www.hearcom.info">www.hearcom.info</a></td>
<td>Description HearCom project</td>
</tr>
<tr>
<td><a href="http://www.momatwork.nl">www.momatwork.nl</a></td>
<td>Pregnancy, motherhood, and work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Research infrastructure</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.bodyatwork.nl">www.bodyatwork.nl</a></td>
<td>Physical activity, work, and health</td>
</tr>
<tr>
<td><a href="http://ssg.scw.vu.nl/lasa/">http://ssg.scw.vu.nl/lasa/</a></td>
<td>Longitudinal Aging Study Amsterdam</td>
</tr>
<tr>
<td><a href="http://www.cvo.vu.nl/">www.cvo.vu.nl/</a></td>
<td>Research on aging</td>
</tr>
<tr>
<td><a href="http://www.aggo.nl">www.aggo.nl</a></td>
<td>Amsterdam Growth and Health</td>
</tr>
<tr>
<td></td>
<td>Longitudinal Study</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th>Collaborating partners</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><a href="http://www.sgvumc.nl/">www.sgvumc.nl/</a></td>
<td>Department of Public and Occupational Health</td>
</tr>
<tr>
<td><a href="http://www.vumc.nl/revalidatie/">www.vumc.nl/revalidatie/</a></td>
<td>Department of Rehabilitation Medicine</td>
</tr>
<tr>
<td><a href="http://users.keyaccess.nl/~aderh01/">http://users.keyaccess.nl/~aderh01/</a></td>
<td>Department of Clinical Epidemiology and Biostatistics</td>
</tr>
<tr>
<td><a href="http://www.nacg.nl">www.nacg.nl</a></td>
<td>Department of Clinical Genetics</td>
</tr>
</tbody>
</table>
MEMBERSHIPS RELEVANT TO SOCIETAL IMPACT

EMGO’s staff members sit on many boards and committees. A selection of these is presented below, with an emphasis on the societal impact of the activities at issue.

<table>
<thead>
<tr>
<th>Active memberships relevant to societal impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Clinical guideline development and health policy reports</strong></td>
</tr>
<tr>
<td>Health Council (GR) (Bouter, Kemper, Ten Kate, Dekker)</td>
</tr>
<tr>
<td>Health Council committees (Beekman, Dröes, Dekker, Cornel, Hira Sing, Ten Kate, Timmermans, Terluin, Blankenstein, Boeke, Deeg, Van der Wal)</td>
</tr>
<tr>
<td>Institute for Quality in Health Care (CBO) (Jonker, Pluym, Stalman, Van der Horst, Kemper)</td>
</tr>
<tr>
<td>Council for Health Research committees (RGO) (Dekker, Van Dyck, Van der Wal, Van Mechelen)</td>
</tr>
<tr>
<td>Dutch College of General Practitioners (NHG) (Terluin, Van der Horst, Boeke)</td>
</tr>
<tr>
<td>Royal Dutch Association for Physiotherapy (KNGF) (Bouter, Terluin, Dekker)</td>
</tr>
<tr>
<td>Netherlands Central Committee for Research Involving Human Subjects (CCMO) (Bouter)</td>
</tr>
<tr>
<td><strong>Funding agencies</strong></td>
</tr>
<tr>
<td>Netherlands Organisation for Health Research and Development (ZonMw) (Bouter, Cornel, Van Dyck, Van Mechelen, De Vet, Van der Wal, The, Beekman, Dekker, Van der Horst, Cuijpers, Deeg)</td>
</tr>
<tr>
<td>Netherlands Federation for Mental Health (NFGV) (Beekman)</td>
</tr>
<tr>
<td>Dutch Society for Rheumatism and Arthritis (NRF) (Stalman)</td>
</tr>
<tr>
<td>Dutch Diabetes Fund (DFN) (Heine, Snoek)</td>
</tr>
<tr>
<td>Netherlands Heart Foundation (NHS) (Stehouwer)</td>
</tr>
<tr>
<td><strong>Journal editorships and associate editorships</strong></td>
</tr>
<tr>
<td>Cochrane Collaboration, Back Review Group (Bouter, Van Tulder)</td>
</tr>
<tr>
<td>Nederlands Tijdschrift voor Geneeskunde (Van der Wal)</td>
</tr>
<tr>
<td>Huisarts en Wetenschap (Van der Horst)</td>
</tr>
<tr>
<td>Tijdschrift Jeugd gezondheidszorg (Hira Sing, Van Leerdam)</td>
</tr>
<tr>
<td>Tijdschrift voor gezondheidszichewetenschappen (Cuijpers, Deeg)</td>
</tr>
<tr>
<td>Tijdschrift voor Verpleeghuisgeneeskunde (Hertogh)</td>
</tr>
<tr>
<td>Tijdschrift voor Gerontologie en Geriatrie (Hertogh)</td>
</tr>
<tr>
<td><strong>International memberships</strong></td>
</tr>
<tr>
<td>European initiative on early diagnosis in dementia (INTERDEM) (Dröes, Van Hout, Meiland)</td>
</tr>
<tr>
<td>European Society for General Practice (WONCA Europe) (Stalman, Van der Windt)</td>
</tr>
<tr>
<td>European guidelines for the management of low back pain (COST Action B13) (Van Tulder, Van der Beek)</td>
</tr>
<tr>
<td>International Society of Behavioural Medicine (Dekker)</td>
</tr>
<tr>
<td>Forum on low back pain in primary care (Bouter, Van Tulder)</td>
</tr>
<tr>
<td>International Consensus on Standards for Developing and Evaluation of Patient Decision Aids (Timmermans)</td>
</tr>
<tr>
<td>Clinical Guidelines Task Force of the International Diabetes Federation (Snoek)</td>
</tr>
</tbody>
</table>

Other examples of relevant memberships include president of the Nederlandse Vereniging voor Audiologie (Festen), chair of the committee for societal aspects of genomics of the Centre of Excellence for Medical Systems Biology (Cornel), chair of the advisory board for the development of a national dementia care programme (Jonker), chair of the scientific committee of the Dutch Association of Youth Health Care Physicians (Hira Sing), and chair of the Netherlands Society for Gerontology (Deeg).
RESEARCH-BASED CONTRIBUTIONS TO POST-INITIAL EDUCATION

Members of our staff are frequently involved in teaching programmes based on the results of EMGO projects. The most important contributions to the post-initial education of healthcare professionals are listed below, excluding contributions to the regular curriculum of medicine and health sciences. EMGO’s MSc and PhD Epidemiology Programmes are described in Chapter 8.

<table>
<thead>
<tr>
<th>Audience</th>
<th>Topic</th>
<th>Staff member</th>
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<tr>
<td>General practitioners</td>
<td>critical assessment papers</td>
<td>Van der Windt</td>
</tr>
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<td></td>
<td>osteoarthritis</td>
<td>Van der Windt</td>
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<tr>
<td></td>
<td>visually impaired elderly</td>
<td>Rens</td>
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<td></td>
<td>palliative care and dementia</td>
<td>Hertogh</td>
</tr>
<tr>
<td>Nursing-home physicians</td>
<td>dementia and meeting centres</td>
<td>Drees</td>
</tr>
<tr>
<td></td>
<td>fall prevention without constraints</td>
<td>Hertogh</td>
</tr>
<tr>
<td>Occupational health physicians</td>
<td>prevention repetitive stress injury</td>
<td>Bongers</td>
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<tr>
<td></td>
<td>work stress</td>
<td>Van der Beek</td>
</tr>
<tr>
<td></td>
<td>scientific competence</td>
<td>Van der Beek</td>
</tr>
<tr>
<td>Youth healthcare physicians</td>
<td>enuresis</td>
<td>Van Leerdam</td>
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<tr>
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<td>community genetics</td>
<td>Cornel</td>
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<td></td>
<td>overweight</td>
<td>Renders</td>
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<td></td>
<td>van Wiechen-scheme</td>
<td>Bulk</td>
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<tr>
<td>Physical therapists</td>
<td>psychosomatics</td>
<td>Van der Horst</td>
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<tr>
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<td>clinimetrics</td>
<td>Ostelo</td>
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<td>Psychiatrists</td>
<td>somatisation</td>
<td>Van der Horst</td>
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<tr>
<td></td>
<td>cognitive behavioural therapy</td>
<td>Van Oppen</td>
</tr>
<tr>
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<td>epidemiology</td>
<td>Beekman</td>
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<tr>
<td>Pharmacists</td>
<td>pain</td>
<td>Van der Horst</td>
</tr>
<tr>
<td>Rehabilitation physicians</td>
<td>various topics</td>
<td>Dekker</td>
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<tr>
<td>Medical psychologists</td>
<td>cognitive behavioural therapy</td>
<td>Van Oppen</td>
</tr>
<tr>
<td>Ergonomists</td>
<td>systematic observation</td>
<td>Van der Beek</td>
</tr>
</tbody>
</table>

ILLUSTRATIVE EXAMPLE

Each year, to enliven our description of indicators of societal impact, the annual report presents one particularly illustrative example. This year we pay special attention to the work of Anne-Mei The, anthropologist and lawyer, and her book In de wachtkamer van de dood (In the waiting room of death; ISBN 9080811378). This book is a fascinating account of her two-year-long, participative-observational, ethnographic study in two nursing homes. She introduces us to a world of people living with dementia, their families, and their doctors, nurses, and other caregivers. She discovers and reveals what often stays hidden, in particular, the wrenching decision to stop treatment. Her writing style is very accessible, making this a book not only for experts, but for anyone touched in any way by dementia and its repercussions. The’s book is getting deserved attention in political circles. She has sold more than 15,000 copies; it recently went into its fourth printing.
FINAL REMARKS

This is our third annual report on indicators of societal impact. Despite an ever more structured approach, it remains difficult to classify and quantify that impact. There certainly remains a substantial amount of under-reporting of influence. We will continue to refine the indicators and their implementation, and we hope to present a more complete overview in the years to come. Although this initiative started as an attempt to document the societal impact of EMGO’s research, its implications may go much further. The debate on how best to measure societal impact may itself influence the research policy of EMGO and its programmes. Furthermore, indicators of societal impact may influence the professional priorities of researchers as they adjust their curriculum vitae to meet new professional expectations.
Research Programmes
6.1 Diabetes and Overweight

6.1.1 Programme leaders, senior scientific staff, and postdocs

Ms. J.M. Dekker, PhD*
Prof. W. van Mechelen, MD, PhD
Prof. J.C. Seidell, PhD
M. Adriaanse, PhD#
Ms. G.A.M. Ariëns, PhD
Ms. M.A.E. van Bokhorst, PhD
Ms. S. Bot, PhD#
Prof. L.M. Boutier, PhD
Ms. M.C. de Bruinje, MD, PhD
Ms. J.M.M. Chin A Paw, PhD
R. van Dam, PhD
Ms. J.C. Dekkers, PhD#
Ms. M. Diamant, MD, PhD
Ms. C. Doak, PhD#
M.D. Dubbelman, PhD#
Ms. E.M.W. Eekhoff, MD, PhD
Prof. R.J. Heine, MD, PhD
Ms. I.J.M. Hendriksen, PhD
F. den Hertog, PhD#
Prof. R.A. Hira Sing, MD, PhD
Ms. M. Hopman-Rock, PhD
L.L.J. Koppes, PhD#
P.J. Kostense, PhD
Prof. A.J. Maassen, PhD
M.G.A.A.M. Nijpels, MD, PhD
Ms. Prof. B.C.P. Polak, MD, PhD
Ms. M.N.M. van Poppel, PhD
F. Pouwer, PhD
Ms. K.I. Proper, PhD#
Ms. C.M. Renders, PhD
Ms. J.M. Rijkelijkhuizen, PhD#
Y.M. Smulders, MD, PhD
Prof. F.J. Snoek, PhD
Ms. M.B. Snijder, PhD#
Ms. A.M.W. Spijkerman, PhD#
Prof. W.A.B. Stalman, MD, PhD
Ms. I. Steenhuis, PhD
Prof. M.W. van Tuijl, PhD
J.W.R. Twisk, PhD
Ms. M. Visser, PhD
T.L.S. Visscher, PhD#
P.J.M. Weij, PhD
Prof. J.S. Yudkin, MD, PhD

6.1.2 Programme description

INTRODUCTION
The pathophysiologies of diabetes and cardiovascular diseases share at least two major factors: physical inactivity and obesity. In the past, EMGO researched the two diseases in different programmes: Diabetes Mellitus and Care and Prevention. Since January 2005, however, the expertise available within EMGO and across the VU campus on lifestyle-related health risks and disease prevention has been combined and placed within a new research programme. The multidisciplinary programme brings together epidemiological, clinical, and life-science researchers to collaborate in uncovering the many causes and consequences of being overweight.

OBJECTIVES
The Diabetes and Overweight programme focuses on the prevention of overweight, diabetes, and cardiovascular disease, and on their complications. Researchers develop and evaluate lifestyle-modification programmes for all age groups, particularly focusing on the role of physical activity or the lack thereof. Previous studies have shown that lifestyle interventions tailored to specific groups are the most successful, and so future research will focus on particular high-risk groups, such as children and ethnic groups.

In addition, data from observational longitudinal cohort studies, such as the Hoorn Study, the Amsterdam Growth and Health Longitudinal Study, and the Terneuzen Study, are analysed to identify, in the general population, risk factors relating to lifestyle, such as nutrition and physical activity, and also genetic and biomedical risk factors, such as insulin resistance and secretion.

Further research that develops and evaluates structured care systems will be directed at the prevention of diabetes complications. Patient cohorts are available in the Hoorn Diabetes Care System and, as of 2005, also in the Amsterdam Diabetes Metabolic Centre, for the study of prognostic factors.

RECENT RESULTS
As shown in the list of international collaborations, researchers at EMGO’s Diabetes and Overweight programme have a large international network and are active partners in several international studies. They fulfil a variety of prestigious international functions, serving on committees of scientific or professional institutes, editorial boards of peer-reviewed journals, and steering committees of large studies. The complete listing of their international functions is posted at our website.

In 2005, Hidde van der Ploeg completed her PhD thesis, Promoting Physical Activity in the Rehabilitation Setting. She described a randomised controlled trial on the effectiveness of a sports stimulation programme for in- and outpatients at rehabilitation centres. The results of this study showed that a relatively simple intervention, comprising two face-to-face consultations and two booster phone calls, improved the levels of both sports participation and daily physical activity, especially among patients adhering most to the intervention protocol.

Marieke Snijder won two awards – the Young Investigator Award for Basic Science of the European Association for the Study of Obesity and the 2004 Care Dissertation Prize – for her thesis Body composition in relation to type 2 diabetes mellitus and cardiovascular disease risk: the role of different fat depots and lean tissue.
In 2005, the New Hoorn Study began its creation of a new cohort of 3000 men and women, aged 40–65. This study will research the prevalence – thought to have greatly increased – of impaired glucose regulation and diabetes in the Dutch population. Recent studies have shown that, even in people with normal glucose regulation, insulin secretion by the beta cells in the pancreas varies considerably. Very little is known about the determinants of beta-cell function, so this will be a major focus of the New Hoorn Study. As possible determinants of beta-cell function, initial studies will investigate the contributions of lifestyle, including stress.

**RESEARCH CENTRE FOR THE PREVENTION OF OVERWEIGHT IN CHILDREN, ZWOLLE (OPOZ)**

A new research centre for the prevention of overweight in children was established in Zwolle in June 2005, in collaboration with VU-Windesheim, VUmc, and the Transmural Research and Treatment Centre for Overweight and Obese Children (TOBOK), Prof. Jaap Seidell is head of this centre.

The centre’s activities are based on the principles of disease management, which consider not only the actual health problem, but also its causes and consequences. The centre will be involved in the total process, from the prevention of overweight in children to the treatment and care of children with moderate to severe (though not morbid) obesity. Research projects and educational interventions will be linked to different stages of the management of the disease.

The centre’s main aim is to develop a coherent and long-term multidisciplinary programme to prevent overweight in children up to the age of 19 in the area of Zwolle. To that end, the centre collaborates with institutions of research, politics, health, home services, education, and sports. In 2006, the centre will research and evaluate a programme that takes a community-based approach to stimulating a healthy lifestyle. Several researchers from VU, VUmc, and Windesheim will be involved. The centre is also working with two schools of applied science and a sports club to develop a programme for overweight eight- and nine-year-olds, which will have elements of sports and education about healthy food and lifestyle. For more information, you may send e-mail to: preventieovergewicht@windesheim.nl.

**FUTURE DEVELOPMENTS**

At present, EMGO’s Diabetes and Overweight programme is developing new intervention strategies, to be tested in collaboration with stakeholders, including insurance companies, municipalities, and the government. Tailored lifestyle interventions will be developed for specific settings, such as schools, working environments, neighbourhoods, and care facilities, and for specific populations, such as children, ethnic minorities, the elderly, and socially deprived subjects.

New systems of structured diabetes care will be implemented in the region of the VUmc hospital in Amsterdam, and a cost-effectiveness evaluation will be performed. In 2006, a number of PhD projects will be completed, leading to the first wave of measurable results from the lifestyle interventions implemented under the umbrella of this programme.
<table>
<thead>
<tr>
<th>Project title</th>
<th>Prominent associates</th>
<th>Type of collaboration and results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychosocial assessment and intervention in diabetes</td>
<td>Prof. A.M. Jacobson, MD</td>
<td>Collaborative development and validation of measures, data analyses, and joint publications</td>
</tr>
<tr>
<td>Joslin Diabetes Centre/ Harvard Medical School, section Behavioural Research and Mental Health, Boston, MA, USA</td>
<td>G.W. Welch, PhD</td>
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<tr>
<td></td>
<td>K. Weinger, PhD</td>
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<tr>
<td>Cardiovascular complications of type 1 diabetes: EURODIAB Studies</td>
<td>Prof. N. Chaturvedi, PhD</td>
<td>Joint publications on the aetiology of cardiovascular complications of type 1 diabetes</td>
</tr>
<tr>
<td>Department of Epidemiology, Imperial College, London, UK</td>
<td>Prof. J. Fuller, PhD</td>
<td></td>
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<tr>
<td>Predictability of markers of endothelial dysfunction for the onset of (micro)albuminuria and cardiovascular disease in patients with non-insulin-dependent diabetes mellitus</td>
<td>Prof. H.H. Parving, MD, PhD</td>
<td>Blood analyses and writing publications, including statistical analyses of longitudinal data</td>
</tr>
<tr>
<td></td>
<td>Dutch Kidney Foundation</td>
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<tr>
<td>The role of markers of endothelial function and inflammatory markers in type 2 diabetes</td>
<td>Prof. H.H. Parving, MD, PhD</td>
<td>Joint publications, analyses of longitudinal data</td>
</tr>
<tr>
<td>Steno Hospital, Copenhagen, Denmark</td>
<td>M.A. Gall, MD, PhD</td>
<td></td>
</tr>
<tr>
<td>Cardiovascular complications of type 2 diabetes: Steno Studies</td>
<td>Prof. H.H. Parving, MD, PhD</td>
<td>Joint publications on the aetiology of cardiovascular complications of type 2 diabetes</td>
</tr>
<tr>
<td>Steno Diabetes Centre, Copenhagen, Denmark</td>
<td>Steno Diabetes Centre</td>
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<td></td>
<td>Department of Internal Medicine</td>
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<td>VUmc</td>
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<tr>
<td></td>
<td>Department of Clinical Chemistry</td>
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<tr>
<td></td>
<td>VUmc</td>
<td></td>
</tr>
<tr>
<td>Relationship between insulin sensitivity and cardiovascular disease</td>
<td>E. Ferrannini, MD, PhD</td>
<td>Coordination of a multicentre study on the role of insulin resistance in the pathophysiology of diabetes and cardiovascular disease</td>
</tr>
<tr>
<td>CNR Institute of Clinical Physiology, University of Pisa, Italy</td>
<td>B. Balkau, PhD</td>
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<tr>
<td></td>
<td>Pharmaceutical industry</td>
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<td></td>
<td>European Union</td>
<td></td>
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<tr>
<td>INSERM, Paris, France</td>
<td>M. Laakso, MD, PhD</td>
<td>Collaborative genetic epidemiology, sharing of databases</td>
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<tr>
<td>Genetic diabetes epidemiology</td>
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<tr>
<td>University of Kuopio, Finland</td>
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<tr>
<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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<tr>
<td><strong>Diabetes and Overweight</strong></td>
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<tr>
<td>The DECODE Study Group</td>
<td>K. Borch-Johnsen, MD, PhD J. Tuomilehto, MD, PhD</td>
<td>Epidemiological study using combined data from 11 European population studies</td>
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<tr>
<td>Diabetes Self-efficacy: development and validation of a measure for type 1 diabetes</td>
<td>Prof. A.M. Jacobson, MD, PhD K. Weinger, PhD</td>
<td>Collaborative data collection and data management and joint publications</td>
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<tr>
<td>Health-related quality of life education on diabetes</td>
<td>L. Lobo-Luppi, PhD European Union</td>
<td>Development and implementation of a training course on health-related quality of life and depression in diabetes</td>
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<tr>
<td>The European Depression in Diabetes Study (EDIDS)</td>
<td>A. Nouwen, PhD Novo Nordisk, Denmark</td>
<td>Collaborative research on aetiology, assessment, and treatment of depression in diabetes within European countries</td>
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<tr>
<td>ALIFE@Work: Amsterdam Lifestyle Intervention on Food and Exercise at Work. A randomised controlled trial on the preventive effects of a physical activity enhancing and healthy eating programme among an overweight working population</td>
<td>N.P. Pronk, PhD Netherlands Organisation for Health Research and Development (ZonMw) The Netherlands Heart Foundation (NHF) Body@Work, Research Centre on Physical Activity, Work, and Health TNO-VUmc</td>
<td>Member of the research project team, developing and implementing the ‘leef-je-fit’ intervention</td>
</tr>
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</tr>
<tr>
<td>Centre for Diabetes and Cardiovascular Risk, Department of Medicine, University College London Medical School, Whittington Hospital, London, UK</td>
<td>Prof. J.S. Yudkin, MD, FRCP</td>
<td>Collaboration in experimental and epidemiological studies, co-authorship of resulting papers</td>
</tr>
</tbody>
</table>
## Project title

<table>
<thead>
<tr>
<th>Department Location and Country</th>
<th>Prominent associates</th>
<th>Type of collaboration and results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INITIATE:</strong> A multicentre, multinational, randomised, open study to establish the optimal method for initiating Lantus® (insulin glargine) therapy to determine metabolic and economic outcomes, safety, and satisfaction in subjects with type 2 diabetes mellitus. Department of Medicine, Helsinki University Hospital, Helsinki, Finland</td>
<td>Hannele Yki-Järvinen, MD, PhD, Helsinki, Finland David Matthews, MD, PhD, Oxford, UK Mikael Alvarsson MD, PhD, Stockholm, Sweden Tor Bystedt, MD, PhD, Stockholm, Sweden Giel Nijpels, MD, PhD, Amsterdam, The Netherlands Velma Harkin, MD, PhD, Dublin, Ireland Aventis Pharma</td>
<td>Multicentre study aiming to investigate individual versus group education in the initiation of insulin therapy, leading to joint publications</td>
</tr>
<tr>
<td>Interventions to improve the management of diabetes mellitus in primary care, outpatient, and community settings Department of Public Health and Primary Care, University of Cambridge, UK MacColl Institute for Healthcare Innovation, Center for Health Studies Group, Health Cooperative of Puget Sound, Seattle, WA, USA</td>
<td>S.J. Griffin, MD, PhD, MRCGP E.H. Wagner, MD, MPH Netherlands Organisation for Scientific Research (NWO)</td>
<td>Joint preparation of a systematic review within the Cochrane Effective Practice and Organisation of Care Review Group that resulted in two publications: one in the Cochrane Library and one in <em>Diabetes Care</em></td>
</tr>
<tr>
<td>Relationships between lifestyle, biological risk factors, homocysteine, and arterial properties School of biokinetics, recreation, sport, and health sciences North West University, Potchefstroom, South Africa</td>
<td>SJ Moss, PhD SJ Herbst, MSc VU Fellowship Programme</td>
<td>Development of a joint research project</td>
</tr>
<tr>
<td>The relation between physical characteristics of residential districts and overweight, nutrition, and physical activity Institute of Sports Sciences, Graz, Austria</td>
<td>Ms. Sylvia Titze, PhD Netherlands Organisation for Scientific Research (NWO)</td>
<td>Research on the relation between physical characteristics of residential districts and overweight, nutrition, and physical activity</td>
</tr>
<tr>
<td>Assessing cardiorespiratory fitness without performing exercise testing Cooper Research Institute, Dallas, TX, USA</td>
<td>Steve Blair, PhD Radim Jurca, PhD and others</td>
<td>Joint 2005 publication</td>
</tr>
</tbody>
</table>
6.1.3 Research projects

Diabetic retinopathy in relation to cardiovascular morbidity and mortality: the Hoorn study

11.01 - 11.05
Ms. M.V. van Hecke, MD
Ms. J.M. Dekker, PhD
M.G.A.A.M. Nijpels, MD, PhD
Prof. C.D.A. Stenhouwer, MD, PhD
Prof. B.C.P. Polak, MD, PhD

WC01-78

DOiT (Dutch Obesity Intervention in Teenagers): a school-based intervention programme to improve dietary and physical activity behaviour in adolescents in order to maintain energy balance

08.02 - 08.06
Netherlands Heart Foundation
Ms. A.S. Singh, MSc
Ms. J.M.M. Chin A Paw, PhD
J. Brug, PhD
Prof. W. van Mechelen, MD, PhD

WC002-031

ALIFE@Work: Amsterdam Lifestyle Intervention on Food and Exercise at Work. A randomised controlled trial on the preventive effects of a physical-activity-enhancing and healthy-eating programme within an overweight working population

08.02 - 08.06
Netherlands Organization for Health Research and Development (ZonMw)
Netherlands Heart Foundation (NHF)
Body@Work, Research Centre on Physical Activity, Work and Health, TNO-VUmc
Ms. M. van Wier, MSc
Ms. J.C. Dekkers, PhD
Ms. G.A.M. Ariens, PhD
Prof. W. van Mechelen, MD, PhD
Prof. T. Smid, PhD

WC00-055-2

Postprandial hyperglycaemia versus dyslipidaemia in relation to markers of cardiovascular disease in women with type 2 diabetes and in normoglycaemic women: the Hoorn prandial study

10.02 - 10.06
Dutch Diabetes Fund (DFN)
Ms. M.J. Alssema, MSc
Ms. J.M. Dekker, PhD
M.G.A.A.M. Nijpels, MD, PhD
Prof. R.J. Heine, MD, PhD
Prof. L.M. Bouter, PhD

WC01-045

Screening for depression at diabetes outpatient clinics: point-prevalence of major depression and the impact of case-finding on the course of depression and glycaemic control

11.02 - 11.06
Dutch Diabetes Research Foundation
F. Pouwer, PhD
Prof. F.J. Snoek, PhD
Prof. R.J. Heine, MD, PhD

WC00-027

Early detection and prevention of overweight

01.03 - 01.06
Netherlands Organization for Health Research and Development (ZonMw)
Ms. M.L.A. de Kroon, MD
Ms. C.M. Renders, PhD
J.P. van Wouwe, MD
G.A. de Jonge, MD, PhD
Prof. R.A. Hirasing, MD, PhD

WC02-028

PAM study: promotion of an active lifestyle among adolescents and young adults by means of an activity monitor and individually tailored advice using Internet technology

01.03 - 07.06
Netherlands Organization for Health Research and Development (ZonMw)
S.M. Slootmaker, MSc
Ms. J.M.M. Chin A Paw, PhD
Ms. A.J. Schuit, PhD
Prof. J.C. Seidell, PhD
Prof. W. van Mechelen, MD, PhD

WC01-021

The relationship between insulin sensitivity and cardiovascular disease (RISC): cause or consequence?

05.03 - 05.07
Dutch Heart Foundation
European Union
W. Boorsma, MD
Ms. J.M. Dekker, PhD
Prof. R.J. Heine, MD, PhD
Prof. L.M. Bouter, PhD
P.J. Kostense, PhD

WC02-004
<table>
<thead>
<tr>
<th>Title</th>
<th>Date</th>
<th>Funding/Institution</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimal Intervention Strategy for preventing overweight in children</td>
<td>10.03 - 06.06</td>
<td>Community Health Care Foundation (OGZ)</td>
<td>Ms. C.W.E. van de Laar, MSc Ms. C.M. Renders, PhD Prof. R.A. Hira Sing, MD, PhD</td>
</tr>
<tr>
<td>Onset and recurrence of depression in older persons diagnosed with type 2 diabetes and impaired glucose tolerance: who is at risk? A prospective study</td>
<td>11.03 - 11.06</td>
<td>European Foundation for the Study of Diabetes (EFSD)</td>
<td>F. Pouwer PhD Prof. F.J. Snoek, PhD</td>
</tr>
<tr>
<td>INITIATE: a multicentre, multinational, randomised open-label study to establish the optimal method for initiating Lantus® (insulin glargine) therapy to determine metabolic and economic outcomes, safety, and satisfaction in patients with type 2 diabetes mellitus</td>
<td>02.04 - 02.05</td>
<td>Pharmaceutical industry (Aventis)</td>
<td>M.G.A.A.M. Nijpels, MD, PhD Ms. J.M. Dekker, PhD Prof. R.J. Heine, MD, PhD Prof. W.A.B. Stalman, MD, PhD</td>
</tr>
<tr>
<td>Vitamin D status in relation to obesity and type 2 diabetes</td>
<td>04.04 - 04.07</td>
<td>Netherlands Organization for Health Research and Development (ZonMw)</td>
<td>Ms. J.M. Dekker, PhD Prof. P.Th.A.M. Lips, MD, PhD Ms. M. Visser, PhD Prof. J.C. Seidell, PhD Prof. L.M. Bouter, PhD</td>
</tr>
<tr>
<td>The impact of homocysteine and its metabolic intermediates on vessel-wall properties and cardiac structure and function in non-diabetic and type 2 diabetic individuals</td>
<td>07.04 - 01.06</td>
<td>Dutch Heart Foundation</td>
<td>Ms. A.M.W. Spijkerman, PhD Prof. C.D.A. Stehouwer, MD, PhD Y.M. Smulders, MD, PhD Prof. L.M. Bouter, PhD Ms. J.M. Dekker, PhD</td>
</tr>
<tr>
<td>Transitional plan to prevent overweight within the daily practice of youth health care</td>
<td>07.04 - 12.04</td>
<td>Ministry of Health Welfare and Sports</td>
<td>A.M.W. Bulk, MD, PhD Ms. C.M. Renders, PhD F.J.M. van Leerdam, MD, PhD Prof. R.A. Hira Sing, MD, PhD</td>
</tr>
<tr>
<td>The effectiveness of a cognitive behaviour intervention focused on lifestyle in optimal diabetes care</td>
<td>09.04 - 09.07</td>
<td>Pharmaceutical industry</td>
<td>Ms. L.M.C. Welschen, MSc Ms. P.C. van Oppen, PhD Ms. J.M. Dekker, PhD Prof. L.M. Bouter, PhD Prof. W.A.B. Stalman, MD, PhD</td>
</tr>
<tr>
<td>Meal-related hypertriglyceridaemia and low-grade inflammation in relation to beta-cell function in the general population</td>
<td>11.04 - 02.08</td>
<td>Merck &amp; Co., Inc</td>
<td>Ms. J.M. Dekker, PhD MProf. R.J. Heine, MD, PhD Prof. L.M. Bouter, PhD Prof. J.C. Seidell, PhD P. Scheffer, PhD</td>
</tr>
</tbody>
</table>
Monitoring health-related Quality of Life in adolescents with type 1 diabetes prior to periodic outpatient consultation: impact on psychosocial adaptation, satisfaction with care, and glycaemic control. A randomised controlled cross-over study.

12.04 - 12.08
Dutch Diabetes Research Foundation
Ms. M. de Wit, MSc
Prof. F.J. Snoek, PhD
Prof. H.A. Delemarre-Van de Waal, MD, PhD
Prof. R.J.B.J. Gemke, MD, PhD

WC05-056

Activity, lifestyle and nutrition and therapy study (ALANT-study)

01.05 - 03.08
Netherlands Organization for Health Research and Development (ZONMW)
Ms. W. IJzelenberg, MSc
Prof. J.C. Seidell, PhD
Prof. M.W. van Tulder, PhD
Ms. I.H. Hellemans, PhD
Ms. W.H. Scharwächter, MSc

WC05-018

A single-centre, randomised, three-period, crossover study to evaluate the response to three standard meals in type 2 diabetic patients

04.05 - 02.08
Merck & Co., Inc
Ms. J.M. Rijkeljkhuizen, PhD
Ms. J.M. Dekker, PhD
M.G.A.A.M. Nijpels, MD, PhD
Prof. R.J. Heine, MD, PhD
Ms. K. McQuarrie, PhD

WC05-046

Changes in the anterior eye segment with diabetes mellitus

05.05 - 10.08
Landelijke Stichting voor Blinden en Slechtzienden (LSBS), Rotterdamse vereniging blindenbelangen, Stichting Blindenhulp, Stichting Oog, Stichting Oogheelkundig Onderzoek Nederland

N.G.M. Wiemer, MD
M.D. Dubbelman, PhD
G.L. van der Heijde, PhD
Prof. P.J. Ringens, MD, PhD
Prof. B.C.P. Polak, MD, PhD

WC05-014

Implementation of JUMP-in: effect and process evaluation of a primary-school-based programme aimed at promoting physical activity among children

08.05 - 12.09
Larger City Policy funds of Amsterdam
Ms. J. S. B. de Meij, MSc
Ms. J.M.M. Chin A Paw, PhD
M. E. van der Wal, PhD
Prof. W. van Mechelen, MD, PhD

WC05-019

What is the extra value of the PRISMA program versus regular care considering outcomes of dietetic care for patients with diabetes mellitus type 2?

11.05 - 11.07
VUmc
Ms. A.J. Leibbrandt, MSc
P.J.M. Weijs, PhD
Prof. F.J. Snoek, PhD

WC05-012

The New Hoorn Study, Prevalence and determinants of impaired glucose regulation.

11.05 - 11.09
Pharmaceutical industry (Novartis Pharma B.V.)
Ms. E. van ’t Riet, MSc
Ms. J.M. Rijkeljkhuizen, PhD
M.G.A.A.M. Nijpels, MD, PhD
Ms. J.M. Dekker, PhD
Prof. R.J. Heine, MD, PhD

WC06-012

Changes in the anterior eye segment with diabetes mellitus

05.05 - 10.08
Landelijke Stichting voor Blinden en Slechtzienden (LSBS), Rotterdamse vereniging blindenbelangen, Stichting Blindenhulp, Stichting Oog, Stichting Oogheelkundig Onderzoek Nederland

N.G.M. Wiemer, MD
M.D. Dubbelman, PhD
G.L. van der Heijde, PhD
Prof. P.J. Ringens, MD, PhD
Prof. B.C.P. Polak, MD, PhD

WC05-014
6.2 Common Mental Disorders

6.2.1 Programme leaders, senior scientific staff, and postdocs

Prof. A.T.F. Beckman, MD, PhD
Prof. P. Cuijpers, PhD
Ms. B.W.J.H. Penninx, PhD

H.J. Ader, PhD
Prof. A.J.L.M. van Balkom, MD, PhD
A.W. Braam, MD, PhD
Ms. M.C. de Bruijne, MD, PhD
Ms. H.C. Comijs, PhD
Prof. D.J.H. Deeg, PhD
Prof. J.J.M. Dekker, PhD
Ms. S.W. Geerlings, PhD
C. Gundy, PhD
Prof. M. de Haan, MD, PhD
H.P.J. van Hout, PhD
Prof. C. Jonker, MD, PhD
D. van Kampen, PhD
Prof. A.J.F.M. Kerkhof, PhD
Prof. J.M. Koot, PhD
H.W.J. van Marwijk, MD, PhD
Ms. F.J. M. Meiland, PhD
Ms. P.C. van Oppen, PhD
Prof. H.M. van der Ploeg, PhD
Ms. A.M. Pot, PhD
Prof. M.W. Ribbe, MD, PhD
J.H. Smit, PhD
N. Smits, PhD
Prof. W.A.B. Stalman, MD, PhD
Ms. A. van Straten, PhD
R.J. Takens, PhD
B. Terluin, MD, PhD
Prof. W. van Tilburg, MD, PhD
S. Visser, PhD

6.2.2 Programme description

This programme, an interdisciplinary collaboration of general practice, nursing-home medicine, clinical psychology, and psychiatry (covered by various departments at both the Vrij Universiteit and the VUmc), concentrates on common mental disorders (CMDs). CMDs include depression, anxiety disorders, stress-related disorders, and dementia. Extensive research into CMDs is important considering their high prevalence, their enormous impact on individuals and health resources, and the fact that their treatment is often successful.

DISCIPLINES

General practice
CMDs, a major component of the workload in general practice, have long been an important research topic in this discipline. The disorders place a great burden on patients and result in frequent use of healthcare resources. Despite the high prevalence of CMDs in primary care, the empirical basis for their diagnosis and treatment needs further development. The Department of General Practice is interested in using data derived from randomised controlled trials and (naturalistic) epidemiological follow-up studies to generate hypotheses for further intervention studies. The department has ongoing experience in research into the feasibility, efficacy, and cost-effectiveness of various therapeutic intervention strategies for CMDs in daily practice. In addition, various researchers from the department have participated in preparing standard guidelines, which have been endorsed and issued by the Dutch College of General Practitioners.

Nursing-home medicine
CMDs such as depression, anxiety, and dementia are highly prevalent in long-term care settings. The Department of Nursing-Home Medicine researches the epidemiology of CMDs in residential and nursing homes, with special attention paid to the co-morbidity of CMDs and physical complaints. Co-morbidity often makes recognition of CMDs difficult; further research is needed to clarify indications that signal the need for interventions. Various databases are being used for studies on depression and anxiety in residential and nursing homes, including the Amsterdam Groningen Depression Study, conducted in collaboration with the VUmc’s Department of Psychiatry and the University of Groningen’s Department of Social Psychiatry. Data from large-scale national and international databases, obtained using the Resident Assessment Instrument, are also being analysed. The department is examining the feasibility and effectiveness of various types of care and intervention strategies in long-term care facilities, currently focusing research on nursing-home residents with depression and on older adults with dementia living in group facilities and their informal caregivers.

Psychiatry
The Department of Psychiatry has extensive expertise in the study of dementia, depression, and anxiety disorders. Data from the department’s randomised controlled trials have contributed to the formulation of national guidelines for treatment in psychiatric out-patient settings and nursing homes. The department is currently conducting research in specific population groups, such as the elderly, patients with co-morbid anxiety and alcoholism, and patients who resist treatment. In 2005, the department began a large-scale study into the subjective needs of people with dementia and their informal caregivers.

To ensure the recruitment of enough patients for these studies, the department collaborates intensively with other psychiatric out-patient departments, primary-care centres, memory clinics, nursing homes, meeting centres for dementia patients and their caregivers, and welfare organizations for the elderly.

The Department of Psychiatry also has experience in organising longitudinal databases. Two large-scale psychiatric-epidemiological studies among the elderly
are ongoing: the Amsterdam Study of the Elderly and the Longitudinal Aging Study Amsterdam (see Section 7.1). When these studies were planned, very little was known about the basic psychiatric-epidemiological parameters related to the elderly. In the Longitudinal Aging Study Amsterdam, attention was directed towards cognitive decline, depression, and anxiety – the CMDs most prevalent in later life. Another point of interest has been to test hypotheses that may form a basis for the further development of theoretical knowledge concerning affective disorders in relation to aging. The central research questions focus on whether the symptoms, prevalence, incidence, prognosis, consequences, help-seeking behavior, and comorbidity patterns change with age and, if so, what causes these changes.

Clinical psychology

The Department of Clinical Psychology focuses on the processes that lead to, the prevention of, and the treatments for CMDs. It is currently conducting several randomized controlled trials (RCTs) examining the effects of prevention programmes. One trial examines the effects of a universal prevention programme on the development of behavioral problems in primary school. Several other trials started in 2005. Two focus on self-help for sleep problems and for excessive worrying. Another line of studies examines the predictors and effects of psychological treatments of CMDs. The department is also conducting meta-analyses of the effects of treatment for depression and a trial comparing the effects of cognitive-behavioral therapy with those of brief psychodynamic therapy.

Psychological treatment using the Internet is becoming one of the major interests of the department. Several studies began in 2005 to examine the effects of Internet-guided self-help for several CMDs, including one in which effect predictors of Internet-based self-help for depression are being examined using innovative longitudinal analytic techniques. Such studies will increase in the next few years.

Suicidal thoughts are often related to CMDs, and the department is conducting several studies aimed at suicide prevention. These projects seek to improve the registration of suicide and suicide attempts in and outside healthcare in order to identify high-risk groups and high-risk periods. Furthermore, several controlled trials have been initiated to assess the effects of suicide-prevention programmes. Most of the department’s studies are conducted in close collaboration with institutes of mental health care (GGZ Buitenamstel, Mentrum, Parnassia), research institutes – especially the Trimbos Institute (Netherlands Institute of Mental Health and Addiction) – and other research groups within EMGO.

NESDA: A NEW MULTIDISCIPLINARY PSYCHIATRIC-EPIDEMIOLOGICAL PROJECT

Together with the Departments of General Practice and Clinical Psychology, the Department of Psychiatry has initiated the formation of a multi-centre research consortium, the Netherlands Study of Depression and Anxiety (NESDA), in collaboration with the Universities of Groningen and Leiden. Non-academic participants are the Trimbos Institute, the Netherlands Institute for Health Services Research (NIVEL), and the Centre of Quality of Care Research (WOK) in Nijmegen. The NESDA study (see also Section 7.4) is a large, longitudinal cohort study, in which 2850 subjects with varying degrees of psychopathology (no symptoms, sub-threshold symptoms, or anxiety or depressive disorders) in primary and secondary care will be monitored for eight years. The central research objective is to study the long-term course of depression and anxiety and to find their neurobiological, genetic, psychosocial, and somatic predictors.

OBJECTIVES

Dementia, depression, and anxiety disorders are the most important CMDs occurring in the general population. These disorders are interrelated and often concurrent. They sometimes have a common aetiology, and in some cases they can be considered risk factors for each other. For the benefit of primary prevention and risk profiling, this programme investigates risk factors for these CMDs. The research includes observational studies of aspects such as life events, biomedical factors, and genetic predisposition. As an onset for secondary prevention, the programme is studying instruments that facilitate early diagnostics and measure the development and consequences of these disorders. Internationally, longitudinal research on these themes outside the clinical setting is scarce.

Furthermore, research is being carried out to investigate the effectiveness and the implementation of psychosocial and pharmacological management for patients with dementia in nursing homes and in the community, and to study the effectiveness and implementation of interventions to reduce the burden imposed on caregivers. A number of specific projects focus on the adaptation and application of diagnostic and therapeutic strategies in primary or secondary care.

RECENT RESULTS

Researchers within the Common Mental Disorders programme are currently involved in various international collaborations (see Table on international collaboration). Several also serve international functions, some as members of editorial boards of scientific journals (Prof. Beekman for Journal of Aging and Mental Health, Prof. Kerkhof for Crisis: the Journal of Suicide Prevention, and Dr. Penninx for the European Journal of Aging and the Journal of Gerontology: Medical Sciences), others as partners in international consortia (Dr. Droes and Dr. Meiland in the European Community Concerted Action on the Epidemiology and Prevention of Dementia Group (EURODEM), Prof. Jonker in the European Dementia Panel of the European Federation of Neurological Societies (EFNS), and Prof. Kerkhof in the World Health Organisation’s European Network on Suicide Prevention). In 2005, various researchers also received awards recognising their important contributions in research: Prof. Kerkhof received the Ivonne van de Ven Award, Dr. Droes and Dr. Meiland received the EMGO Societal Impact Award for their
work on dementia meeting centres, and Dr. Penninx was selected as a fellow for the Young Academy of the Royal Netherlands Academy of Arts and Sciences.

Below you will find some topic-specific results described in more detail.

**Dementia**
Positive effects of the Meeting Centres Support Programme (MCSP) for people with dementia and their carers were found in a multi-centre study (IMO-project). People with dementia in meeting centres developed fewer behavioural problems, were less depressed, and had later nursing-home admissions than people with dementia who visited regular day-care centres in nursing homes. With financial support from the Ministry of Public Health, Welfare, and Sports, a helpdesk has been established to support and advise potential pioneers of new meeting centres and to stimulate the further dissemination of the meeting centres in the country. Within the framework of a large communication-technology project (Freeband User eXperience), EMGO has started a large scale study into the subjective needs of 400 people with dementia and of their caregivers.

With data from the Longitudinal Aging Study Amsterdam, EMGO researchers studied the role of inflammation in cognitive decline and found, in line with neuropathological findings, that a1-antichymotripsin was associated with cognitive decline. Funding has been obtained to study the role of components of the metabolic syndrome and inflammation in cognitive decline, and international collaboration has been established to study the role of cholesterol metabolites, including brain-cholesterol, in cognitive decline.

**Depression**
EMGO researchers have analysed data from community-based cohort studies (the Longitudinal Aging Study Amsterdam and the Amsterdam Study of the Elderly), studies in general practice (the West Friesland Depression Study), studies carried out in residential and nursing-home settings (AGED) and psychiatric studies. They conclude that the prevalence of depression is very high in all these settings, and its impact on quality of life and daily functioning qualifies it as one of the most important health problems in older people. The prognosis of depression deteriorates with aging, with increasing levels of physical or cognitive handicaps, and depression is an independent risk factor for cardiovascular disease, cognitive decline, and mortality.

These results have prompted the design of several intervention studies, mostly in primary care, but some in nursing homes and specialised mental health care settings. The rationale for the designs of these intervention studies was derived from epidemiological research. Based on systematic observations, the studies investigate transitions from health to high risk to early disease stage to full-blown disorder and subsequently either to chronic disease, with its attendant disabilities and handicaps, or to recovery with or without residual symptoms. The resulting data, systematically comparing patients in different healthcare settings, will spotlight promising points of intervention. Moreover, studying the factors that predict important transitions in the natural history of the disorder (depression) provides the basis for a rational strategy to prevent the development of depression. From the provisional analyses, it appears that systematic screening, diagnosis, and enhanced treatment of depression in primary care is feasible and has modest effects on patient outcomes. The existing barriers to care are being studied, and the results of the trials will suggest ways in which the care for depressed patients can be further improved.

**Anxiety**
In recent years, the programme’s reviews and randomised controlled trials have focused on panic disorder, social phobia, obsessive-compulsive disorder, and fear of flying. Recent efforts have included studies on the treatment of anxiety disorders in specific populations, such as the elderly, and in primary care, and a randomised controlled trial on the treatment of hypochondria. These studies, now nearing completion, will result in several dissertations in 2006. Furthermore, a five-year follow-up study on the treatment of obsessive-compulsive disorder (OCD) has been completed, as has a study on therapy-resistant obsessive-compulsive patients. New funding has been obtained for an randomised controlled trial on problem-solving therapy in primary care, a stepped-care programme for anxiety and depression, and a study on the implementation and effectiveness of the newly developed Netherlands Multidisciplinary Guidelines for Anxiety Disorders.

**FUTURE DEVELOPMENTS**
The programme will continue to make use of epidemiological and clinical data as a basis for CMD intervention studies conducted in different healthcare settings (all clinical trials are summarized in Section 6.2.3). These studies will include both traditional outcomes and, wherever possible, economic analyses of the benefits achieved. Moreover, the results of internal and external evaluations suggest that biological parameters need to be included more often in epidemiological and intervention studies. The development of adequate technology and access to relevant resources constitute a major future objective. The Department of Psychiatry has also developed a neuropsychiatric research line on CMDs within the framework of the VUmc’s Institute for Cognitive Neuroscience (ICEN). This is intended to produce the optimal combination and collaboration of epidemiological and neurobiological expertise.

We will continue to use data from observational cohort studies. The Longitudinal Aging Study Amsterdam continues to offer possibilities for investigating determinants of cognitive decline, depression, and anxiety disorders among the elderly. It also presents a unique opportunity to integrate epidemiological and biological research paradigms. The relationship between the hypothalamic-pituitary-adrenal axis and depression and the role of inflammatory factors in both the onset and the consequences of late-life depression and cognitive decline.
will be studied within the framework of the Longitudinal Aging Study Amsterdam.

The NESDA study will continue recruiting the required 2850 respondents in order to create a unique research infrastructure that can be used in the future to address many epidemiological research questions concerning the course of depression and anxiety among adults.

In the recent external review, the Common Mental Disorders research programme was rated as ‘very good’ with regard to quality, productivity, and vitality, and ‘excellent’ in terms of relevance. The overall rating of publications was well above the world average on almost all indicators for the quality of the scientific output, which appears to be rising rapidly. The programme’s acquisition of new funding for the NESDA study, continued funding for the Longitudinal Aging Study Amsterdam, and successful proposals for a series of intervention studies demonstrate its vitality. One of the strengths of the programme is its ongoing interdisciplinary collaborations, which bring together all the key players in the field. Much effort has gone into establishing a firm basis for collaboration within the university and nationwide. The review committee drew attention to the fact that international collaboration represents a logical next step in the development of the programme. The committee also suggested that the programme should make co-morbidity of CMDs and physical illnesses a key area of research; this has been endorsed by programme participants and will receive specific attention in the coming years. Many of the general remarks made with regard to the EMGO Institute as a whole apply equally to the CMD programme. Innovation includes both the investigation of new scientific themes and further development of the methods of research and teaching in our specific field.

Sailing across the ocean to Montego Bay keeps your common mental disorders away.
<table>
<thead>
<tr>
<th>Project title</th>
<th>Prominent associates</th>
<th>Type of collaboration and results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brain-specific 24S-hydroxycholesterol: an early marker for late-onset Alzheimer's Disease?</td>
<td>Prof. K. Fassbender, MD, PhD&lt;br&gt;Prof. D. Lutjohann, MD, PhD&lt;br&gt;Hersenstichting Nederland</td>
<td>Determination of 24S hydroxylcholesterol and other cholesterol metabolites, and publications within the framework of the LASA study</td>
</tr>
<tr>
<td>DIADEM, Obstacles and facilitators in diagnosing and managing early dementia in EU member states</td>
<td>H. van Hout, PhD&lt;br&gt;Ms. M. Vernooij-Dassen, PhD&lt;br&gt;Prof. J. De Lepeleire, MD, PhD&lt;br&gt;S. Iliffe, MD, PhD</td>
<td>Exploring obstacles and facilitators in diagnosing and managing early dementia in EU member states</td>
</tr>
<tr>
<td>Translation of the Camberwell Assessment of Need in the Elderly (CANE)</td>
<td>M. Orrell, PhD&lt;br&gt;G. Hancock, PhD&lt;br&gt;VU University Medical Center</td>
<td>International validation of CANE</td>
</tr>
<tr>
<td>Early interventions for persons with dementia and their carers</td>
<td>Prof. E.D. Moniz-Cook, MD, PhD&lt;br&gt;University of Hull, UK</td>
<td>Preparation of a book on this subject by the INTERDEM group</td>
</tr>
<tr>
<td>Women’s Health and Aging Study</td>
<td>J.M. Guralnik, MD, PhD</td>
<td>Exchange of data and various joint publications</td>
</tr>
<tr>
<td>InChianti Study</td>
<td>L. Ferrucci, MD, PhD</td>
<td>Exchange of data and various joint publications</td>
</tr>
</tbody>
</table>

**Department**

**Location and Country**

**Funding**

**Prof. K. Fassbender, MD, PhD**

**Prof. D. Lutjohann, MD, PhD**

**Hersenstichting Nederland**

**H. van Hout, PhD**

**Ms. M. Vernooij-Dassen, PhD**

**Prof. J. De Lepeleire, MD, PhD**

**S. Iliffe, MD, PhD**

**M. Orrell, PhD**

**G. Hancock, PhD**

**VU University Medical Center**

**Prof. E.D. Moniz-Cook, MD, PhD**

**University of Hull, UK**

**J.M. Guralnik, MD, PhD**

**National Institute on Aging**

**L. Ferrucci, MD, PhD**

**National Institute on Aging**
<table>
<thead>
<tr>
<th>Project title</th>
<th>Prominent associates</th>
<th>Type of collaboration and results</th>
</tr>
</thead>
<tbody>
<tr>
<td>The epidemiology of stress and the metabolic syndrome</td>
<td>M. Pahor, MD</td>
<td>Collaboration and various joint publications.</td>
</tr>
<tr>
<td>Wake Forest University School of Medicine, Winston-Salem, NC, USA</td>
<td>B. Nicklas, PhD</td>
<td></td>
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<tr>
<td>University of Florida, Gainesville, FL USA.</td>
<td>S. Kritchevsky, PhD</td>
<td></td>
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<tr>
<td></td>
<td>M. Cesari, MD</td>
<td></td>
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<tr>
<td></td>
<td>National Health, Lung and Blood Institute, National Institutes of Health</td>
<td></td>
</tr>
<tr>
<td>Obsessive Compulsive Cognitions</td>
<td>R. Frost, PhD</td>
<td>Annual meetings for members to develop and validate standardised measurements for patients with obsessive compulsive disorders, resulting in four publications in <em>Behaviour Research and Therapy</em>.</td>
</tr>
<tr>
<td>Working Group/Department of Psychology, Smith College, Northampton, MA, USA</td>
<td>G. STéketee, PhD</td>
<td></td>
</tr>
<tr>
<td>Metabolic syndrome and inflammation as risk factors for cognitive decline in older persons</td>
<td>Ms. K. Yaffe, MD</td>
<td>Joint publications</td>
</tr>
<tr>
<td>Department of Psychiatry, Neurology and Epidemiology, University of California, San Francisco, CA, USA</td>
<td>L. Ferrucci, MD</td>
<td></td>
</tr>
<tr>
<td>Longitudinal Studies Section, Clinical Research Branch, National Institute on Aging, Baltimore, MD, USA</td>
<td>Internationale Stichting Alzheimer Onderzoek (ISAO)</td>
<td></td>
</tr>
<tr>
<td>EURODEP</td>
<td>Prof. J.R. Copeland, MD, PhD (Liverpool)</td>
<td>Ongoing collaboration, resulting in eight international scientific papers</td>
</tr>
<tr>
<td>Collaboration between 14 departments of psychiatry and epidemiology in 11 European countries</td>
<td>Prof. K. Wilson, MD, PhD (Liverpool)</td>
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<td></td>
<td>Prof. M. Prince, MD, PhD (London)</td>
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<td>Prof. I. Skoog, MD, PhD (Sweden).</td>
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<tr>
<td></td>
<td>Biomed I EU and the participating centres</td>
<td></td>
</tr>
<tr>
<td>Internet-based treatment of mental disorders</td>
<td>Prof. Gerhard Andersson, PhD</td>
<td>Collaborative research on internet-based treatment of mental disorders</td>
</tr>
<tr>
<td>Department of Behavioural Sciences, Linköping University, Sweden</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professor Emeritus of Experimental Psychopathology, Institute of Psychiatry, King's College, Univ. of London</td>
<td>Prof. Isaac Marks, PhD</td>
<td></td>
</tr>
</tbody>
</table>
6.2.3 Research projects

Paroxetine and cognitive behaviour therapy in the treatment of hypochondriasis

07.97 - 09.06

Glaxo SmithKline

Ms. A. Greeven, MD
Prof. A.J.L.M. van Balkom, MD, PhD
Prof. Ph. Spinhoven, PhD
S. Visser, MD, PhD

WC97-012

The resident assessment instrument (RAI) for care and research in the nursing-home population

09.97 - 12.05

- W.P. Achterberg, MD
- Ms. A.M. Pot, PhD
- A. Kerkstra, PhD
- Prof. M.W. Ribbe, MD, PhD

WC97-801

A protocol study of the obsessive-compulsive disorder

07.98 - 01.06

- Ms. P.C. van Oppen, PhD
- Prof. A.J.L.M. van Balkom, MD, PhD
- Prof. P.M.G. Emmelkamp, PhD
- Prof. R. van Dyck, MD, PhD

WC97-049

Depression in long-term care facilities: prevalence, course, and effects of training and feedback on the process of care and outcomes

02.99 - 12.05

Netherlands Organization for Scientific Research (NWO)

Ms. K. Jongenelis, MD
Ms. A.M. Pot, PhD
Prof. A.T.F. Beekman, MD, PhD
Prof. W. van Tilburg, MD, PhD
Prof. M.W. Ribbe, MD, PhD

WC97-014-2

Late-life depression in primary care: a randomized trial to improve detection, diagnosis, treatment, and outcome

05.99 - 05.07

Netherlands Organization for Health Research and Development (ZonMw)

D. Bijl, MD
H.W.J. van Marwijk, MD, PhD
Prof. A.T.F. Beekman, MD, PhD
Prof. M. de Haan, MD, PhD
Prof. W. van Tilburg, MD, PhD

WC97-055

Post-traumatic stress disorder in the elderly: a community-based study of prevalence, phenomenology, risk factors, and protective factors

01.00 - 06.06

- Ms. W.H. van Zelst, MD
- Prof. A.T.F. Beekman, MD, PhD
- E. de Beurs, PhD
- Prof. D.J.H. Deeg, PhD
- Prof. R. van Dyck, MD, PhD

WC00-031

Effects of life-review interventions on depressive symptoms, mastery, and meaning in the elderly

01.00 - 08.06

This project is a collaboration with the Netherlands Institute for Mental Health and Addiction (Trimbos Instituut).

E. Bohlmeijer, MSc
G. Westerhof, PhD
H.W.J. van Marwijk, MD, PhD
Prof. A.T.F. Beekman, MD, PhD
Prof. P. Cuypers, MD, PhD

WC04-022

Prevention of prolonged disability due to stress-related neurasthenia: effectiveness and feasibility of a systematic intervention by social workers in primary care

02.00 - 08.05

Netherlands Organization for Health Research and Development (ZonMw)

P.F. M. Verhaak, PhD
Ms. B.G. Tiemens, PhD
Ms. J.M. Bensing, PhD
Prof. R. van Dyck, MD, PhD
B. Terluin, MD, PhD

WC99-040-2
Anxiety disorders in the elderly

03.00 - 03.05

Netherlands Organization for Scientific Research (NWO)
Ms. J. Schuurmans, MSc
Ms. H.C. Comijs, PhD
Prof. R. van Dyck, MD, PhD
Prof. P. Emmelkamp, PhD
WC02-002

Feasibility and effectiveness of a transmural psychotherapy intervention for late-life depression

12.00 - 08.06

Netherlands Organization for Health Research and Development (ZonMw)
D.J.F. van Schaik, MD
H.W.J. van Marwijk, MD, PhD
Prof. A.T.F. Beekman, MD, PhD
Prof. M. de Haan, MD, PhD
Prof. R. van Dyck, MD, PhD
WC99-034

Randomised cost-effectiveness, non-inferiority trial of standardized usual care in general practice with or without antidepressant medication for patients with minor or mild major depression

01.01 - 12.04

Health Care Insurance Council (CVZ)
Ms. M.L.M. Hermens, MSc
H.P.J. van Hout, PhD
B. Terluin, MD, PhD
Prof. M. de Haan, MD, PhD
Prof. R. van Dyck, MD, PhD
WC98-038-2

Prognosis of minor and major depression in older primary-care patients. The West Friesland Study

01.01 - 09.07

Netherlands Organization for Scientific Research (NWO)
E. Licht-Strunk, MSc
H.W.J. van Marwijk, MD, PhD
Prof. A.T.F. Beekman, MD, PhD
Prof. M. de Haan, MD, PhD
WC99-007

Atypical thoracic complaints as a manifestation of panic anxiety in the emergency department: a randomized trial of brief cognitive-behavioural interventions

02.01 - 01.07

Health Care Insurance Council (CVZ)
G.A. van Zijderveld, PhD
Prof. A.J.L.M. van Balkom, MD, PhD
A.M. Beek, MD
Prof. R. van Dyck, MD, PhD
WC00-008

Exploring pathophysiologic and behavioural pathways in the link between depression and cardiovascular disease

09.01 - 04.06

Dutch Heart Foundation
K. van der Kooij, MSc
H.P.J. van Hout, PhD
H.W.J. van Marwijk, MD, PhD
Prof. A.T.F. Beekman, MD, PhD
Prof. M. de Haan, MD, PhD
WC00-035

Genetic and biological risk-factors for cardiovascular morbidity and mortality in depressed older persons

Period: october 2001- december 2006
Funding: Netherlands Organization for Scientific Research (NWO)
M.A. Bremmer, MD
Prof. D.J.H. Deeg, PhD
W.J.G. Hoogendijk, MD PhD
Prof. A.T.F. Beekman, MD PhD
WC01-079

The effect of a phased-care intervention for nursing home residents with depressive symptoms

12.01 - 10.05

Netherlands Organization for Health Research and Development (ZonMw)
Ms. A. de Wit, MSc
Ms. A.M. Pot, PhD
Prof. A.T.F. Beekman, MD, PhD
Prof. M.W. Ribbe, MD, PhD
WC00-062
6.2 Common Mental Disorders

The (cost-)effectiveness of nurse support for dementia patients living at home and their primary care-givers
07.02 - 11.06
Netherlands Organization for Health Research and Development (ZonMw)
Ms. A.P.D. Jansen, MSc
H.P.J. van Hout, PhD
H.W.J. van Marwijk, MD, PhD
Ms. R.M. Dröes, PhD
Prof. W.A.B. Stalman, MD, PhD
WC00-061-2

A randomised controlled trial on the cost-effectiveness of systematic home visits by nurses of frail elderly primary-care patients
07.02 - 07.06
Partly by Netherlands Organization for Health Research and Development (ZONMw)
H.P.J. van Hout, PhD
M.G.A.A.M. Nijpels, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
WC01-080-2

Are anxiety disorders or mixed anxiety/depression predictors of cognitive decline?
08.02 - 03.07
Netherlands Organization for Health Research and Development (ZonMw)
Ms. E.J.M. Bierman, MSc
Ms. H.C. Comijs, PhD
Prof. A.T.F. Beekman, MD, PhD
Prof. C. Jonker, MD, PhD
WC01-063

Cost-effectiveness of treatment for depression in primary care
09.02 - 03.05
Health Care Insurance Council (CVZ)
Ms. J.E. Bosmans, MSc
Ms. M.C. de Bruijne, MD, PhD
H.P.J. van Hout, PhD
Prof. L.M. Bouter, PhD
Prof. W.A.B. Stalman, MD, PhD
WC02-802

Development of an instrument to measure quality of life in dementia
12.01 - 11.05
Netherlands Organization for Health Research and Development (ZonMw)
‘Het Zonnehuis’ Foundation
VEVGZ Foundation
T.P. Ettema, MSc
J. de Lange, MSc
Ms. R.M. Dröes, PhD
M.E. Ooms, MD, PhD
Prof. M.W. Ribbe, MD, PhD
WC00-029-2

Psychological determinants of relapse of depression in the elderly
12.01 - 10.06
B. Steunenberg
Prof. A.J.F.M. Kerkhof, PhD
Prof. A.T.F. Beekman, MD, PhD
Prof. D.J.H. Deeg, PhD
WC05-73

Anxiety disorders in nursing homes: prevalence, risk-factors, consequences, and co-morbidity
01.02 - 01.07
M. Smalbrugge, MD
Ms. A.M. Pot, PhD
Ms. K. Jongenelis, MD
Prof. A.T.F. Beekman, MD, PhD
Prof. J.A. Eefsting, MD, PhD
WC03-002

Frailty and vitality: the impact of chronic conditions and depressive symptoms
05.02 - 08.06
Netherlands Organization for Health Research and Development (ZonMw)
Ms. H.C. Comijs, PhD
Prof. D.J.H. Deeg, PhD
WC02-022
Effectiveness of a minimal intervention for psychological distress carried out in general practice; a pragmatic randomized controlled trial

01.03 - 12.06

Netherlands Organization for Health Research and Development (ZonMw)
Dutch College of General Practitioners (NHG) Fund for Common Complaints

Ms. I.M. Bakker, MSc
B. Terluin, MD, PhD
H.W.J. van Marwijk, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
Prof. W. van Mechelen, MD, PhD

WC02-015-2

Effects of problem-solving therapy (PST) for emotional disorders provided by nurses

01.03 - 01.07

Ms. G.A. Schreuders, MA
Ms. P.C. van Oppen, PhD
H.W.J. van Marwijk, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
J.H. Smit, PhD

WC02-018

Stepped Care: A new model of care for common mental disorders

05.03 - 05.07

Adhesie, Deventer
VUMC, Amsterdam

D.B. Oosterbaan, MD, PhD
Prof. A.J.L.M. van Balkom, MD, PhD
M. Verbraak, PhD
R. ten Doesschate, MD
B. Terluin, MD, PhD

WC04-037

Improving detection of dementia in general practice

11.03 - 05.05

Internationale Stichting Alzheimer Onderzoek (ISAO)

H.P.J. van Hout, PhD
Ms. A.P.D. Jansen, msc
Prof. W.A.B. Stalman, MD, PhD

WC02-058

Predictors of effective support for carers of persons with dementia

11.03 - 01.05

Province of Noord-Holland

Ms. F.J.M. Meiland, PhD
Ms. R.M. Driessen, PhD
Prof. W. van Tilburg, MD, PhD
Prof. C. Jonker, MD, PhD
M. Kat, MD

WC03-021

Group living for older adults with dementia

Netherlands Organization for Health Research and Development (ZonMw)

11.03 - 11.07

Ms. S. te Boekhorst, MSc
Ms. M. Depla, MSc
Ms. A.M. Pot, PhD
Ms. J. de Lange, MSc
Prof. J.A. Eefsting, MD, PhD

WC03-054

The epidemiology of anxiety disorders

11.03 - 04.08

ZON-MW (OOG project, ronde 2003)

N. Batelaan
Prof. A.T.F. Beekman, MD, PhD
dr R de Graaf
prof dr WAM Volleberg
Prof. A.J.L.M. van Balkom, MD, PhD

WC04-036

Prevention of anxiety and depression in later life: a programme testing the feasibility and effectiveness of a generic stepped-care programme for the elderly at high risk of developing anxiety and depression

12.03 - 12.07

Netherlands Organization for Health Research and Development (ZonMw)

P.J. van ’t Veer, MSc
H.P.J. van Hout, PhD
Prof. P. Cuijpers, PhD
Prof. A.T.F. Beekman, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
Brain-specific 24S-hydroxycholesterol: an early marker for late-onset Alzheimer-type dementia?

04.04 - 12.06

Dutch Brain-Research Foundation

Ms. M.G. Dik, PhD
Prof. C. Jonker, MD, PhD
K. Fassbender, MD, PhD
D. Lüdjohann, MD, PhD

Prevention of aggression and conduct disorder in elementary school children by means of a classroom intervention and a combination of a classroom and a parent intervention

05.04 - 05.10

The Netherlands Organisation for Health Research and Development (ZonMw)

Ms. M. Witvliet, MSc
Ms. J. Ashford, MSc
Prof. P. Cuijpers, PhD
Prof. J.M. Koot, PhD
P. van Lier, PhD

Religious resources in older adults with common mental disorders

06.04 - 06.08

Netherlands Organization for Scientific Research (NWO)
Netherlands Organization for Health Research and Development (ZonMw)
VENI

A.W. Braam, MD, PhD
Prof. D.J.H. Deeg, PhD

Care needs, appropriate care, and care utilization of elderly patients with chronic disorders

09.04 - 09.08

Netherlands Organization for Health Research and Development (ZonMw)

Ms. E. van der Ploeg, MSc
H.P.J. van Hout, PhD
M.G.A.M. Nijpels, MD, PhD
Prof. W.A.B. Stalman, MD, PhD


09.04 - 01.10

St. Adhesie GGZ Midden-Overijssel

M.K. van Dijk, MSc
Prof. A.J.L.M. van Balkom, MD, PhD
D.B. Oosterhaxan, MD, PhD
M.J.P.M. Verbraak, PhD

Metabolic syndrome and inflammation as risk factors for cognitive decline in older persons

11.04 - 10.06

International Alzheimer Research Foundation (ISAO)
VCVGZ Support Foundation

Ms. M.G. Dik, PhD
Prof. C. Jonker, MD, PhD
Ms. B.W.J.H. Penninx, PhD
Prof. P. Eikelenboom, MD, PhD
J.W.R. Twisk, PhD

Freeband User eXperience. FRUX health care pilot

01.05 - 02.08

Ministry of Economic Affairs
RCOAk, NHDI, Neurology Ass., Het Zonnehuis

H.G. van der Roest, MSc
Ms. F.J.M. Meziland, PhD
Ms. R.M. Dröes, PhD
Ms. H.C. Comijs, PhD
Prof. C. Jonker, MD, PhD

The effect of psychosocial stress and metabolic syndrome

01.05 - 01.09

National Institutes of Health (NIH), USA

N. Vogelzangs, MSc
Ms. B.W.J.H. Penninx, PhD
Prof. A.T.F. Beekman, MD, PhD

Minimal treatment of worrying (Stop het getob)

01/2005 - 12/2006

University funding

Prof. A.J.F.M. Kerkhof, PhD
S. Akhnikh, MSc
A. Koopman, MSc
M. van der Linde, MSc
M. Stam, MSc
Common Mental Disorders


01.05 - 03.06
Netherlands Organization for Health Research and Development (ZonMw)
P.R. Boluijt, MSc
Ms. A. van Straten, PhD
Prof. P. Cuijpers, MD, PhD

WC05-078

The differential effects of minimal psychological treatment for depression

05.2005 - 04.2009
University funding
Ms. L. Warmerdam, MSc
Prof. P. Cuijpers, MD, PhD

WC05-072

Self-help treatment through television and book for insomnia: a randomised trial

07.05 - 06.06
Funded by National Fund Public Mental Health (NFGV)
Ms. A. van Straten, PhD
Prof. P. Cuijpers, MD, PhD

WC05-076

The effects of psychological treatment of depression: a comprehensive meta-regression analysis

07.05 - 07.06
University funding
Prof. P. Cuijpers, PhD
Ms. A. van Straten, PhD
L. Warmerdam, MSc

WC05-077

Development and cost-effectiveness evaluation for a participatory ergonomics protocol for mental health disorders. A randomized controlled trial

09.05 - 09.09
Aladdin programme, programme to stimulate research and development of work and health (STECR platform rehabilitation), VUmc, TNO Work & Employment, Trimbos Institute.

SH van Oostrom MSc
J.R. Anema MD, PhD
Prof. W van Mechelen MD, PhD
B Terluin MD, PhD
A Venema MSc

WC05-040

Prognosis of depression: depressive course and trajectories of functional and work disabilities

11.05 - 10.11
GGZ Buitenamstel, Amsterdam
D. Rhebergen, MD
Ms. B.W.J.H. Penninx, PhD
Prof. A.T.F. Beekman, MD, PhD
Prof. W. Hoogendijk, MD, PhD
R. de Graaf, PhD

WC05-048

The pathophysiological basis of depression and anxiety: an epidemiological examination of the roles of the autonomic nervous system and the hypothalamus-pituitary-adrenal axis

12.05 - 12.10
VIDI-grant, ZonMW, Netherlands
C. Licht
S.A. Vreeburg
Ms. B.W.J.H. Penninx, PhD
Prof. E. de Geus, PhD
Prof. W. Hoogendijk, MD, PhD

WC04-065

Brief psychodynamic supportive psychotherapy versus cognitive behavioral therapy for depressive outpatients

12.05-12.08
Wyeth Pharmaceuticals, Mentrnum Institute of Mental Health
Prof. J.J.M. Dekker, PhD
Prof. P. Cuijpers, PhD
J. Peen, MSc

WC05-079

The role of the Inspectorate in suicide prevention: The effects of the Inspectorate’s reactions to notifications of suicide

12.05 - 12.09
The Inspectorate for Health Care in The Netherlands
Prof. A.J.F.M. Kerkhof, PhD
Ms. A. Huisman, MSc
Prof. P. Cuijpers, PhD
P.B. Robben, PhD

WC05-074
6.3 Care and Prevention

6.3.1 Programme leaders, senior scientific staff, and postdocs#

Ms. Prof. M.C. Cornel, MD, PhD
Ms. B.D. Onwuteaka-Philipsen, PhD
P.D. Bezemer, PhD
M. de Boer, MD, PhD#
Ms. M.A.E. van Bokhorst, PhD
D.J. Bruinvels, MD, PhD
Ms. J.M. Cuperus-Bosma, MD, PhD, LLM
Ms. Prof. D.J.H. Deeg, PhD
Prof. L. Deliens, PhD
Prof. Th.A.H. Doreleijers, MD, PhD
M.D. Dubbelman, PhD
M.A. Echteld, PhD#
Prof. J.A. Eefsting, MD, PhD
J.M. Festen, PhD
Ms. B.J.M. Frederiks, PhD#
Ms. A.A.M. Gerritsen, PhD#
S.T. Goverts, MD, PhD
Ms. L. Henneman, PhD#
G.L. van der Heijde, PhD
C.M.P.M. Hertogh, MD, PhD
Prof. R.A. Hira Sing, MD, PhD
Prof. T. Hout gast, PhD
Ms. A.C.M. Huizink, PhD#
Prof. L.P. ten Kate, MD, PhD
Prof. H.C.G. Kemper, PhD
Ms. S.E. Kramer, PhD
Ms. A.A.M. Kuin, PhD#
F.J.M. van Leerdam, MD, PhD
Ms. Prof. F.E. van Leeuwen, PhD
Prof. J. Legemaate, PhD, LLM
J. Lyzena, MD, PhD
Ms. Prof. Th. Marteau, PhD
Ms. A.C. Moll, MD, PhD
Ms. L.M.C. Nauta-Jansen, PhD
M.E. Ooms, MD, PhD
Ms. H.R.W. Pasman, PhD#
Prof. G.H.M.B. van Rens, MD, PhD
Prof. M.W. Ribbe, MD, PhD
Ms. M.L. Rurup, PhD#
Prof. T. Smid, PhD
Ms. N. Smidt, PhD
Ms. J.T. van der Steen, PhD#
Ms. B.A.M. The, PhD, LLM
Ms. D.R.M. Timmermans, PhD
Prof. R. Vermeiren, MD, PhD
Prof. G. van der Wal, MD, PhD

6.3.2 Programme description

Long, healthy lives are the ultimate goal of the Care and Prevention research programme. In contrast to EMGO's other three, disease-specific, research programmes, Care and Prevention focuses on preventing disease before it even starts and on helping patients deal with generic problems that arise in the course of chronic illness. It broadly promotes health in individuals, groups, and the population as a whole, in all phases of life, from preconception through death. The applicable aim of the programme's research is to improve the quality of prevention programmes and healthcare services, to prevent or delay the onset of chronic disease, to prevent or delay disablement as a consequence of chronic disease, to help patients adapt to disablement and help care for themselves, and to improve the quality of life of patients in the terminal phase of disease.

Research takes place at both the individual and the risk-group level. Studies consider generic risk factors (such as lifestyle) and health outcomes (such as functional autonomy) that are not linked exclusively to specific diseases. They cover co-morbidity and end-of-life care. Research projects are clustered in three interrelated domains: 1) quality of care and prevention, 2) functional autonomy, and 3) end-of-life care.

Chronic diseases can progress through distinct phases: genetic predisposition, development of risk factors, onset of disease, early manifestation, progression, and the end of life. Prevention and care run in parallel to these phases, sometimes overlapping. Prevention can be primary (pertaining to the phases before onset), secondary (pertaining to the early manifestation phase), and tertiary (pertaining to the progression and terminal phases). Tertiary prevention, to a large extent, is identical to care. Care refers to different types of healthcare, both professional and informal, including paramedical, nursing, medical, and long-term care.

The three domains

Quality of care and prevention

Research in this domain measures the extent to which available preventive or healthcare interventions conform with or improve upon professional standards. It examines the effectiveness of those interventions, defined broadly to include biomedical outcome, quality of life, and cost-effectiveness. It studies the effects and interrelationship of process and outcome. It asks whether the care provided by the caregiver corresponds to the care desired or needed by the patient.

It considers various perspectives, such as those of the patient, the caregiver, and the funding agency. The research deals with complex systems. Study populations consist of patients who move back and forth between in- and extramural care facilities. The interventions studied take place at all levels: micro (such as informal support and visits to the doctor's office), meso (such as health services at work and care within nursing homes), and macro (such as legislatively mandated prevention programmes and long-term public health policies). The outcomes measured range from the safety of individual patients to the systemic effects of quality control on the provision of care.

It is within this domain that the programme studies community genetics. Researchers set their sights as early as preconception, screening future parents as potential
carriers of genetic illness. Studies investigate how patients and caregivers perceive and deal with information about genetic risks. The programme is researching the societal aspects of the mapping of the genome, with projects at two centres of excellence: the Centre for Medical Systems Biology in Leiden (focusing on the aetiology of common disorders) and the Centre for Society and Genomics in Nijmegen. This research will eventually extend to cover genetic screening and the relationship between genetic risk factors and health behaviour.

VUmc's Department of Child and Adolescent Psychiatry also conducts research within this domain. Persistent delinquent behaviour constitutes a major public health problem, with substantial costs to society, the direct victims, and the delinquent adolescent him or herself. The research in this area investigates predictive factors, the prevalence of psychopathology and other characteristics (including neuro-biological characteristics), the development of antisocial and delinquent behaviour over time, and preventive interventions. A majority of children and adolescents who display delinquent behaviour also suffer from co-morbid psychiatric disorders that increase the likelihood of recidivism and have repercussions for their long-term functional outcome. Early recognition and adequate treatment of psychiatric disorders in this group is important for restoring normal development and preventing recidivism.

Functional autonomy
The programme's research in this domain, primarily longitudinal and observational, addresses the process of aging. The studies are based on conceptual models set out in the World Health Organization's International classification of functioning, disability, and health, in Verbrugge and Jette, and in Rolland's work regarding the psychosocial characteristics of chronic diseases. In 2005, the studies in this domain grew even more rigorous as the programme coordinated its activities with those of the departments of ophthalmology, otolaryngology/audiology, and nutrition and dietetics.

The programme researches personal factors (e.g. personal resources) and environmental factors (e.g. availability of formal and informal care) that hinder or help the functional autonomy of chronically ill older persons. For example, the Longitudinal Aging Study Amsterdam tracks the utilization of healthcare resources by sub-groups with an income-level less than the minimum and on sub-populations living alone, e.g. in relation to their use of care. Findings from these studies can help public health agencies monitor the aging population; they also provide a basis for further evaluation and intervention studies. In the future, the programme, using data from the Longitudinal Aging Study Amsterdam, will study the relationships between biological and genetic markers and functional outcomes.

End-of-life care
Research in end-of-life care is still developing, both nationally and internationally, and the methodological and ethical problems involved are considerable. In focusing on the terminal phase of life of chronically ill patients, the programme evaluates diagnostics, provision of care, treatment of symptoms, medical decision-making, quality of life, the course of the disease, and the process of dying. In the future, it hopes to define appropriate outcome measures, discover indicators of quality of care, and develop good measurement instruments.

Current intervention studies are investigating whether general practitioners can, by consulting with experts, improve the quality of their palliative care and their handling of requests for euthanasia. In coordination with partners at the Erasmus Medical Centre in Rotterdam and colleagues from abroad, the programme has prepared an international research agenda on the epidemiological and clinical aspects of end-of-life decision-making. This agenda includes the challenging combination of qualitative and quantitative research, integrating research on end-of-life decision-making and palliative care. Another programme focus - understanding the patient's perspective - has been strengthened by a new cohort (started in 2005) of people with advance directives.

INFRASTRUCTURE
For a growing number of projects within the Care and Prevention programme, the Longitudinal Aging Study Amsterdam provides important longitudinal, observational data on the older segment of the general population. For several other projects, however, extramural academic workplaces are important settings. In the field of child and youth healthcare, EMGO has established the first academic centre in the Netherlands in collaboration with five regional child and youth healthcare organisations and three health-promoting institutes. In the coming year, interdisciplinary collaboration in end-of-life research will be embedded in VUmc's newly established Palliative Care Centre of Expertise.

ORGANIZATION OF SEMINARS AND MEETINGS
The Care and Prevention programme holds seminars four times each year for all programme participants. These gatherings are meant to stimulate discussion, not only on substantive issues, but also on EMGO's general research policy. Senior researchers discuss the progress and development of the programme and its activities. Participants address topics that traverse the various projects, such as involving migrants in research and the role of medical ethical committees. They also discuss methodological issues, such as measuring quality of life. A desired by-product of these meetings is the establishment of a group identity.

INTERNATIONAL COLLABORATION
We want our research activities to have international relevance. Therefore, we collaborate, when possible, with colleagues from abroad. As can be seen in the table hereafter, there is international collaboration on a substantial number of projects within Care and Prevention. The type of collaboration varies from joint publications to major international projects funded, for instance, by the European Union. Several members of the programme
also have international functions, such as board member of an international professional association or editor of an international journal. The complete list of international functions can be found on the EMGO website.

AWARDS

CONCLUSION AND PROSPECTS
Care and prevention is a field with a broad view. The risk is that the programme can become too heterogeneous. The advantage is that researchers can get excited about nurturing new lines of research. The challenge is to combine this creativity and commitment with coherence and consistency. The programme already enjoys a sense of synergism, arising from collaborative research on palliative care, functional autonomy, end-of-life decisions, social support for terminal patients, and the health of nursing-home residents. In the future, we hope to develop more synergistic projects on such topics as preventive care, especially in early phases of life, and genetics.
<table>
<thead>
<tr>
<th>Project title</th>
<th>Prominent associates</th>
<th>Type of collaboration and results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comparison of Longitudinal European Studies on Aging (CLESA)</td>
<td>Ms. S. Maggi, MD, MPH&lt;br&gt;Ms. N. Minicuci, PhD&lt;br&gt;Ms. N.L. Pedersen, PhD</td>
<td>Partners in a European study</td>
</tr>
<tr>
<td>CNR-Centre on Aging&lt;br&gt;Padova, Italy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Medical Epidemiology, Karolinska Institute, Stockholm, Sweden</td>
<td>Ms. M. Jylhä, MD, PhD</td>
<td></td>
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<tr>
<td>School of Public Health, University of Tampere, Finland</td>
<td>A. Otero, MD, PhD</td>
<td></td>
</tr>
<tr>
<td>Universidad autonoma de Madrid, Centro Universitario de Salud Pública-CUSP, Madrid, Spain</td>
<td>J. Gindin, MD&lt;br&gt;EU-FP5 Programme</td>
<td></td>
</tr>
<tr>
<td>Geriatric Institute of Education and Research, Rehovot, Israel</td>
<td></td>
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<tr>
<td>Research on tracking of body composition in children</td>
<td>Prof. T Jürimäe, PhD&lt;br&gt;University of Tartu and Royal Netherlands Academy for Arts and Sciences (KNAW)</td>
<td>Joint publication about statistical analyses of longitudinal databases on body composition</td>
</tr>
<tr>
<td>University of Tartu, Department of Sport Pedagogy, Tartu, Estonia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development of research projects for (under)graduates</td>
<td>Prof. P.A. Venter, PhD&lt;br&gt;Prof. A. Toriola, PhD&lt;br&gt;Prof. N. Steyn, PhD&lt;br&gt;M.J. Thermane, MSc&lt;br&gt;A.M. Monyeki, MSc&lt;br&gt;Centre for International Co-operation, Vrije Universiteit (CIS) and University of the North (UNIN)</td>
<td>Teaching and guiding (under)graduates from UNIN</td>
</tr>
<tr>
<td>Department of Health Sciences, Department of Education, University of the North (UNIN), Pietersburg, Republic of South Africa</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research on factors affecting human health, with emphasis on coronary heart diseases</td>
<td>Prof. H. Kaciuba Uscilko, PhD&lt;br&gt;Prof. M. Mossakowski, PhD&lt;br&gt;A. Ziemba, PhD&lt;br&gt;Royal Netherlands Academy for Arts and Sciences (KNAW)&lt;br&gt;Polish Academy of Science</td>
<td>Collaboration to promote close bilateral scientific research, with special emphasis on coronary heart disease and metabolic risk factors: a joint research paper has been completed</td>
</tr>
<tr>
<td>Medical Research Centre of the Polish Academy of Science, Warsaw, Poland</td>
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<tr>
<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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</tr>
<tr>
<td>Development of a joint research project to be funded by the European Community</td>
<td></td>
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</tr>
<tr>
<td>Chronic diseases and co-morbidity in nursing-home patients</td>
<td>B.E. Fries, PhD</td>
<td>Joint project for the development and validation of co-morbidity-indices for nursing-home residents, using data from Dutch and North-American nursing homes</td>
</tr>
<tr>
<td>Lower respiratory infection (LRI) as a terminal event in US and Dutch nursing-home patients /Pneumonia in demented nursing-home patients in the Netherlands and in the US: optimal treatment strategy and long-term prognosis</td>
<td>D.R. Mehr, MD, MSc R.L. Kruse, PhD Prof. R.W. Madsen, PhD Prof. R.B. D’Agostino, PhD</td>
<td>Pooling of collected data to compare treatment strategies, assess treatment effects, and predict mortality and functional decline</td>
</tr>
<tr>
<td>Determinants of incontinence in nursing-home patients</td>
<td>J.N. Morris, PhD S. Simon, MSc</td>
<td>Collaborative research and joint preparation of publications</td>
</tr>
<tr>
<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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<tr>
<td>The influence of psychological factors on the onset and course of cardiovascular disease in the elderly</td>
<td>J.M. Guralnik, MD, PhD&lt;br&gt;R.J. Havlik, MD, MPH&lt;br&gt;S. G. Leveille, PhD</td>
<td>Exchange of data from gerontological studies (Women’s Health and Aging Study and the Established Populations for Epidemiological Studies in the Elderly [EPESE]) and various co-authorships of resulting papers</td>
</tr>
<tr>
<td>Epidemiology, Demography, and Biometry Program, National Institute on Aging, Bethesda, MD, USA</td>
<td>Ms. L. P. Fried MD, MPH</td>
<td>Joint publications on the predictors and the consequences of poor physical performance in older persons</td>
</tr>
<tr>
<td>Department of Medicine and Epidemiology, School of Medicine, John Hopkins Medical Institutions, Baltimore, MD, USA</td>
<td>L. Ferrucci, MD, PhD</td>
<td>Joint preparation of publications on depression and longitudinal trajectories of muscle strength in older persons; joint preparation of an EU grant proposal</td>
</tr>
<tr>
<td>Geriatric Department, “I Fraticini”, National Research Institute, Florence, Italy</td>
<td>Netherlands Organisation for Scientific Research (NWO)</td>
<td>Developing and implementing a physical activity counselling intervention</td>
</tr>
<tr>
<td>Mobility problems in old age&lt;br&gt;Department of Health Sciences. University of Jyväskylä, Finland</td>
<td>T. Rantanen, PhD&lt;br&gt;E. Heikkinen, PhD</td>
<td>Further development and implementation of the ‘Resident Assessment Instrument RAI’, international research projects and joint publications</td>
</tr>
<tr>
<td>A PACE-intervention in general practice&lt;br&gt;Department of Psychology, San Diego State University, CA, USA</td>
<td>Prof. J.F. Sallis, PhD&lt;br&gt;K.J. Calfas, PhD</td>
<td>Developing and implementing a physical activity counselling intervention</td>
</tr>
<tr>
<td>InterRAI research&lt;br&gt;Institute of Gerontology University of Michigan, Ann Arbor, MI, USA</td>
<td>Prof. R. Bernabei, MD, PhD (Italy)&lt;br&gt;Prof. B. Fries, PhD (USA)&lt;br&gt;I. Carpenter, MD, PhD (UK)&lt;br&gt;J. Gindin, MD (Israel)&lt;br&gt;Prof. J.C. Henrard, MD (France)&lt;br&gt;Prof. J. Hirdes, PhD (Canada)&lt;br&gt;Prof. S. Ikegami, MD (Japan)&lt;br&gt;Prof. P. Jönsson, MD (Iceland)&lt;br&gt;S.M. Kim, MD, PhD (Korea)&lt;br&gt;Prof. V. Mor, PhD (USA)&lt;br&gt;J.N. Morris, PhD (USA)&lt;br&gt;J.N. DaPasquier, MD (Switzerland)&lt;br&gt;Prof. M. Schroll, MD, PhD (Denmark)&lt;br&gt;Prof. K. Steel, MD (USA)&lt;br&gt;Prof. J. Stessman, MD (Israel)&lt;br&gt;Health Care Financial Administration (USA), National Institute on Aging (USA)&lt;br&gt;Netherlands Organisation for Scientific Research (NWO)</td>
<td>Further development and implementation of the ‘Resident Assessment Instrument RAI’, international research projects and joint publications</td>
</tr>
<tr>
<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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<tr>
<td>Dying Well in Europe. A study of place of death by death statistics in seven European countries</td>
<td>J. Cohen, MD, PhD J. Bilsen, MD, PhD</td>
<td>Partners in a European study and joint publications</td>
</tr>
<tr>
<td>End-of-Life Care Research Group, Vrije Universiteit, Brussels, Belgium</td>
<td>S. Kaasa, MD, PhD Ms. M. Piribauer, MD, PhD</td>
<td></td>
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<tr>
<td>Department of Oncology, St Olavs Hospital, University Hospital of Trondheim, Norwegian University of Science and Technology, Norway</td>
<td>M. Norup, PhD</td>
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<tr>
<td>Department of Medical Philosophy and Clinical Theory, University of Copenhagen, Denmark</td>
<td>R. Löfmark, PhD</td>
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<tr>
<td>Centre for Bioethics, Karolinska Institutet and Uppsala University, Sweden</td>
<td>G. Hanks, MD, PhD</td>
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<tr>
<td>Department of Palliative Medicine, University of Bristol, UK</td>
<td>G Miccinesi, MD, PhD</td>
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<tr>
<td>Centre for Study and Prevention of Cancer, Florence, Italy</td>
<td>E. Paci, MD, PhD</td>
<td></td>
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<tr>
<td>Medical end-of-life decisions: attitudes and practices in six European countries</td>
<td>Research Council Vrije Universiteit Brussels (GOA27)</td>
<td></td>
</tr>
<tr>
<td>Institut für Sozial- und Preventivmedizin, Zürich, Switzerland Department of Medical-social Sciences, Vrije Universiteit, Brussels, Belgium Centre for Environmental Philosophy and Bioethics, University of Gent, Belgium Medicinsk Vindenskabsteori, Panumstituttet, Copenhagen, Denmark Department of Medical Ethics, Lund University, Sweden Presidio per la Prevenzione Oncologica, Epidemioligica, Florence, Italy</td>
<td>K. Faist, MD, MPH</td>
<td>Partners in a European study and joint publications</td>
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<td>L. Deliens, PhD</td>
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<td>F. Mortier, PhD</td>
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<td>M. Norup, MD, PhD</td>
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<td>T. Nilstun, PhD</td>
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<td>E. Pagi, PhD</td>
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<td>European Union</td>
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<tr>
<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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<tr>
<td>Mortality in pneumonia: validation of a predictive model</td>
<td>Prof. L. Volicer, MD, PhD N. Kowall, MD</td>
<td>Prospective validation of a predictive model for mortality following pneumonia in nursing-home residents with dementia</td>
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<tr>
<td>Veterans Affairs, ENR Memorial Veterans Hospital, Bedford, MA, USA</td>
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<tr>
<td>The Northern Ireland Young Hearts Project</td>
<td>Prof. C.A. Boreham, PhD N. Kowall, MD</td>
<td>Statistical and methodological consultation, and joint publications</td>
</tr>
<tr>
<td>The Queen's University of Belfast/Dept. of Sport and Exercise Science, University of Ulster, Belfast, Jordanstown, Northern Ireland, UK</td>
<td>Northern Ireland Chest, Heart and Stroke Association The British Heart Foundation The Welcom Trust</td>
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<tr>
<td>Predictability of markers of endothelial dysfunction for the onset of (micro)albuminuria and cardiovascular disease in patients with non-insulin-dependent diabetes mellitus</td>
<td>Prof. H.H. Parving, PhD Dutch Kidney Foundation</td>
<td>Blood analyses and joint publications, including statistical analyses of longitudinal data</td>
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<tr>
<td>Steno Hospital, Copenhagen, Denmark</td>
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<tr>
<td>Genetics education (GenEd): improving non-genetics health professionals’ understanding of genetic testing</td>
<td>Prof. R. Harris, PhD (UK) Ms. H. Harris, PhD (UK) Prof. J. Schmidtke, PhD (Germany) Prof. Ms. I. Nippert, PhD (Germany) Ms. C. Julian-Reynier, PhD (France) Prof. U. Kristofferson, PhD (Sweden) European Commission, Directorate of General Research</td>
<td>Survey on genetic education as part of medical curriculae; assessment of educational needs. Joint publications, workshops on conferences.</td>
</tr>
<tr>
<td>Department of Medicine, Victoria University of Manchester, UK</td>
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<tr>
<td>Erasmus Network for Congestive Heart Failure Outcomes Research in Europe (ENCORE)</td>
<td>Prof. M. Johnston, PhD Prof. D. Johnston, PhD British Heart Foundation</td>
<td>Data-collection in Greece, Ireland, Italy, the Netherlands, Spain, and the UK, and joint publications on adherence, readmission, symptoms, and quality of life in patients with congestive heart failure</td>
</tr>
<tr>
<td>Department of Psychology, St. Andrews Hospital, Scotland, UK</td>
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<tr>
<td>Decision-making in demented patients with pneumonia: comparing the US and the Netherlands</td>
<td>M.R. Helton, MD T.P. Daaleman, DO, MPH G.R. Gamble, PhD P.D. Sloane, MD, MPH National Institute on Aging (AG01033) and the Fetzer Institute</td>
<td>Qualitative interview study comparing decision-making in the US and the Netherlands and joint publications</td>
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<tr>
<td>Family Medicine, University of North Carolina, Chapel Hill, NC, USA</td>
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<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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<tr>
<td>Young people’s life-styles and sedentariness and the role of sports in the</td>
<td>Prof. W.D. Brettschneider, PhD Prof. N. Armstrong, PhD Prof. K. Froberg, PhD</td>
<td>Sub-contract for carrying out a comparative review on the medical-biological aspects of current life-</td>
</tr>
<tr>
<td>context of education as a means of restoring the balance</td>
<td>European Commission, Education and Culture DG - Unit C.5 Sport</td>
<td>styles (i.e. physical inactivity) and sedentariness of young Europeans</td>
</tr>
<tr>
<td>Sportwissenschaft, Universität Paderborn, Germany School of Sport and Health</td>
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<tr>
<td>Sciences, University of Exeter, UK Institute of Sports Science &amp; Clinical</td>
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<tr>
<td>Biomechanics, University of Southern Denmark, Denmark</td>
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<tr>
<td>The Risky Self: understanding the relationships between self-image, genetic</td>
<td>Prof. Th. Marteau, PhD Netherland Organisation for Scientific Research (NWO)</td>
<td>PhD project and preparation of joint publications</td>
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<td>risk information, and health-related behaviour</td>
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<tr>
<td>Psychology and Genetics Research Group. Health Psychology Section, Department</td>
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<td>of Psychology Institute of Psychiatry, King’s College, London, UK</td>
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<tr>
<td>GENDEARF, European Network on clinical and diagnosis and societal impact of</td>
<td>Prof. D. Stephens, PhD, FRCP Prof. B. Danemark, PhD Prof. A. Martini, MD, PhD</td>
<td>Partners in a European study and joint publications</td>
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<td>Genetic Deafness</td>
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<td>HearCom, European 6th Framework program on “Hearing in the Communication</td>
<td>Prof. J. Wouters, PhD, Leuven Prof. B. Kollmeier, PhD, Olderburg Prof. A. Leijon,</td>
<td>Partners in a European study and joint publications</td>
</tr>
<tr>
<td>Society”</td>
<td>PhD, Stockholm Prof. M. Lutman, PhD, Southampton Prof. Larsby, PhD, Linköping</td>
<td></td>
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<tr>
<td>Measurements on the optics of the eye</td>
<td>S. Marcos, PhD P. Rosales, MSc</td>
<td>Collaborative research and joint preparation of publications</td>
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<tr>
<td>Instituto de Optica (CSIC) Madrid, Spain</td>
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<tr>
<td>Very young offenders in The Netherlands Pittsburgh University medical school,</td>
<td>Prof. R. Loeber, PhD</td>
<td>Expertise in longitudinal design in children and adolescents with anti-social behaviour, joint</td>
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<tr>
<td>Pittsburgh, PA, USA</td>
<td></td>
<td>publications in the context of a PhD thesis</td>
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<tr>
<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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<tr>
<td>International program on risk and protective factors for adolescent development</td>
<td>M. Schwab-Stone, PhD V. Ruchkin, PhD R. Corrado, PhD/R. Roesch, PhD Prof. D. Deboutte, MD, PhD</td>
<td>Collaboration on risk and protective factors for adolescent development using the Social and Health Assessment (SAHA) in various countries.</td>
</tr>
<tr>
<td>Juvenile sex-offenders: a study on psychosocial functioning, mental health problems, and predictive factors for recidivism within two years</td>
<td>Prof. Fegert, MD, PhD</td>
<td>Joint publications in the context of a PhD thesis</td>
</tr>
<tr>
<td>Psychopathology and neurobiological characteristics of delinquent boys.</td>
<td>Prof. H. Steiner, PhD Prof. A. Raine, PhD</td>
<td>Joint publications in the context of a PhD thesis</td>
</tr>
</tbody>
</table>
6.3.3 Research projects

**Health attitude and adjustment to ill health during aging**

07.91 - 12.07

Ministry of Health, Welfare and Sport (VWS)

Prof. D.J.H. Deeg, PhD
R.J. Bosscher, PhD
A.W. Braam, MD, PhD
P.D. Bezemer, PhD

Expectations of competence in older age

01.92 - 12.07

- R.J. Bosscher, PhD
  Prof. D.J.H. Deeg, PhD
  J.H. Smit, PhD
  P.D. Bezemer, PhD

**Psychological well-being of pregnant women who are offered prenatal screening for congenital defects**

09.99 - 10.05

Netherlands Organization for Health Research and Development (ZonMw)

Ms. J.M. Kleinveld, MA
Ms. D.R.M. Timmermans, PhD
Prof. G. van der Wal, MD, PhD
Prof. L.P. ten Kate, MD, PhD
D.L. Knol, PhD

Risk perception and decision-making of pregnant women who are offered prenatal screening for congenital defects

09.99 - 01.06

Netherlands Organization for Health Research and Development (ZonMw)

M. van den Berg, MSc
Ms. D.R.M. Timmermans, PhD
Prof. G. van der Wal, MD, PhD
Prof. J. van Vuigt, MD, PhD
D.L. Knol, PhD

Maximum acceptable waiting times for elective surgery

09.99 - 10.04

Ministry of Health, Welfare and Sport (VWS)

J. Oudhoff, MSc
Ms. D.R.M. Timmermans, PhD
Prof. G. van der Wal, MD, PhD
D.L. Knol, PhD

Wanted and unwanted effects of drugs used for the administration of euthanasia and physician-assisted suicide

04.00 - 04.07

Royal Dutch Medical Association (KNMG)

Ms. P. van Wigheren, MSc
Ms. B.D. Onwuteaka-Philipsen, PhD
Prof. G. van der Wal, MD, PhD

Care trajectories of chronically ill older persons: adaptation to changes in the course of disease and care utilization

10.99 - 12.05

Netherlands Organization for Scientific Research (NWO)

Ms. S.W. Geerlings, PhD
Ms. N.Y. Schuit, MA
Prof. D.J.H. Deeg, PhD
Ms. A. M. Pot, PhD
Prof. M.W. Ribbe, MD, PhD

Knowledge of genetics relevant for medical practice among recently qualified physicians

12.99 - 01.05

Netherlands Organization for Health Research and Development (ZonMw)

Ms. M.J.H. Baars, MD
Prof. L.P. ten Kate, MD, PhD
F.A. Beemer, MD, PhD
Prof. M.C. Cornel, MD, PhD
Ms. L. Henneman, PhD

‘Rehabilitation & Sports’: the effect of a sports and physical life-style stimulation programme during and after regular rehabilitation treatment

02.00 - 01.05

Netherlands Organization for Health Research and Development (ZonMw)

Dutch Association for Sports for the Disabled (NEBAS)

H.P. van der Ploeg, MSc
Ms. M.N.M. van Poppel, PhD
A.J. van der Beek, PhD
Prof. W. van Mechelen, MD, PhD
L.H.V. van der Woude, PhD

WC98-019-2

WC98-058-2

WC98-019-2

WC98-019-2

WC98-042
The long-term aftermath of the Amsterdam air disaster: psychological well-being of professionally involved rescue workers

07.00 - 04.06

Ministry of Health, Welfare and Sport (VWS)
KLM Health Safety & Environment

Ms. A.B. Witteveen, MSc
Prof. T. Smid, PhD
Prof. H.M. van der Ploeg, PhD
Ms. P. Soltje, MSc
Ms. N. Smidt, PhD

WC99-015-B

Epidemiological study of the air disaster in Amsterdam: long-term physical health effects in occupationally involved police officers, fire-fighters, and accident and wreckage investigators compared to reference groups

07.00 - 04.06

Ministry of Health, Welfare and Sport (VWS)
KLM Health Safety & Environment

Ms. P. Soltje, MSc
Ms. N. Smidt, PhD
J.W.R. Twisk, PhD
Prof. T. Smid, PhD
Prof. W. van Mechelen, MD, PhD

WC99-015-B

Reserved procedures in Dutch healthcare: practices, policies and perspectives of nurses, physicians and management

08.00 - 07.06

Netherlands Organization for Health Research and Development (ZonMw)

Ms. J de Bie, MA
Ms. J.M. Cuperus-Bosma, MD, PhD, LLM
Prof. G. van der Wal, MD, PhD
Prof. J.K.M. Gevers, JD

WC01-042

The Dutch disciplinary code for healthcare: an empirical research project

09.00 - 04.05

Netherlands Organization for Health Research and Development (ZonMw)

F.A.G. Hout, MSc
Ms. J.M. Cuperus-Bosma, MD, PhD, LLM
Prof. G. van der Wal, MD, PhD
Prof. J.H. Hubben, MA, JD

WC01-042

Response-shift in quality of life in the palliative treatment of patients with small-cell lung cancer

09.00 - 01.05

Dutch Cancer Society (KWF)

Ms. M.J. Westerman, MPhil
T. Hak, PhD
Ms. B.A.M. The, PhD, LLM
Prof. G. van der Wal, MD, PhD
H.J.M. Groen, MD, PhD

WC98-027-2

Prevalence and incidence of palliative terminal care for nursing-home patients

09.00 - 11.04

Ministry for Health, Welfare and Sport (VWS)
Centre for the Development of Palliative Care (COPZ)

Ms. H.E. Brandt, MA
M.E. Ooms, MD, PhD
Prof. M.W. Ribbe, MD, PhD
Prof. G. van der Wal, MD, PhD
P.D. Bezemer, PhD

WC99-038

Palliative care in general practice

09.00 - 08.05

Ministry of Health, Welfare and Sport (VWS)
Centre for the Development of Palliative Care (COPZ)

S.D. Borgsteede, PharmD, MSc
Prof. L. Deliens, PhD
Prof. J.Th.M. van Eijk, PhD
Prof. G. van der Wal, MD, PhD
D.L. Willems, MD, PhD

WC98-036-2

Lower respiratory infection (LRI) as a terminal event in US and Dutch nursing-home patients / Pneumonia in demented nursing-home patients in the Netherlands and in the US: optimal treatment strategy and long-term prognosis

12.00 - 05.06

National Institutes of Health, USA
Netherlands Organization for Health Research and Development (ZonMw)

Ms. J.T. van der Steen, PhD
M.E. Ooms, MD, PhD
Prof. G. van der Wal, MD, PhD
Prof. M.W. Ribbe, MD, PhD
R.L. Kruse, PhD

WC98-022-2
Factors influencing the choice of a medical career
01.01 - 06.06
-  
M.B.M. Soethout, MD  
Prof. G. van der Wal, MD, PhD  
Th.J. ten Cate, PhD  
WC01-059

The National Hearing Test: an automatic speech-in-noise screening test by telephone
01.01 - 01.06
-  
Ir. J.C.M. Smits  
Prof. T. Houtgast, PhD  
WC05-028

Chronic diseases and comorbidity in nursing-home patients
03.01 - 03.04
Netherlands Organization for Health Research and Development (ZonMw)
M. van Dijk, MD  
M.E. Ooms, MD, PhD  
Prof. M.W. Ribbe, MD, PhD  
M.T. Muller, PhD  
P.D. Bezemer, PhD  
WC99-022

Suffering in terminal illness: experience and attitudes of patients and their attending physicians
04.01 - 03.05
Ministry of Health, Welfare and Sport (VWS)  
Ministry of Justice
J.J. Georges, MSc  
Ms. B.D. Onwuteaka-Philipsen, PhD  
A. van der Heide, MD, PhD  
Prof. P.J. van der Maas, MD, PhD  
Prof. G. van der Wal, MD, PhD  
WC01-039

Setting the stage for death: end-of-life preferences and death wishes of older people
04.01 - 12.05
Ministry of Health, Welfare and Sport (VWS)  
Ministry of Justice
Ms. M.L. Rurup, PhD  
Ms. B.D. Onwuteaka-Philipsen, PhD  
A. van der Heide, MD, PhD  
Prof. P.J. van der Maas, MD, PhD  
Prof. G. van der Wal, MD, PhD  
WC01-039

Signal adaptation for individual hearing-impaired listeners
10.01 - 04.06
Stichting het Heinsius-Houbolt Fonds
Drs. G.L.M. Hillhuyzen  
Prof. T. Houtgast, PhD  
WC05-026

Early detection of frailty in the medical, psychological, and social domains in a general population and in several healthcare settings
12.01 - 12.05
-  
M.T.E. Puts, MSc  
Prof. D.J.H. Deeg, PhD  
Prof. P.Th.A.M. Lips MD, PhD  
WC01-064

Genetic hearing impairment and psychosocial consequences
01.02 - 07.05
European Commission; Eur Thematic Network
Ms. S.E. Kramer, PhD  
Prof. Dr. D. Stephens  
WC05-036

The suffering of patients with incurable cancer in general practice care and the request for and performance of euthanasia or physician-assisted suicide
06.02 - 06.07
Netherlands Organization for Health Research and Development (ZonMw)
C.D.M. Ruijs, MD  
Ms. B.D. Onwuteaka-Philipsen, PhD  
Prof. A.J.F.M. Kerkhof, PhD  
Prof. C. van der Wal, MD, PhD  
WC01-089

The effects of the Dutch national guidelines for occupational physicians on the management of employees with mental health problems: a randomized clinical trial
01.02 - 01.08
Ministry of Internal Affairs  
Commit Arbo
D.S. Rebergen, MA  
D.J. Bruinvels, MD, PhD  
H. Hlobil, MD  
A.J. van der Beck, PhD  
Prof. W. van Mechelen, MD, PhD  
WC01-090
Preconceptional screening for carriers of haemoglobinopathies and/or cystic fibrosis, dependent on ethnic background: feasibility of a combined offer in the Dutch population

06.02 - 03.06
Netherlands Organization for Health Research and Development (ZonMw)
Ms. P. Lakeman, MD
Prof. L.P. ten Kate, MD, PhD
Prof. M.C. Cornel, MD.D. Bezemer, PhD
H.J. Adér, PhD
Prof. G. van der Wal, MD, PhD
WC99-042-2

Health and healthcare utilization of asylum-seekers and refugees in the Netherlands

08.02 - 03.06
Netherlands Organization for Health Research and Development (ZonMw)
Ms. A.A.M. Gerritsen, PhD
Ms. I. Bramsen, PhD
Prof. H.M. van der Ploeg, PhD
W. Devillé, MD, PhD
Ms. L.H.M. van Willigen, MD, PhD
WC01-023

Return to work after childbirth

09.02 - 08.07
Body@Work, Research Centre on Physical Activity, Work and Health, TNO-VUmc
Ms. S.G.M. Stomp-van den Berg, MSc
Ms. M.N.M. van Poppel, PhD
Ms. I.J.M. Hendriksen, PhD
Prof. W. van Mechelen, MD, PhD
D.J. Bruinvels, MD, PhD
WC02-038

The effect of physical activity and vitamin supplementation on cognitive functioning and psychosocial health of older people with mild cognitive impairment (FACT)

09.02 - 08.06
Body@Work, Research Centre on Physical Activity, Work and Health, TNO-VUmc
Ms. J.G.Z. van Uffelen, MSc
Ms. M. Hopman-Rock, PhD
Ms. J.M.M. Chin A Paw, PhD
Prof. W. van Mechelen, MD, PhD
WC02-008

The cost-effectiveness of systematic home visits by nurses to frail elderly primary-care patients: a randomized controlled trial

07.02 - 07.06
Netherlands Organization for Health Research and Development (ZonMw)
Social Insurance Bank (SKB)
H.P.J. van Hout, PhD
M.G.A.A.M. Nijpels, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
WC01-080-2

An intervention aimed at the prevention of excessive weight-gain during pregnancy

10.02 - 09.07
Netherlands Organization for Health Research and Development (ZonMw)
Ms. G.H.C.W. Althuizen, MSc
Ms. M.N.M. van Poppel, PhD
Prof. W. van Mechelen, MD, PhD
Ms. D.R.M. Timmermans, PhD
Prof. R.A. Hira Sing, MD, PhD
WC01-076

Moral considerations with respect to the decision for or against prenatal screening and the implications for the desirability of prenatal screening as community screening

10.02 - 10.06
-
Ms. E. Garcia, PhD
Ms. D.R.M. Timmermans, PhD
Prof. E.F. van Leeuwen, PhD
WC98-019-2

Prognostic factors for the quality of life of visually impaired adults

11.02 - 11.06
Netherlands Organization for Health Research and Development (ZonMw)
M. Langelaan, MSc
Prof. G.H.M.B. van Rens, MD, PhD
Prof. H.J. Völker-Dieben, MD, PhD
WC01-082
Very young ‘offenders’ in the Netherlands: a worrisome development?
01.03 - 10.08

WODC, Stadsregio Rotterdam, Politie & Wetenschap, Stichting Kinderpostzegels, Provincie Utrecht, Gemeente Utrecht, Gemeente Amersfoort

Ms. L. van Domburgh, PhD
Ms. C. Geluk, PhD
Prof. R. Vermeiren, MD, PhD
Ms. L. Nauta-Jansen, PhD
Prof. Th.A.H. Doreleijers, MD, PhD

Determinants of aggression in detained girls
11.03 - 12.08

Subsidiegever (bijv.: Dutch Heart Foundation)
Ministry of Justice, WODC

Ms. S. Hamerlynck, MD
Ms. A. Krabbendam, MD
Prof. R. Vermeiren, MD, PhD
Prof. P. Cohen-Kettenis, PhD
Prof. Th.A.H. Doreleijers, MD, PhD

WC04-015

Food-Steps: life-style interventions at the workplace - the effects of modifications in the building and canteen on physical activity and dietary habits
01.03 - 03.06

Netherlands Organization for Health Research and Development (ZonMw)

L. Engbers, MSc
Ms. M.N.M. van Poppel, PhD
Prof. W. van Mechelen, MD, PhD

Longitudinal change in rehabilitation needs of older people (pilot study)
01.04 - 07.05

Ms. S.E. Kramer, PhD
Prof. L. Hickson

WC05-035

Development and implementation of a protocol to improve quality of care for hearing-impaired people with problems at work
06.03 - 06.05

Stichting Instituut GAK

Ms. S.E. Kramer, PhD
S.T. Goverts, MD, PhD
Prof. T. Houtgast, PhD

COMmunication in PAlliative Care Trial (COMPACT): effectiveness of a training programme on GP-Patient communication in palliative cancer care
01.04 - 12.05 (preliminary studies)
01.06 - 12.08 (controlled trial)

Pfizer Pharmac. (Capelle a/d IJssel)
OZ health insurance (Breda)
Janivo Foundation (Zeist)
Comprehensive Cancer Centre South (IKZ, Eindhoven)

W. Slort, MD
Ms. A.H. Blankenstein, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
Prof. G. van der Wal, MD, PhD
Prof. N.K. Aaronson, PhD

WC04-020

Definition of Speech Transmission quality for hearing-impaired persons
07.03 - 07.07

Stichting het Heinsius-Houbolt Fonds

Drs. E.L.J. George, MSc
Prof. T. Houtgast, PhD
J.M. Festen, PhD

Economic evaluations in occupational healthcare
02.04-02.06

- 

Ms. K. Uegaki, MHS, PT
Ms. M.C. de Bruijne, MD, PhD
Prof. W. van Mechelen, MD, PhD
A.T.F. van der Beek, PhD
Prof. M.W. van Tulder, PhD

WC03-018

The relationship between environmental characteristics of residential districts and physical activity
03.04 - 06.06

Community Health Care Foundation (OGZ)

F. den Hertog, PhD
Ms. M.N.M. van Poppel, PhD
Prof. W. van Mechelen, MD, PhD
Prof. J.C. Seidell, PhD

WC03-065-2
The Risky Self: understanding the relationships between self-image, genetic risk information, and health-related behaviour

06.04 - 06.08
Netherlands Organization for Scientific Research (NWO)
L. Claassen, MSc
Ms. D.R.M. Timmermans, PhD
Prof. G. van der Wal, MD, PhD
Prof. T.M. Marteau, MD, PhD
Ms. L. Henneman, PhD

Communicating breastcancer risks: a genetic counsellor’s role in improving patient understanding to increase informed decision-making

07.04 - 07.08
Dutch Cancer Society (KWF)
K. Vermey, MSc
Ms. D.R.M. Timmermans, PhD
Prof. G. van der Wal, MD, PhD
Ms. L. Henneman, PhD
F.Menko, PhD

Second primary tumors in hereditary retinoblastoma patients

09.04 - 09.07
Dutch Cancer Society (KWF)
Ms. T. Marees, MSc
M. de Boer, MD, PhD
Ms. A.C. Moll, MD, PhD
S.M. Imhof, PhD
Prof. F.E. van Leeuwen, PhD

Reshaping criteria for screening in the age of genomics - contemporary history, users’ perspective

09.04 - 07.07
Centre for Society and Genomics (CSG), Radboud University, Nijmegen
Centre for Medical Systems Biology (CMSB-MAG), Leiden
Ms. C.G. van El, PhD
Ms. L.Krijgsman, MSc
Prof. M.C. Cornel, MD, PhD
Prof. T. Pieters, PhD
Ms. L. Henneman, PhD

Development of a clinical test for the assessment of cochlear compression

09.04 - 03.08
European Commission; Information Society Technologies
J. Lyzenga, MD, PhD
Prof. T. Houtgast, PhD
J.M. Festen, PhD

The Institutionalization of Ethics in Science (INES) Policy: practices and impact
Sixth Framework Programme on Research, Technological Development and Demonstration Work Package IV: Ethics in Medical Genetics

10.04 - 12.05
Centre for Society and Genomics, Radboud University, Nijmegen
Ms. J.E. Lunshof
Prof. M.C. Cornel, MD, PhD
Prof. G. de Wert, PhD
Prof. A. Tibben, PhD
Prof. H. Zwart, PhD

Epidemiology and aetiology of presbyopia and refractive errors

11.04 - 11.08
Technological collaboration, Ministry of Economic Affairs, The Hague (Senter)
M.D. Dubbelman, PhD
V.A. Sicam, MSc
E.A. Hermans Zaal, MSc
G.L. van der Heijde, PhD
Prof. P.J. Ringens, MD, PhD

Integration of visual and auditory information in speech perception

11.04 - 11.08
European Union (6th Framework)
A.A. Zekveld, MSc
Prof.T. Houtgast, PhD
Ms. S.E. Kramer, PhD

WC03-059
WC03-067
WC04-021
WC04-021
WC04-021
WC05-027
WC05-013
WC05-030
Evaluation of the euthanasia law in relation to medical end-of-life decision-making

02.05 - 12.06

Netherlands Organization for Health Research and Development (ZonMw)

Ms. H. Hansen-de Wolf, MSc
Ms. H.R.W. Pasman, PhD
Ms. M.L. Rurup, PhD
Ms. B.D. Onwuteaka-Philipsen, PhD
Prof. G. van der Wal, MD, PhD

WC05-004

Reasons for formulating an advance directive, changes in preferences over time and effectiveness: a quantitative cohort-study with nested qualitative sub-studies

06.05 - 06.09

NVVE, NPV, Marty Brand Stichting, Stichting tot Steun van de VGVGZ

Ms. H.R.W. Pasman, PhD
Ms. M.L. Rurup, PhD
Ms. B.D. Onwuteaka-Philipsen, PhD
Prof. G. van der Wal, MD, PhD

WC05-041

The role of the general practitioner and the district nurse in managing spiritual needs of patients at the end of life

09.05 - 08.07

Pieter van Foreeststichting

M.A. Echteld, PhD
Prof. L. Deliens, PhD
Ms. H.R.W. Pasman, PhD

WC05-032

Good care and advance directives: an empirical-ethical research into the practice of dealing with advance directives and the way people with dementia, in particular Alzheimer’s disease, value their situation.

09.05 - 09.09


Ms. M.E. de Boer, MSc
C.M.P.M. Hertog, MD, PhD.
Ms. R.M. Dröes, PhD
Prof. J.A. Eefsting, MD, PhD
Prof. C. Jonker, MD, PhD

WC04-060

Development and evaluation of an intervention in the well baby clinic to inform women on periconceptional use of folic acid

09.05 - 12.06

Ministry of VWS

Ms. P. Lakeman, MD
Prof. M.C. Cornel, MD, PhD
D.J. de Smit, PhD
Prof. R.A. Hira Sing, MD, PhD
P.D. Bezemer, PhD

WC01-041A

Quality of out-of-hours palliative care in general practice (PACT)

11.05-11.09

Comprehensive Cancer Centre Amsterdam (IKA)
Stichting Huisartsen Dienstenposten Amsterdam
AGIS Health Insurance (Amersfoort)
Health Centre Diemen-Zuid (Diemen)

B.P.M. Schweitzer, MD
Ms. A.H. Blankenstein, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
Prof. G. van der Wal, MD, PhD

WC05-055

Transmural Nutritional Support

12.05 -12.08

Netherlands Organization for Health Research and Development (ZonMw)

F. Neelemaat, MSc
Ms. M.A.E. van Bokhorst - de van der Schueren, PhD
Prof. J.C. Seidell, PhD
Prof. M.W. van Tulder, PhD
Prof. W.A.B. Stalman, MD, PhD

WC04-039

Preventive effects of transmural integrated care (PIC: ketenzorg) on residents in homes for the elderly: a controlled clinical trial

12.05 - 06.07

Netherlands Organization for Health Research and Development (ZonMw)

M. Boorsma, MSc
H.P.J. van Hout, PhD
M.G.A.A.M. Nijpels, MD, PhD
Prof. W.A.B. Stalman, MD, PhD

WC05-069
Vraag euthanasie vaak gehonoreerd

Nederlandse artsen werken mee aan 44 procent van de euthanasieverzoeken of verzoeken om hulp bij zelfdoding van patiënten. Dat blijkt uit een onderzoek van M. Jansen-Van der Weide van het VU Medisch Centrum, dat maandag is gepubliceerd in het Amerikaanse *Archives of Internal Medicine*.

In 12 procent van de gevallen werd een euthanasieverzoek geweigerd. In de overige situaties overleed de patiënt voordat er een besluit over het verzoek was genomen (13 procent) of voordat het werd uitgevoerd (ook 13 procent).

In evenveel 13 procent van de gevallen trok de patiënt zijn verzoek in.


Jansen-Van der Weide werkt bij de Faculteit sociale geneeskunde van de Vrije Universiteit van Amsterdam, waar zij onderzoek doet op het gebied van de extràmedische geneeskunde.

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**Prenataal testen groeit explosief**

**Dit jaar 25 à 30 duizend vrouwen getest**

In het voortouw ontwaarden vrouwen voor jaar testen hun baby voor de kans op dat hun ongeboren kind autistisch zou worden. Dit jaar gaat het om 25 à 30 duizend vrouwen. Dat blijkt uit een onderzoek van het RVV, dat zeventien van de meest gebruikte tests testte in dit jaar. Drie jaar geleden werden al 25 à 30 duizend vrouwen getest.

Kelt een uitgebreide test, zoals computerbeeldvorming, of een beperkte test, zoals een kleurenvisiestest, of een chemische test. De tests worden afhankelijk van de vragen van de vrouw en de ervaring van de arts uitgevoerd.

De meest gebruikte tests zijn: echo, fysieke test, geboortetest en testen op minderafleiding. Deze tests worden vaak gebruikt om te weten te komen of de vrouw zelf wel of niet aan het zwelgen is en of de baby normaal ontwikkeld is.

**Gemiste plooiën**
6.4 Musculoskeletal Disorders

6.4.1 Programme leaders, senior scientific staff, and postdocs

Prof. J. Dekker, PhD
Ms. Prof. H.C.W. de Vet, PhD
J.R. Anema, MD, PhD
Ms. G.A.M. Ariëns, PhD
Prof. J.G. Becher, MD, PhD
Ms. H. Beckerman, PhD
A.J. van der Beek, PhD
Ms. C.M. Bernaards, PhD
Ms. A.H. Blankenstein, MD, PhD
Ms. B.M. Blatter, PhD
A.J.P. Boeke, MD, PhD
Ms. Prof. P.M. Bongers, PhD
Prof. L.M. Bouter, PhD
Ms. A.J. Dallmeijer, PhD
V. de Groot, PhD
Ms. M. Hopman-Rock, PhD
Ms. H.E. van der Horst, MD, PhD
D.L. Knol, PhD
Ms. G.J. Lankhorst, MD, PhD
Prof. P. Th.A.M. Lips, MD, PhD
Prof. W. van Mechelen, MD, PhD
R.W.J.G. Ostelo, PhD
Ms. E.E. Roelofsen, PhD
Ms. N.M. van Schoor, PhD
Prof. T. Smid, PhD
Ms. N. Smidt, PhD
Prof. W.A.B. Stalman, MD, PhD
M.P.M. Steultjens, PhD
Ms. C.B. Tervee, PhD
Prof. M.W. van Tulder, PhD
E.A.L.M. Verhagen, PhD
Ms. M. Visser, PhD
Ms. H. van Wijnhoven, PhD
Ms. D.A.W.M. van der Windt, PhD

6.4.2 Programme description

Musculoskeletal disorders occur frequently; out of the 16 million people living in the Netherlands, approximately 3 million – nearly one in five – suffer from musculoskeletal symptoms, and their incidence and prevalence are expected to increase rapidly as the population ages and people lead ever more unhealthy lifestyles. Musculoskeletal complaints include non-specific symptoms such as pain in the back, neck, and upper extremities, chronic inflammatory or degenerative rheumatic disorders, and a wide range of sports injuries. These disorders cause considerable disability and suffering, strongly impairing a person’s quality of life. They are a leading reason for patients to visit their general practitioners and therefore impose a considerable burden on the healthcare system. Furthermore, musculoskeletal disorders take a substantial economic toll by keeping people away from work. For all these reasons, it is highly important to maintain musculoskeletal health and manage musculoskeletal disorders. Yet, despite the magnitude of the problem, surprisingly little is known about the determinants of a healthy musculoskeletal system or about the aetiology and clinical course of most musculoskeletal disorders. Even the available diagnostic tests and common therapeutic interventions come with little insight into their actual value.

These circumstances have led to the formulation of a consensus document, The Bone and Joint Decade 2000-2010 for prevention and treatment of musculoskeletal disorders (Acta Orthop Scand [Suppl 281] 1998;69). Supported by the World Health Organisation, this initiative of several national and international medical and scientific societies and journals hopes to improve the health-related quality of life for people with musculoskeletal disorders throughout the world.

OBJECTIVES

EMGO’s Musculoskeletal Disorders research programme seeks knowledge about the development and lifelong maintenance of a healthy musculoskeletal system and about the occurrence, prognosis, and treatment of musculoskeletal disorders. The programme’s studies range in focus from influences on children’s developing musculoskeletal systems to causes of deterioration of the musculoskeletal system in the elderly. Other studies, on the occurrence and clinical management of musculoskeletal disorders, emphasise frequently occurring problems, such as back pain, neck pain, upper extremity symptoms, osteoporosis, and osteoarthritis.

The research programme carries out studies in the general population, in general practices, in occupational settings, and in rehabilitation clinics. Outcome measures include pain, disability, work absenteeism, quality of life, and costs. Within the framework of these studies, the programme encourages innovative methodology in diagnostic research, systematic literature reviews, and the clinimetric evaluation of measurement instruments.

RESEARCH TOPICS

The programme encompasses three broad topics of research and a methodological line of investigation. The research topics are: 1) the development and maintenance of a healthy musculoskeletal system; 2) the occurrence, prognosis, and clinical management of musculoskeletal disorders; 3) the diagnosis and prognosis of minor ailments in primary care, and (4) research methodology, which is a central and important theme within the research programme and contributes to all three topics.

1) Development and maintenance of a healthy musculoskeletal system

The Amsterdam Growth and Health Longitudinal Study (AGAHLs) focuses on determinants for developing a healthy musculoskeletal system. The AGAHLs cohort was created in 1976; as of the measurements taken in 2000, the participating men and women had been monitored for 23 years.
Within the framework of the Longitudinal Aging Study Amsterdam (LASA), determinants for maintaining the musculoskeletal system in older men and women are being studied in two lines of investigation. The first, started in 1995, studies risk factors and the prevention of osteoporosis, falls, and fractures. A second line of investigation, initiated in 1998, studies sarcopenia (age-related loss of muscle mass and muscle strength) and its determinants, occurrence, and functional consequences.

2) Occurrence, prognosis, and clinical management of musculoskeletal disorders

This research focuses on three settings: the occupational, primary care, and rehabilitation setting. Within these settings, occupational physicians, general practitioners, physiotherapists, and other professionals are interested in developing evidence-based management of the most important musculoskeletal disorders in their own specific fields. Analyses of cost-effectiveness are also often conducted as part of these studies.

Occupational setting
At the research centre, Body@Work TNO VUmc, which concentrates on physical activity, work, and health, research focuses on the determinants, prevention, and management of back pain, neck pain, and upper extremity symptoms. The research, which comprises both cohort and intervention studies, is intended to help prevent or reduce work absenteeism, disability, and (occupational) healthcare utilization due to musculoskeletal disorders.

Primary care setting
These studies investigate the clinical course, prognosis, prevention, and management of musculoskeletal disorders (including shoulder disorders, musculoskeletal symptoms of the upper and lower extremities, back and neck pain, chronic pain, hip fractures, and sports-related injuries). The results will give general practitioners and other professionals in primary care an evidence base for optimal treatment and referral.

Rehabilitation setting
Rehabilitation medicine prevents and reduces disabilities and handicaps in adults and children with chronic disorders. These research projects develop methods for predicting functional status in patients with chronic, invalidating musculoskeletal disorders and in patients with other disorders that affect musculoskeletal functioning. They also evaluate the outcomes of rehabilitation interventions.

Cost-effectiveness analyses are included in most of the intervention studies that are being carried out in occupational settings, primary care and rehabilitation.

3) Diagnosis and prognosis of minor ailments in primary care

Although disorders of the musculoskeletal system can result in longstanding disabilities, they are usually not life-threatening, and for most patients referral to secondary or tertiary care is unnecessary. This also applies to other minor ailments in primary care, such as general fatigue, abdominal pain, and dizziness. More importantly, these ailments show many similarities with these less worrying musculoskeletal symptoms with respect to risk factors, prognostic factors, and possibilities for intervention with other minor ailments often seen in primary care, such as general fatigue, abdominal pain, and dizziness. In view of these similarities, minor ailments in primary care are also included in this research programme. The studies in this section of the programme focus on the value of diagnostic tests (such as patient histories, physical examinations, and other tests) and their diagnostic and prognostic value in the exclusion of specific diseases, and in estimating the most likely course of symptoms (prognosis) in patients with medically unexplained symptoms. A new network for education and research in general practice, initiated in 2002, provides an excellent infrastructure for research on musculoskeletal pain and minor ailments in primary care. Research collaboration has facilitated the use of similar methods and outcome measures and provides many opportunities for investigating the overlap of various symptoms (such as musculoskeletal pain, fatigue, and dizziness).

4) Methodology

Researchers within the Musculoskeletal Disorders programme pay considerable attention to methodology and clinimetrics. Investigators have studied the clinimetric properties of measurement instruments used in the programme’s randomised controlled trials and cohort studies. They have also reviewed the literature on specific symptoms to provide overviews of the clinimetric properties of available measurement instruments (such as shoulder disability questionnaires). Other systematic literature reviews have covered treatment efficacy, the value of diagnostic tests, and the prognosis of functional status. To facilitate systematic reviews of the accuracy of diagnostic tests, attention is paid to improving the quality of reporting of diagnostic studies, compiling a Cochrane handbook for diagnostic reviews, and participating in pilot reviews of diagnostic research for the Cochrane Collaboration. Many existing Cochrane reviews are continuously being updated, and many new reviews and protocols for reviews have been added.

RECENT RESULTS

2005 was an excellent year for the Musculoskeletal Disorders programme. Maurits van Tulder was appointed as a professor of health technology assessment. Jules Becher held his inaugural lecture after being appointed as a professor of paediatric physiatry. Raymond Ostelo gave his public lecture as an associate professor (‘lector’) of allied health research at the Amsterdam School of Allied Healthcare Education. As of January 1 2006, Danielle van der Windt is a reader in general practice research in Keele (UK).

Ten PhD students affiliated with the programme successfully defended their theses in 2005. Three of these theses addressed the prognosis of non-specific pain and symp-

The Liberty Mutual Best Paper Award was presented to Allard van der Beek for his co-authorship of the paper, *Effect of two-wheeled containers on mechanical loading*.

The list of international collaborations shows that members of the Musculoskeletal Disorders programme are plugged into a worldwide research network. These collaborative efforts include the preparation of systematic literature reviews (e.g. on the management of back pain and upper extremity disorders), the development of guidelines for the management of musculoskeletal disorders (e.g. low back pain), collaborative research projects (e.g. on physical activity and bone health), and secondary analyses on data (e.g. on sarcopenia). Furthermore, members of the programme hold a variety of positions within prestigious international organisations, including advisory boards of scientific and professional institutes (e.g. Institute for Work and Health, Toronto, Canada), editorial boards of international peer-reviewed journals (e.g. *Applied Ergonomics*, *International Journal of Behavioral Medicine*, *Journal of Clinical Epidemiology*), scientific and organising committees of international congresses, (e.g. Symposium on Economic and Clinical Aspects of Osteoporosis and Osteoarthritis), boards of scientific and professional organisations (e.g. International Council for Physical Activity and Physical Fitness Research), and steering committees of large international studies (e.g. Standards for reporting diagnostic accuracy). The complete listing of international functions is posted on the web (www.emgo.nl).

**FUTURE DEVELOPMENTS**

Participants in the Musculoskeletal Disorders programme contributed actively to the discussion of EMGO’s future, which led to the Policy Paper 2006–2008 (see Introduction). Discussions between programme leaders and project leaders on the future of the programme itself led to several goals:

1. participating in EU grant proposals and funding;
2. increasing collaboration with basic scientists;
3. establishing partnerships with patient groups, practitioners, and policymakers; and
4. integrating the creativity of PhD students into research projects.

These goals are being actively pursued; their progress will be evaluated at regular intervals.

The LASA study will continue to investigate genetic and biological parameters as risk factors for osteoporosis, falls, and fractures. LASA focuses on vitamin D, parathyroid hormone, sex hormones, IGF-1, and cortisol as predictors of low bone density, decreased physical performance, falls, and fractures. It will also explore the effects of genetic polymorphisms of the vitamin-D-receptor gene, oestrogen-receptor gene, and cortisol-receptor gene. The fall risk profiles developed in LASA will be validated in other populations. The study on the prevalence of vitamin-D deficiency in non-western immigrants will be followed by a clinical trial (in ten general practices and the Department of Internal Medicine) that will compare the effects of different doses of vitamin D and ultraviolet irradiation. A clinical trial has already begun on the prevention of fall accidents in patients with a high fall risk; it compares usual care and extensive care in a transmural setting.

In the fields of occupational medicine, general practice, primary healthcare, and rehabilitation, randomized controlled trials and systematic reviews will continue to be important research activities in the future. The programme will closely cooperate with departments within VUmc to strengthen the scientific basis of medical practice in their specific fields. In cooperation with the Department of Public and Occupational Health, researchers will focus on developing and evaluating intervention programmes aimed at returning employees to work. Other research efforts will stress primary prevention of long-lasting musculoskeletal disorders in order to reduce occupational healthcare utilization, work absenteeism, and disability.

Working with the Department of General Practice, researchers will continue to focus on the diagnosis and prognosis of medically unexplained symptoms. A new research project will study diagnostic decision-making in patients with abdominal pain in general practice. Ongoing research will continue to investigate similarities across different symptoms (musculoskeletal pain, fatigue, and dizziness) with respect to patient characteristics, risk factors, and prognostic factors. This research aims to explore common mechanisms in the aetiology and progression of musculoskeletal pain and other common symptoms in primary care.

In collaboration with the Department of Rehabilitation Medicine, the programme will use knowledge obtained in current prognostic cohort studies and clinimetric studies to guide future research on the effectiveness of rehabilitation interventions. The Department of Rehabilitation Medicine will work closely with the Revalidatie Centrum Amsterdam and continue to collaborate with the Jan van Breemen Institute on the rehabilitation of patients with rheumatic disorders, extending this work to include the rehabilitation of patients with chronic pain.
Research in the occupational setting will be further strengthened by initiatives within Body@Work TNO VUmc, where EMGO closely collaborates with TNO Quality of Life (www.bodyatwork.nl). For instance, three additional PhD studies on upper extremity symptoms are being conducted, two in close collaboration with the Faculty of Human Movement Sciences.

In line with the Body@Work TNO VUmc initiative, EMGO, the Coronel Institute (Academic Medical Centre/ University of Amsterdam), and the National Institute for Employee Benefits (UWV) have together established a research centre for disability assessment. Approximately 650,000 people in the Netherlands currently receive financial compensation for a work disability. This compensation scheme is taken care of by a single semi-governmental body – the UWV – where over 1000 specifically trained physicians assess the medical aspects of disability claims. To improve the quality of their assessments, the UWV has dedicated 5,000,000 euros over a five-year period for this research centre. Part of the research will be integrated into the Musculoskeletal Disorders programme.

Following two policy reports – one on infrastructure for research in the field of sports medicine (presented to the Health Research Council) and the other on the health benefits of a physically active lifestyle (presented to the Ministry of Health, Welfare, and Sport) – the Ministry has provided EMGO with grants in 2004, 2005, and 2006 to support infrastructure for research related to sports medicine and physical activity promotion. These grants will be used to strengthen the existing Body@Work TNO VUmc infrastructure.

Currently, the research programme focuses on primary healthcare, occupational medicine, rehabilitation, allied healthcare, and public healthcare; the professionals in these areas are mainly generalists. However, experts are predicting dramatic increases in the incidence and prevalence of chronic musculoskeletal disorders, which frequently require collaboration between specialists and generalists. In the future, therefore, new research projects will also look at transmural care; that is, care collaboratively provided by orthopaedic surgeons, rheumatologists, and specialised rehabilitation physicians on the one hand and general practitioners, occupational physicians, and primary care or occupational physiotherapists on the other. The research projects will measure the efficacy and efficiency of these collaborative efforts. A project, for example, might assess rehabilitation physicians and physiotherapists and their treatments to improve impaired stability and balance in patients with osteoarthritis or their diagnosis of dizziness in elderly patients.

A clinical trial on the prevention of falls in elderly people with a high fall risk began in 2005 as a joint effort of EMGO and the departments of general practice, geriatrics, and internal medicine. In this trial, the fall risk profile developed in LASA will be used to discriminate between patients with a low and a high fall risk. This trial compares usual care and extensive transmural care. In addition, an occupational intervention in patients with low back pain will be tested in the hospital setting in collaboration with the Department of Orthopaedics.

Future research in clinimetrics will involve further developing the methodology for systematic reviews of health measurement instruments. To enhance the interpretation of health-status questionnaires, researchers will determine the minimal important changes in the scores of well-known measurement instruments (such as rating scales for pain intensity and the Roland Disability Questionnaire for low back pain). They will also explore the usefulness of item response theory models in developing and evaluating health questionnaires. Clinimetrics will be promoted in this and in other EMGO research programmes. Collaboration will also be sought with various departments and research institutes within the VUmc.

The MOVE research institute was recently established through a joint effort of VUmc, the VU Faculty of Human Movement Sciences, and the Academic Centre for Dentistry in Amsterdam. MOVE focuses on the human neuro-musculo-skeletal system and translational research; that is, application-oriented research that bridges fundamental and applied science. MOVE researches 1) loading and tissue regeneration, 2) structure and function, and 3) movement coordination. MOVE and EMGO both study the musculoskeletal system and its disorders, and several joint research projects have already begun. This collaboration will be strengthened in the future.
<table>
<thead>
<tr>
<th>Project title</th>
<th>Prominent associates</th>
<th>Type of collaboration and results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physiotherapy for lateral epicondylitis: a systematic review</td>
<td>H. Arola, MD, PhD</td>
<td>Collaboration on Cochrane reviews on the effectiveness of physiotherapy for lateral epicondylitis</td>
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<tr>
<td>Orthotic devices for tennis elbow: a systematic review</td>
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<td>Tampere Occupational Health Centre, Tampere, Finland</td>
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<tr>
<td>The effect and cost-effectiveness of a preventive proprioceptive and</td>
<td>Prof. R. Bahr, MD, PhD</td>
<td>Member of the research project team</td>
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<tr>
<td>balance-board training programme on the risk of sustaining acute lateral</td>
<td>Netherlands Organisation for Health</td>
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<td>ankle injury: a randomised controlled trial in volleyball players in the</td>
<td>Research and Development (ZON)</td>
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<td>third national league in the Netherlands</td>
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<tr>
<td>Norwegian University of Physical Education and Sports, Oslo, Norway</td>
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<tr>
<td>COST B13 European guidelines for the management of acute low back pain</td>
<td>Ms. A. Becker, MD</td>
<td>Working group responsible for the development of European guidelines</td>
</tr>
<tr>
<td>Department of General Practice, Georg-August University, Goettingen, Germany</td>
<td>A. Breen, DC, PhD</td>
<td>for the management of acute non-specific low back pain in primary care</td>
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<tr>
<td>AECC Research, Bournemouth, UK</td>
<td>T. Carter, MD</td>
<td></td>
</tr>
<tr>
<td>Faculty of Occupational Medicine, University of London, UK</td>
<td>Ms. M.T. Gil del Real, MD, PhD</td>
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<tr>
<td>Fundacion Kovacs, Madrid, Spain</td>
<td>Prof. A. Hutchinson, MD, PhD</td>
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<tr>
<td>University of Sheffield, UK</td>
<td>P. Kryger-Baggeses, DC</td>
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<tr>
<td>Ringe Hospital, Denmark</td>
<td>Prof. E. Laerum, MD, PhD</td>
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<tr>
<td>Ulleval Hospital, Oslo, Norway</td>
<td>A. Malmivaara, MD, PhD</td>
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<tr>
<td>Department of Occupational Medicine, Finnish Institute of Occupational Health, Helsinki, Finland</td>
<td>Prof. A. Nachemson, MD, PhD</td>
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<td>Göteborg University, Sweden</td>
<td>W. Niehus, MD</td>
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<td>Vienna, Austria</td>
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<td>Project title</td>
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<tr>
<td>Geneva, Switzerland</td>
<td>E. Roux, MD</td>
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<tr>
<td>Hôpital Pitié-Salpêtrière, Paris, France</td>
<td>Ms. S. Rozenberg, MD</td>
<td></td>
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<td></td>
<td>European Commission, Directorate General Research, Political Co-ordination and Strategy (COST)</td>
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<tr>
<td>The Northern Ireland Young Hearts Project</td>
<td>Prof. C. Boreham, PhD</td>
<td>Statistical and methodological consultation, and scientific publications</td>
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<tr>
<td>The Queen’s University of Belfast, Sport and Exercise Science, University of Ulster Belfast/Jordanstown, Northern Ireland</td>
<td>Northern Ireland Chest, Heart and Stroke Association</td>
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<tr>
<td></td>
<td>The British Heart Foundation</td>
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<td></td>
<td>Welcom Trust, London, UK</td>
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<tr>
<td>Peak Bone Mass attainment - a prospective investigation in young adults</td>
<td>Prof. C. Boreham, PhD</td>
<td>Expertise in longitudinal research on physical activity and bone health</td>
</tr>
<tr>
<td>University of Ulster, Jordanstown, Northern Ireland</td>
<td>Welcom Trust, London, UK</td>
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</tr>
<tr>
<td>Amsterdam-Manchester-Keele Study Days</td>
<td>Prof. P.R. Croft, MD, PhD</td>
<td>Collaboration in research on musculoskeletal disorders, exchange of junior researchers and postdoc fellows, and the organisation of an annual meeting</td>
</tr>
<tr>
<td>Research Centre for Primary Care Sciences, Keele University, UK</td>
<td>Prof. E.M. Hay, MD, PhD</td>
<td></td>
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<tr>
<td>ARC Epidemiology Research Unit, University of Manchester, UK</td>
<td>Prof. A.J. Silman, MD, PhD</td>
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<td></td>
<td>Prof. G. Macfarlane, MD, PhD</td>
<td></td>
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<tr>
<td>Department of Public Health, School of Medicine, University of Aberdeen, Aberdeen UK</td>
<td>Prof. P.R. Croft, MD, PhD</td>
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<tr>
<td></td>
<td>U. Kadam, MD</td>
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<tr>
<td></td>
<td>Medical Research Council, United Kingdom</td>
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<tr>
<td>New models of multi-morbidity and associations with overall health status: a cross-national comparison of adult general practice populations</td>
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<tr>
<td>Research Centre for Primary Care Sciences, Keele University, UK</td>
<td>Prof. P.R. Croft, MD, PhD</td>
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<tr>
<td></td>
<td>U. Kadam, MD</td>
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<tr>
<td></td>
<td>Medical Research Council, United Kingdom</td>
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<tr>
<td>Clinimetric review on measures of anxiety and fear</td>
<td>Ms. T. Pincus, PhD</td>
<td>Consultancy on clinimetric methodology and collaboration in clinimetric research</td>
</tr>
<tr>
<td>Department of Psychology, Royal Holloway University of London, UK</td>
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<tr>
<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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<tr>
<td>Patterns of shoulder pain recovery</td>
<td>X. Zheng, MSc</td>
<td>Secondary analysis of the results of a randomised trial in patients with shoulder pain, resulting in a joint publication</td>
</tr>
<tr>
<td>Department of General Practice and Primary care, University of Aberdeen, Scotland, UK</td>
<td>Ms. J.A. Simpson, PhD</td>
<td></td>
</tr>
<tr>
<td>Ms. A.M. Elliott, PhD</td>
<td>B.H. Smith, MD, PhD</td>
<td></td>
</tr>
<tr>
<td>Project on Education of research methodology for physiotherapists</td>
<td>Prof. R. Herbert, MD, PhD</td>
<td>Series of publications in the <em>Australian Journal of Physiotherapy</em></td>
</tr>
<tr>
<td>Centre for Evidence-based Physiotherapy, University of Sydney, Australia</td>
<td>Prof. Kathryn Refshauge, PhD</td>
<td>Master class Research Methodology Exchange of PhD students and post-docs</td>
</tr>
<tr>
<td>Back Review Group</td>
<td>Prof. R. Deyo, MD, PhD</td>
<td>Collaboration in the Editorial Board of the Back Review Group of the Cochrane Collaboration</td>
</tr>
<tr>
<td>Department of Medicine and Health Services, University of Washington, Seattle, WA, USA</td>
<td>Ms. C. Bombardier, MD, PhD</td>
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<tr>
<td>R. de Bie, PhD</td>
<td>F. Guillemin, PhD</td>
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<tr>
<td>Prof. A. Nachemson, MD, PhD</td>
<td>P. Shekelle, MD, PhD</td>
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<tr>
<td>Prof. G. Waddell, MD, PhD</td>
<td>J. Weinstein, MD, PhD</td>
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<tr>
<td>Prof. M.W. van Tulder, PhD</td>
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<tr>
<td>Genetic determinants of body composition</td>
<td>Ms. G. Eiriksdottir, MSc</td>
<td>Co-investigator in the Ages, Gene/ Environment Susceptibility (AGES) Study</td>
</tr>
<tr>
<td>Icelandic Heart Association, Reykjavik, Iceland</td>
<td>G. Sigurdsson, MD</td>
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<tr>
<td>V. Gudnason, MD</td>
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<tr>
<td>Muscle fat infiltration</td>
<td>Ms. D. Gallagher, PhD</td>
<td>Research on body composition, sex, and race as determinants of muscle fat infiltration</td>
</tr>
<tr>
<td>Obesity Research Centre, Columbia University, New York, NY, USA</td>
<td>National Institute on Aging</td>
<td></td>
</tr>
<tr>
<td>Determinants and consequences of sarcopenia</td>
<td>Ms. T.B. Harris, MD</td>
<td>Collaboration on body composition, sarcopenia and inflammation research. Co-investigator of the Health, Aging, and Body Composition (Health ABC) Study</td>
</tr>
<tr>
<td>National Institute on Aging, Bethesda, MD, USA</td>
<td>Ms. N. de Rekeneire, MD</td>
<td></td>
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<tr>
<td>T. Manini, PhD</td>
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<tr>
<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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<tr>
<td>COSMIN (COnsensus-based Standards for the selection of health Measurement Instruments) study</td>
<td>P.W. Stratford, PhD J. Alonso, MD, PhD Prof. D.L. Patrick, PhD EMGO Institute Anna Foundation</td>
<td>Members of the international steering committee</td>
</tr>
<tr>
<td>Department: School of Rehabilitation Science and Department of Clinical Epidemiology and Biostatistics, McMaster University, Hamilton, Canada, Health Services Research Unit, Institut Municipal d’Investigacio Medica (IMIM-IMAS), Barcelona, Spain, Department of Health Services, University of Washington, Seattle, WA, USA</td>
<td></td>
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<tr>
<td>Generalisability, course, and prognostic indicators for tennis elbow</td>
<td>E.M. Hay, MD, PhD M.A. Lewis, PhD P.R. Croft, MD, PhD Arthritis Research Campaign North Staffordshire Primary Care Research Consortium Dutch Organisation for Scientific Research (NWO)</td>
<td>Working visit at Primary Care Science Research Centre, Keele University, United Kingdom</td>
</tr>
<tr>
<td>Staffordshire Rheumatology Centre, Staffordshire, UK</td>
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<tr>
<td>Body composition and coronary heart disease</td>
<td>A. Kanaya, MD</td>
<td>Research on obesity and fat distribution as determinants of coronary heart disease incidence/ death in women</td>
</tr>
<tr>
<td>Division of General Internal Medicine, University of California, CA, USA</td>
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<tr>
<td>Body composition and disability</td>
<td>D.P. Kiel, MD, MPH M.T. Hannan, DSc D. Karasik, PhD</td>
<td>Collaboration in research on body composition as a determinant of disability, insulin-like growth factor binding proteins 4 and 5, and bone mineral density</td>
</tr>
<tr>
<td>Harvard Medical School Division on Aging, and Hebrew Rehabilitation Centre for the Aged, Research and Training Institute, Boston, MA, USA</td>
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<tr>
<td>Weight loss and the risk of hip fracture</td>
<td>Ms. J.A. Langlois, DSc, MPH</td>
<td>Collaboration in research on the role of weight loss in the risk of hip fracture in middle-aged and older women</td>
</tr>
<tr>
<td>Division of Acute Care, Rehabilitation Research and Disability Prevention, National Centre for Injury Prevention and Control, Centres for Disease Control and Prevention, Atlanta, GA, USA</td>
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<tr>
<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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<tr>
<td>Development of efficient exposure assessment strategies for the evaluation of ergonomic interventions with the aim of preventing work-related musculoskeletal disorders</td>
<td>S.E. Mathiassen, PhD&lt;br&gt;Netherlands Organisation for Scientific Research (NWO)</td>
<td>Writing of scientific articles and organisation of several (pre-) conference workshops on exposure assessment in ergonomics and musculoskeletal epidemiology</td>
</tr>
<tr>
<td>School of Technology and Society, University of Malmö, Sweden</td>
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<tr>
<td>Department of Occupational and Environmental Medicine, Lund University Hospital, Sweden</td>
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<tr>
<td>Inflammation and health in elderly persons</td>
<td>S.B. Kritchevsky, PhD&lt;br&gt;J. Paul Sticht Centre on Aging</td>
<td>Research on nutrition and muscle loss with aging</td>
</tr>
<tr>
<td>J. Paul Sticht Centre on Aging, Wake Forest University Medical Centre, Winston-Salem, NC, USA</td>
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<tr>
<td>Factors influencing body composition in the elderly</td>
<td>Ms. D. Mitchell, PhD</td>
<td>Research on the influence of nutritional factors and physical activity on body composition in the elderly</td>
</tr>
<tr>
<td>Department of Preventive Medicine and Epidemiology, Centre for Aging and Health, University of California, CA, USA</td>
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</tr>
<tr>
<td>Muscle strength and sarcopenia</td>
<td>A.B. Newman, MD&lt;br&gt;B.H. Goodpaster, PhD</td>
<td>Collaboration in determining the role of muscle strength loss, muscle mass loss, and fat infiltration in the muscle in health and functioning, and development of a definition of sarcopenia</td>
</tr>
<tr>
<td>Department of Medicine, University of Pittsburgh, PA, USA</td>
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<tr>
<td>Inflammation and health in older persons</td>
<td>M. Pahor, MD&lt;br&gt;Ms. B.J.W.H. Penninx, PhD&lt;br&gt;J. Paul Sticht Centre on Aging</td>
<td>Collaboration in research on the association of inflammatory markers with muscle mass and physical performance</td>
</tr>
<tr>
<td>J. Paul Sticht Centre on Aging, Department of Internal Medicine, Wake Forest University School of Medicine, Winston-Salem, NC, USA</td>
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<tr>
<td>Body composition and glucose metabolism</td>
<td>H.E. Resnick, PhD</td>
<td>Collaboration to investigate whether race differences in glucose metabolism can be explained by differences in body composition</td>
</tr>
<tr>
<td>MedStar Research Institute, WA, USA</td>
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<tr>
<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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</table>
| The effect of a PACE intervention in general practice on determinants and levels of physical activity: a randomised trial | Prof. J.F. Sallis, PhD  
Dutch Heart Foundation  
Netherlands Organisation for Health Research and Development (ZON) | Member of the research project team, developing and implementing a PACE intervention            |
| Department of Psychology, San Diego State University, San Diego, CA, USA    |                                                                                      |                                                                                                  |
| Physical performance and bone quality                                          | D.R. Taaffe, PhD                                                                    | Collaboration to investigate the association between lower extremity performance and hip bone mineral density |
| School of Human Movement Studies, University of Queensland, Brisbane, Australia |                                                                                      |                                                                                                  |
| Research on physical activity, diet, and health in various ethnic groups in Indonesia | Prof. K. Tunggul Sirait, MD, PhD  
A. Simatupang, MD, PhD  
Ms. J. Luhulima, MD | Joint publications in the context of a PhD thesis                                           |
| Faculty of Medicine of the Universitas Kristen (UKI), Jakarta, Indonesia      |                                                                                      |                                                                                                  |
| Longitudinal research on the growth and health of children in the Northern Province of South Africa and the relationship with important lifestyles (UNIHEALTH) | Prof. P.A. Venter, PhD  
Prof. M. Albers, PhD  
K.D. Monyeki, PhD  
Prof. A. Toriola, PhD  
Centre for Development Co-operation Services (CDCS), Vrije Universiteit Amsterdam | Collaboration in two research projects: 1) pregnancy, birth, and future health, and 2) anthropometry, motor skills, and cognitive functioning in black children, born and raised in the Northern Province of the Republic of South Africa |
| Department of Health and Human Kinetics, University of the North (UNIN), Pietersburg, South Africa |                                                                                      |                                                                                                  |
| Epidemiology of osteoporotic fractures  
Quality of life in patients with osteoporosis                                    | J. Reeve, MD, PhD  
Prof. C. Cooper, MD, PhD  
Prof. O. Johnell, MD, PhD  
Prof. J. Kanis, MD, PhD  
Working group of the International Osteoporosis Foundation  
International Osteoporosis Foundation | Research on the prevalence and incidence of osteoporotic fractures throughout the world; design and validation of 2 questionnaires |
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<tr>
<th>Project title</th>
<th>Prominent associates</th>
<th>Type of collaboration and results</th>
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</thead>
<tbody>
<tr>
<td>Osteoporosis in men (NEMO)</td>
<td>Prof. J.M. Kaufman, MD, PhD</td>
<td>Network on male osteoporosis</td>
</tr>
<tr>
<td>University of Gent, Belgium</td>
<td>EU funding</td>
<td></td>
</tr>
<tr>
<td>Genetics of osteoporosis (GENOMOS)</td>
<td>A. Uitterlinden, MD, PhD</td>
<td>Collaborative study on the genetics of osteoporosis (low bone density and fractures)</td>
</tr>
<tr>
<td>Erasmus Medical Centre, Rotterdam</td>
<td>EU funding</td>
<td></td>
</tr>
<tr>
<td>Physiotherapy for lateral epicondylitis: a systematic review</td>
<td>A. Malmivaara, MD, PhD</td>
<td>Collaboration in a Cochrane Review on the effectiveness of physiotherapy for lateral epicondylitis</td>
</tr>
<tr>
<td>Finnish Institute of Occupational Health, Helsinki, Finland</td>
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<tr>
<td>Corticosteroid injections for lateral epicondylitis: a systematic review</td>
<td>E.M. Hay, MD, PhD</td>
<td>Collaboration in a Cochrane Review on the effectiveness of corticosteroid injections for lateral epicondylitis</td>
</tr>
<tr>
<td>Staffordshire Rheumatology Centre, Staffordshire, UK</td>
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<tr>
<td>Physiotherapy for lateral epicondylitis: a systematic review; Surgery for lateral elbow pain in adults: a systematic review; Shock-wave therapy for lateral elbow pain: a systematic review; Non-steroidal anti-inflammatory drugs (NSAIDs) for treating lateral elbow pain in adults: a systematic review; Acupuncture for lateral elbow pain: a systematic review; Corticosteroid injections for lateral epicondylitis: a systematic review; Orthotic devices for tennis elbow: a systematic review; Department of Epidemiology and Preventive Medicine, Monash Medical School, Monash University, Melbourne, Australia</td>
<td>Ms. S. Green, MD, PhD; Ms. R. Buchbinder, MD, PhD</td>
<td>Collaboration in seven Cochrane Reviews on the effectiveness of various treatments (physiotherapy, surgery, shock-wave therapy, non-steroidal anti-inflammatory drugs, acupuncture, corticosteroid injections, orthotic devices) for lateral epicondylitis. Collaboration on a joint chapter on tennis elbow in Clinical Evidence</td>
</tr>
<tr>
<td>Sociocultural prognostic factors for occupational disability due to low back pain: a cross-national study between Canada and the Netherlands</td>
<td>Prof. P. Loisel, MD, PhD; M.J. Durand, PhD</td>
<td>Institutional research programme</td>
</tr>
<tr>
<td>Université de Sherbrooke, Work Disability Prevention Research and Training Centre, Montreal, Canada</td>
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<tr>
<td>Project title</td>
<td>Prominent associates</td>
<td>Type of collaboration and results</td>
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<tr>
<td>International Collaboration in Evidence-Based Occupational Health Practice</td>
<td>J.H. Verbeek, MD, PhD</td>
<td>Joint Cochrane Collaboration Reviews in the field of occupational health</td>
</tr>
<tr>
<td>Finnish Institute of Occupational Health, Kuopio, Finland</td>
<td></td>
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</tr>
<tr>
<td>MAPLE: Meta-Analysis of Pain in the Lower Back and Work Exposures (MAPLE) Collaborative Group</td>
<td>Lauren E. Griffith MsD, Donald C. Cole MD, PhD, Sheila Hogg-Johnson PhD, Harry S. Shannon PhD</td>
<td>Collaboration in a Delphi consensus study in order to come to a useful categorisation of low back pain outcome definitions and perform a meta analysis of the effect of work related exposures on low back pain</td>
</tr>
<tr>
<td>Institute for Work and Health, Toronto, Canada</td>
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</tbody>
</table>
6.4.3 Research projects

**Functional mobility assessment and prognostication**

01.95 - 08.04
Netherlands Health Research Promotion Programme (SGO)
L.D. Roorda, MD, PT
Prof. G.J. Lankhorst, MD, PhD
Prof. L.M. Bouter, PhD
WC95-043

**Clinimetric evaluation in multiple sclerosis and determinants of prognosis**

06.97 - 12.04
Netherlands Organization for Scientific Research (NWO)
V. de Groot, MD
Prof. G.J. Lankhorst, MD, PhD
C.H. Polman, MD, PhD
Prof. L.M. Bouter, PhD
WC95-020

**The effectiveness of pharmacotherapy in individual patients in primary care**

10.98 - 03.05
LEO Pharmaceutical Products B.V.
Ms. A.C.M. Wegman, MSc
Ms. D.A.W.M. van der Windt, PhD
Prof. Th.P.G.M. de Vries, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
J.W.R. Twisk, PhD
WC97-004-2

**The Amsterdam ‘Sherbrooke model’ Evaluation Study (ASE study): effective prevention of chronic low back pain by integration of ergonomic measures, social medical guidance and early return to work**

09.99 - 05.04
Netherlands Organization for Scientific Research (NWO)
Netherlands Organization for Health Research and Development (ZonMw)
Ministry of Health, Welfare and Sport (VWS)
Ministry of Social Affairs and Employment (SZW)
J.R. Anema, MD, PhD
L.A. Steenstra, MSc
Prof. H.C.W. de Vet, PhD
Prof. P.M. Bongers, PhD
Prof. W. van Mechelen, MD, PhD
WC97-048

**The cost-effectiveness of back schools in occupational care: the BOC study**

01.00 - 01.04
Netherlands Organization for Scientific Research (NWO)
Netherlands Organization for Health Research and Development (ZonMw)
Ministry of Health, Welfare and Sport (VWS)
Ministry of Social Affairs and Employment (SZW)
M. Heymans, PhD
Prof. W. van Mechelen, MD, PhD
Prof. B.W. Koes, PhD
Prof. H.C.W. de Vet, PhD
Prof. P.M. Bongers, PhD
WC97-046

**A comprehensive cohort study on the prognosis of shoulder disorders in primary care, with randomized controlled interventions in sub-cohorts**

04.00 - 04.05
Netherlands Organization for Scientific Research (NWO)
A.C. Kuijpers, MSc
Ms. D.A.W.M. van der Windt, PhD
Prof. M.W. van Tulder, PhD
Prof. L.M. Bouter, PhD
J.W.R. Twisk, PhD
WC98-032

**Determinants and consequences of sarcopenia: the role of endocrine factors and physical activity**

05.00 - 05.05
Royal Netherlands Academy for Arts and Sciences (KNAW)
Ms. M. Visser, PhD
WC98-0328

**Prevention of chronic disability in patients with low back pain**

10.00 - 06.05
Netherlands Organization for Health Research and Development (ZonMw)
Ms. P. Jellema, MSc
Ms. D.A.W.M. van der Windt, PhD
Ms. H.E. van der Horst, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
Prof. L.M. Bouter, PhD
WC98-007
Bolien: the effect of multi-level botulinum toxin type A treatment and intensive rehabilitation on walking ability in children with cerebral palsy

02.01 - 08.06
Johanna Kinder Foundation
Princess Beatrix Foundation
Stichting Bio-Kinderrevalidatie
Ms. V.A.B. Scholtes, MSc
J.G. Becher, MD, PhD
Ms. A. Dallmeijer, PhD
Prof. G.J. Lankhorst, MD, PhD
WC01-001

The effectiveness of GRADIT, graded activity through intermittent exercise therapy for patients with arthritis of the hip and knee

04.01 - 07.05
Health Care Insurance Council (CVZ)
C. Veenhof, MSc
Ms. E. van den Ende, PhD
Ms. I.B.C. Korthals-de Bos, MSc
Prof. M.W. van Tulder, PhD
Prof. J. Dekker, PhD
WC01-031

Functional prognosis of children (9-15 years) with cerebral palsy (PERRIN)

05.01 - 05.09
Netherlands Organization for Health Research and Development (ZonMw)
Ms. J.M. Voorman, MD
J.G. Becher, MD, PhD
Ms. A. Dallmeijer, PhD
Prof. G.J. Lankhorst, MD, PhD
WC00-071-2

Effectivity of different ways of vitamin D supplementation with or without calcium in elderly residents in nursing homes in the Netherlands

07.01 - 12.05
Netherlands Organization for Health Research and Development (ZonMw)
V. Chel, MD
Prof. P.Th.A.M. Lips, MD, PhD
Prof. L.M. Bouter, PhD
WC00-002

Work and health in general practice
08.01 - 07.05
-
H.J.A. Weevers, MSc
A.J. van der Beek, PhD
Prof. W. van Mechelen, MD, PhD
Prof. G. van der Wal, MD, PhD
Prof. J.M. Bensing, MD, PhD
WC00-041

The course of functional status of elderly patients with sequelae of poliomyelitis, osteoarthritis, and Parkinson’s disease (CARPA I)
09.01 - 09.07
Netherlands Organization for Health Research and Development (ZonMw)
M.P.M. Steultjens, PhD
Ms. J. Swüste, MSc
Ms. G. van Dijk, MSc
Prof. G.J. Lankhorst, MD, PhD
Prof. J. Dekker, PhD
WC00-039

Comorbidity and aging in rehabilitation patients with sequelae of poliomyelitis: the influence on activities (The CARPA study)
09.01 - 11.07
Netherlands Organization for Health Research and Development (ZonMw)
Ms. J.M. Swüste, MD
F. Nollet, MD, PhD
Ms. J.A.J.M. Beelen, MD, PhD
Prof. G.J. Lankhorst, MD, PhD
WC00-039

Sex differences in the risk of prolonged sickness absence and work disability: the role of work, leisure time and health care
09.01 - 08.05
Netherlands Organization for Scientific Research (NWO)
Ms. W.E. Hooftman-Schimmel, MSc
A.J. van der Beek, PhD
Prof. W. van Mechelen, MD, PhD
Prof. P.M. Bongers, PhD
WC00-021-2
Do Standards for Reporting of Diagnostic Accuracy (STARD statement) improve the quality of reporting of diagnostic studies?

10.01 - 07.05
Netherlands Organization for Health Research and Development (ZonMw)
Ms. N. Smidt, PhD
Prof. H.C.W. de Vet, PhD
Prof. L.M. Bouter, PhD
R.W.J.G. Ostelo, PhD
Ms. D.A.W.M. van der Windt, PhD

WC00-048

Measurement of energy expenditure in pathological gait (KAFO)

11.01 - 12.06
Netherlands Organization for Health Research and Development (ZonMw)
Anna Fund
Ter Meulen Fund
Ms. M.A. Brehm, MSc
Prof. G.J. Lankhorst, MD, PhD
J. Harlaar, MSEE, PhD
F. Nollet, MD, PhD
Ms. J.A.J.M Beelen, PhD

WC00-069

Comparison of two conservative treatment programmes for sub-acute neck pain: a cognitive behavioural graded activity programme versus manual therapy

04.02 - 04.07
Netherlands Organization for Scientific Research (NWO)
J.J.M. Pool
R.J.W.G. Ostelo, PhD
Prof. W.A.B. Stalman, MD, PhD
Prof. L.M. Bouter, PhD
Prof. H.C.W. de Vet, PhD

WC01-010-2

The effectiveness of lumbar supports for the treatment of low back pain among home-care workers

09.02 - 11.06
Netherlands Organization for Health Research and Development (ZonMw)
P.D.M. Roelofs, MSc
Ms. S. M.A. Biema-Zeinstra, PhD
Ms. M.N.M. van Poppel, PhD
Prof. W. van Mechelen, MD, PhD
Prof. B.W Koes, PhD

WC02-030

The PROMO study: Prospective Research On Musculoskeletal Disorders in Office workers

09.02 - 09.06
Body@Work, Research Centre on Physical Activity, Work and Health, TNO-VUmc
S. IJnsker, MSc
B. Blatter, PhD
A.J. van der Beek, PhD
Prof. P.M. Bongers, PhD
Prof. W. van Mechelen, MD, PhD

WC02-043

Illness perceptions and activity limitations in chronic low back pain: a component approach to innovate rehabilitation programmes for patients with chronic low back pain

09.02 - 03.08
Netherlands Organization for Health Research and Development (ZonMw)
P.C. Siemonsma, MSc, PT
A.T. Lettinga, PhD
C. Schroder, MSc
J.H.M. Dekker, MD
Prof. G.J. Lankhorst, MD, PhD

WC02-059

The effect of improving physical activity and workstyle on work-related upper extremity complaints in VDU workers: a randomized controlled trial

10.02 - 10.06
Body@Work, Research Centre on Physical Activity, Work and Health, TNO-VUmc
Ms. C. Bernaards, PhD
V. Hildebrandt, MD, PHD
Ms. G.A.M. Ariëns, PHD
Prof. W. van Mechelen, MD, PhD
Prof. P.M. Bongers, PhD

WC02-044

Long-term prognosis of functional outcome in neurological disorders (FuPro-II)

12.02 - 12.07
Netherlands Organization for Health Research and Development (ZonMw)
Prof. G.J. Lankhorst, MD, PhD
Prof. J. Dekker, PhD
Prof. E. Lindeman, MD, PhD
Prof. H.J. Stam, MD, PhD
Prof. G.A.M. van den Bos, PhD

WC02-013
Lasagna’s law: determinants of failure versus success in the recruitment of patients in primary care research

12.02 - 03.05

Netherlands Organization for Health Research and Development (ZonMw)
Ms. A.H. Blankenstein, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
J.C. van der Wouden, PhD
Ms. D.A.W.M. van der Windt, PhD
A.J.P. Boeke, MD, PhD

Measuring the disabiling consequences of a disease: can we do better?

04.03 - 10.07

- 

R.W.J.G. Ostelo, PhD
Prof. H.C.W. de Vet, PhD
D.L. Knol, PhD
Prof. L.M. Bouter, PhD

Cost-effectiveness of an intensive group training protocol compared to physiotherapy care according to the KNGF-guidelines for sub-acute and chronic low back pain: a randomized controlled trial

04.03 - 09.06

Health Care Efficiency Research Programme of the Netherlands Organization for Health Research and Development (ZonMw)
N. van der Roer, MSc
Prof. M.W. van Tulder, PhD
Prof. H.C.W. de Vet, PhD
Prof. W van Mechelen, MD, PhD

Ergonomic optimisation of occupational hand-arm precision tasks

01.03-01.08

Body@Work, Research Centre on Physical Activity, Work and Health, TNO-VUmc
Ms. M. Huysmans, MSc
M.J.M. Hoozemans, PhD
J.H. van Dieën, PhD
B. Visser, MSc
A.J. van der Beek, PhD

Quality of life in patients with osteoporosis

05.03 - 05.07

Wyeth
Ms. N.M. van Schoor, PhD
Prof. P.Th.A.M. Lips, MD, PhD

Knee joint laxity and physical functioning in osteoarthritis of the knee

06.03 - 09.04

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M. van der Esch, PT
M.P.M. Steultjens, PhD
J. Dekker, PhD
L.D. Roorda, MD, PT
J.H.M. Dekker, MD
Determinants of the course of fatigue in primary care
08.03 - 05.08
VU University Medical Center Network of General Practitioners
Ms. I. Nijrolder, MSc
Ms. H.E. van der Horst, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
Ms. D.A.W.M. van der Windt, PhD
H. de Vries, MD, PhD

Care, education, research: testing academic practices in networks (CERTAIN)
09.03 - 09.07
VU University Medical Center Network of General Practitioners
Ms. J.M.C. van Os-Bleeker,
Ms. H.E. van der Horst, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
Prof. H.C.W. de Vet, PhD
Ms. D.A.W.M. van der Windt, PhD

The role of physical capacity in the development of low back and neck/shoulder disorders in a working population
10.03 - 04.07
Body@Work, Research Centre on Physical Activity, Work and Health, TNO-VUmc
Ms. H.H. Hamberg-van Reenen, MSc
A.J. van der Beek, PhD
Ms. B.M. Blatter, PhD
Prof. W. van Mechelen, MD, PhD
Prof. P.M. Bongers, PhD

Functional status and work participation after traumatic hand injury
11.03 - 12.04
S.J. Poerbodipoero, MSc, OT
M.P.M. Steultjens, PhD
Prof. J. Dekker, PhD
A. van der Beek, PhD
Ms. S. Bakker-Renema, OT

Determinants of sarcopenia: the role of inflammation and sex hormones
12.03 - 12.08
- 
Ms. L. Schaap, MSc
Ms. M. Visser, PhD
Ms. S.M.F. Pluijm, PhD
Prof. D.J.H. Deeg, PhD

Psychological factors as predictors for the transition from acute to chronic neck pain: measurement and meaning
12.03 - 12.05
Netherlands Organization for Health Research and Development (ZonMw)
Ms. S.R. Hiralal
J.J.M. Pool
R.J.W.G. Ostelo, PhD
Prof. L.M. Bouter, PhD
Prof. H.C.W. de Vet, PhD

Sex differences in the development of chronic musculoskeletal pain: impact on prevention strategies
12.03 - 12.05
Netherlands Organization for Health Research and Development (ZonMw)
Ms. H.A.H. Wijnhoven, PhD
Ms. H.S.J. Picavet, PhD
Prof. H.C.W. de Vet, PhD
A.J. van der Beek, PhD
Prof. L.M. Bouter, PhD

Prognostic factors of chronic pain in a cohort of low back pain patients
12.03 - 12.05
Netherlands Organization for Health Research and Development (ZonMw)
M.W. Heijmans, PhD
Prof. H.C.W. de Vet, PhD
J.R. Anema, MD, PhD
S. van Buren, PhD
Prof. W. van Mechelen, MD, PhD
Musculoskeletal Disorders

Diagnosis and prognosis of hand and wrist complaints in general practice
01.04 - 06.08
Netherlands Organization for Health Research and Development (ZonMw)
Ms. M.N. Spies, MSc
Ms. D.A.W.M. van der Windt, PhD
Ms. H.E. van der Horst, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
D.L. Knol, PhD
WC03-006-2

Application of hip protectors in elderly people living at home or in homes for the elderly
02.04 - 02.06
Health Care Insurance Council (CVZ)
Ms. N.M. van Schoor, PhD
Prof. P.Th.A.M. Lips, MD, PhD
WC03-037

Vitamin D deficiency among non-western immigrants: treatment with vitamin D supplementation or sunlight?
03.04 - 06.06
Funding: The Netherlands Organization for Health Research and Development
I.S. Wicherts, MSc
A.J.P. Boeke, MD, PhD
Prof. P.Th.A.M. Lips, MD, PhD
WC03-029

Effectiveness of the RSI QuickScan in relation to primary and secondary prevention of Repetitive Strain Injury
04.04 to 05.08
Arbo Unie BV and Netherlands Organization for Health Research and Development (ZonMw)
E.M. Speklé, MSc
M.J.M. Hoozemans, PhD
A.J. van der Beek, PhD
Prof. J.H. van Dieën, PhD
Prof. P.M. Bongers, PhD
WC04-030

Positive and negative treatment outcomes associated with chiropractic care for neck pain.
09.04 - 09.06
European Chiropractic Union
S. Rubinstein, DC
Prof. M.W. van Tulder, PhD
WC00-038

The long-term course of functional status of elderly patients with sequelae of poliomyelitis, osteoarthritis and Parkinson's disease: five-year follow-up, indications for referral and clinimetrical evaluation (CARPA-II)
09.04 - 09.09
Netherlands Organization for Health Research and Development (ZonMw)
M.P.M. Steultjens, PhD
Ms. J. Swüste, MSc
Ms. G. van Dijk, MSc
Prof. G.J. Lankhorst, MD, PhD
Prof. J. Dekker, PhD
WC03-055

Cross-sectional clinimetrical analyses to establish the internal consistency, factor structure and validity of the functional status measures in knee-joint stability and functional disability in osteoarthritis of the knee
10.04 - 12.05
M. van der Esch, PT
M.P.M. Steultjens, PhD
Prof. J. Dekker, PhD
L.D. Roorda, MD, PT
J.H.M. Dekker, MD
WC03-016

Longitudinal study on the course of the functional status and the utilization of healthcare services and (unmet) needs in children (9-16 years) with cerebral palsy (PERRIN-II)
10.04 - 10.06
The Health Research and Development Council of the Netherlands (ZON)
Ms. M. van Eck, MSc
J.G. Becher, MD, PhD
Ms. A. Dallmeijer, PhD
G.J. Lankhorst, MD, PhD
Ms. G.M.P. Loots, PhD
WC04-058

A diagnostic protocol for the dizzy elderly in general practice
11.04 - 11.07
Netherlands Organization for Health Research and Development (ZonMw)
O.R. Maarsingh, MD
Ms. H.E. van der Horst, MD, PhD
Prof. W.A.B. Stalman, MD, PhD
WC03-071
Transmural occupational care for low back pain: a randomised controlled trial and cost-effectiveness evaluation

03.05 - 03.09

Board of Directors of the VUmc, TNO Work & Employment, Health Insurance Council (CVZ), Stichting Instituut GAK, Netherlands Organization for Health Research and Development.

L.C. Lambeck, Msc
J.R. Anema, MD, PhD
B.J. van Royen MD
Prof. H.C.W. de Vet, PhD
Prof. W. van Mechelen, MD, PhD

WC04-008 A

Protocol of the COSMIN study: COnsensus-based Standards for the selection of health Measurement Instruments

03.05 - 09.08

EMGO
Anna Fund

Ms. L.B. Mokkink, MSc
Ms. C.B. Terwee, PhD
D.L. Knol, PhD
Prof. L.M. Bouter, PhD
Prof. H.C.W. de Vet, PhD

WC04-062

Development and distribution of an evidence based instrument for the prediction of long term absenteeism due to low back pain in cooperation with practitioners

06.05 - 01.07

Aladdin programme, programme to stimulate research and development of work and health (STECR platform rehabilitation), VUmc, TNO Work & Employment.

M.W. Heymans PhD
J.R. Anema, MD, PhD
S. van Buuren, PhD
Prof. H.C.W. de Vet, PhD
Prof. W van Mechelen, MD, PhD

WC05-033
Accuracy and cost-effectiveness of diagnostic testing in patients with abdominal pain in general practice: a decision model based on systematic reviews

12.05 - 12.08

The Netherlands Organization for Health Research and Development Council (ZonMw), the Hague, the Netherlands

Ms. P. Jellema, MSc
Ms. D.A.W.M. van der Windt, PhD
Prof. M.W. van Tulder, PhD
Ms. H.E. van der Horst, PhD, MD
Prof. W.A.B. Stalman, PhD, MD

WC03-041-A

...keeps your body and mind in balance...
Funding is coming in for individual projects, although this has been compensated so far by some large programme grants. Still, we currently have to supplement most budgets from NGOs' reserves. Institutes such as ours, which depend on external funding for 75% of its budget, are especially vulnerable.

EMSO's challenge will be the acquisition of longer-lasting funding. Diversification of funding sources is highly desirable—seeking funding from agencies in other countries, as we currently do, in addition to the main sources of research funding. We will specifically put more emphasis on obtaining additional funding from the European Union. Although we are currently fortunate to have been granted a substantial amount of new funding, further growth of EMSO...

Research infrastructure

Put more effort into obtaining additional funding from the European Union.
7.1 Longitudinal Aging Study Amsterdam

INTRODUCTION
The Longitudinal Aging Study Amsterdam (LASA) is a longitudinal research project on predictors and consequences of changes in physical, cognitive, emotional and social functioning in older persons. The study started in 1992 and it continues into the new decade. LASAs concepts and design are extensively discussed in the book, Autonomy and well-being in the aging population: Concepts and design of the Longitudinal Aging Study Amsterdam (Deeg et al., 1993).

MOTIVATION
Changes in body functions and in various aspects of life are important characteristics of aging. Many such changes will affect the autonomy and well-being of older persons. Until the 1990s, almost all research among older persons in the Netherlands was cross-sectional. This precluded the possibility to study the effects of changing circumstances on the autonomy and well-being of older persons, and the consequences of changes in autonomy and well-being. Moreover, the processes of change in older persons are essentially multifactorial, and to obtain accurate insight into these processes, multi- or preferably interdisciplinary research is a prerequisite. In the Netherlands, this type of research has not been customary.

OBJECTIVES
LASA was designed as an interdisciplinary, longitudinal study across a period of at least ten years. Although basically scientific in nature, the study should provide a basis for developing and evaluating social policies at the local and national levels, policies that enhance older persons’ autonomy, social integration, and quality of life. Longitudinal data can prospectively measure the effects of existing policies, test the assumptions underlying policymakers’ considerations, and suggest new policy aims. LASA is primarily an observational study – it does not include intervention studies – and its database can be used to test various specific hypotheses.

CENTRAL RESEARCH QUESTIONS
LASA’s main concerns are the autonomy and well-being of older persons. Autonomy is operationally defined as functioning and is measured in observable behaviour. Well-being is defined as the evaluation by older persons of their satisfaction with life and quality of life. Participants also provide general self-evaluations of support, and various forms of social participation. Thus, social functioning is measured on the basis of the components of their functioning, including self-rated health and scales on meta-memory and loneliness. Participants also provide general self-evaluations regarding their satisfaction with life and quality of life.

2) What are the predictors of change for each of the four components of functioning?
3) How are changes in the four components of functioning interrelated?
4) What are the consequences of changes in functioning in terms of the contributions made by older persons to society, their adjustment to aging, and their need for care?

More detailed research questions have been formulated, some of which make use of additional data collected in specific sub-populations. These sub-studies have investigated such things as the course of depression, the course of anxiety disorders, risk factors for falls and osteoporotic fractures, the consequences of falls, changes in memory function, changes in the use of care by frail older persons, caregivers of frail older persons, changes in functioning and care arrangements in the final phase of life, and the meaning of quality of life to older people themselves.

DESIGN
Measures
LASA researchers select measurement instruments that correspond as much as possible to those used in potentially comparable research in the Netherlands and elsewhere in the world. Thus, a condition for wider use of the data is created, e.g. by pooling the data. Furthermore, measurement instruments have been selected for reasons of international comparability, which makes it possible to carry out research on the effect of various socio-cultural developments and care systems on the autonomy and well-being of older persons.

Changes in functioning (the dependent variables) are established during the course of the study period, based on successive study cycles. In addition to face-to-face interviews, objective measurements provide indicators that are sensitive to change, and self-administered questionnaires provide additional information on health status and personality.

Physical functioning is measured using self-reports on functional limitations and objective measurements of mobility, coordination, balance, strength, vision, and hearing. Cognitive functioning is measured by a brief screening test for dementia and tests of intelligence, learning capacity, memory, and psychomotor speed. Emotional functioning is measured with depression and anxiety screening scales and, in a sub-sample, by a diagnostic interview. Finally, social functioning is measured on the basis of the composition of the social network, frequency of contacts, exchange of support, and various forms of social participation. Thus, these four components of functioning are measured as behaviour.

Well-being is measured by participants’ self-evaluations of the four components of their functioning, including self-rated health and scales on meta-memory and loneliness. Participants also provide general self-evaluations regarding their satisfaction with life and quality of life.
Characteristics that are expected to predict changes in one of more of the components of functioning (the independent variables) are related both to the environment and the individual: i.e. chronic conditions, medication use, blood parameters, objective clinical assessments, subjective health perceptions, use of social services, lifestyle, personality, personal life history, housing and living arrangements, and socio-economic status. Furthermore, changes in functioning are expected to be related to life events prior to and during the study period. Life events are defined as changes in independent variables such as health, living arrangements, and personal relationships, as well as events such as falling victim to crime. In addition to these independent variables, mediating or modifying variables – such as personal standards or levels of aspiration and coping – may influence the trajectories of functioning. These are operationally defined as the participants’ sense of mastery, perceived self-efficacy, self-esteem, priorities in life, standards of affiliation, and humour as a coping strategy.

The consequences of improvements and declines in functioning and the resulting levels of independence are quantified in terms of contributions to society and the need for health and social services. Ultimately, time, circumstances, and causes of death are studied in connection with the type of functional decline in the final phase of life.

**Cohort**

The initial sample was a stratified random sample of 3107 persons, weighted according to expected mortality at mid-term (= after 5 years) in each age group (55–59, 60–64, 65–69, 70–74, 75–79, and 80–85 years). A sample of this size was expected to provide sufficient opportunity for multivariate research and for obtaining adequate sub-samples for specific studies. In addition, it should ensure that sufficient participants in each stratum would still be available for examination after a period of ten years.

Municipal registries provided the sampling frame. The sample is constructed in such a way that it reflects the national distribution of urbanisation and population density. The sample is based in three culturally distinct geographical areas: the West, the North-East, and the South of the Netherlands. Each area contains one medium- to-large city and two or more rural municipalities in the surroundings. The municipalities included in the sample are: Amsterdam, Wormerland, and Waterland (West), Zwolle, Ommen, Genemuiden, Zwartsluis, and Hasselt (North-East), and Oss, Uden, and Boekel (South).

The sampling design was determined in collaboration with the Netherlands Programme for Research on Aging (Nederlands Stimuleringsprogramma Ouderenonderzoek, NESTOR). NESTOR’s study, Living arrangements and social networks of older adults (Knipscheer et al., 1995), a cross-sectional study with follow-up of sub-samples, is aimed at developing theory and methods for the study of social networks among older people. NESTOR approached the cohort ten months before LASA’s baseline. Although the fieldwork procedures were the same, the specific objectives of each study were maintained. In 2002, ten years after the baseline cycle, a new cohort of 1002 participants in the age range of 55–65 years was enrolled, sampled from the same municipal sampling frame as the original cohort, and using the same measurement instruments. Addition of this new cohort allows the distinction of age, period, and cohort effects.

**Schedule**

LASA includes as baseline material some data from NESTOR’s baseline study, which took place from January to December 1992. LASA’s own baseline study was carried out separately from September 1992 to September 1993. Similar study cycles took place in 1995–96, 1998–99, and 2001–02. The first data-collection cycle in the new cohort was carried out in 2002–03. In 2005–06, the next data-collection cycle will cover both the original and new cohorts.

**Procedures**

The participants are visited at home by trained interviewers who use lap-top computers for data entry. This ‘main interview’, comprising an interview and tests, takes approximately 1.5 hours. Additional data comes from a self-administered questionnaire. After having obtained the consent of the respondent, a nurse-interviewer pays a separate visit for the ‘medical interview’, to take clinical measurements and ask additional health-related questions. In a sub-sample of participants, the nurses conduct a diagnostic interview on depression and anxiety disorders. Blood samples from the original cohort were collected in 1992–93 and 1995–96; from the new cohort in 2002–03. These are partly used for analyses, partly stored for later use. Saliva samples were collected in 2001–02 from the original cohort. In 2005–06, researchers are collecting tissue samples from participants’ oral cavity. Ethical aspects of the study procedures have been approved by the Medical Ethics Committee of the VU University Medical Center.

**ORGANISATION**

**LASA team**

The LASA study team, originally seven researchers, had grown to 40 by 2005. The research is organised in six, partly overlapping sub-programmes: physical, cognitive, emotional, and social functioning, falls and fractures, and use of care. Through the years, five or six researchers have been mainly occupied with the logistics of data collection. One team member has the task of communicating research findings to policymakers and health professionals; this includes asking these target groups about their need for information that might be satisfied with LASA data.

**Funding**

LASA obtains its primary support from the Ministry of Health, Welfare, and Sports, the Department of Nursing, Long-term Care, and Aging, through a long-term grant to the Vrije Universiteit (now VU University Medical Center). From 2001 through 2004, in addition to regular internal university funds, support has been provided by the Vrije Universiteit in the context of the main research ('width strategy') programme, Frailty and vitality in aging:
an interdisciplinary approach. Other major funding bodies are the Netherlands Organisation for Scientific Research and the Netherlands Organisation for Health Research and Development.

Collaboration

LASA was originally a joint project of two Vrije Universiteit departments, Psychiatry (former Faculty of Medicine) and Sociology and Social Gerontology (former Faculty of Social and Cultural Sciences). They were soon joined by the EMGO Institute. Researchers and other team members come from the Departments of General Practice, Nursing-Home Medicine, Public and Occupational Health, Internal Medicine, Audiology, and Ophthalmology (VUMc), Educational Sciences (Faculty of Human Movement Sciences), Clinical Psychology (Faculty of Psychology and Education), Social Research Methodology (Faculty of Social Sciences), Econometrics (Faculty of Economics), and Nutrition and Health (Faculty of Earth and Life Sciences).

There are several external collaborative agreements with other institutions in the Netherlands: the Netherlands Interdisciplinary Demographic Institute, the University of Maastricht Department of Medical Sociology, Statistics Netherlands, the National Institute of Public Health and Environment, the Social and Cultural Planning Bureau, the Social Insurance Council, the Isala Hospital in Zwolle, Zwolle’s municipal administration office, and Amsterdam’s municipal health service. There is international collaboration with the intramural Epidemiology, Demography, and Biostatistics programme of the U.S. National Institute on Aging, the University of California at San Francisco, the University of Pittsburg, Wake Forest University, and Pennsylvania State University (USA), the Universities of Jyväskylä and Tampere (Finland), the Universities of Cambridge and Sheffield (UK), and the German Centre for Aging Research in Berlin and the University of Göttingen (Germany). Furthermore, LASA takes part in several European projects: the European Concerted Action on Depression (EURODEP, coordinating centre: Department of Psychiatry, University of Manchester, England), Socio-Economic Determinants of Healthy Aging (SEdHA, coordinating centre: the Department of Public Health and Social Medicine, Erasmus University Rotterdam), Comparison of Longitudinal European Studies on Aging (CLESA, coordinating centre: CNR Centre on Aging, University of Padua, Italy). The close collaboration between scientists of various disciplines and prominent professionals is characteristic of both the design and the execution of the study.

From the study’s birth through 2000, its progress was monitored by an international advisory board, which included experts from a wide range of disciplines. The Ministry of Health, Welfare, and Sports was also represented on this board. Discussions with the board during the preparation phase, in 1991, resulted in a book that outlines the concepts and design of LASA (Deeg et al., 1993). A second book was published in 1994 after the board discussed the first baseline findings (Deeg & Westendorp-de Serière, 1994). A third book describes the first longitudinal findings, covering two data-collection cycles, that were discussed with the board in 1997 (Deeg et al., 1998). A fourth advisory board meeting was held in 2000, at which the first (almost) ten years of LASA and its future course were discussed. The board decided not to publish another monograph; instead, since 2003, a series of articles based on LASA data are being published in the journal Aging: Clinical and Experimental Research (Maggi et al., 2003).

FUTURE DEVELOPMENTS

The scientific merits of longitudinal studies are obvious. Longitudinal studies, however, requirejumping a great many hurdles and avoiding ever-loomming pitfalls (Deeg, 1989). Collecting longitudinal data is expensive, and the data become useful only long after the initiation of the study. The LASA study was fortunate to receive basic funding for the first ten years and to have its funding extended. This has allowed the inclusion of a new cohort of 55–64-year-olds in 2002–03. This cohort is of particular interest, because the upcoming generation of older persons may have levels of health and ways of coping with aging that are different from previous generations.

LASA researchers will continue following up the full cohort and the sub-populations, perhaps expanding the number of sub-studies to make full use of the data. They will monitor, at regular intervals, the study participants’ vital status and causes of death. Since 2003, LASA has enjoyed a closer dialogue on policy information needs with the Ministry of Health, Welfare, and Sports, and other external parties, often non-academic, are increasingly making use of LASA’s data. The LASA team, their eyes set on the study’s original goals, will continue to translate, disseminate, and implement their research findings into policies and practices that will improve the lives of our older neighbours.

Current research projects based on the Longitudinal Aging Study Amsterdam

Are anxiety or mixed anxiety-depression predictors of cognitive decline? (6.2)

Biological frailty markers of physical health decline in older persons (6.3)

Care trajectories of older chronically ill persons: adaptations to changes in disease course and use of health services (6.3)

Determinants and consequences of sarcopenia: the role of endocrine factors and physical activity (6.4)

Determinants of sarcopenia: the role of inflammation and sex hormones (6.3)

Differentiating between various components in age-associated memory impairments (6.2)
Early detection of frailty in the medical, psychological, and social domains in a general population and in several healthcare settings (6.3)

Early-life exposures and health during aging (6.3)

Estradiol and cortisol in relation to bone density and fractures (6.4)

Expectations of competence in older age (6.3)

Genetic and biological risk factors for cardiovascular morbidity and mortality in depressed elderly (6.2)

Health attitude and adjustment to ill health during aging (6.3)

Historic trends in health and physical functioning of older persons (6.3)

Post-traumatic stress disorder in the elderly: a community-based study of prevalence, phenomenology, risk factors, and protective factors (6.2)

Quality of life in patients with osteoporosis (6.4)

Religious resources in older adults with common mental disorders (6.3)

Sex-differences in late-life depression (6.2)

Social determinants of depression in older age (6.2)

Vitamin D receptor polymorphism, falls, bone density, and fractures (6.4)

References


INTRODUCTION

In 1974, a longitudinal study was planned to monitor over a period of four years the growth, health, and lifestyle of boys and girls entering secondary school. The reason for this follow-up was a series of intervention studies to measure the effectiveness of more intensive and extra physical education lessons in 12–13-year-old boys (Kemper et al., 1971; Kemper et al., 1976). In general, no clear effects were found. There were indications that any intervention effects were masked by large inter-individual differences between the pupils in biological development and habitual physical activity.

At that time, health authorities were complaining about the level of fitness of youngsters in their late teens. The teenage years are an important period in life. As teenagers grow more independent, their lifestyles and habits change considerably (with regard to physical activity, eating, smoking, and drinking alcohol). Their health perspective may also change. Changes in growth and development can be described most precisely by studying the same participants over a long period of time. That is what led to the birth of the Amsterdam Growth and Health Longitudinal Study (AGAHLS).

AGAHLS started by taking four annual measurements in a sample of over 600 healthy 13-year-old boys and girls. The boys and girls were pupils at two secondary schools (one in Amsterdam and one in Purmerend, a suburb of Amsterdam). After the original four years, the follow-up was extended to take measurements when the participants were 21-, 27-, 29-, and 32-years-old. In 2000, almost 400 36-year-old participants attended the ninth repeated measurement, so that 23-year follow-up data are now available.

This longitudinal database covers the important teenage and young-adult periods, and makes it possible to analyse the data to determine the tracking characteristics of biological and lifestyle variables, and also to investigate quasi-causal relationships between lifestyle variables and indicators for certain chronic diseases. Moreover, new techniques, such as the measurement of early signs of atherosclerosis and osteoporosis and genetic markers for chronic diseases, are continuously being added to the database, giving the longitudinal data even more dimensions.

OBJECTIVES


AGAHLS was initially designed to answer four research questions:

1. How do boys and girls grow and develop with respect to their physical and social-psychological well-being between the ages of 12 and 18?
2. How does their lifestyle change, particularly in those aspects that seem important for health?

In 2001, a reunion was organised to celebrate AGAHLS’ 25th anniversary. Because most of the participants have started families, their spouses and children were also invited. At this reunion, the participants received a Dutch version of the 1995 AGAHLS monograph (Kemper ed., 1995), which was published for them and for other interested people (Kemper ed., 2001).
3. How healthy are these teenagers, and how healthy is their lifestyle with respect to diet, physical activity, smoking behaviour, and alcohol consumption?
4. What relationship can be discovered between lifestyle and health?

In 1976, the study took off with a six-year grant was obtained from the Foundation for Educational Research (Dutch Ministry of Education) and the Dutch Prevention Fund (currently Health Research and Development Council [ZonMw]). In view of the many confounding factors inevitably connected with longitudinal measurements, researchers designed a multiple longitudinal study to enable confounding of ‘time of measurement’ and ‘birth cohort’ to be separated from the main ‘age effect’. In 1976, researchers enrolled approximately 300 pupils from Amsterdam’s Pius X school in three different birth cohorts (1963, 1964, and 1965). They participated in four annual measurements (1977, 1978, 1979, and 1980).

Another problem encountered in longitudinal measurements is the testing, or learning, effect. When measuring many variables - physical as well as psychological - a certain motivation or habituation is required from the participants. This can lead to differences between measurements that are due solely to changes in attitude towards the measurement procedure itself. Such testing effects may be positive (i.e. when habituation or learning is important) or negative (i.e. when motivation decreases). Therefore, a control group, approximately 300 students from Purmerend’s Ignatius College, were measured only once during the four-year period (25% of the pupils each year). The measurements of this “control” school were comparable with those of the “longitudinal” school, except that they were not repeated measurements, but were derived from independent samples (Kemper et al., 1978). Comparing the data from the two schools, possible systematic divergence of mean values over age is an indication of a testing effect. The multiple longitudinal design made it possible to estimate confounding effects that can interfere with the main age effects during the first four adolescent years, including drop-out effects and stochastic measurement errors (Kemper et al., 1983).

The data collection was facilitated by a mobile research lab that was transported by trailer from the longitudinal school to the control school, and vice versa, and finally brought back to the VUmc in 2002. After almost 30 years of excellent service, the mobile research lab was dismantled after a new lab was installed in the VUmc.

The results over the teenage period show clearly that, although physical fitness and health do not decline during this period in either boys or girls, habitual physical activity (measured by means of pedometers, heart-rate monitors, and interviews) declined dramatically, and that eating habits were characterised by a constant pattern of a too-high fat and protein content and a too-low carbohydrate content. A significant increase was seen in the percentage of smokers and alcohol consumers (Kemper ed., 1985).

The initial results required a continuation of the longitudinal study to find out whether lifestyle changes ultimately manifested in physical and psychosocial characteristics in adulthood and to find out what direction the changes take in young adulthood. Grants from several organisations in the Netherlands (Dutch Heart Foundation; Health Research and Development Council; Ministry of Health, Welfare, and Sport; Dairy Foundation on Nutrition and Health; NOC*NSF) enabled the study’s continuation. The participants in the longitudinal study were measured again at the mean age of 21 years in 1985, and at the mean ages of 27 and 29 years in 1991 and 1993.

A critical update of the measurements was in order; some new measurements were included and old ones were dropped. New measurements included stress and isokinetic leg muscle force in 1985 and 1991, and bone-density of the lumbar region in 1991 and of the hip and wrist in 1993. The bone density measurements were performed in collaboration with the VUmc's Department of Nuclear Medicine (Prof. J. Teule, Dr. J.C. Roos, and Dr. P.Th.A.M. Lips). The measurement of skeletal age was dropped because all participants had already reached full maturity.

Results over this 15-year follow-up period show an increase in a series of risk indicators for cardiovascular diseases. For example, at the age of 27, one-third of the population was overweight (body mass index ≥ 25), and blood pressure and cholesterol levels had increased considerably (Kemper et al., 1999). These findings indicate that even at the age of 27 (and probably before), preventive strategies to reduce fat mass and serum cholesterol are of great importance.

One important aspect of AGAHLS was the repeated measurement of various aspects of lifestyle, including nutritional intake, physical activity, and behavioural patterns such as stress and coping style. The descriptive nature of AGAHLS does not justify the drawing of firm conclusions about the effects of lifestyle and psychosocial patterns on health. However, modern statistical methods, such as longitudinal analysis with generalised estimating equations (GEE) give strong support to the assumption, for example, that physical activity during adolescence and
young adulthood is an important determinant of maximal aerobic power at the age of 27, and that this relationship is not merely a result of self-selection (Mechelen et al., 2000; Kemper et al., 2001a; Kemper et al., 2001b). Tracking analyses show that physical activity (Twisk et al., 2000) and dietary intake (Post et al., 2001) have a low stability, which is certainly lower than biological factors such as overweight and serum cholesterol.

Motivation of the participants: adherence and drop-out
To motivate the participants to adhere to the longitudinal study, special measures were taken during the different age periods. During the adolescent period, the physical measurements (anthropometry, physical fitness) and the questionnaires and interviews took place during regular school hours in classrooms, gymnasiums, and the purpose-built mobile research unit parked in front of the schools. The main reason for drop-out was leaving school (due to relocation and/or selection of the pupil by school authorities). The drop-out percentage was a foreseeable 24%.

After 1985, the participants had left school and were spread throughout the country. They were asked to continue their participation by visiting the laboratories in Amsterdam for one whole day. The drop-out percentages were 14% in 1985, 9% in 1991, and 11% in 1993. Selective drop-out was investigated by testing differences in the relevant characteristics between those who continued to participate and those who dropped out of the study.

From the beginning, participants received booklets that reported AGAHLS' general results and their personal records. Their own results were compared with the mean values of the entire longitudinal group and, if possible, with the age- and sex-specific norms of the entire Dutch population.

PhD theses
Since the 1993 measurements, three published PhD theses have used AGAHLS' longitudinal database.

Dr. Jos W.R. Twisk developed a new methodological approach to track blood cholesterol over a 15-year period and measure its relationship with other risk factors for coronary heart disease (Twisk, 1995). His tracking analysis shows the stability of a certain risk factor over time and/or the predictability of future values by early measurements. A new method was applied to calculate tracking coefficients, based on a statistical model in which the initial value of the variable of interest is related to the entire longitudinal development of the same variable. The standard regression coefficient related to the initial value can be interpreted as a tracking coefficient (Twisk et al., 1994). The parameters of the model are estimated with GEE, a method suitable for the longitudinal analysis of both continuous and dichotomous outcome variables. Comparison of the GEE-tracking coefficients with more traditional methods revealed that the latter mainly underestimate the real tracking phenomenon. In addition to tracking analyses, further analyses were performed to determine the factors influencing the tracking of cholesterol and high-density lipoprotein (Twisk et al., 1996a). A study was also made of the longitudinal relationship between lifestyle and biological risk indicators for cardiovascular disease (Twisk et al., 1996b; Twisk et al., 1997; Twisk et al., 1998a), between personality characteristics and risk indicators for cardiovascular disease (Twisk et al., 1998b) and between lifestyle and lung-function parameters (Twisk et al., 1998c).

Dr. Desiree C. Welten studied calcium intake in relation to bone status during youth (Welten, 1996). Her thesis focused on the problems encountered in measuring dietary calcium intake longitudinally by means of the cross-check dietary history method. Furthermore, she analysed the relationship between calcium intake and (peak) bone mass, measured with dual X-ray absorptiometry (DEXA) in the lumbar spine. She formulated three research questions: 1) Is there a relationship between calcium intake during youth and the development of peak bone mineral density when the influence of physical activity and body weight was accounted for? (Welten et al., 1994); 2) How well does the calcium and dairy intake track from adolescence into adulthood? and 3) Is a newly developed dairy questionnaire a valid method to recall the calcium intake of 8 and 16 years previously in 29-year old men and women? (Welten et al., 1995a; Welten et al., 1996). Her main conclusion was that no significant effects of calcium intake were found. However, a meta-analysis seems to provide overall evidence that 1% bone mass loss per year can be prevented in pre-menopausal women by a calcium supplement of 1000 mg/day (Welten et al., 1995b). The calcium and dairy intake track only modestly, and these intakes during adolescence seem to be relatively poor predictors for adult values. In young adults, the retrospectively reported calcium intake seems to be a relatively poor estimation of the actual calcium intake of 8–16 years ago.

Dr. Frank J. van Lenthe described the development of a central pattern of body fat from adolescence into adulthood (Lenthe, 1998). On the basis of the literature, it was speculated that not only total body fatness (as measured with the sum of four skin folds), but also its distribution over the body (as measured by trunk-extremity skin-fold ratios) is related to risk factors for cardiovascular diseases (Lenthe et al., 1998a). Between the mean ages of 13 and 29 years, the trunk-extremity skin-fold ratios remained relatively constant in the women, but a marked increase was found in the men. The magnitude of the longitudinal tracking coefficient of 0.55 suggests that the roots of a central pattern of body fat in adulthood are already present in the teens (Lenthe et al., 1996a). The influence of the timing of biological maturation on the development of a central pattern of body fat showed that only girls with a relatively early menarche have significantly higher trunk-extremity skin-fold ratios between 13 and 27 years of age than girls with relatively late menarche (Lenthe et al., 1996b). Behavioural variables (such as activity, nutrient intake, smoking, and alcohol consumption) did not affect the development of a central pattern of body fat in this age period (Lenthe et al., 1998b). However, type A behaviour, after adjustment for total body fatness, was significantly negatively correlated at the age of 27 (in both sexes), and the personality traits ‘dominance’ and ‘rigidity’ were significantly negatively correlated between 13 and 21 years of age (only in males) with trunk-extremity skin-fold ratios (Lenthe et al., 1998c).

Van Mechelen et al. (1998) reported a significant longitudinal relationship between resting heart rate, on the one hand, and cardiovascular disease risk indicators (blood pressure and maximal oxygen uptake) on the other hand. These relationships did not change substantially when corrected for smoking and physical activity.


In 1996 and 1997, AGHLS researchers took follow-up measurements of approximately 450 participants at the mean age of 32. They measured not only participants in the longitudinal group, but also – for only the second time – participants in the control group, who were measured only once during their teenage period.

There were two reasons for including the control group. They were needed, after the inevitable drop-outs that had occurred in the previous 20–25 years, to retain the minimal number of participants for statistical analyses. The second, more important reason, was to answer the following research question: Does a programme of repeated measurements and reports of results between the ages of 12 and 34 years (compared to a programme of just two measurements) benefit health status? The results can be sub-divided into three categories:

1) The effects on nine biological risk factors for chronic diseases were limited: in men, a borderline significant difference was found in the 20-year change for the body-fat distribution (ratio of subscapular and triceps skin fold, S/T ratio), favouring the longitudinal group (Kemper et al., 2002a). A significantly healthier effect was seen in systolic blood pressure in the control group. In women only, the change in S/T ratio was better in the intervention group.

2) The effect on dietary intake was also relatively small: out of the 14 nutrients, the longitudinal group showed a significantly larger decrease in the mono and disaccharides only, compared to the control group (Vente et al., 2001).

3) Contrary to the hypothesis that repeated medical check-ups combined with health information should increase the level of daily physical activity, both men and women in the control group showed a significantly smaller decrease in physical activity compared to the longitudinal group (Kemper et al., 2002b).

Last period: 2000-2004

In 2000, a ninth repeated measurement took place, in which a non-invasive measurement was included to estimate pre-clinical atherosclerosis of blood vessels (in collaboration with Prof. C.D.A. Stehouwer), measurement of heel bone by ultrasound (Dr. P.Th.A.M. Lips), and retrospective measurement of birth weight (Prof. H.A. Delemarre-van de Waal). Collaboration has also been established with the Erasmus University Medical Centre in Rotterdam (Department of Internal Medicine). Genetic markers of obesity (Prof. S.W.J. Lamberts) and osteoporosis (Prof. H.A.P. Pols) were measured in the DNA of venous blood samples that had been collected from the participants in the past.

Five other research questions were addressed in this period:

1) What is the importance of lifestyle factors (physical activity, diet, alcohol consumption, and smoking) for the development of biological cardiovascular disease risk indicators?
2) What is the relative importance of lifestyles during adolescence and young adulthood for the bone-mineral density of men and women in their 30s?

3) What is the influence of biological risk indicators for cardiovascular disease (lipoproteins, blood pressure, body fat, aerobic fitness), lifestyle risk indicators for cardiovascular disease (nutrient intake, physical activity, alcohol consumption, and smoking) and their interaction on preclinical atherosclerosis?

4) Is there a relationship between birth weight and the development of biological and lifestyle risk factors (between 12 and 36 years of age) and indicators of osteoporosis and atherosclerosis at the age of 36?

5) What is the relationship between coffee consumption and subjectively experienced health, and what is the role of claimed sensitivity in this relationship?

In 2002, Dr. Lando L.J. Koppes completed his PhD thesis on alcohol consumption (Koppes, 2002). He investigated the development of alcohol consumption from adolescence into adulthood: in women of all age groups, wine is the most popular alcoholic beverage, while men prefer beer. The mean amount of alcohol consumed peaks at the age of 21 in men (13.5 units per drinker per week) and in women at the age of 36 (9.1 units per drinker per week) (Koppes et al., 2000a).

The relationship between alcohol consumption and serum cholesterol (Koppes et al., 2000b) revealed that 32-year-old participants who consumed more than ten alcoholic drinks per week have more favourable HDL-cholesterol levels than non-drinkers. From the relationship between alcohol consumption and personality characteristics (Koppes et al., 2001), it was concluded that alcohol consumption was significantly associated with lower personality scores with regard to social inadequacy, rigidity, and self-sufficiency. With regard to the validity of the measurement of alcohol by means of a quantity-frequency questionnaire and/or a cross-check dietary history interview, it was found that 1) overall greater alcohol consumption was reported in the dietary history interview, and 2) the precision and validity of the quantity-frequency questionnaire appeared to be low (Koppes et al., 2002). Furthermore, he showed that widely used questionnaires such as the CAGE were poor in detecting alcohol-related problems (Koppes et al., 2004).

In 2002, two supplements with AGAHLS data were published. The International Journal of Sports Medicine first published a supplement entitled “The relationship between physical activity and physical fitness in youth and cardiovascular health later in life - what longitudinal studies can tell” (Mechelen et al., 2002; Mechelen, 2002). Included are research papers from several longitudinal studies, with three papers from AGAHLS (Twisk et al., 2002a; Twisk et al., 2002b; Twisk et al., 2002c). Subsequently, a supplement was published in Bone, entitled “Mechanical loading of bone, bridging the gap between animal and human studies” (Twisk et al, 2002c; Kemper et al., 2002). Included is an AGAHLS paper on the relationship between physical activity and bone mass (Kemper et al., 2002).

In 2003, Dr. Claire M. Bernaards published her thesis on smoking behaviour. She found that the prevalence of smoking over the 20-year period increased gradually in both sexes, and that biological maturation is not a better predictor of smoking during adolescence than calendar age (Bernaards et al., 2001a). The relative validity of instruments to measure lifetime smoking behaviour was estimated by comparing retrospectively with prospectively calculated pack-years over a period of 23 years (between 13 and 36 years of age). The relative validity of comparing retrospectively with prospectively calculated pack-years was found to be moderate (Bernaards et al., 2001b). In both sexes, trends for a reduction in blood pressure, HDL-cholesterol, body weight, and waist-to-hip ratio are demonstrated with increased smoking. Cardiovascular fitness and heart rate response to exercise are already reduced in young healthy smokers. In men, the adverse effects of smoking become stronger with increasing age, but appear to be reversible at the age of 36 (Bernaards et al., 2003). Smoking was also found to be inversely related with the quality of the heel bone, measured with ultrasound techniques (Bernaards et al., 2004a). In this population, self-reports of smoking and the NicCheck®, a dipstick in urine that estimates nicotine metabolites, seemed to be equally valid (Bernaards et al., 2004b).

Dr. Ingrid Bakker investigated the longitudinal relationship of genes, daily physical activity, and dietary intake with lumbar bone mineral density, measured from 27 until 36 years of age (Bakker, 2003). She found that physical activity that causes mechanical loading on the lumbar spine has a small positive influence on the lumbar bone mineral density in men, but not in women (Bakker et al., 2004).
With respect to body composition parameters (body height, body weight, skinfolds, circumferences), fat-free mass appeared to be the most important determinant for the ten-year longitudinal development of lumbar bone in both sexes (Bakker et al., 2003b). Ingrid also developed a computer-guided cross-check dietary history interview based on the face-to-face cross-check dietary history interview that was initially used (Post, 1989), and this showed a reduction in interview bias but similar quality, compared to the face-to-face interview method (Bakker et al., 2003c).

In her thesis, Dr. M. Isabel Ferreira analysed data on current and adolescent levels of cardiopulmonary fitness and the relationship with large artery properties at the age of 36 (Ferreira, 2004). It was found that not only current, but also adolescent levels of VO2max were inversely and independently associated with carotid intima media thickness (but only in men), and also that current and adolescent levels of VO2max were positively associated with the compliance of both the elastic carotid and the muscular femoral artery, and with carotid but not femoral arterial distensibility (Ferreira et al., 2002a). Increases in VO2max that occur during adolescence and young adulthood were also found to be associated with less arterial stiffness (Ferreira et al., 2003). Improving VO2max by increasing daily physical activity levels may therefore be important in the primary prevention of cardiovascular disease. Body fatness and body fat distribution are also associated with large artery structural and functional properties at an adult age, the roots of which may already be present in adolescence (Ferreira et al., 2004a; Ferreira et al., 2004b). The clustering of risk factors for the metabolic syndrome (hypertension, central obesity, and dyslipidaemia) appears to be associated with large artery stiffness in young and apparently healthy adults (Ferreira et al., in press).

Dr. Saskia J. te Velde tackled the Barker hypothesis concerning the foetal origins of chronic diseases later in life. She first investigated the relationship between birth weight, as a proxy of intra-uterine growth, and adult body composition. Lower birth weight was related to a higher adult-age subcutaneous and central fat mass, indicating a higher risk for obesity (Velde et al., 2003a). In a second study, she analysed the relationship between birth weight and musculoskeletal health: birth weight was positively associated with fat-free mass, but not with muscle strength, and with respect to bone mineral content, birth weight was only related with lumbar bone. However, birth weight was unexpectedly inversely related with heel bone mass, measured by means of ultrasound techniques (Velde et al., 2004a). In a third study, described in her thesis (Velde, 2004), the mediating effect of arterial stiffness in the relationship between low birth weight and increased blood pressure was investigated: lower birth weight was related to increased systolic and diastolic blood pressure, and also to increased arterial stiffness (Velde et al., 2004b).

The research group has completed a third monograph on the research findings from the 23 years of extensive longitudinal follow-up in AGAHLS (Kemper ed. 2004), entitled: Amsterdam Growth and Health Longitudinal Study – a 23-year follow-up from teenager to adulthood investigating the relationship between life-style and health. This publication comprises 14 chapters, written by various authors who all are members of the AGAHLS research group.
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7.3 Hoorn Study

INTRODUCTION

The modern lifestyle, short on physical activity and long on food, is creating a problem in societies around the world: obesity and its related diseases. Approximately 20–25% of the adults in Western society suffer from the ‘metabolic syndrome’, a clustering of three or more cardiovascular risk factors, which include a large waist circumference, high blood pressure, high glucose levels, low HDL cholesterol levels, and high triglyceride levels. Men and women with the metabolic syndrome have a risk of cardiovascular disease twice as high as their healthier neighbours, and are more than five times more likely to develop type 2 diabetes mellitus, which is a major contributor to compromised quality of life and the high costs of healthcare. Diabetes is defined by the presence of elevated blood glucose levels and is usually accompanied by an unfavourable cardiovascular disease risk profile. In the Netherlands, approximately 10% of the population aged 50–75 years old has type 2 diabetes mellitus. Partly due to the aging population and partly due to changes in lifestyle and the resulting epidemic of obesity, the percentage of people with diabetes is growing rapidly and is estimated to increase to one-third of the adult population in 2010.

Previous studies have indicated that 30–50% of diabetic patients are undiagnosed. Only when symptoms and/or complications become manifest is diabetes diagnosed, usually by the general practitioner, and treatment is then initiated. However, despite treatment, most patients develop complications (cardiovascular disease, retinopathy, nephropathy, and neuropathy), which lower their quality of life considerably and impose a heavy burden on the healthcare budget.

Since the onset of type 2 diabetes is also being observed in younger age groups, and the duration of diabetes is the strongest predictor of complications, the prevalence of complications is also expected to increase. Clearly, prevention or delay of the occurrence of type 2 diabetes and diabetes-related complications can contribute to the reduction of morbidity in the elderly. EMGO’s diabetes research is aimed at identifying risk factors for type 2 diabetes and its complications and at developing strategies for prevention.

In 1989, the Hoorn Study was initiated to study the prevalence and determinants of type 2 diabetes in the general population in the Netherlands. The Hoorn Study cohort has been monitored ever since and has been extended to include additional study populations. In 1996, to support diabetes care in the region, the West-Frisian Care System was initiated and a diabetes research centre built. Over the years, the number of patients with diabetes who participate in the West-Frisian Care System grew to more than 4000. The number of ongoing research projects within the Hoorn Study also grew, and so, in November 2005, a new and larger diabetes research centre opened near Hoorn’s local hospital. The new centre is equipped with a vascular laboratory, an ophthalmologic examination unit, storage facilities, and test equipment, and well-trained research assistants have been appointed to guarantee the quality of the research.

OBJECTIVES

The initial objective of the Hoorn Study was to determine the prevalence of type 2 diabetes and associated risk factors in a study population of approximately 2,500 people. The objectives were later extended to study risk factors for diabetes and cardiovascular disease and other diabetes complications in a prospective follow-up of the original cohort. The study population has since been increased to include new samples of diabetic patients and patients with impaired glucose tolerance. Repeated medical examinations and follow-ups of morbidity and mortality in a well-defined population make it possible to study new risk factors and effective methods for the prevention and treatment of chronic disease. The many facets of diabetes are being studied in a multidisciplinary approach, involving collaboration with specialists from various fields of research.

DESIGN

Population and measurements

The Hoorn Study is a population-based cohort study of a general population in the Netherlands. In 1989, a random sample was taken from Hoorn’s municipal register. Of the 3553 men and women aged 50–75 years old who were invited, 2540 (71.5%) agreed to participate. Of those, researchers excluded 56 non-Caucasian subjects, resulting in the initial Hoorn Study cohort of 2,484 subjects. All participants, except those who were on glucose-lowering medication, underwent an oral glucose tolerance test, which consisted of drinking a solution of 75 g glucose in 300 ml water after an overnight fast. They underwent a physical examination and completed questionnaires on their health status and lifestyle.

The results showed that approximately 8% of all participants had diabetes, 4% of whom were previously undiagnosed. Another 10% had impaired glucose tolerance (Mooy; 1995).

In 1991–1992, approximately 700 people, a sample of the original 2484 stratified by age and glucose tolerance, were invited to undergo more extensive measurements for diabetes-related complications at the Vrije Universiteit Academic Hospital in Amsterdam. These measurements included vascular- and autonomic-function tests and tests for the presence of atherosclerosis, neuropathy, nephropathy, and retinopathy. As expected, the risk of complications was highest in the known diabetic patients. Researchers also found that patients with newly diagnosed diabetes, and even patients with impaired glucose tolerance, had a worse cardiovascular risk profile and also performed worse on a number of the function tests than people with normal glucose tolerance. In addition, the follow-up study of patients with impaired glucose tolerance showed that over 30% progressed to diabetes within five years (Beks, 1996; Nijpels, 1997).
In collaboration with the general practitioners and the local hospital, researchers are monitoring morbidity and mortality in the Hoorn Study cohort. The population register of the city of Hoorn provides information on the vital status of the participants who gave informed consent. Causes of death and information about morbidity are extracted from the medical records in the general practices and the local hospital. A specially developed computer programme is being used to classify morbidity and mortality according to the International Classification of Diseases, Injuries, and Causes of Death (ICD).

A certified nosologist who checked the International Classification codes assigned to the deaths of a sample of 23 participants found an almost perfect agreement with regard to the category of cardiovascular mortality. During ten years of follow-up, participants with known diabetes had a four-to-five times higher risk for all-cause and cardiovascular mortality, compared to participants with normal glucose levels (De Vegt, 1999).

In 1996–1998, original participants of the Hoorn Study were invited for a follow-up medical examination. Of the initial cohort, 150 people had died and 108 had moved away from Hoorn. For logistical reasons, 140 other participants were not invited. Of the remaining 2086 participants, 1513 (72.5%) came in for the follow-up examination, at which researchers conducted a physical examination and redefined the participants glucose tolerance. After a mean follow-up of 6.4 years, 133 (9.9%) new cases of diabetes were found in the 1342 participants who had no diabetes at baseline. Participants who had both impaired glucose tolerance (IGT) and impaired fasting glucose (IFG) at baseline had the highest risk of progression to diabetes: 64.5%. Similar risks of 33.8% and 33.0% were observed for participants with isolated impaired glucose tolerance and isolated impaired fasting glucose, respectively. Of the participants who had both normal fasting and postload glucose levels at baseline, only 4.5% had diabetes at follow-up. In addition to baseline glycaemia, the waist:hip ratio was also found to be a predictor of future diabetes (De Vegt, 2001).

Microalbuminuria is a strong indicator of the risk of cardiovascular disease and renal dysfunction. In the Hoorn Study, microalbuminuria was determined in the subsample stratified by sex, age, and glucose tolerance, both at baseline in 1989–1990 and at the follow-up medical examination in 1996–1998. Of the 316 participants with no microalbuminuria at baseline, 14.0% of the non-diabetics and 22.7% of the diabetics had developed microalbuminuria at follow-up. High levels of homocysteine, an independent risk factor for atherothrombotic disease, was also found to be an independent risk factor for microalbuminuria (Jager, 2001).

Researchers have reported an association between the concentration of soluble intercellular adhesion molecule-1 (sICAM-1) and the risk of cardiovascular and all-cause mortality. Participants who died had higher levels of sICAM-1 than those who survived (506[164] vs. 477[162] ng/ml, respectively). After adjustment for age, sex, and glucose tolerance, participants with sICAM-1 levels in the upper quartile (≥ 550 ng/ml) had a relative risk for cardiovascular mortality of 2.05 (95% confidence interval, 1.10–3.81), compared to those with sICAM-1 levels in the other quartiles. Further adjustment for classical cardiovascular risk factors or indicators of (sub-)clinical atherosclerosis, endothelial dysfunction, inflammation, and renal function showed no significant change in this relative risk. A high sICAM-1 level was more frequently found in participants with diabetes than in those with a normal glucose tolerance (33.3% vs. 17.8%) (Becker, 2002).

Becker also showed that women, but not men, with type 2 diabetes had the same three-fold risk for cardiovascular events as those who already had a history of cardiovascular disease. The combined presence of diabetes and a history of cardiovascular disease was associated with an even higher, six-fold risk for a cardiovascular event in both men and women (Becker, 2003). Dekker showed that these differences also reflected associations between the metabolic syndrome and cardiovascular disease (Dekker, 2005).

To study possible differences in the aetiology of cardiovascular disease in participants with and without diabetes, follow-up medical examinations were carried out in 2000–2001. As many patients with diabetes had died before this follow-up, newly diagnosed diabetic patients, who had recently been identified through a screening study in the region, were also included. Henry studied vascular function in 780 participants (179 with impaired glucose metabolism, 314 with type 2 diabetes) with a mean age of 68 years. Diabetic participants were characterised by impaired endothelium-dependent flow-mediated vasodilation, increased IMT (intima media thickness), arterial and central stiffness (Schram, 2004), and left ventricular mass (in women only) (Henry, 2004). The higher left ventricular mass in women with diabetes was not explained by the reduced vascular function of stiffness, fasting insulin or glucose levels, or other cardiovascular risk factors. Increased arterial stiffness, but not impaired flow-mediated vasodilation, was already apparent in participants with impaired glucose metabolism, thus preceding diabetes. Snijder studied the contribution of different regional fat depots or lean tissue to arterial stiffness. Larger trunk fat mass was associated with higher peripheral arterial stiffness, but not with central arterial stiffness (Snijder, 2004). This may (partly) be explained by the relationship of fat distribution with lipid metabolism, since Bos showed that fat distribution was associated with differences in lipoprotein lipase activity and hepatic lipase activity, which are key enzymes in lipid metabolism (Bos, 2005).

These results suggest that high insulin and glucose levels contribute to atherosclerosis and impaired vascular function before the onset of diabetes. However, the presence of diabetes then accelerates the deleterious processes of cardiovascular disease.

In 2005, the New Hoorn Study began. This study is creating a new cohort of 3000 men and women, aged 64.5%.
40–65. This study will report the prevalence of impaired glucose regulation and diabetes in the Dutch general population, which is expected to have greatly increased. Recent studies have shown that even in subjects with normal glucose regulation, there is considerable variation in insulin secretion by the beta cells in the pancreas. Very little is known about the determinants of beta-cell function; therefore, this will be a major focus of the New Hoorn Study. As possible determinants of beta-cell function, initial studies will investigate the contributions of lifestyle, including stress.

**FUTURE DEVELOPMENTS**

At present, a new follow-up examination is being carried out in the surviving participants of the Hoorn Study. This time, focus is on cognitive function in relation to insulin resistance, hyperglycaemia, and level of atherosclerosis.

In the New Hoorn Study, sub-studies will be initiated to investigate additional hypotheses. In addition, there are initiatives to follow up the morbidity and mortality of more than 4000 participants in the West-Frisian Care System and to model the determinants of diabetes complications.

**Current research projects based on the Hoorn Study**

- Consumption of dairy in relation to the metabolic syndrome.
- Type 2 diabetes mellitus and depression in an elderly Dutch population: causal or concurrent co-morbidity?
- Diabetic retinopathy in relation to cardiovascular morbidity and mortality: the Hoorn Study.
- Cognitive dysfunction in type 2 diabetes mellitus: course of development and relation to vascular disease.

**References**


Beks PJ, Mackaay AJC, Neeling JND de, Vries H de, Bouter LM, Heine RJ. Peripheral arterial disease in relation to glycaemic level


7.4 Netherlands Study of Depression and Anxiety (NESDA)

INTRODUCTION
The Netherlands Study of Depression and Anxiety (NESDA) is a ten-year longitudinal investigation into the course of depression and anxiety disorders. Inaugurated on December 1, 2003, and funded by a research grant from the GeestKracht programme of the Netherlands Organisation for Health Research and Development (ZonMw), NESDA is a cooperative effort of several national academic and non-academic institutes with experience in epidemiological, biological, treatment-effect, and implementation studies concerning anxiety and depression. This consortium consists of the medical centres of Amsterdam's Vrije Universiteit (its departments of general practice, psychiatry, and clinical psychology) Groningen's National University, and the University of Leiden, along with the Centre for Quality of Care Research (WOK), the Netherlands Institute for Health Services Research (NIVEL Institute), and the Dutch National Institute for Mental Health and Addiction (the Trimbos Institute).

MOTIVATION
Depression and anxiety are common in all age groups. Approximately 19% of Dutch adults will experience depressive or anxiety disorders at some point in their lives. The considerable effects of these disorders on well-being and daily functioning are comparable to those of major chronic physical illnesses. In economic terms, the costs of depression – loss of productivity and use of health services – rank among the top five of all disorders. Depression is the most important risk factor for suicidal behaviour. Given the fact that several effective treatment options exist for both depression and anxiety, these disorders are promising targets for efforts to improve public health.

Given their undisputed relevance for public health, it is surprising how little is known about the long-term course and consequences of anxiety and depression. From both a clinical and a public-health perspective, accurate data on the prognosis are necessary to make it possible to plan and monitor treatment and to educate patients. In addition, although it is well known that depression and anxiety often coincide, very little is known about the pathways leading to co-morbidity. This is of clinical importance, because patients with co-morbid anxiety and depression suffer from more severe symptoms, more disability, and longer illness episodes and are less likely to respond to treatment. There is a scarcity of large-scale epidemiological studies, either national or international, that monitor cohorts of patients with depressive and anxiety disorders over a long period of time.

OBJECTIVES
The main aim of NESDA is to examine the long-term (eight-year) prognosis and co-morbidity of anxiety and depression in order to improve quality of care and prevent chronicity. To achieve this aim, NESDA’s researchers have formulated four research objectives:
1) To describe the long-term course of anxiety and depression and their consequences for public health.
2) To identify important demographic, psychosocial, clinical, biological, and genetic determinants of the long-term course of anxiety and depression and their consequences for public health.
3) To investigate the role of stress-regulating brain systems and gene-expression profiles in predicting the prognosis and consequences of anxiety and depression.
4) To describe patients’ preferences in and barriers to the utilisation of healthcare, and their relationship to the long-term course of anxiety and depression, in order to promote the implementation of promising interventions in primary and specialised mental healthcare.

In addition to these general research objectives, NESDA will address more detailed research questions. For some of these additional research questions, use will be made of additional data collected in specific sub-samples.

DESIGN
NESDA is a prospective cohort study spanning eight years of follow-up, during which the data needed to address the four study objectives will be collected.

Sample
NESDA’s patient sample (aged 18–65 years old) is designed to represent people with depression and anxiety in 1) different health-care settings and 2) different stages of the developmental history of the disorders. Therefore, the sample will be stratified according to setting (community, primary care, and specialised mental healthcare) and phase of illness (normal, high familial risk, sub-threshold disorders, and psychiatric disorders). Table 1 presents the stratified sampling frame and the projected number of participants with anxiety and/or depression. As the sample is intended to represent patients seen in different settings, there are very few a priori exclusion criteria. However, patients are excluded if they have a primary diagnosis of an organic psychiatric disorder, a psychotic disorder, or an addiction disorder, because both the course and the care trajectories of such patients are largely determined by the primary disorder, which is not of interest in this study.
Patients from specialised mental healthcare settings are being recruited from regional outpatient regional facilities for mental healthcare in Amsterdam (GGZ BuitenAmstel), Leiden (Rivierduinen), and Groningen (GGZ Groningen, GGZ Friesland, GGZ Drenthe). Patients and controls from primary care are being recruited from approximately 45 general practices associated with the departments of general practice at the universities of Amsterdam, Leiden, and Groningen. In general practice, participants (both patients and controls) are identified through a three-step screening approach: 1) a screening questionnaire (K-10), 2) a brief psychiatric telephone interview (Mini-International Neuropsychiatric Interview (MINI interview), and 3) a Composite International Diagnostic Interview (CIDI) during a study visit.

The community samples are being formed from two already-available cohorts. The Netherlands Mental Health Survey and Incidence Study (NEMESIS) is a prospective, community-based mental health study conducted by the Trimbos Institute, in which data from three measurement cycles (1996, 1997, and 1999) are already available. The Adolescents at Risk of Anxiety and Depression study is a prospective study of the incidence of anxiety and depression in the children (16–25 years of age at inclusion) of parents who have been treated for depression or anxiety disorders in mental health centres in Groningen and Drenthe. In these adolescents, who have a high familial risk of developing anxiety and depression disorders, psychosocial and biological risk factors were measured at baseline and during two annual follow-ups.

Measurements
The majority of NESDA measurements are taken during half-day baseline visits to a clinic. A self-report follow-up assessment is conducted after one year, and in-clinic visits are repeated two, four, and eight years after baseline. Data are collected through semi-structured interviews and self-administered questionnaires, which broadly cover concepts such as psychopathology, quality of life, physical functioning, healthcare utilisation and preferences, and personality and social characteristics. In addition, blood and saliva samples are collected during a physical examination. A sub-sample of 400 participants will be invited to undergo neuro-imaging (fMRI).

Time schedule
The NESDA study officially started on December 1, 2003. After a few months of preparation, the recruitment of participants started in August 2004. Recruitment of the required 2850 participants is expected to be completed by the end of 2006.

FUTURE DEVELOPMENTS
We are confident that the NESDA project, still in its recruitment phase, will grow into a research infrastructure of tremendous use to scientists interested in addressing questions related to anxiety and depression. We hope to initiate various ancillary studies that will collect additional data either from NESDA participants or new research subjects.
7.5 VUmc Network of General Practitioners

INTRODUCTION
In 2001, the VUmc board, by providing structural financial support, established the VUmc Network of General Practitioners (HuisartsenNetwerk VUmc; HN-VU), a collaboration between the VUmc Department of General Practice and 29 general practices in Amsterdam, Amstelveen, and Haarlem. The general objective of the HN-VU is to integrate scientific research, medical education, vocational training, and innovation in (transmural) general-practice care. The practices participating in the HN-VU concentrate on all these academic tasks. With regard to scientific research, a specific aim of the HN-VU is to supply data within a primary-care sampling framework. The research, which looks at anxiety, depression, diabetes, and common illnesses in general practice, focuses in particular on early diagnosis and prognosis, using descriptive and experimental designs. In determining and analysing outcomes, special attention is paid to the patient's perspective. A prerequisite for achieving these objectives is the accurate registration of actual and longitudinal patient-related data.

INFRASTRUCTURE
The HN-VU coordinator, under the guidance of the professor of general practice for research, is responsible for maintaining and developing the network. The senior partner of the VUmc university practice (a group practice situated on the campus of the VUmc since February 2004) is responsible for the training in educational and research activities of general practitioners in the HN-VU. A senior researcher is responsible for developing and executing research projects. In 2003, 29 general practitioners signed a contract to participate in the HN-VU. These general practitioners, whose practices are located near the VUmc or in the vicinity of one of its partner hospitals, are being paid for their efforts. Criteria for participation in the HN-VU are motivation, organisation, and particular characteristics of the practice's patients.

DATA COLLECTION
In 2003, the HN-VU started to build a database with the aim of collecting anonymous data about health problems and care of all practices within the network. In 2005, general practitioners entered data regarding 70,000 patients over the preceding three years. The general practitioners were trained to optimally classify and register patient data, with special attention paid to providing each patient with an International Classification of Primary Care code. Analysis shows that the general practitioners classified 30% more patients in 2005 than in 2003.

The database will provide longitudinal data on morbidity, healthcare, and relevant patient and practice characteristics, which can be used as sampling frames for research projects and analysed for quality purposes. Data on morbidity patterns and healthcare activities (for example, prescriptions and referrals) are used as feedback to inform participating general practitioners. In 2006, the HN-VU will develop and finance a new research project for which data will be collected from both the database and the network’s general practitioners.

PROJECTS
The general practitioners of the HN-VU participate on a regular basis in research projects. In 2005, they participated in seven research projects initiated by EMGO. These were:

1) a study of the effects of nurse-provided problem-solving therapy for emotional disorders (WC02-018);
2) a pragmatic, randomised, controlled trial of the effectiveness of a minimal intervention for psychological distress carried out in general practice (WC02-015-2);
3) the Netherlands Study on Depression and Anxiety (see Section 7.4);
4) a diagnostic protocol for dizzy elderly in general practice (WC03-071);
5) the Care, Education, and Research: Testing Academic General Practices In Networks study (WC03-027);
6) a study of diagnosis and prognosis of hand and wrist complaints in general practice (WC2003-006-2); and
7) a study of determinants of the course of fatigue in primary care (WC02-014).

Analysis shows that HN-VU general practitioners enrol substantially more patients in research projects than do their fellow general practitioners.

The HN-VU also participated in a pilot programme, carried out by the Faculty of Medicine, of early internships for second-year medical students.
**7.6 Research Centre Body@Work TNO VUmc**

**INTRODUCTION**

In 1996, EMGO and the TNO (Toegepast Natuurwetenschappelijk Onderzoek/Applied Scientific Research) joined forces to research, consult, and solve problems in the broad field of occupational health. EMGO’s quality scientific research and TNO’s experience in applying such research make a perfect match.

The growing collaboration has already resulted in several successfully defended PhD theses. In 2001, Lisette Hoogendoorn and Geertje Ariëns described their three-year study in a large cohort of workers of the aetiology of work-related back and neck pain and the resulting absences from work. In 2003, Karin Proper presented the results from a randomised controlled trial that evaluated the effectiveness of a preventive lifestyle programme in an occupational setting aimed at promoting physical activity and healthy eating. In 2004, Han Anema and Ivan Steenstra evaluated a Dutch application of the Canadian Sherbrooke model, an intervention that brings employees with disability due to non-specific, low-back pain back to work as soon as possible. They compared, in a four-arm randomised controlled trial, the usual care provided by occupational physicians with the Sherbrooke model’s participatory ergonomics, graded activity programme, and a combination of both. That same year, Martin Heymans described a three-arm randomised controlled trial that compared the effectiveness of the usual care provided by occupational physicians with that of low- and high-intensity physical training programmes. These projects are described in more detail on our website.

The initially informal collaboration proved so fruitful that, in April 2002, the executive boards of the Vrije Universiteit and the central TNO organisation, as well as those mentioned above, Allard van der Beek (EMGO Institute), Prof. van Mechelen serves as chairman of the executive committee, which includes, in addition to those mentioned above, Allard van der Beek (EMGO Institute) and Vincent Hildebrandt (TNO Work and Employment). The initial financial input of 3.63 million euros comes from the executive boards of the Vrije Universiteit and the central TNO organisation, as well as from the boards of TNO Quality of Life and the VUmc. VUmc and TNO participate as equal partners in terms of facilitating new research projects, and their contract stipulates an additional input over a five-year period of five junior PhD researchers, one postdoc researcher, two senior researchers at associate professorship level, and one administrative assistant.

If Body@Work proves successful, it will continue after the initial five-year period. The Vrije Universiteit’s Faculty of Human Movement Sciences, which has already invested two PhD students on an informal basis, is also expected to join Body@Work as a formal partner pending successful collaboration in ongoing research projects.

**THE MISSION**

Personnel at Body@Work conduct high quality scientific research in two main areas of interest: 1) physical activity and health and 2) the aetiology and prevention of work-related musculoskeletal disorders. In addition, senior staff members seek external funding for additional projects and to ensure Body@Work’s continued existence after the initial five-year period. In this way, Body@Work acts as a ‘flywheel’.

**RECENT RESULTS**

Body@Work is still young, and some years must pass before scientific output, as measured by publications of original research, can be shown. However, other output, such as conference presentations and acquired grants, can already be assessed. In 2004, Body@Work won a three-year infrastructure grant from the Netherlands Organisation for Health Research and Development to initiate new research in the area of sports, physical activity, and health. In 2005, four new projects in occupational healthcare were funded under an umbrella grant from the STECR Aladdin program: 1) a randomised controlled trial on the effects of a participatory workplace intervention for workers on disability due to mental problems; 2) the development, from secondary analysis of existing data, of a model that predicts absence from work; 3) the construction and evaluation of an internet tool that empowers workers on disability to return to work; and 4) a pilot study on optimal productivity among aging workers.

In addition to those projects, Body@Work, at the request of the Dutch Ministry of Public Health, Welfare, and Sports, performed a systematic literature study on the effectiveness of primary care lifestyle interventions, specifically looking at interventions with significance for occupational health care. This project was performed under the acronym BRAVO (Bewegen, Roken, Alcohol, Voeding, en Ontspanning) which stands for sufficient daily physical activity, stopping smoking, moderate consumption of alcohol, maintaining a prudent diet, and sufficient relaxation. It is expected that this one-year project, which will lead to five publications in the Dutch Journal for Occupational and Social Insurance Medicine in 2006, will be followed up by a larger assignment for a cost-effectiveness study on the implementation of occupational healthcare guidelines that stimulate physical activity and healthy nutrition. Finally, Body@Work acquired a major research grant from Arbouw, a foundation that seeks to ensure healthy and safe workplaces in the construction industry. The grant finances a four-and-a-half-year project aimed at improving...
BRAVO-related behaviours in the construction industry, applying a high-risk approach.

THE FUTURE
Over the next two years, some ten PhD candidates attached to Body@Work will complete their theses. In addition, now that Body@Work has become well-grounded in the partners’ institutes and accepted by the national and international scientific community, it can now focus on securing grants for new studies and preparing for its second funding period, which begins in 2007.

More information about TNO’s ongoing activities can be found at www.tno.nl, http://www.tno.nl/kwaliteit_van_leven/markten/gezondheidszorg/, and http://www.tno.nl/kwaliteit_van_leven/markten/arbeid/. More information about the activities of Body@Work TNO VUmc can be found at www.bodyatwork.nl. Body@Work also issues a quarterly newsletter (in Dutch), subscriptions for which can be taken through the website.

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List of current research projects within Body@Work TNO VUmc

**Work-related musculoskeletal disorders**

The role of physical capacity in the development of low-back and neck/shoulder disorders in a working population.

Sex differences in the risk of (sick leave due to) musculoskeletal complaints.

Work-related and personal risk factors for upper-extremity disorders.

Prospective cohort study on risk factors for upper-extremity disorders in visual display unit workers.

Ergonomic optimisation of occupational hand–arm precision tasks (Faculty of Human Movement Sciences).
Effectiveness and cost-effectiveness of the RSI Quickscan in the prevention of upper-extremity disorders (Faculty of Human Movement Sciences).

The (cost-)effectiveness of participatory ergonomics for workers on disability due to mental problems.

Return to work after childbirth: occupational healthcare interventions in case of early health complaints.

Development and distribution of an evidence-based instrument for the prediction of long-term absenteeism due to low-back pain in cooperation with practitioners.

How to control work absenteeism: activating on-line occupational healthcare.

Ageing workers: determinants of enduring and optimal productivity: a qualitative study on the experience and opinion in the field supported by literature research.

Physical activity and health
The effects of physical activity and folic-acid/vitamin B12 supplementation on the cognitive functioning and psychosocial health of older persons with mild cognitive impairment.

More physical activity for older persons: chances and challenges.

The effect of an individualised physical-activity intervention on work-related upper-extremity complaints in computer workers: a randomised controlled trial.

The Weight-To-Be by Phone, Mail, or Internet: a randomised controlled trial on the preventive effects of a physical activity enhancing and healthy eating programme among an overweight, physically inactive working population.

The aetiology and prevention of sports injuries in adolescents studied in the school setting. Physical (in)activity of Dutch children. Who, when, and where?

The (cost-)effectiveness of a lifestyle intervention among construction workers with a high cardiovascular risk profile.
7.7 Research Centre for Insurance Medicine AMC-UWV-VUmc

INTRODUCTION
In 2002, the VUmc, the University of Amsterdam Academic Medical Centre (AMC), and the National Institute for Employee Benefits (UWV) began negotiations to establish a collaborative research centre for disability assessment. By the end of 2004, the partners reached a final agreement, and they signed a formal contract on January 25, 2005. The product of these negotiations, the Research Centre for Insurance Medicine AMC-UWV-VUmc (Kenniscentrum Verzekeringsgeneeskunde; KVG), conducts research to provide a foundation of evidence upon which to base the daily practice of some 1050 social insurance physicians, most of whom are currently employed by the UWV.

STRUCTURE
The three KVG partners participate equally in the research centre. The VUmc and AMC provide physical locations (at the EMGO Institute and Coronel Institute, respectively) and research personnel (i.e. professors, senior staff, and technical assistance), while the UWV contributes funding (some five million euros over a five-year period), additional personnel, and statistical data. During the five-year period, the contract stipulates a total input into the KVG research programme of six junior researchers (4.0 full-time equivalent), six senior researchers (4.0 fte), a coordinator (0.4 fte), and an administrative assistant (1.0 fte). Half of the staff have offices at EMGO and the other half at the Coronel Institute. The KVG is directed by a management team consisting of Prof. Monique Frings-Dresen (chair, Coronel Institute), Prof. Frank van Dijk (Coronel Institute), Prof. Willem van Mechelen (EMGO Institute), Allard van der Beek (EMGO Institute), Herman Kroneman (UWV), and Henny Mulders (UWV). At the end of 2005, to create a synergistic match and prevent overlap between the KVG and another national research programme dealing with social insurance medicine, Prof. Han Willems also became a member of the management team. Finally, Prof. Lex Bouter (EMGO), Prof. Bert Schadé (AMC), and Joop Linthorst (UWV) compose the KVG’s supervisory board.

OBJECTIVES
The KVG’s primary goal is to provide a better scientific basis for social insurance medicine. This calls for a continuous exchange of information between the insurance physicians at the UWV and the scientific researchers at both universities. This free exchange guarantees an optimal fit between the needs for knowledge in everyday practice of insurance medicine and the ongoing research projects.

Insurance physicians have two important tasks: medically assessing employment disability and promoting a return to work. The first involves measuring a worker’s capacity and assessing his or her entitlement to employment disability benefits. The second involves, among other things, referring workers to interventions that facilitate their return to work. Although various instruments, methods, and models are available to the social insurance physician for these tasks, hardly any are based on scientific evidence. Hence, the development and evaluation of evidence-based methods, assessment guides, and tools will be one of the primary goals of the KVG.

FUTURE DEVELOPMENTS
For the immediate future, the KVG must ensure that it becomes well-grounded within both academic institutes and well-known to insurance physicians. In 2006, therefore, the focus will be on getting new projects underway. After that, there will also be emphasis on acquiring grants for additional studies and on collaboration between the KVG and other research institutes and third parties.

The KVG’s initial evaluation report, its 2006 plan of action, and its 2005–2010 research programme can be acquired from the KVG secretariat (MF-kamer C.507, P.O. Box 7057, 1007 MB Amsterdam).

List of future projects embedded within the Research Centre for Insurance Medicine AMC-UWV-VUmc (KVG)

- Contribution of evidence-based medicine strategies to the quality of the insurance physician’s functioning.
- Assessment of employment disability and promotion of return to work among employees with mental disorders.
- Cost-effectiveness of participatory interventions on return to work among employees with musculoskeletal disorders.
- Prediction of long-term and lasting employment disability using Markov models.
- Quality improvement of assessment of employment disability after two years of sick leave.
- Development, implementation, and evaluation of guidelines for the insurance physician.
- Monitoring and effect measurement of the insurance physician’s medical interventions.
- Development of an instrument for insurance medicine to assess working capacity in case of long-term employment disability.
- Target groups and matching modifications of the insurance physician’s assessments of employment disability.
Knowledge Centre Overweight (KCO)

INTRODUCTION
The prevalence and severity of overweight and obesity is rapidly increasing worldwide, and this trend can also be observed in the Dutch population. In the Netherlands, 40% of adults are overweight (body mass index [BMI] ≥ 25.0 kg/m²) and 10% are obese (BMI ≥ 30.0 kg/m²). Between 1980 and 1997, the prevalence in the Netherlands of overweight in boys aged 5–11 years increased from 3–5% to 7–12%, and the prevalence of obesity in boys was eight times higher in 1997 (1.3%) than in 1980 (0.2%). Similar trends were found in girls.

Overweight is associated with complications such as cardiovascular disease, diabetes, gallstones, and musculoskeletal and psychosocial disorders. Moreover, it is also related to hyperinsulinaemia, hypertension, and hyperlipidaemia. These associations have been found in adults as well as in children and adolescents. An increasing amount of data also shows that overweight during childhood and adolescence is associated with type 2 diabetes. Until a few years ago, this disease was only diagnosed in adults older than 30 years of age. The increase in the prevalence and severity of overweight in children is expected to be accompanied by a similar increase in the prevalence of type 2 diabetes in this group, a trend already observed in several countries. A study conducted in a hospital in the USA found that one-third of all new cases of diabetes in children could be classified as type 2 diabetes. Another study in the USA showed that obesity affected the number of chronic complications more than smoking or excessive alcohol consumption (Sturm, 2002).

In West-European countries, the healthcare costs attributed to obesity are estimated at 1–5% of the total healthcare expenses. In the USA, where the prevalence of overweight and obesity is higher, these costs are estimated at 7% of the total healthcare costs. It is expected that overweight and obesity will be a rapidly growing and costly public-health problem in the future because of the increasing prevalence, the risk of complications associated with overweight, and the lack of an evidence-based prevention strategy.

Treatment of overweight and obesity requires a lasting approach and is difficult because of obstacles such as bad eating habits, inadequate physical activity, and increasing sedentary activities. Overweight requires a strong approach from various disciplines.

In 2002, a Knowledge Centre Overweight (KCO) was established, financed by a grant from the Ministry of Health, Welfare, and Sports.

OBJECTIVES
The aim of the KCO is to make research accessible to the public and professionals and to stimulate, where necessary, research in the field of aetiology, prevention, and treatment of overweight. This aim will be achieved by uniting expertise, making mutual use of networks, and presenting an identifiable profile to the public. In addition to being a data-collection centre, the KCO will also be a vade mecum for professionals working in the field of overweight, an information centre for the media, and a support for the Ministry of Health, Welfare, and Sports in developing a policy to deal with overweight.

INFRASTRUCTURE
The KCO is not intended to be a research infrastructure. It is a combined initiative of different disciplines within EMGO, the VUmc’s Department of Paediatrics, and the Department of Food and Health of the VU University Faculty of Earth and Life Science. The KCO has also established a platform for collaboration between experts from organisations that are actively involved in relevant research or in the treatment or prevention of overweight.

KCO website
The KCO has developed a website, renewed and extended in December 2005, on which all relevant information for professionals is available (www.overgewicht.org).

Registration of type 2 diabetes in children
Another activity of the KCO, in collaboration with the Dutch Paediatric Surveillance Unit, is the establishment of a national system for the registration of all children and adolescents diagnosed with type 2 diabetes. The prevalence and incidence of type 2 diabetes in overweight adolescents in the Netherlands is still unknown, although cases are being reported. This national registration system will make it possible to gain more insight into the incidence and characteristics of children and adolescents with type 2 diabetes.

Protocol to detect overweight in children
In 2004, at the request of the Council of Public Health and Care, the KCO developed a protocol to detect overweight in children and adolescents within the youth healthcare system that was implemented nationally in 2005.

Transmural Research and Treatment Centre for Overweight and Obese Children
In collaboration with the KCO, the VUmc has established a Transmural Research and Treatment Centre for Overweight and Obese Children (TOBOK). Treatment of the first overweight children in this centre began in September 2003. In 2005, the Centre received so many applications for treatment from obese children that there is a long waiting list.
Expert meeting on youth healthcare and overweight

In January 2005, a second expert meeting on youth healthcare and overweight was organised by the KCO in collaboration with the scientific committee of the Dutch Youth Healthcare Organisation and the Dutch Food Center. This expert meeting, which yielded a wealth of information, was also an opportunity to exchange information on the bottlenecks and successful elements of various projects on the prevention of overweight that have been developed and implemented within the youth healthcare system. Another aim of the expert meeting was to strengthen the collaboration with the health-promoting organisations in the field of overweight such as the Dutch Food Center, the Dutch Organisation of Sports and Physical Activity, and the Dutch Organisation of the Promotion of Health and Prevention of Disease. This has resulted in collaborations in various projects. The projects are presented on the KCO website (www.overgewicht.org).

General practitioners and dietitians

The KCO received an extra grant for extension from the Ministry of Health, Welfare, and Sports for a functionary who will focus on knowledge generation, linking and passing knowledge among general practitioners and dietists. In November 2005, KCO organised an expert meeting in collaboration with the Dutch Organisation of Dieticians. During this meeting, researchers and dieticians exchanged information on treatments of overweight adults in daily practice, scientific evidence for treatments, and how to develop evidence-based treatments.

In 2005, KCO issued two newsletters.

FUTURE DEVELOPMENTS

In January 2006, a congress on the prevention and treatment of overweight in children will be organised by the KCO in collaboration with the Dutch Youth Healthcare Organisation, the Dutch College of General Practitioners, and the Dutch Organisations of Paediatricians to exchange expertise, discuss existing initiatives and projects, and stimulate collaboration. The KCO will also participate in developing protocols for best practices for dieticians, further improve the website www.overgewicht.org, and issue new newsletters.

Schoolartsen gaan overgewicht aanpakken

Door onze redacteur

Wie is in 2005 ingegaan op dit schoolar: gaan jeugdartsen en overge- Piete kinderen? Ze worden dan te kwinkeldjouw het onderwerp van het Nederlandsse kinderdier en de ouders van overge- beheersing der kinderen, namelijk twee keer wat uitspraken of adequaat gehouden, en zorgvuldig en goed omgegaan.

Als ouders niet genoeggegeven zijn, worden ze uiteindelijk voor een apart gesprek. Het gaat dan om kinderen die bij de jeugdarts of overheidsdienst een kinderdier en de ouder met behulp van een herhaling van de telefoon, en de ellende waarmee ze te kampen hebben.


* Dikke kinderen: pagina 3
7.9 Health Technology Assessment Unit

INTRODUCTION

The ever-rising cost of healthcare demands questions about how limited resources can be allocated to optimise health within the population. Health technology assessment (HTA) is an important tool in answering those questions.

HTA is scientific research that systematically examines the short- and long-term consequences of the application of health-related technologies. It is characterised by its multi-disciplinary and comprehensive nature. HTA researchers first identify and prioritise new and existing preventive, diagnostic, and therapeutic technologies in need of assessment. After collecting and analysing appropriate data, they then measure these technologies not only in terms of their clinical efficacy and effectiveness, but also in terms of such things as costs, ethics, and legality. HTA’s goal is to disseminate objective, valid, and reliable information that informs both the daily practice of healthcare professionals and the far-reaching decisions of policymakers.

While it overlaps with other research sectors such as epidemiology, HTA focuses on economic evaluation. At EMGO, with its ample expertise in intervention studies, economic HTA evaluations are conducted alongside randomised controlled trials of diagnostic, preventive, and therapeutic interventions. In addition to economic evaluations, HTA researchers at EMGO also perform systematic reviews on interventions’ effectiveness (within the framework of the Cochrane Collaboration), develop evidence-based guidelines, and evaluate the implementation of those guidelines.

In 2005, EMGO’s HTA Unit comprised two senior investigators (Maurits van Tulder and Martine de Bruijne) and four PhD students (Judith Bosmans, Nicole van der Roer, Kimi Uegaki, and Lilian Hoonhouts). The HTA Unit’s activities are embedded within EMGO’s four research programmes (Diabetes and overweight, Common mental disorders, Care and prevention, and Musculoskeletal disorders). True to its multidisciplinary nature, HTA research is conducted in close collaboration with other organisations. The HTA Unit works with various departments in the VUmc: general practice, social medicine, occupational medicine, and psychiatry. HTA research within the programme Diabetes and overweight is conducted in cooperation with the Vrije Universiteit’s Institute for Health Sciences. There is also collaboration with outside institutes and departments: the Institute for Medical Technology Assessment (iMTA) at Erasmus University Rotterdam (M. Rutten-van Mölken, M. Koopmanschap); the Netherlands Institute for Allied Healthcare (NPI) in Amersfoort (Professor R. Oostendorp, E. Hendriks); the Netherlands Institute for Health Services Research (NIVEL) in Utrecht (E. van den Ende, C. Veenhof); the Department of Policy, Economy, and Organisation of Care (BEOZ) at Maastricht University (S. Evers, M. Goossens, A. Ament); and the Institute for Quality Research (WOK) at the University of Nijmegen (Professor R. Grol, M. Wensing). There is also international collaboration with the Institute for Work and Health in Toronto, Canada (Professor C. Bombardier, A. Furlan, J. Hayden, J. Clarke, P. Cote, G. Vanderwelde) and the Finnish Institute for Health Technology Assessment in Helsinki (A. Malmivaara).

OBJECTIVES

The HTA Unit’s main objective is to establish a high quality scientific research programme, but it also consults, offering support and advice concerning economic evaluations to colleagues within the VUmc, and educates, training students in economic evaluation. At present, the education consists of a course on health economics as part of a module on public health for undergraduate medical students (4th grade), a half-day course as part of a course on application areas of epidemiology and a two-and-a-half-day course for the postgraduate epidemiology programme, and courses in HTA and health economics within the health sciences master programme at the Vrije Universiteit.

Specific research objectives of HTA Unit are:

1) to evaluate the cost-effectiveness of new and existing preventive, diagnostic, and therapeutic interventions;
2) to evaluate the cost-effectiveness of the implementation of clinical guidelines; and
3) to develop specific research methodology and to improve existing research methodology in the field of economic evaluations, systematic reviews, and clinical guidelines.

RECENT RESULTS

HTA research activities started in 1998, and the first set of economic evaluations was recently finished.

A good example of recent results from EMGO’s HTA Unit is a project on musculoskeletal disorders that resulted in a PhD thesis entitled Economic Evaluations in Musculoskeletal Disorders by Ingeborg Korthals–de Bos (May 2002). This project consisted of economic evaluations alongside three randomised trials, one of which one is summarised below.

The effectiveness of manual therapy, physical therapy, and continued care by the general practitioner for patients with neck pain: a randomised controlled trial

Neck pain is a common, although not life-threatening, complaint that causes pain and/or stiffness, often resulting in substantial use of healthcare resources, absenteeism from work, and disability. This economic evaluation, carried out in conjunction with a randomised controlled trial, evaluated the cost-effectiveness of manual therapy, physical therapy, and general practice care for patients with neck pain. Patients were recruited by 42 general practitioners if they had been suffering from neck pain for at least two weeks. The patients were randomly allocated to manual therapy (spinal mobilisation), physical therapy (exercise therapy and massage), or general practice care (counselling, education, and medication). The clinical outcome measures were perceived recovery, pain intensity, functional disability, and quality of life. Direct and indirect
costs were measured by means of cost diaries completed by patients during the intervention period and the 52-week follow-up. Differences in mean costs between groups, cost-effectiveness, and cost-utility ratios were evaluated by applying non-parametric bootstrapping techniques. The manual therapy group improved more rapidly than both the physical therapy group and the general practice care group in the period from 0–26 weeks, but the differences had disappeared at the 52-week follow-up. The total costs of the manual therapy (euro 448) were approximately one-third of the costs of the physical therapy (euro 1,300) and general practice care (euro 1,381). These differences were statistically significant. The cost-effectiveness ratios and the cost-utility ratios led to the conclusion that manual therapy (spinal mobilization) was less costly and more effective for neck pain than physical therapy and general practice care.

**FUTURE DEVELOPMENTS**

One of the HTA Unit’s main aims is to obtain primary funding and take on a more independent status. Until then, external funding will remain the main resource for future research projects. A challenge for the future will be to increase Future research proposals aim to increase the number of modelling studies.

**Current research projects at the EMGO Institute that include an economic evaluation**

Prevention of hip fractures by external hip protectors in elderly people at high risk.

The efficacy of a graded-activity programme for workers who are disabled as a result of non-specific low-back pain: a randomised clinical trial in an occupational setting.

The (cost-)effectiveness of back schools for chronic and recurrent low-back pain.


The effect and cost-effectiveness of a preventive propriocepsis and balance-board training programme on the risk of sustaining acute lateral ankle injury.

The effectiveness of GRADIT, graded activity through intermittent exercise therapy for patients with arthritis of the hip and knee.

A comprehensive cohort study on the prognosis of shoulder disorders in primary care, with randomised controlled interventions in sub-cohorts.

Late-life depression in primary care: a randomised trial to improve detection, diagnosis, treatment, and outcome.

Mild to moderately severe depression in general practice: the (cost-)effectiveness of minimal counselling compared with minimal counselling plus pharmacological treatment.

The efficacy of a return-to-work training intervention for workers who are disabled as a result of non-specific neck pain: a randomised clinical trial in an occupational setting.

Alife@work: a randomised controlled trial on the preventive effects of a physical-activity-enhancing and healthy-eating programme on an overweight, physically-inactive working population.

The effects of changes in physical-activity patterns in workers with minimal repetitive strain injury (RSI) complaints: a randomised clinical trial.

Cost-effectiveness of lumbar supports in the treatment of low-back pain in home-care nurses.

Cost-effectiveness of specialised emergency nursing care compared with usual care for ankle distortions at the emergency department.

Activity Lifestyle And Nutrition and Therapy study (ALANT).

GO4IT, the (cost-)effectiveness of an intensive intervention programme on the lifestyle of adolescents with obesity.

Cost-effectiveness of transmural nutritional support.
Clinimetrics

INTRODUCTION

Clinicians constantly take measurements. Their tools range from the technical (such as x-ray and other imaging devices) to the chemical (such as lab work-ups of blood or urine) to the physical (such as in-office examinations) to the verbal (such as history-taking and questionnaires). Clinimetrics is the evaluation – and improvement – of those clinical measurements. It evaluates the quality of both the tools and the performance (that is, the taking of the measurements). The performance depends, for example, on the expertise of the x-ray technician, the quality of the urine sample, or the attention paid by the patient to the questionnaire.

Clinicians (and researchers) should always search the literature thoroughly for the best available measurement instruments. They should examine the clinimetric properties of candidate instruments and, if necessary, further validate the most promising one. Only when no suitable instrument is yet available should a clinician consider developing a new one. Any new measurement tool must be evaluated, of course, on its clinimetric properties.

These clinimetric properties always encompass the tool’s validity (does it measure what it intends to measure?) and reproducibility (do repeated measurements yield similar results?). When a tool consists of several items, and those items are intended to measure the same construct, it should also have internal consistency. A tool must exhibit responsiveness (or longitudinal validity), which means that it can detect relevant changes in health status over time. Finally, a tool must have the clinimetric property of interpretability; scores and other results must be understood if they are to have clinical value.

OBJECTIVES

EMGO’s clinimetrics group has the following objectives:
1) to promote research on the quality of measurement instruments; 2) to give courses and to write educational papers on clinimetric issues; and 3) to advise colleagues on the choice of measurement instruments, the development of new ones, and the interpretation of results.

The clinimetrics group consists of about 20 EMGO investigators, including PhD students, postdocs, and senior researchers and professors. The clinimetrics group convenes once a month to discuss clinimetrics on the basis of its own research, manuscripts in preparation, or methodological papers from the literature. In 2005, topics included applications of item-response theory, the determination of when small changes in questionnaire scores become important, measuring patient expectations, and the ins and outs of Cohen’s kappa.

EDUCATIONAL ACTIVITIES

Amsterdam School of Allied Healthcare Education

In 2004, Raymond Ostelo was appointed as associate professor (lector) of allied healthcare research at the research group (lectoraat) of the Amsterdam School of Allied Healthcare Education. In close collaboration with EMGO’s Musculoskeletal Disorders research programme, the research group studies the quality of frequently used measurement instruments and how to improve the interpretability of scores. It also studies the effectiveness of frequently used interventions, mainly in the primary-care setting.

Masters classes in clinimetrics

In 2005, four masters classes on clinimetrics issues were given on the following topics: reproducibility, responsiveness, minimal important changes, and item-response theory. The classes were attended by about 20 researchers representing all of EMGO’s research programmes and some from outside the Institute. Because of the participants’ enthusiastic responses, these masters classes will be repeated regularly.

Workshop during EMGO’s annual two-day seminar

About 20 persons attended the workshop. After an introduction to the essentials of clinimetrics, the participants discussed in small groups the potentials for clinimetric studies within their own research projects. This resulted in many ideas, a few of which are currently being executed.

Other educational activities

First-year medical students were introduced to clinimetrics as part of a project in which they completed a questionnaire about their own health, lifestyle, and health behaviour. Students in health sciences learned about measuring in research from Wieneke Mokkink, who also supervised them in the development of a questionnaire. They also attended an introductory course, taught by Caroline Terwee, on clinimetrics and quality criteria for measurement instruments. Ms. Terwee also gave a lecture on clinimetric reviews to researchers from the VUmc’s Department of Social Medicine.

RECENT RESULTS

Systematic reviews of measurement instruments

The clinimetrics group continued to systematically review measurement instruments. These included a performance-based method for measuring physical function of patients with osteoarthritis of the hip or knee, questionnaires for measuring physical activity, and an instrument for assessing participation. The group also further refined its evaluation checklist for self-reporting questionnaires. This checklist has been implemented in EMGO’s quality-control system and submitted for publication.

Delphi study to reach consensus on quality criteria for a measurement instrument

Broad consensus about quality criteria for measurement instruments is needed, especially on the criteria for good clinimetric properties. Therefore, the COSMIN (Consensus-based Standards for the Selection of Health Measurement Instruments) study was initiated to obtain broad, international consensus on the following three issues: 1) which measurements properties should be included in the assessment of evaluative health-related patient-reported outcomes, and how should they be
defined?; 2) how should these measurement properties be assessed in terms of study design and statistical analysis? (i.e. standards); and 3) which criteria should be applied to define what good measurement properties are? The study is supervised by an international steering committee, including Paul Stratford (McMaster University, Hamilton, Canada), Jordi Alonso (Institut Municipal d’Investigació Medica, Barcelona, Spain), and Donald Patrick (University of Washington, Seattle, USA). A Delphi study in an international panel consisting of about 40 experts will be carried out using four written Delphi rounds. The final checklist will subsequently be field-tested by assessing the inter-rater reproducibility of the checklist.

Interpretation of questionnaires
A challenge is to interpret observed changes in measurements in terms of changes that are important or relevant for the patient or clinician. The most cited definition of a minimally clinically important difference (MCID) is “the smallest difference in score in the domain of interest which patients perceive as beneficial and which would mandate, in the absence of troublesome side-effects and excessive cost, a change in patient’s management”. Within the clinimetric group, several investigators have assessed the MCID of various frequently used questionnaires. Nicole van der Roer and Raymond Ostelo assessed the MCID of frequently used measurements in low-back pain, and Jan Pool assessed the MCID of frequently used questionnaires for neck pain.

To examine the interpretation of questionnaires, a qualitative study was performed aimed at eliciting the meaning of data retrieved by two frequently used questionnaires that measure psychological variables: the Pain Coping and Cognition List (PCCL) and the Tampa Scale of Kinesiophobia (TSK). To get more insight into the meaning of the items of the PCCL and TSK and the meaning of patients’ answers, these questionnaires were subjected to qualitative research using the ‘think aloud’ method. About 20 a-select patients were interviewed. All interviews were transcribed and analysed by two researchers. This qualitative study will help researchers interpret PCCL and TSK results in both previous and future studies. It may also lead to further adaptations of items in these questionnaires or more extensive instructions for their use.

In 2005, Rianne Hoopman, previously working at the Netherlands Cancer Institute, joined the clinimetrics group to finish her thesis on the validation of four quality-of-life questionnaires for use among Turkish and Moroccan cancer patients in the Netherlands.

Item-response theory
For quantifying health-related quality of life, or closely related domains such as functional disability, multi-item questionnaires are typically used in which sum scores describe the patient’s level of health status. However, sum scores can only be used in the case of an unidimensional scale, i.e. if all items of a questionnaire measure the same construct. The properties of health measurement instru-
Why You

Report of standing Committees
8.1 Scientific Committee

The EMGO scientific committee consists of eight members of EMGO’s senior staff, two from each of the four research programmes. Members of the scientific committee in 2005 were: Daniëlle van der Windt (chair until July 1), Bregje Onwuteaka-Philipsen (secretary until July 1 and chair from July 1 onwards), Maurits van Tulder (secretary from July 1 onwards), Hannie Comijs, Giel Nijpels, Dirk Knol, and Mireille van Poppel. Wilma Ijzerman provided secretarial support.

The committee, which meets every two weeks, advises EMGO’s directorate on matters concerning new research proposals and research policy. Each new proposal is assessed as to its relevance for extramural medicine and its fit within EMGO’s programmes. In addition, the scientific quality of each proposal is extensively examined by at least one committee member, supported by one of EMGO’s other senior staff members. Once the scientific quality of a research proposal has been positively assessed, the project is assigned one of the four research programmes and scientific personnel are appointed.

In 2005, the committee gave advice on 102 new research proposals, up from 68 in 2004, 76 in 2003, 61 in 2002, 91 in 2001, and 71 in 2000. The majority of these proposals met EMGO’s methodological standards. In most cases, the committee’s advice consisted of minor suggestions for improving the grant application. Only a few research proposals needed extensive adjustments before being approved by the scientific committee.

8.1.1 Annual two-day seminar

During a two-day informal seminar on January 20 and 21, 2005, 160 members of the EMGO Institute discussed, among other things, new research projects and several general topics relevant to extramural research.

In the evening programme, two awards were presented. The 12th annual EMGO Science Award went to Michiel de Boer. This award is for the best paper (published or accepted for publication within the preceding year) by a junior staff member. This year, 23 submitted papers were reviewed by all members of the advisory board, two members of the scientific committee, and one senior researcher from each of the four EMGO programmes. de Boer received a certificate and 250 euros for his paper, *Different aspects of visual impairment as risk factors for falls and fractures in older men and women*.

The second EMGO Societal Impact Award went to Rosemarie Droës. This award recognises a research product or activity (generated with substantial input from an EMGO employee) of important societal relevance. After reviewing seven submissions, the advisory board and all members of the scientific committee awarded the certificate and 250 euros to Droës for her project, *Conditions for the implementation of meeting centres for persons with dementia and their caregivers*.

Also on Thursday evening, staff members participated in a science and general knowledge quiz and a darts competition. Friday afternoon saw EMGO’s traditional 5×1000 metres relay race.

The second day of the seminar consisted of two series of workshops that covered topics such as ‘societal relevance of research’, ‘economic evaluation in healthcare’, ‘scientists and the media’, ‘how to write a successful grant application’, and ‘clinimetrics’. More recreational workshops included introduction classes to power yoga and kung fu wu shu.
8.1.2 Scientific meetings and seminars


January 19: Joost Dekker organised the symposium, Measurement and prediction in rehabilitation of neurological disorders. VUmc, Amsterdam.

January 21 and April 25: Wim Kraan organised workshops to introduce Blaise. Students learned how to use the Blaise programme to make a data-entry form.

March 17: M.C. Cornel (chair), L. Henneman, and M.C. Hardonk organised the jubilee symposium, Fascinated with genetics. VUmc, Amsterdam.

April 14 and October 27: Wim Kraan organised one-day introductions to data management, primarily intended for EMGO’s PhD students. The following topics were addressed: information analysis of the data-collection process; inventory of possibilities for the efficient entry, storage, and retrieval of administrative and research data; database systems for controlling and managing data flow; the design of a code book: the transcription of questions into variables and the management of different kinds of missing values; the comparison and selection of certain methods and computer programmes for data entry; and the design of a data-entry form.

May 5–10: M.C. Cornel and D. Coviello organised the workshop, Genetic education, and LP ten Kate and U Kristofferson organised the workshop, Community genetics. European Society for Human Genetics, Prague.

May 10 and November 17: Wim Kraan again organised one-day introductions to data management, primarily intended for EMGO’s PhD students. The following topics were addressed: methods for verifying the data-entry process; file manipulation; data definition; data cleaning; variable transformation; and archiving data files.


June 16: M.C. Cornel (chair), L. Henneman, and M.C. Hardonk organised the symposium, Little things add up to a lot: rare diseases and orphan drugs. VUmc, Amsterdam.

September 2: M.C. Cornel, H. van Beek, and M.C. Hardonk organised the 2nd annual Centre for Medical Systems Biology symposium. VUmc, Amsterdam.

September 6: M.C. Cornel and L.T.W. de Jong-van den Berg sat on the local organising committee and organised a symposium on folic acid. European Teratology Society meeting (September 4-9th), Haarlem.

September 8: P. Bongers organised the annual Body@Work meeting, Outcome measurement: instruments and methods. Naturalis, Leiden.

September 15: A.W. Braam and P. Verhagen chaired the symposium, Religion and old-age psychiatry. XIII Congress World Psychiatric Association, Cairo.


October 26: J. Becher organised the symposium, Movement rehabilitation in children. VUmc, Amsterdam.

November 1: Daniëlle Timmermans, Anke Kleinveld, and Matthijs van den Berg organised the symposium, Counseling and decision-making in prenatal screening: how can it be improved? Amsterdam.


December 2: M.C. Cornel, T. Pietersen, C.G. van El, L. Krijgsman, and M.C. Hardonk (in collaboration with VUmc Metamedica) organised the ‘witness seminar’, Debates about directed criteria for genetic screening. VUmc, Amsterdam.

December 9: M.C. Cornel (co-chair), L. Henneman, and M.C. Hardonk (in collaboration with Societal Aspects of Genomics) organised the scientific conference on community genetics, ‘Regulating biobanks: lessons learned from abroad’. TNO Kwaliteit van Leven, Leiden.

8.2 Education Committee

EMGO’s PhD education committee consisted of two senior staff members and one PhD student. In 2005, Hannie Comijs and Mireille van Poppel represented the senior staff, while Amika Singh represented the PhD students.

This committee is responsible for reviewing the progress of PhD students, especially with regard to education. This review takes place three times during each PhD project. The committee first reviews the ‘education and supervision agreement’, signed at the beginning of the project by the PhD student and the direct supervisor. This agreement lists the auxiliary and other selected courses that the student must complete alongside his or her project. The committee further reviews the evaluations conducted by the supervisor after ten months and again after three years. The committee also advises EMGO’s scientific director on matters of supervision and assessment of PhD students. Beyond its review and advice functions, the Committee offers assistance when PhD students find themselves in a dispute with their supervisors.

Since April 2000, all EMGO PhD students and junior investigators working on a thesis project meet in the so-called ‘Promovendi Working Group’. The PhD student who sits on the education committee reports back to the committee on important issues raised within the working group. The group’s aims are: sharing experiences, identifying potential problems, and exchanging information (between students and both the VU committee for PhD students and EMGO’s management). Meetings are organised on an irregular basis, whenever the students want to discuss specific topics or the EMGO directorate wants to consult the students.

8.2.1 PhD Training Programme

EMGO’s PhD training programme forms part of the PhD training programme developed by the Netherlands School of Primary Care Research (CaRe). Jos Twisk represented EMGO as a member of CaRe’s PhD education committee. The PhD training programme comprises the execution of a research project and participation in a comprehensive programme of courses.

Within the scope of the PhD training programme, researchers gain specific knowledge in the field of extramural care. The training is tailored to suit the diverse backgrounds of the researchers, e.g., medical, paramedical, or nursing, socio-scientific and health sciences. Within the scope of the PhD training programme, two profiles can be discerned: 1) the clinical epidemiological profile, and 2) the socio-scientific profile.

1) The clinical epidemiological profile

The emphasis in this option is on study of the effectiveness of extramural care, with a central variable focusing on individual healthcare. This requires specific expertise with regard to the health issues encountered in this field and the methodological and practical problems that arise during this type of research in extramural care settings. Complementary research is also carried out to determine the elements of illness that are relevant to care. The researchers involved gain insight into the development and course of an illness and expertise in the assessment of health and functional status.

2) The socio-scientific profile

The researchers who choose the socio-scientific profile gain specific expertise in the promotion of health in individuals and groups, the functioning of social networks in relation to health and sickness, the determinants of functional autonomy in the home situation, and socio-scientific problems in the field of health, quality of life, and functional status. This option also focuses on the quality of the care process in the extramural setting and the prerequisites for effective extramural care. Researchers can study either the primary care process or the organisation and implementation of the extramural care. These researchers gain specific knowledge about the study of care processes and the evaluation of these processes with the aid of (yet to be determined) quality criteria.

For each new PhD student, an education and supervision agreement is formulated, including an outline of the research project, the names of the supervisors, and the courses to be followed. Because the theoretical background of each PhD student is different (e.g., medicine, health sciences, social and behavioural sciences, allied care disciplines), PhD students are encouraged to select, in consultation with their supervisor, a programme of courses in keeping with their preparatory training.

Upon completion of the project, each candidate receives a certificate listing the components that have been successfully completed, including the courses followed and details of published papers, presentations, and (if applicable) teaching activities. Each PhD research project that meets the required scientific standards will culminate in a thesis, which is necessary to obtain a PhD degree.

8.2.2 Postgraduate Epidemiology Programme

Ms. M.C. Stuij, MSc

Faculty: L.M. Bouter, PhD
P.D. Bezemer, PhD
Ms. E.S.M. de Lange - de Klerk, MD, PhD
J.W.R. Twisk, PhD

The postgraduate epidemiology programme is a joint venture between EMGO and the VUmc Department of Clinical Epidemiology and Biostatistics (CEB). The postgraduate epidemiology programme includes:

I. the Master Programme in Epidemiology
II. other (advanced) courses.
I. MASTERS PROGRAMME IN EPIDEMIOLOGY

This education programme trains postgraduates in the disciplines mentioned below in epidemiological research work, focusing on applied research in primary care and public health. The programme provides methodological tools for evidence-based medicine and evidence-based health policies.

The knowledge and abilities gained by the participants enables them to obtain positions as epidemiological research workers or policymakers at universities or in the government or in the pharmaceutical industry, managing the development and registration of new drugs.

The programme is intended for postgraduates of the following disciplines:
- medicine and related health sciences;
- biomedical sciences; and
- pharmacy.

The Netherlands Epidemiological Society has drawn up requirements for the registration of epidemiologists (MSc level), and in 1992 this registration became effective. EMGO's masters programme in epidemiology meets these requirements.

In 2003, the masters programme in epidemiology was registered by the board of the Vrije Universiteit as an official postgraduate masters programme. This implies that from 2004 onwards, the students who graduate from this programme will be able to use the title master of epidemiology.

Curriculum

The masters programme takes 11 months and consists of a five-month theoretical part and a six-month practical part. The theoretical part consists of both elementary and advanced courses and addresses all relevant topics in the field of epidemiology and biostatistics. The courses can also be attended separately.

In 2005, this masters programme inaugurated a new curriculum. Two courses have been added to the theoretical portion, which now consists of six obligatory courses and one optional course. The six obligatory courses are described below. The optional courses are described in the paragraph “other advanced courses” on page 130.

1) Epidemiological research: design and interpretation
In 2005, 94 participants attended this five-day course, which was taught by Lex Bouter (EMGO) and Martien van Dongen (Maastricht University) and given twice (January and September, in the Conference Centre Rolduc in Kerkrade). In lectures, study groups, and evening sessions, the participants addressed the fundamentals of epidemiological research. The topics included measures of frequency and association, design of epidemiological research, confounding, causality, diagnostic tests, experimental research, and decision analysis.

2) Principles of epidemiological data analysis
Sixty-nine participants attended this six-day course led by Bernard Uitdehaag, Jos Twisk, and Veerle Coupé (all from VUmc’s Department of Clinical Epidemiology and Biostatistics). Given in February and October, the course is designed for epidemiological researchers who wish to analyse data, as well as for those who wish to critically assess the results of epidemiological research. The course deals with the basic applications of biostatistics, illustrated by examples from epidemiological practice. Some of the research topics are how to quantify the precision of measures of effect; how to analyse means, risks (cumulative incidences), and incidence densities, and how to correct for confounding in the analysis.

3) Linear regression analysis and analysis of variance
This five-day course was attended by 64 participants in March and December. Piet Kostense and Dick Bezemer (both from the Department of Clinical Epidemiology and Biostatistics) provided insight and expertise in the application of multiple linear regression analysis and variance analysis in applied medical research. They addressed the following topics: simple and multiple regression analysis; applications of regression analysis; elimination of confounding and analysis of modification; nominal and ordinal determinants; residues; personal computer use for regression analysis; principles of variance analysis; multiple comparisons; factorial designs; cross over designs; and fixed and random effects.

4) Logistic regression analysis and survival analysis
The April and December sessions of this five-day course were taught by Jos Twisk (Department of Clinical Epidemiology and Biostatistics) and Caroline Terwee (EMGO). The course deals with logistic regression analysis, which is of crucial importance for the analysis of case control data, which are binary by definition (i.e. a subject is either a case or a control). In clinical research, the primary outcome variable is often the time before the occurrence of a specific event (i.e. the time before recovery or death). Analysis of this type of data is complicated because it virtually always pertains to censored data; by the end of the study, many patients have not yet experienced the event in question. This course deals with some elementary methods for efficient analysis of this type of data.

5) Systematic reviews: theory and practice (CaRe, C203)
Forty-eight enthusiastic participants from various research backgrounds attended this three-day course in June at the Cenakel Conference Centre in Soesterberg. Alternating lectures with working groups, Lex Bouter, Rickie de Vet, Danielle van der Windt (EMGO), Pim Assendelft (Leiden University Medical Centre), and Rob Scholten (Dutch Cochrane Centre), led the actively involved participants in discussions on methods for searching literature, methodological assessment of the quality of randomised clinical trials and diagnostic studies and the publications that report
their results, statistical pooling of randomised clinical trials and diagnostic studies, and interpretation and quality of systematic reviews.

6) Application areas of epidemiology
This five day course, held at Amsterdam's Vrije Universiteit as September turned to October, was attended by 41 participants. The guest speakers included Professor M. Cornel; D. Posthuma, PhD; Professor P. Heutink; Professor R.A. Coutinho; Professor W. van den Brink; Professor F.E. van Leeuwen; Professor E. van Leeuwen; D.P. Engberts, PhD; Professor J.C. Seidel; J.E. Bosmans, MSc; M.C. de Brujne, PhD; B.J.C. Middelkoop, PhD; M. Drijver, PhD; and I. Kreis, PhD. The course deals with the epidemiological aspects of diseases (in the Netherlands) and gives an overview of the most important fields of application of epidemiology. The topics vary each year. In 2005, the following topics were addressed: genetic epidemiology, epidemiology of infectious diseases, psychiatric epidemiology, cancer epidemiology, medical technology assessment, public health epidemiology, nutritional epidemiology, ethics, and environmental epidemiology.

7) Introduction to SPSS
Thirty-one students of the masters programme, who had no prior experience in working with statistical software, attended the two sessions (February and September) of this course, tutored by Wim Kraan (EMGO). The two-day course can be attended facultative. The students learn how to use the SPSS programme for statistical analyses. The following topics are addressed: structure of the SPSS programme and user interface; data editor, syntax editor, output window, and output navigator; opening, editing, and saving SPSS data files; reading and definition of data files in different formats; variable transformation and case selection; file manipulation; introduction of statistical procedures; and graphics and pivot tables.

The practical part
During the practical part of the programme the participants gain practical experience in epidemiological research. This research is carried out in an industrial or (non-)university location. Although they cannot be involved in all phases of a single study (as epidemiological research often takes several years to complete), students are expected to work as independently as possible, but under supervision, on at least two phases (design, execution, data analysis, or reporting) within a current or prospective research project. This practicum is concluded with a final report or manuscript of an article for a scientific journal and an oral presentation at a mini symposium.

Number of students and their educational background
Nowadays, most participants attend only the theoretical part of the programme. They are mainly researchers already working in the field and clinicians who, in combining their clinical work with research, wish to receive further training in epidemiology. They take courses to refresh their knowledge, often spreading the curriculum over several years and taking the examination in the final year. They are exempted from the practical part of the Programme because of their research work.

In the period 2000–2005, an average of 27 students per year successfully completed the theoretical part of the programme. Their previous education is shown in Figure 1: 36% had studied medicine, 24% health sciences, 6% social sciences, and 34% had completed other studies.

II. OTHER (ADVANCED) COURSES

In addition to the courses included in the masters programme in epidemiology, four other courses were organised in 2005, two of which are also part of CaRe’s PhD training programme. These are optional courses for students in the masters programme.

1) Clinimetrics: development and evaluation of measurement instruments (CaRe, C202)
Taught by Lex Bouter, Joost Dekker, Rickie de Vet, and Caroline Terwee (EMGO), this three-day course, given in November at the Cenakel Conference Centre in Soesterberg, attracted 44 participants. After an introduction to various measurement instruments, the course deals with clinimetric issues important for developing new instruments, such as item selection and reduction, response options, levels of measurement, and internal consistency. This is followed by a discussion on clinimetric issues relevant to evaluating measurement instruments, such as reproducibility, validity, and responsiveness.

2) Multilevel analysis (CaRe, C205)
This three-day course held in June was attended by 28 participants. Jos Twisk (Department of Clinical Epidemiology and Biostatistics), Martijn Berger, and Math Candel (Maastricht University) covered the following topics: research designs, disaggregation and aggregation, random slope and covariates, linear multilevel models, logistic multilevel models, sample size, multilevel applications in longitudinal research, and advantages and disadvantages of multilevel analysis compared to ‘naive’ analyses.
3) Longitudinal-data analysis
In November, Jos Twisk (Department of Clinical Epidemiology and Biostatistics) and Wieke de Vente (University of Amsterdam) led 28 participants through this four-day course. They discussed the following topics: continuous outcome variables with two measurements and with more than two measurements (the paired t test and MANOVA for repeated measurements); analysis of relationships between the development of a continuous outcome variable and several other variables (i.e. ‘traditional’ methods, generalised estimating equations, and random coefficient analysis); other methods to model longitudinal data (alternative models, such as time-lag models, modelling of changes and autoregressive models); longitudinal analysis of dichotomous outcome variables; longitudinal analysis of categorical and ‘count’ outcome variables; longitudinal studies with two measurements - the definition and analysis of change; analysis of experimental studies; missing data in longitudinal studies; and software.

4) Health technology assessment: methods and principles
This three-day course, held in December, attracted 22 participants, who attended lectures and completed computer exercises. Taught by Maurits van Tulder (EMGO and VU Institute for Health Sciences), Martine de Bruijne (EMGO), and Hans Berkhof (Department of Clinical Epidemiology and Biostatistics), the course is designed for researchers who do economic evaluations and policymakers who are interested in interpreting and using those evaluations. The following topics were included: design of economic evaluations; measuring, valuing, and analysing costs; measuring, valuing, and analysing effects; cost-effectiveness and cost-utility analysis; quality of life; cost-effectiveness planes and acceptability curves; Markov models; and Monte Carlo simulation.

Number of students and their place of employment
Most of the students who attend the masters programme and/or the advanced courses mentioned above are researchers who are already working in the field of epidemiology and clinicians who combine their work with research and wish to receive further training in (clinical) epidemiology.

Figure 2 shows that, in 2005, 16% of the students were employees (PhD student or senior researcher) of the EMGO Institute or the VUmc Department of Clinical Epidemiology and Biostatistics. Another 15% were working in an institute that participates in CaRe, and the remaining 69% were working elsewhere.

In 2005, 337 students attended one or more courses, resulting in a total of 535 course registrations. The number of students and the total number of course registrations in the period 2000–2005 is shown in Figure 3.

8.2.3 Other educational activities and courses
There are basic courses, advanced courses, and facultative courses available, depending on the profile. Both profiles include the following basic courses: CaRe introduction course, health services: research and practice, quality research methods, ethical and legal aspects of care, medical technology assessment, and systematic reviews. Furthermore, there are general auxiliary courses, which address the philosophy of health sciences, ethics, the organisation and management of research projects, communication skills, didactic skills, and computer skills. These courses are components of the regular programme of PhD courses provided by the participating faculties, including the VUmc.

The PhD training programme includes the following advanced courses: writing research proposals and grant applications, clinimetrics, multilevel analysis, longitudinal analysis, data analysis in epidemiological research, diagnostic research, prevention and health awareness, research on quality of care, and international comparison of health-care systems.

Facultative courses include: advanced diagnostic research, advanced prognostic research, repeated measurements, and decision-making in healthcare.

The basic and advanced courses are either jointly organised by various CaRe institutes or by one CaRe institute with specific expertise in a certain area of primary care research. These courses are essential for researchers who wish to specialise. EMGO’s master programme in epidemiology provides a major contribution to courses in this category (see Section 8.2.2).
Other components of the PhD training programme include the annual CaRe seminar, various other seminars and workshops, specialist courses elsewhere, summer school activities, and paper and poster presentations at conferences.

### 8.2.4 Internships/trainees

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<thead>
<tr>
<th>Student</th>
<th>Project</th>
<th>Supervisor(s)</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>D.B. van der Lubbe and P. de Munter (Physiotherapy students Amsterdam)</td>
<td>Correlation between PAM accelerometer, pedometer, and a physical activity guideline</td>
<td>S.M. Slootmaker, MSc</td>
<td>September 2004 - February 2005</td>
</tr>
<tr>
<td>M. van Emden (Human Movement Sciences VU)</td>
<td>Validity of the PAM accelerometer</td>
<td>S.M. Slootmaker, MSc</td>
<td>September 2004 - February 2005</td>
</tr>
<tr>
<td>M. van der Leden (Medical Faculty VUmc)</td>
<td>Reporting family violence in women aged 18 or older</td>
<td>M. Soethout, MD</td>
<td>October 2004 – March 2005</td>
</tr>
<tr>
<td>L. van der Plas (Biomedical Sciences VU)</td>
<td>Use of hip protectors in elderly living at home or in a nursing home</td>
<td>Ms. N. van Schoor, PhD, prof. P. Lips, MD, PhD</td>
<td>February 2004 - July 2005</td>
</tr>
<tr>
<td>M. Pijl (Health Sciences VU)</td>
<td>A positive family history of type 2 diabetes</td>
<td>Ms. L. Henneman, PhD</td>
<td>January 2005 - June 2005</td>
</tr>
<tr>
<td>E. van ‘t Riet (Health Sciences VU)</td>
<td>Need for psychosocial care in persons undergoing genetic screening for cancer</td>
<td>Ms. L. Henneman, PhD</td>
<td>February 2005 - June 2005</td>
</tr>
<tr>
<td>C. Mulder (Health Sciences VU)</td>
<td>Vitamin D suppletion in children</td>
<td>Ms. I. Wicherts, MSc, prof. P. Lips, MD, PhD</td>
<td>February 2005 - July 2005</td>
</tr>
<tr>
<td>B. Stoks (Medical Faculty VUmc)</td>
<td>Obesity in children</td>
<td>Ms. K. van der Laar, MSc</td>
<td>November 2004 - September 2005</td>
</tr>
<tr>
<td>T. Hoekstra (Health Sciences VU)</td>
<td>Family history of diabetes: risk perception and risk communication</td>
<td>Ms. L. Henneman, PhD</td>
<td>April 2005 - September 2005</td>
</tr>
<tr>
<td>L. Verweij (Health Sciences VU)</td>
<td>Test/re-test validity of the Activity Questionnaire Amsterdam (AquA)</td>
<td>S. Slootmaker, MSc</td>
<td>April 2005 - July 2005</td>
</tr>
<tr>
<td>E. Kuipers (Medical Faculty VUmc)</td>
<td>Prevalence of cardiovascular risk factors, diabetes, and the metabolic syndrome in the TOP study</td>
<td>Ms. C. Renders, PhD</td>
<td>February 2005 - May 2005</td>
</tr>
<tr>
<td>M. Hofwijk (Medical Faculty VUmc)</td>
<td>Weight control by playing</td>
<td>E. Verhagen, PhD</td>
<td>May 2005 – August 2005</td>
</tr>
<tr>
<td>M. de Jonge (Health Sciences VU)</td>
<td>Hereditary information and test in ethnic risk groups for haemoglobinopathies</td>
<td>Ms. A.M. Plass, PhD</td>
<td>June 2005 - July 2005</td>
</tr>
<tr>
<td>N. de Jonge (Health Sciences VU)</td>
<td>The Promo study: Prospective Research on Musculoskeletal Disorders in office workers</td>
<td>S. IJmker, MSc</td>
<td>June 2004 - July 2005</td>
</tr>
<tr>
<td>M. Bounif (Medical Faculty VUmc)</td>
<td>Smoking in pregnancy and incidence of obesity in children</td>
<td>Prof. R.A. Hira Sing, MD, PhD</td>
<td>June 2005 - August 2005</td>
</tr>
<tr>
<td>S. Boonzajer Flaes (Health Sciences VU)</td>
<td>Vulnerability of employees and their trust in health services</td>
<td>H.N. Plomp, PhD</td>
<td>April 2005 - July 2005</td>
</tr>
</tbody>
</table>
Student: G. Pool (Master in Epidemiology POE)  
Project: Regulations for combination of work and childcare  
Supervisor(s): Ms. S. Stomp, MSc  
Period: February 2005 - October 2005

Student: M. Heijman  
Project: Test/re-test validity of the surroundings questionnaire  
Supervisor(s): Ms. M.N.M. van Poppel, PhD  
Period: May 2005 - December 2005

Student: R. Buis (Medical Faculty VUmc)  
Project: MISS project  
Supervisor(s): Ms. I. Bakker, MSc  
Period: May 2005 - August 2005

Students: N. Veth and K. de Groot (Medical Faculty VUmc)  
Project: Relation between CETP and lipid metabolism in the Hoom Study  
Supervisor(s): G. Nijpels, MD, PhD, Ms. J.M. Dekker, PhD  
Period: May 2005 - December 2005

Student: Ms. S. Kort (Clinical Psychology VU)  
Project: Mobile coaching in dementia  
Supervisor(s): Mrs. R.M. Dröes, PhD  
Period: December 2003 - June 2005

Student: Mr. S. Lauriks (Human Movement Sciences VU)  
Project: Development of the Behaviour Observational Scale for Psychomotor Therapy in elderly people with dementia  
Supervisor(s): Mrs. R.M. Dröes, PhD  
Period: November 2004 - December 2005

Student: Ms. E. Roodvoets (Human Movement Sciences VU)  
Project: Doctoral thesis literature review  
(Subject: Contribution of psychomotor therapy to experience-oriented care for nursing-home residents with dementia)  
Supervisor(s): Mrs. R.M. Dröes, PhD  
Period: November 2004 – September 2005

Student: Ms. R. Maroccini (Psychologist, University of Bologna, Italy)  
Project: Literature review (Subject: Subjective needs of people with dementia)  
Supervisor(s): Mrs. R.M. Dröes, PhD  
Period: April 2005 – October 2005

Student: T. Brinkkemper (Biomedical Sciences VU)  
Supervisor(s): Prof. D.J.H. Deeg, PhD, Ms M. Visser, PhD  
Period: February – July 2005

Student: Ms N. Shekary (Biomedical Sciences VU)  
Project: Quality of life from the perspective of older persons  
Supervisor(s): Ms. M.T.E. Puts, MSc, Prof. D.J.H. Deeg, PhD  
Period: January – June 2005

Student: Ms A. Strootman (Clinical and Health Psychology University of Utrecht)  
Project: The influence of the personality characteristic mastery, self-esteem, and self-efficacy on anxiety complaints in later life  
Supervisor(s): Dr. M.J. Enders-Slegers (University Utrecht), Prof. D.J.H. Deeg, PhD  
Period: February – August 2005
8.3 Quality Committee

EMGO's quality committee consists of eight members, who represent various professions, programmes, and departments of the institute. In 2005, the members were: Dorly Deeg (chair), Allard van der Beek (co-chair), Michel Paardekooper (quality functionary), Chad Gundy, Wim Kraan, Lando Koppes, Caroline Terwee, and Laura Schaap. In July, Dorly Deeg resigned as chair, Allard van der Beek became chair, and Caroline Terwee became co-chair. In October, Lando Koppes left the committee and was replaced by Roeline Pasman.

The qualities of the quality committee are:
1) To create, implement, develop, and maintain a quality system for supporting and improving EMGO's research process.
2) To advise EMGO's directorate on quality issues.

8.3.1 Developments in the quality system in 2005

Quality manual
During this year, four new guidelines were written: communication with and treatment of participants in research projects; delivering data to third parties; where to find advice and support for your research project; and a practical guideline about improving the attractiveness of letters and brochures for recruiting research participants. Also, several guidelines in the electronic quality manual were updated.

Audits
In the beginning of the year, much effort was put into developing our performance of project audits. In 2004, we had started our audits with a list of open questions. Although the audits went well, the reporting took too much time, and comparing audits performed by different people was difficult. During the second half of 2004, a questionnaire with closed questions was used. Reporting became easier, but the audit itself became quite rigid and bureaucratic. The quality committee decided to explore another way. In the beginning of 2005, a self-evaluation questionnaire, to be filled in by the researcher before the actual audit, came into use. A supplemental audit manual was made for the auditors. The self-evaluation helped to speed up the audits. More importantly, it helped to really focus the audit on a limited number of key aspects of the research project as opposed to superficial attention for many, less relevant, aspects. This new approach works well.

Project audits
The quality committee organised approximately 16 audits of complete projects. The committee communicated its general findings with the directorate and, through presentations at work and programme meetings, with the institute as a whole.

Theme audits
In December 2004 and January 2005, the committee performed a theme audit (i.e., an audit focusing on one specific aspect of research across several projects) on reproducibility of published analysis. Twenty-five researchers were asked to reproduce one of their main outcomes (e.g., an odds ratio) from a published article. Nine researchers were unable to reproduce the outcome within half a working day. The main reasons for not being able to reproduce the results were: insufficient documentation (1), software problems (3), lost data (2), and not enough time (3). Sixteen researchers were able to reproduce the published outcome, taking a median time of 23 minutes (range: 5 minutes – 3 hours).

In November, the committee performed a theme audit on archiving and privacy that consisted of three central questions. The first question asked whether finished projects were archived. Some were, but not as many as expected. Of the 100 projects finished in the last 10 years, documentation for only 30 projects were found in the EMGO archive. The next question asked if the data of finished projects were properly archived. Again, the results were poorer than expected: researchers frequently fail to deliver electronic data to EMGO's central data management. Finally, the committee asked whether privacy-sensitive information was properly handled in both finished and ongoing projects. It turned out that, while privacy-sensitive information was properly handled in finished projects, three out of nine ongoing projects inadequately shielded privacy-sensitive information from third parties. This requires some serious attention.

What are the benefits of the quality system?
1) As they begin their projects, new researchers and PhD students receive support as they are introduced to EMGO's quality manual.
2) Audits offer insight into the way research is performed within the institute. While indications are that studies are properly carried out overall, there always remain areas for improvement, such as better documentation, better validation of questionnaires, more supervision of research assistants, and more attention to handling privacy-sensitive information.
3) Open-minded EMGO researchers see the audits as opportunities to learn, turning constructive comments and criticisms into improvements in their research.
4) The theme audit on archiving and privacy will result in a cleaning up and reorganisation of the archive room, creating more space for future projects.
5) The obliged reporting of privacy-sensitive projects will now be done internally instead of externally by the college personal data protection authority.

8.3.2 Ambitions and plans for 2006

The quality committee helps EMGO researchers make the most of their projects with the available, often limited, financial resources. This requires the development of quality manual, which is an ongoing process. The most important step, though, is to create a culture in which every EMGO researcher uses the quality manual as a natural part of his or her work. This acculturation will take a few more years. In 2006, the committee wants to
reach a point where 70% of the researchers use the quality manual.

To get researchers more involved in the quality culture, the committee will address two interesting topics. It will develop guidelines on supervising and coaching new researchers, an attention-grabbing topic that will certainly stimulate participation. It will also conduct a theme audit on the inclusion of participants in research projects. Project audits and general opinion suggest that the number of participants included in a study almost always falls short of expectations.

In 2006, the quality committee will:

1) perform one or two theme audits, one on the inclusion of study participants;
2) perform about 20 project audits with the aid of senior investigators as auditors;
3) evaluate researchers’ use of the quality manual;
4) add new guidelines to the quality manual;
5) review and update existing guidelines in the quality manual; and
6) try to generate more feedback from the researchers on the quality system.

*EMGO’s soccer team wouldn’t mind a quality evaluation either...*
Publications
## Table 7. Total number and distribution of peer-reviewed publications in 2005

<table>
<thead>
<tr>
<th>category</th>
<th>Diabetes and Overweight</th>
<th>Common Mental Disorders</th>
<th>Care and Prevention</th>
<th>Musculoskeletal Disorders</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>in SCI¹</td>
<td>73</td>
<td>29</td>
<td>86</td>
<td>102</td>
<td>290</td>
</tr>
<tr>
<td>in SSCI²</td>
<td>2</td>
<td>9</td>
<td>8</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>in SCI and SSCI</td>
<td>5</td>
<td>47</td>
<td>21</td>
<td>7</td>
<td>80</td>
</tr>
<tr>
<td>international non-(S)SCI</td>
<td>8</td>
<td>8</td>
<td>12</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>national non-(S)SCI</td>
<td>7</td>
<td>27</td>
<td>40</td>
<td>28</td>
<td>102</td>
</tr>
<tr>
<td>total</td>
<td>95</td>
<td>120</td>
<td>167</td>
<td>148</td>
<td>530</td>
</tr>
</tbody>
</table>

## Table 8. Proportion of (S)SCI in upper quartile of the research field at issue³

<table>
<thead>
<tr>
<th>year</th>
<th>Diabetes and Overweight</th>
<th>Common Mental Disorders</th>
<th>Care and Prevention</th>
<th>Musculoskeletal Disorders</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>14/18 (78%)</td>
<td>17/28 (61%)</td>
<td>28/48 (58%)</td>
<td>31/49 (63%)</td>
<td>90/143 (63%)</td>
</tr>
<tr>
<td>1999</td>
<td>32/35 (91%)</td>
<td>36/48 (75%)</td>
<td>30/51 (59%)</td>
<td>23/39 (59%)</td>
<td>121/173 (70%)</td>
</tr>
<tr>
<td>2000</td>
<td>18/26 (69%)</td>
<td>24/38 (63%)</td>
<td>30/52 (58%)</td>
<td>28/59 (47%)</td>
<td>100/175 (57%)</td>
</tr>
<tr>
<td>2001</td>
<td>26/39 (67%)</td>
<td>26/38 (68%)</td>
<td>23/42 (55%)</td>
<td>39/68 (57%)</td>
<td>114/187 (61%)</td>
</tr>
<tr>
<td>2002</td>
<td>28/43 (65%)</td>
<td>15/27 (56%)</td>
<td>33/57 (58%)</td>
<td>41/75 (55%)</td>
<td>117/202 (58%)</td>
</tr>
<tr>
<td>2003</td>
<td>45/59 (76%)</td>
<td>21/31 (68%)</td>
<td>38/68 (56%)</td>
<td>64/92 (70%)</td>
<td>168/250 (67%)</td>
</tr>
<tr>
<td>2004</td>
<td>41/56 (73%)</td>
<td>30/54 (56%)</td>
<td>59/91 (65%)</td>
<td>52/87 (60%)</td>
<td>182/288 (63%)</td>
</tr>
<tr>
<td>2005</td>
<td>58/80 (73%)</td>
<td>58/85 (68%)</td>
<td>70/115 (61%)</td>
<td>69/115 (60%)</td>
<td>255/395 (65%)</td>
</tr>
</tbody>
</table>

¹ Science Citation Index
² Social Science Citation Index
³ Based on the order of Impact Factors within the field (from both SCI and SSCI) in which the journal at issue has the highest relative position. This assessment is based on the latest edition of the Journal Citation Reports (Social) Science Edition (ranks) of the Institute of Scientific Information available in the year at issue.
9.1 Diabetes and Overweight

International scientific publications


Bernaards CM, Twisk JWR, Snel J, van Mechelen W, Kemper HCG. In a prospective study in young people, associations between changes in smoking behavior and risk factors for cardiovascular disease were complex. Journal of Clinical Epidemiology 2005; 58: 1165-71.


Heine RJ. Unlocking the opportunity of tight glycaemic control. Diabetes, Obesity and Metabolism 2005; 7(suppl 1): S19-S23.


IJzerman RG, Boomstra DI, Stehouwer CDA. Intrauterine environmental and genetic influences on the association between birthweight and cardiovascular risk factors: studies in twins as a means of testing the fetal origins hypothesis. Paediatric and Perinatal Epidemiology 2005; 19 (suppl 1): 10-4.


Spoelstra-de Man A, Smulders YM, Dekker JM, Heine RJ, Bouter LM, Nijpels GN, Stehouwer CDA. Homocysteine levels are not associated with cardiovascular autonomic function in elderly Caucasian subjects without or with type 2 diabetes mellitus: the Hoorn Study. Journal of Internal Medicine 2005; 258: 536-43.


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National scientific publications


Books and proceedings


Other publications


Abstracts


9.2 Common Mental Disorders

Dissertations

Hermens MLM. Antidepressant treatment for minor and mild-major depressive disorders in primary care. (Vrije Universiteit; Promotor: Prof. dr. R. van Dyck, Prof. dr. M. de Haan; Co-promotor: Dr. H.P.J. van Hout, Dr. B. Terluin). (Cat. A).

Kool S. Comorbidity of major depression and personality disorders. (Universiteit van Amsterdam; Promotor: Prof.dr. F. de Jonghe, Prof.dr. J. Dekker). (Cat. D).

Koster A. Socioeconomic health differences in old age: unraveling the roles of biomedical, behavioral and psychosocial factors. (Universiteit Maastricht; Promotor: Prof. dr. J.T.M. van Eijk, Prof. dr. G.I.J.M. Kempen; Co-promotor: Dr. H. Bosma, Dr. B.W.J.H Penninx). (Cat. D).

Naarding P. Depression and cerebrovascular disease: a phenomenological study. (Erasmus Universiteit Rotterdam; Promotor: Prof. dr. P.J. Koudstaal, Prof. dr. A.T.F Beekman). (Cat. D).

Roozen HG. Community reinforcement approach and Naltrexone in the treatment of addiction. (Vrije Universiteit; Promotor: Prof. dr. A.J.F.M. Kerkhof, Prof.dr. W. van den Brink; Co-promotor: Prof. dr. A.T.F Beekman). (Cat. A).

van Egmond JJ. Secondary gain in psychiatry. (Vrije Universiteit; Promotor: Prof. dr. W. van Tilburg, Prof. dr. A.T.F Beekman; Co-promotor: Prof. dr. D.J.H Deeg). (Cat. A).

van Gool CH. The course of chronic disease, depression, and health behavior in longitudinal perspective. Findings concerning the epidemiology of aging. (Universiteit Maastricht; Promotor: Prof. dr. J.T.M. van Eijk, Prof. dr. G.I.J.M. Kempen; Co-promotor: Dr. B.W.J.H Penninx). (Cat. D).

International scientific publications


de Lange AH, Taris TW, Kompier MAJ, Houtman ILD, Bongers PM. Different mechanisms to explain the reversed effects of mental health on work characteristics. Scandinavian Journal of Work Environment and Health 2005; 31: 3-14.


Hertogh CMPM. Ethical foundations of palliative care for Alzheimer patients. Alzheimer Disease and Associated Disorders 2005; 19: 159-60.


Common Mental Disorders


Common Mental Disorders


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Dröes RM, Meiland FJM. Ontmoetingscentra; een nieuwe vorm van vroegtijdige ondersteuning voor mensen met dementie en hun verzorgers in buurt- en ouderencentra. Lokaal Ouderen Werk, 2005: D1-7a-D1-42.


Reports


Abstracts


Bremmer MA, Beekman ATF, Deeg DJH, Penninx BWJH, Dik MG, Hack CE. Inflammatory markers and the risk of minor and major depression in late life. Psychosomatic Medicine 2005; 67(suppl 1): AB1315.


Dik MG. Chronic inflammation and common geriatric syndromes: The Longitudinal Aging Study Amsterdam. Gerontologist 2005; 45(suppl 1): 654-56.


Penninx BWJH, Bandinelli S, Laurentini F, Beekman ATF, Ferrucci L. Late-life depression is associated with both hyper- and hypoactivity of the HPA-axis. Gerontologist 2005; 45: 299.


9.3 Care and Prevention

Dissertations

de Boer MR. Quality of life of visually impaired elderly. (Vrije Universiteit; Promotor: Prof. dr. H.J. Volker-Dieben, Prof. dr. G.H.M.B. van Rens; Co-promotor: Prof. dr. H.C.W. de Vei, Dr. A.C. Moll). (Cat. A).

Jansen-van der Weide MC. Handling requests for euthanasia and physician-assisted suicide. (Vrije Universiteit; Promotor: Prof. dr. G. van der Wal; Co-promotor: Dr. B.D. Onwuteaka-Philipsen). (Cat. A).

Kamperman AM. Deconstructing ethnic differences in mental health of Surinamese, Moroccan and Turkish migrants in the Netherlands. (Vrije Universiteit; Promotor: Prof. dr. J.T.V.M. de Jong; Co-promotor: Dr. ing. I.H. Komproe). (Cat. A).

Plass AMC. Medical care-seeking and self-care behaviour for minor illnesses. (Vrije Universiteit; Promotor: Prof. dr. G. van der Wal; Co-promotor: Dr. D.R.M. Timmermans). (Cat. A).

Rurup ML. Setting the stage for death. New themes in the euthanasia debate. (Vrije Universiteit; Promotor: Prof. dr. G. van der Wal, Prof. dr. P.J. van der Maas; Co-promotor: Dr. B.D. Onwuteaka-Philipsen, Dr. A. van der Heide). (Cat. A).

Schalk BWM. Albumin and physical health decline in old age. (Vrije Universiteit; Promotor: Prof. dr. D.J.H. Deeg, Prof. dr. L.M. Bouter; Co-promotor: Dr.ir. M. Visser, Dr. B.W.J.H. Penninx). (Cat. A).

van Leerdam FJM. Enuresis, a major problem or a simple developmental delay? (Vrije Universiteit; Promotor: Prof. dr. R.A. HiraSing, Prof. dr. A.J. van der Heijden). (Cat. A).


Cornel MC, Smit DJ, de Jong-van den Berg LTW. Folic acid—the scientific debate as a base for public health policy. Reproductive Toxicology 2005; 20: 411-5.


Georges JJ, Onwuteaka-Philipsen BD, van der WG, van der HA, van der Maas PJ. Differences between terminally ill cancer patients who died after euthanasia had been performed and terminally ill cancer patients who did not request euthanasia. Palliative Medicine 2005; 19: 578-86.


Pasman HRW, Onwuteaka-Philipsen BD, Kriegsman DMW, Ooms ME, Ribbe MW, van der Wal G. Discomfort in nursing home patients with severe dementia in whom artificial nutrition and hydration is forgone. Archives of Internal Medicine 2005; 165: 1729-35.


Rutup ML, Onwuteaka-Philipsen BD, Jansen-van der Weide MC, van der Wal G. When being ‘tired of living’ plays an important role in a request for euthanasia or physician-assisted suicide: patient characteristics and the physician's decision. Health Policy 2005; 74: 157-66.

Rutup ML, Onwuteaka-Philipsen BD, van der Wal G. A “suicide pill” for older people: attitudes of physicians, the general population, and relatives of patients who died after euthanasia or physician-assisted suicide in The Netherlands. Death studies 2005; 29: 519-34.


van der Wal MF, Diepenmaat ACM, Pel JM, Hiraing RA. Vaccination rates in a multicultural population. Archives of Disease in Childhood 2005; 90: 36-40.


Letters to the editor


ten Kate LP. Betere test op prostaatkanker. Medisch Contact 2005; 60: 1996.

ten Kate LP. Prikpil (ingezonden brief). Medisch Contact 2005; 60: 465.


National scientific publications


Kemper HCG. The aerobic fitness and physical activity paradox: are we fit because we are active, or are we active because we are fit? In: Sprenger M, ed. Public health in Oesterreich und Europa. Lengerich: Pabst Science Publishers, 2005: 67-71. ISBN 3-89967-274-7.


Other publications


Provoost V, Mortier F, Cools F, Ramet J, Deliens L. Specialists’ religion and actual end-of-life decisions in neonates and infants. 9th Congress of the European Association for Palliative Care, Aachen. European Journal of Palliative Care 2005; April: 86.

Provoost V, Cools F, Mortier F, Vandenplas Y, Deliens L. Consultation of the parents in end-of-life decision-making in neonates and infants: a population study. 9th Congress of the European Association for Palliative Care, Aachen. European Journal of Palliative Care 2005; April: 76.


van den Block L, Bilsen JJ, Bernkam JJL, Deliens L. Medical end-of-life decisions in oncology and non-oncology patients in Flanders, Belgium. 9th Congress of the European Association for Palliative Care, Aachen. European Journal of Palliative Care 2005; April: 19.
9.4 Musculoskeletal Disorders

Dissertations

Bot SDM. Course and prognosis of complaints at the arm, neck and shoulder. (Vrije Universiteit; Promotor: Prof. dr. J. Dekker, Prof. dr. L.M. Bouter; Co-promotor: Dr. J.A.J.M. Beelen). (Cat. A).

Horemans HH. Pyridostigmine treatment in postpoliomyelitis syndrome. (Universiteit Maastricht; Promotor: Prof. dr. W.J.A. van den Heuvel; Co-promotor: Dr. L.H.V. van der Woude, Dr. M.W.M. Post, Dr. A.J. Dallmeijer). (Cat. D).

Kuijpers T. Shoulder pain. Prediction of outcome in primary care. (Vrije Universiteit; Promotor: Prof. dr. L.M. Bouter; Co-promotor: Dr. D.A.W.M. van der Windt; Dr. G.J.M.G. van der Heijden). (Cat. A).

Roorda LD. Measuring mobility. (Vrije Universiteit; Promotor: Prof. dr. G.J. Lankhorst, Prof. dr. L.M. Bouter). (Cat. A).

Steultjens EMJ. Efficacy of occupational therapy: the state of the art. (Vrije Universiteit; Promotor: Prof. dr. J. Dekker, Prof. dr. L.M. Bouter; Co-promotor: Dr. C.H.M van den Ende). (Cat. B).


van der Waal JM. The burden of hip and knee complaints. (Vrije Universiteit; Promotor: Prof. dr. J. Dekker, Prof. dr. L.M. Bouter; Co-promotor: Dr. D.A.W.M. van der Windt, Dr. C.B. Terwee). (Cat. A).

Wegman ACM. N-of-1 trials in general practice. ‘tailoring treatment to individual patients’. (Vrije Universiteit; Promotor: Prof. dr. Th. P.G.M de Vries, Prof. dr. W.A.B. Stalman; Co-promotor: Dr. D.A.W.M. van der Windt). (Cat. A).

International scientific publications


van der Waal JM, Terwee CB, van der Windt DAWM, Bouter LM, Dekker J. The impact of non-traumatic hip and knee disorders on health-related quality of life as measured with the SF-36 or SF-12: a systematic review. Quality of Life Research 2005; 14: 1141-55.


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Appendix 1

Advisory Board, members and faculty
1. **Advisory Board**
   Prof. J. van der Meer, MD, PhD, Chairman  
   Prof. H.N. Lefeber, MD, PhD  
   M. van Leeuwen, MD, PhD  
   M.J. van Til, MD  
   G.A. van Essen, MD, PhD  
   Prof. S.P. Verloove-Vanhorick, MD, PhD  
   M.G. Boekholdt, MD, PhD  
   Prof. P.C. Huijgens, MD, PhD

2. **Directorate**
   Prof. L.M. Bouter, PhD, Scientific Director  
   Prof. G. van der Wal, MD, PhD, Vice Director  
   M.M. Telkamp, MA, Financial Manager

3. **Scientific staff (per Research Programme)**

3.1 **DIABETES AND OVERWEIGHT**

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### 3.2 COMMON MENTAL DISORDERS

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#### 3.3 CARE AND PREVENTION

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### Senior investigator (continuation)

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3.4 MUSCULOSKELETAL DISORDERS

Senior investigator

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4. Administrative support staff

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fte: mean number full time equivalents per year; pm: indicates positions for which there is no formal university research finance available or for which administration of the grants and the appointment occurs outside the EMGO Institute; Senior investigator: tenured appointment as project leader and supervisor of PhD students; Post-doc: temporary appointment following successful defense of a PhD thesis; (Junior) investigator: temporary appointment for a specific research project often intended to result in a dissertation; PhD student: temporary appointment always intended to result in a dissertation.
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*fte:* mean number full time equivalents per year; *pm:* indicates positions for which there is no formal university research finance available or for which administration of the grants and the appointment occurs outside the EMGO Institute; *Senior investigator:* tenured appointment as project leader and supervisor of PhD students; *Post-doc:* temporary appointment following successful defense of a PhD thesis; *(Junior)* investigator: temporary appointment for a specific research project often intended to result in a dissertation; *PhD student:* temporary appointment always intended to result in a dissertation.
Ms. M.M.C. Schellekens 0.23  
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Ms. M.J. Schmitz 0.02  
M. Schoonhoven 0.01  
Ms. J. Serkei 0.15  
Ms. F.W. Sijpestein-Molen 0.37  
Ms. M. Simons 0.46  
Ms. E.A.M. Slijkerman 0.07  
Ms. W.M. Smit-de Boer 0.06  
T.W. Soekhoe 0.04  
J.M.C. Spijkers 0.40  
Ms. E.B. Stokx-Gruber 0.80  
Ms. M.M. van Stralen 0.07  
Ms. C.G. Stuiveling 0.05  
Ms. M.C. Stuy, MSc 0.70  
M.M. Telkamp, MA 1.00  
Ms. A.J.M.M. Telleman 0.09  
Ms. A.M. Thoma-Koning 0.03  
Ms. W. Tybout 0.43  
Ms. M. Uittenbosch 0.52  
Ms. S. Varossieau 0.19  
Ms. M.A.C. Veeken Baas 0.70  
Ms. C.P. Veenstra-Kok 0.73  
J. Vijth 0.05  
Ms. E.H.L. Visser Lijtsman Piernbaum 1.00  
Ms. S.M. Visser-Martha 0.02  
Ms. M. Volbeda 0.01  
Ms. T.T. Vreden 0.17  
R. Waaijman, MSc 0.93  
Ms. M. van Wakeren 0.40  
Ms. A. van der Wal 0.01  
Ms. B.G. van der Wal 0.57  
Ms. M.M. van der Wal 0.13  
L. Wallast 1.00  
Ms. T. Wedding 0.33  
Ms. L. Weijers- Rigtering 0.35  
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Ms. H. Willebrands 0.40  
Ms. M. Witvliet 0.05  
Ms. M. Zondag 0.13  
Ms. M. van Zuidam 0.39  
M. Zwemmer 0.02  

The personnel distribution represents the annual average for 2005 with regard to direct university finance, specific research finance, subsidies and finance from industry for personnel working on EMGO projects. For personnel which is not employed by the EMGO Institute, the Department/Faculty of employment is mentioned.

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Appendix 2

List of future dissertations
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<td>Ms. M. Alssema, MSc</td>
<td>Postprandial hyperglycaemia versus dyslipidaemia in relation to cardiovascular disease in women with type 2 diabetes and in normoglycaemic women</td>
<td>Prof. R. J. Heine, MD, PhD, Ms. J.M. Dekker, PhD, M.G.A.A.M. Nijpels, MD, PhD</td>
<td>External funding Dutch Diabetes Research Foundation</td>
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<tr>
<td>Ms. M.J.H. Baars, MD</td>
<td>Physicians’ knowledge about genetics</td>
<td>Prof. L.P. ten Kate, MD, PhD</td>
<td>External funding Netherlands Organization for Health Research and Development (ZonMw)</td>
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<td>S. van Beek, MSc</td>
<td>Quality of care for psychogeriatric nursing home patients</td>
<td>Prof. M.W. Ribbe, MD, PhD, Prof. P. Groenewegen, PhD, C. Wagner, PhD, D.H.M. Frijters, MD, PhD</td>
<td>External funding Netherlands Organization for Health Research and Development (ZonMw)</td>
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<td>M. van den Berg, MSc</td>
<td>Risk perception, decision-making and psychological well-being in pregnant women concerning prenatal screening for an increased risk of congenital abnormalities in the foetus</td>
<td>Prof. G. van der Wal, MD, PhD, Prof. J.M.M. van Vught, MD, PhD, Ms. D.R.M. Timmermans, MD, PhD</td>
<td>External funding Netherlands Organization for Health Research and Development (ZonMw)</td>
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<td>Ms. J. de Bie, MSc</td>
<td>Risky procedures in health care</td>
<td>Prof. G. van der Wal, MD, PhD, Prof. S. Gevers, PhD, Ms. J. Cuperus-Bosma, MD, PhD</td>
<td>External funding Netherlands Organization for Health Research and Development (ZonMw)</td>
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<td>D. Bijl, MD</td>
<td>Depression in elderly primary care patients: implementation of a management programme</td>
<td>Prof. M. de Haan, MD, PhD, Prof. A.T.F. Beekman, MD, PhD, H.W.J. van Marwijk, MD, PhD</td>
<td>External funding Netherlands Organization for Health Research and Development (ZonMw)</td>
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<td>Ms. C.A. van Boeijen, MSc</td>
<td>The treatment of anxiety disorders in primary care</td>
<td>Prof. A.J.L.M. van Balkom, MD, PhD, Prof. R. van Dyck, MD, PhD, Ms. P.C. van Oppen, PhD</td>
<td>External funding Netherlands Organization for Scientific Research (NWO)</td>
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<td>Ms. A.D. Boenink, MSc</td>
<td>Reflection by interns: learning to reflect in medical practice</td>
<td>Prof. W. van Tilburg, MD, PhD, J.A. Smal, PhD, A.K. Oderwald, PhD</td>
<td>External funding Education Quality Fund (OKF)/ VU University Medical Center</td>
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<td>W. Boorsma, MD</td>
<td>The relationship between insulin sensitivity and cardiovascular disease (RISC): cause or consequence?</td>
<td>Prof. R.J. Heine, MD, PhD, Prof. L.M. Bouter, PhD, Ms. J.M. Dekker, PhD, M.G.A.A.M. Nijpels, MD, PhD</td>
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<td>S.D.M. Borgsteede, MSc</td>
<td>Palliative care in general practice</td>
<td>Prof. G. van der Wal, MD, PhD, Prof. J.Th.M. van Eijk, PhD, Prof. L. Deliens, PhD</td>
<td>External funding Centre for the Development of Palliative Care (COPZ) Ministry of Health, Welfare and Sport (VWS)</td>
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<td>Ms. J.E. Bosmans, MSc</td>
<td>Cost-effectiveness of treatment for depression in primary care</td>
<td>Prof. L.M. Bouter, PhD, Prof. W.A.B. Stalman, MD, PhD, Ms. M.C. de Bruijne, PhD, H.P.J. van Hout, PhD</td>
<td>External funding Health Care Insurance Council (CvZ) – Developmental Medicine</td>
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<td>Ms. H. Brandt, MSc</td>
<td>Prevalence and incidence of palliative care in the terminal phase of patients in nursing homes</td>
<td>Prof. M.W. Ribbe, MD, PhD, Prof. G. van der Wal, MD, PhD, Prof. L. Deliens, PhD, M.E. Ooms, MD, PhD</td>
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<td>G.J. de Bruijn, MSc</td>
<td>Cognitive, social and environmental determinants of behaviour to prevent weight gain: an intervention-mapping approach</td>
<td>Prof. J. Brug, PhD, Prof. W. van Mechelen, MD, PhD, S. Kremers, PhD</td>
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<td>Ms. K.C. Coppoolse, MSc</td>
<td>Illness perception and feelings of guilt and shame in chronically ill Moroccan patients</td>
<td>Prof. M. de Haan, MD, PhD, A.K. Oderwald, PhD, R. Reis, PhD</td>
<td>External PhD student External funding Netherlands Organization for Health Research and Development (ZonMw)</td>
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<td>Q.D. van Dam, MSc</td>
<td>Inhibitions in psycho-analysis</td>
<td>Prof. W. van Tilburg, MD, PhD, H.F.A. Schalken, PhD</td>
<td>External PhD student</td>
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<td>Ms. L. van Domburgh, MSc</td>
<td>Very young offenders in The Netherlands</td>
<td>Prof. Th.A.H. Doreleijers, MD, PhD, Prof. R. Vermeiren, MD, PhD, L.M.C. Nauta Jansen, PhD, Prof. L. Loeber, PhD</td>
<td>External funding Stadsregio Rotterdam, Politie en Wetenschap, Kinderpostzegels, Provincie Utrecht, Gemeente Utrecht, Gemeente Amersfoort</td>
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<td>L.H. Engbers, MSc</td>
<td>Food-steps, life-style interventions at the workplace: the effects of modifications of the work site</td>
<td>Prof. W. van Mechelen, MD, PhD, Ms. M.N.M. van Poppel, PhD</td>
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<td>T.P. Ettema, MSc</td>
<td>Development of an instrument to measure quality of life in patients with dementia</td>
<td>Prof. M.W. Ribbe, MD, PhD, Prof. D. Mellenbergh, MD, PhD, Ms. R.M. Dröes, PhD, J. de Lange, PhD</td>
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<td>Palliative care and medical end-of-life decisions</td>
<td>Prof. G. van der Wal, MD, PhD, Prof. P.J. van der Maas, MD, PhD, Ms. B.D. Onwuteaka-Philipsen, PhD, A. van der Heide, MD, PhD</td>
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<td><strong>Ms. A. Greeven, MSc</strong></td>
<td>Hypochondriasis, etiology, phenomenology and treatment</td>
<td>Prof. A.J.L.M. van Balkom, MD, PhD, Prof. Ph. Spinhoven, PhD</td>
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<td><strong>V. de Groot, MD</strong></td>
<td>Clinimetric evaluation in multiple sclerosis</td>
<td>Prof. G.J. Lankhorst, MD, PhD, Prof. C.H. Polman, MD, PhD, Prof. L.M. Bouter, PhD, Ms. H. Beckerman, PhD</td>
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<td><strong>Ms. S. Hamerlynck, MD</strong></td>
<td>Determinants of aggression in detained girls</td>
<td>Prof. Th.A.H. Doreleijers, MD, PhD, Prof. P. Cohen-Kettenis, PhD, Prof. R. Loeber, PhD, Prof R. vermeiren, MD, PhD, L.M.C. Nauta-Jansen, PhD</td>
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<td><strong>Ms. M. van Hecke, MSc</strong></td>
<td>Diabetic retinopathy in relation to cardiovascular morbidity and mortality</td>
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| A.P.D. Jansen, MSc | Effects of general practice nursing support for demented patients living at home and their carers  | Prof. W.A.B. Stalman, MD, PhD, H.J.P. van Hout, PhD, M.G.A.A.M. Nijpels, MD, PhD | External funding  
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- **External funding**
  - Ministry of Health, Welfare and Sport (VWS)
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  - KLM Health Services
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<td>Effectiveness of ‘Problem-Solving Therapy’ provided by nurses in general practice for patients with frequent psychological disorders Prof. W.A.B. Stalman, MD, PhD, Prof. R. van Dyck, MD, PhD, Ms. P.C. van Oppen, PhD, H.W.J. van Marwijk, MD, PhD</td>
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Prof. P. Cuijpers, PhD, Prof. A.T.F. Beekman, MD, PhD | | External funding  
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<tr>
<td>M.E. Reinders, MD</td>
<td>Patient feedback on consultation skills of GP-trainees</td>
<td>Department of General Practice, Vocational Training, VU University Medical Centre Amsterdam</td>
</tr>
<tr>
<td>Ms. D. Rhebergen, MSc</td>
<td>Long term prognosis of depression</td>
<td>University funding</td>
</tr>
<tr>
<td>Ms. A. Schrier, MSc</td>
<td>Migrants and affective disorders</td>
<td>External PhD student</td>
</tr>
<tr>
<td>B.P.M. Schweitzer, MD</td>
<td>Quality of out-of-hours palliative care in general practice</td>
<td>Comprehensive Cancer Centre Amsterdam (IKA), Stichting Huisartsen Dienstenposten Amsterdam, AGIS Health Insurance (Amersfoort), Health Centre Diemen-Zuid (Diemen)</td>
</tr>
</tbody>
</table>
### 2009 (CONTINUATION)

<table>
<thead>
<tr>
<th>PhD student</th>
<th>Title of thesis</th>
<th>(Co-)promotors</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. Slort, MD</td>
<td>Effectiveness of a training programme on gp-patient communication in palliative care</td>
<td>Prof. W.A.B. Stalman, MD, PhD, Prof. G. van der Wal, MD, PhD, Ms. A.H. Blankenstein, MD, PhD</td>
<td>External funding&lt;br&gt;Pfizer Pharmaceuticals&lt;br&gt;OZ Health Insurance&lt;br&gt;Janivo Foundation&lt;br&gt;Comprehensive Cancer Centre South (IKZ)</td>
</tr>
<tr>
<td>Ms. N. Vogelzangs, MSc</td>
<td>Metabolic syndrome and depression</td>
<td>Prof. A.T.F. Beekman, MD, PhD, Ms. B.W.J.H. Penninx, PhD</td>
<td>External funding&lt;br&gt;National Institute of Health (NIH), USA</td>
</tr>
<tr>
<td>Ms I. Wicherts, MSc</td>
<td>Prevention of vitamin D deficiency in non-western immigrants</td>
<td>Prof. P. Lips, MD, PhD, A.J.P. Boeke, MD, PhD, Ms. N.M. van Schoor, PhD</td>
<td>External funding&lt;br&gt;Netherlands organization for Health Research and development (ZonMw)</td>
</tr>
<tr>
<td>N.G.M. Wiemer, MD</td>
<td>Changes in the anterior eye segment in patients with diabetes mellitus</td>
<td>Prof. P.J. Ringens, MD, PhD, Prof. B.C.P. Polak, MD, PhD, M. Dubbelman, PhD</td>
<td>External funding&lt;br&gt;Several Dutch foundations for the blinds</td>
</tr>
<tr>
<td>Ms. L. Zwaan, MSc</td>
<td>Cognitive causes of incorrect diagnostic reasoning by physicians and the relation with adverse events</td>
<td>Prof. G. van der Wal, MD, PhD, Ms. D.R.M. Timmermans, PhD, Ms. C. Wagner, PhD</td>
<td>External funding&lt;br&gt;Ministry of Health</td>
</tr>
</tbody>
</table>

### 2010

<table>
<thead>
<tr>
<th>PhD student</th>
<th>Title of thesis</th>
<th>(Co-)promotors</th>
<th>Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>J. de Meij, MSc</td>
<td>Implementation of JUMP-in: effect and process evaluation of a primary-school-based program aimed at promoting physical activity among children</td>
<td>Prof. W. van Mechelen, MD, PhD, Ms. J.M.M. Chin A Paw, PhD</td>
<td>External PhD student</td>
</tr>
<tr>
<td>R. Poitier, MSc</td>
<td>The impact of dance movement therapy on physical functioning and well-being of older adults living in residential care facilities</td>
<td>Prof. W. van Mechelen, MD, PhD, Ms. J.M.M. Chin A Paw, PhD</td>
<td>External PhD student</td>
</tr>
</tbody>
</table>
Appendix 3

Trends in input and output
(in Dutch)
Tabel 1. Overzicht van de per jaar verworven subsidies periode 2001-2005 (in euro’s)

<table>
<thead>
<tr>
<th>jaar</th>
<th>1e geldstroom</th>
<th>2e geldstroom</th>
<th>3e geldstroom</th>
<th>4e geldstroom</th>
<th>2e+3e+4e geldstroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>5.931.644</td>
<td>1.774.473</td>
<td>5.508.435</td>
<td>31.765</td>
<td>7.314.673</td>
</tr>
<tr>
<td>2003</td>
<td>5.023.405</td>
<td>5.712.908</td>
<td>4.164.595</td>
<td>278.000</td>
<td>9.568.927</td>
</tr>
<tr>
<td>2004</td>
<td>4.953.521</td>
<td>1.552.021</td>
<td>6.130.811</td>
<td>850.736</td>
<td>8.533.568</td>
</tr>
</tbody>
</table>

1e geldstroom  

2e geldstroom  
Betreft de middelen die door NWO en ZonMw aan het instituut worden toegekend.

3e geldstroom  
Betreft de middelen die worden toegekend door de zogeheten collectebusfondsen (NHS, DFN, NAF, KWF, etc.), alsmede de via het CvZ gekanaliseerde overheidsgelden en rechtstreekse toekenningen van de rijksoverheid.

4e geldstroom  
Betreft de middelen die ter beschikking worden gesteld door het bedrijfsleven, in het bijzonder door de farmaceutische industrie, alsmede door enkele kleine fondsen zonder peer review procedure.

Figuur 1. Overzicht van de per jaar verworven subsidies periode 2001-2005

![Graph showing subsidies over time](image-url)
Tabel 2. Overzicht uitgaven per jaar voor de periode 2001-2005 (in euro’s)

<table>
<thead>
<tr>
<th>jaar</th>
<th>1e geldstroom</th>
<th>2e geldstroom</th>
<th>3e geldstroom</th>
<th>4e geldstroom</th>
<th>2e+3e+4e geldstroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>4.988.511</td>
<td>2.503.252</td>
<td>3.572.257</td>
<td>391.817</td>
<td>6.467.326</td>
</tr>
<tr>
<td>2003</td>
<td>5.102.567</td>
<td>2.697.425</td>
<td>2.088.747</td>
<td>270.597</td>
<td>5.056.769</td>
</tr>
<tr>
<td>2004</td>
<td>5.312.122</td>
<td>2.441.030</td>
<td>4.126.050</td>
<td>331.833</td>
<td>6.898.913</td>
</tr>
<tr>
<td>2005</td>
<td>7.412.542</td>
<td>2.561.236</td>
<td>2.486.097</td>
<td>1.562.102</td>
<td>6.609.435</td>
</tr>
</tbody>
</table>

1 Betreft de budgetten die per jaar beschikbaar zijn gesteld op basis van de allocatie systematiek van het VUmc, inclusief personeelskosten van de gerealiseerde eerste geldstroom formatie van de afdeling EMGO plus de door de verschillende afdelingen in het instituut ingebrachte eerste geldstroom aanstellingen. Voor de omzetting van formatie in geld werd aangehouden:

1 fte WP = € 89.443 (was in 2004 € 87.600, 2003 € 87.950, 2002 € 84.200 en 2001 € 66.000)
1 fte NWP = € 48.137 (was in 2004 € 43.600, 2003 € 42.900, 2002 € 40.800 en 2001 € 37.700)

2 Betreft de tot en met 31 december van het betreffende jaar gerealiseerde uitgaven voor in het instituut opgenomen onderzoeksprojecten, inclusief personeelskosten en de uitgaven voor het postinitieel masteronderwijs epidemiologie.

3 Vanaf 2002 worden de eerste geldstroomuitgaven verhoogd met de bestedingen van het Onderzoekscentrum Body@Work naar rato van de subsidietoekenning uit de eerste geldstroom.

Figuur 2. Overzicht van de uitgaven per geldstroom en per jaar voor de periode 2001-2005
Tabel 3. Overzicht formatie WP per geldstroom voor de periode 2001-2005 (in gemiddeld aantal fte per jaar)

<table>
<thead>
<tr>
<th>jaar</th>
<th>WP 1e geldstroom(^1)</th>
<th>WP 2e geldstroom(^2)</th>
<th>WP 3e geldstroom(^2)</th>
<th>WP 4e geldstroom(^2)</th>
<th>Totaal geldstroom(^2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>40,09</td>
<td>31,13</td>
<td>50,49</td>
<td>1,90</td>
<td>83,52</td>
</tr>
<tr>
<td>2002</td>
<td>41,30</td>
<td>27,68</td>
<td>53,68</td>
<td>2,00</td>
<td>83,36</td>
</tr>
<tr>
<td>2003</td>
<td>41,68</td>
<td>27,18</td>
<td>56,91</td>
<td>2,88</td>
<td>86,97</td>
</tr>
<tr>
<td>2004</td>
<td>41,19</td>
<td>22,46</td>
<td>51,29</td>
<td>3,37</td>
<td>77,12</td>
</tr>
<tr>
<td>2005</td>
<td>55,47</td>
<td>36,97</td>
<td>53,33</td>
<td>3,65</td>
<td>93,95</td>
</tr>
</tbody>
</table>

1 Betreft het jaargemiddelde van de daadwerkelijke gerealiseerde 1e geldstroom formatie binnen de voor het instituut gegarandeerde formatie\(^3\), plus de onderzoeksformatie van de afdelingen Huisarts-, Verpleeghuis- en Sociale Geneeskunde en een deel van de onderzoeksformatie van Audiologie, Diëtetiek en voedingswetenschappen, Endocrinologie, Kinder geneeskunde, Klinische Epidemiologie en Biostatistiek, Klinische Genetica, Medische Psychologie, Oogheelkunde, Psychiatrie, Revalidatieneeskunde en de faculteiten Aard- en Levenswetenschappen en Psychologie en Pedagogiek. De groei in 2005 van de WP1 wordt grotendeels verklaard door de toetreding van de onderzoeksgruppen van Audiologie, Diëtetiek en voedingswetenschappen, Kindergeneeskunde en de faculteit Psychologie en Pedagogiek tot het EMGO Instituut.

2 De 2e, 3e en 4e geldstroom formatie betreffen de daadwerkelijke gerealiseerde aanstellingen op de tot 31 december 2005 toegekende subsidies of ten laste van de reserves. Door ZonMw gefinancierde aanstellingen worden vanaf 2001 integraal tot de 2e geldstroom gerekend.

3 Conform het managementcontract 2005 betreft de VUmc toewijzing voor het EMGO instituut en de afdeling EMGO tezamen 21,41 fte WP, 0,63 fte WP-doorstroom en 7,05 fte promovendi.

Figuur 3. Overzicht formatie WP periode 2001-2005 (in gemiddelde fte per jaar)
Tabel 4. Overzicht formatie NWP per geldstroom voor de periode 2001-2005 (in gemiddeld aantal fte per jaar)

<table>
<thead>
<tr>
<th>jaar</th>
<th>NWP 1e geldstroom</th>
<th>NWP 2e geldstroom</th>
<th>NWP 3e geldstroom</th>
<th>NWP 4e geldstroom</th>
<th>Totaal 2e + 3e + 4e geldstroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>13,96</td>
<td>5,26</td>
<td>13,19</td>
<td>0,57</td>
<td>19,02</td>
</tr>
<tr>
<td>2002</td>
<td>14,71</td>
<td>4,34</td>
<td>17,52</td>
<td>0,00</td>
<td>21,86</td>
</tr>
<tr>
<td>2003</td>
<td>14,66</td>
<td>5,87</td>
<td>15,41</td>
<td>0,00</td>
<td>21,28</td>
</tr>
<tr>
<td>2004</td>
<td>15,71</td>
<td>11,76</td>
<td>14,99</td>
<td>1,71</td>
<td>28,46</td>
</tr>
<tr>
<td>2005</td>
<td>15,49</td>
<td>10,22</td>
<td>17,55</td>
<td>2,57</td>
<td>30,34</td>
</tr>
</tbody>
</table>

1 Betreft het jaargemiddelde van de daadwerkelijke gerealiseerde 1e geldstroom formatie binnen de voor het instituut gegarandeerde formatie 3, de NWP onderzoeksformatie van de afdeling Huisartsgeneeskunde en het NWP onderzoeksformatie ten behoeve van de academisering Huisartsgeneeskunde. Deze formatie is exlusief de NWP inzet van de faculteiten Aard- en Levenswetenschappen en Psychologie en Pedagogiek.

2 De 2e, 3e en 4e geldstroom formatie betreffen de daadwerkelijke gerealiseerde aanstellingen op de tot 31 december 2005 toegekende subsidies of ten laste van de reserves. Door ZonMw gefinancierde aanstellingen worden vanaf 2001 integraal tot de 2e geldstroom gerekend. Deze formatie is exlusief de NWP inzet van de faculteiten Aard- en Levenswetenschappen en Psychologie en Pedagogiek.

3 Conform het managementcontract 2005 bedraagt de VUmc toewijzing voor het EMGO Instituut en de afdeling EMGO tezamen 12,72 fte NWP.
Tabel 5. Overzicht van de in 2005 ingebrachte WP onderzoeksformatie door de verschillende afdelingen (in gemiddeld aantal fte per jaar)

<table>
<thead>
<tr>
<th>Afdeling</th>
<th>WP1 1e geldstroom</th>
<th>promovendi 2e, 3e en 4e geldstroom</th>
<th>Overige WP 2e, 3e en 4e geldstroom</th>
<th>Totaal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dienst diëtetiek en voedingswetenschappen</td>
<td>0,65</td>
<td>0,00</td>
<td>0,53</td>
<td>1,18</td>
</tr>
<tr>
<td>Kindergeneeskunde (kinderpsychiatrie)</td>
<td>2,45</td>
<td>0,00</td>
<td>3,50</td>
<td>5,95</td>
</tr>
<tr>
<td>Endocrinologie</td>
<td>0,92</td>
<td>0,00</td>
<td>0,00</td>
<td>0,92</td>
</tr>
<tr>
<td>Faculteit Aard- en levenswetenschappen</td>
<td>1,10</td>
<td>1,00</td>
<td>4,10</td>
<td>6,20</td>
</tr>
<tr>
<td>Faculteit Psychologie en pedagogiek</td>
<td>6,85</td>
<td>2,00</td>
<td>1,20</td>
<td>10,05</td>
</tr>
<tr>
<td>Huisartsgeneeskunde</td>
<td>2,92</td>
<td>0,00</td>
<td>0,00</td>
<td>2,92</td>
</tr>
<tr>
<td>Keel-, neus- en oorheelkunde (audiologie)</td>
<td>1,50</td>
<td>2,25</td>
<td>1,40</td>
<td>5,15</td>
</tr>
<tr>
<td>Klinische epidemiologie en biostatistiek</td>
<td>0,20</td>
<td>0,00</td>
<td>0,00</td>
<td>0,20</td>
</tr>
<tr>
<td>Klinische genetica en antropogenetica</td>
<td>0,80</td>
<td>0,80</td>
<td>0,30</td>
<td>1,90</td>
</tr>
<tr>
<td>Medische psychologie</td>
<td>2,10</td>
<td>0,20</td>
<td>1,80</td>
<td>4,10</td>
</tr>
<tr>
<td>Oogheelkunde</td>
<td>1,30</td>
<td>2,51</td>
<td>1,63</td>
<td>5,44</td>
</tr>
<tr>
<td>Psychiatrie</td>
<td>1,45</td>
<td>1,00</td>
<td>4,90</td>
<td>7,35</td>
</tr>
<tr>
<td>Revalidatiegeneeskunde</td>
<td>1,38</td>
<td>1,00</td>
<td>4,68</td>
<td>7,06</td>
</tr>
<tr>
<td>Sociale geneeskunde</td>
<td>3,28</td>
<td>0,00</td>
<td>0,00</td>
<td>3,28</td>
</tr>
<tr>
<td>Verpleeghuisgeneeskunde</td>
<td>0,10</td>
<td>0,00</td>
<td>0,30</td>
<td>0,40</td>
</tr>
<tr>
<td>EMGO</td>
<td>28,47</td>
<td>19,68</td>
<td>39,17</td>
<td>87,32</td>
</tr>
</tbody>
</table>

Totaal 55,47 30,44 63,51 149,42

1 Deze formatie betreft reguliere afdelingsformatie en academiseringsgelden.
2 Deze formatie betreft personen die een aanstelling hebben bij de afdeling EMGO plus de eerste geldstroom EMGO onderzoeksformatie (5,6 fte), die tijdelijk, voor verlengbare periodes van drie jaar, bij andere afdelingen is ondergebracht (zie tabel 6).

Tabel 6. Overzicht van de EMGO eerste geldstroom onderzoeksformatie ondergebracht bij andere afdelingen (in gemiddeld aantal fte per jaar)

<table>
<thead>
<tr>
<th>Afdeling</th>
<th>EMGO 1e geldstroom onderzoeksformatie</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endocrinologie</td>
<td>0,50</td>
</tr>
<tr>
<td>Huisartsgeneeskunde</td>
<td>1,00</td>
</tr>
<tr>
<td>Klinische Epidemiologie en Biostatistiek</td>
<td>1,60</td>
</tr>
<tr>
<td>Medische Psychologie</td>
<td>0,20</td>
</tr>
<tr>
<td>Psychiatrie</td>
<td>1,00</td>
</tr>
<tr>
<td>Sociale Geneeskunde</td>
<td>1,00</td>
</tr>
<tr>
<td>Verpleeghuisgeneeskunde</td>
<td>0,30</td>
</tr>
</tbody>
</table>

Totaal 5,60

Figuur 5. Verdeling van de in 2005 ingebrachte WP onderzoeksformatie per faculteit
Tabel 7. Overzicht dissertaties en publicaties periode 2001-2005 (t.o.v. ingezette WP formatie)

<table>
<thead>
<tr>
<th>jaar</th>
<th>Totale inzet WP¹</th>
<th>Dissertaties</th>
<th>Wet. publicaties internationaal</th>
<th>Wet. publicaties nationaal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>123,6</td>
<td>25</td>
<td>199</td>
<td>63</td>
</tr>
<tr>
<td>2002</td>
<td>124,7</td>
<td>21</td>
<td>223</td>
<td>73</td>
</tr>
<tr>
<td>2003</td>
<td>128,7</td>
<td>25</td>
<td>275</td>
<td>56</td>
</tr>
<tr>
<td>2004</td>
<td>118,3</td>
<td>27</td>
<td>321</td>
<td>68</td>
</tr>
<tr>
<td>2005</td>
<td>149,4</td>
<td>26</td>
<td>428</td>
<td>102</td>
</tr>
</tbody>
</table>

¹ Betreft alle WP formatie ongeacht de geldstroom.

Figuur 6. Dissertaties en publicaties t.o.v. totale inzet WP
### Tabel 8. Overzicht dissertaties en publicaties periode 2001-2005 per 10 fte 1e geldstroom WP excl. promovendi

<table>
<thead>
<tr>
<th>jaar</th>
<th>1e geldstroom WP excl. promovendi</th>
<th>Dissertaties</th>
<th>Wet. publicaties internationaal</th>
<th>Wet. publicaties nationaal</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>31,0</td>
<td>8,1</td>
<td>64,3</td>
<td>20,3</td>
</tr>
<tr>
<td>2002</td>
<td>33,2</td>
<td>6,3</td>
<td>67,1</td>
<td>22,0</td>
</tr>
<tr>
<td>2003</td>
<td>33,4</td>
<td>7,5</td>
<td>82,2</td>
<td>16,7</td>
</tr>
<tr>
<td>2004</td>
<td>33,4</td>
<td>8,1</td>
<td>96,1</td>
<td>20,3</td>
</tr>
<tr>
<td>2005</td>
<td>40,9</td>
<td>6,4</td>
<td>104,7</td>
<td>25,0</td>
</tr>
</tbody>
</table>

1 Betreft de daadwerkelijk gerealiseerde aanstellingen binnen de toegestane EMGO eerste geldstroom formatie plus de in het instituut ingebrachte onderzoeksformatie van verschillende afdelingen.

### Figuur 7. Dissertaties en publicaties periode 2001-2005 per 10 fte 1e geldstroom WP excl. promovendi
Tabel 9. Verworven externe subsidies en uitgaven periode 2005 (in k€), alsmede het gemiddelde over de periode 2001 t/m 2005 (in k€) per geldstroom per onderzoeksprogramma

<table>
<thead>
<tr>
<th>jaar</th>
<th>Verworven subsidies</th>
<th>Uitgaven</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005</td>
<td>2001 t/m 2005</td>
</tr>
<tr>
<td><strong>Diabetes and Overweight</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2e geldstroom</td>
<td>1.272,9</td>
<td>281,8</td>
</tr>
<tr>
<td>3e geldstroom</td>
<td>125,1</td>
<td>374,0</td>
</tr>
<tr>
<td>4e geldstroom</td>
<td>2.439,3</td>
<td>774,3</td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>3.837,3</td>
<td>1.430,1</td>
</tr>
<tr>
<td><strong>Common Mental Disorders</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2e geldstroom</td>
<td>830,2</td>
<td>1.479,8</td>
</tr>
<tr>
<td>3e geldstroom</td>
<td>487,0</td>
<td>567,4</td>
</tr>
<tr>
<td>4e geldstroom</td>
<td>0,0</td>
<td>2,4</td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>1.317,2</td>
<td>2.049,6</td>
</tr>
<tr>
<td><strong>Care and Prevention</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2e geldstroom</td>
<td>1.414,2</td>
<td>936,2</td>
</tr>
<tr>
<td>3e geldstroom</td>
<td>1.150,9</td>
<td>2.457,0</td>
</tr>
<tr>
<td>4e geldstroom</td>
<td>1.650,5</td>
<td>341,8</td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>4.215,6</td>
<td>3.735,1</td>
</tr>
<tr>
<td><strong>Musculoskeletal Disorders</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2e geldstroom</td>
<td>1.205,5</td>
<td>756,3</td>
</tr>
<tr>
<td>3e geldstroom</td>
<td>193,6</td>
<td>869,2</td>
</tr>
<tr>
<td>4e geldstroom</td>
<td>447,9</td>
<td>159,9</td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>1.847,0</td>
<td>1.785,4</td>
</tr>
<tr>
<td><strong>Totaal alle programma's</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2e geldstroom</td>
<td>4.722,8</td>
<td>3.454,1</td>
</tr>
<tr>
<td>3e geldstroom</td>
<td>1.956,6</td>
<td>4.267,7</td>
</tr>
<tr>
<td>4e geldstroom</td>
<td>4.537,7</td>
<td>1.278,4</td>
</tr>
<tr>
<td><strong>Totaal</strong></td>
<td>11.217,1</td>
<td>9.000,2</td>
</tr>
</tbody>
</table>

1 In deze tabel zijn de eerste geldstroom uitgaven, evenals de incidentele toekenningen van eerste geldstroom middelen, niet meegenomen.
Tabel 10. Overzicht WP in de verschillende onderzoeksprogramma’s in 2005 alsmede het gemiddelde over de periode 2001 t/m 2005 gedifferentieerd naar geldstroom (in gemiddeld aantal fte per jaar)

<table>
<thead>
<tr>
<th>Omschrijving WP</th>
<th>DO</th>
<th>CMD</th>
<th>C+P</th>
<th>MD</th>
<th>Totaal</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP - 1e geldstroom</td>
<td>11,3</td>
<td>7,5</td>
<td>15,7</td>
<td>9,6</td>
<td>13,1</td>
</tr>
<tr>
<td>WP - 2e geldstroom</td>
<td>3,2</td>
<td>2,8</td>
<td>12,3</td>
<td>8,5</td>
<td>11,1</td>
</tr>
<tr>
<td>WP - 3e geldstroom</td>
<td>16,2</td>
<td>7,4</td>
<td>4,8</td>
<td>5,7</td>
<td>21,2</td>
</tr>
<tr>
<td>WP - 4e geldstroom</td>
<td>1,3</td>
<td>0,3</td>
<td>0,3</td>
<td>0,3</td>
<td>1,9</td>
</tr>
<tr>
<td>WP - 2e, 3e en 4e geldstroom</td>
<td>20,6</td>
<td>10,4</td>
<td>17,2</td>
<td>14,6</td>
<td>34,1</td>
</tr>
<tr>
<td>Totaal</td>
<td>31,9</td>
<td>17,9</td>
<td>32,8</td>
<td>24,1</td>
<td>47,2</td>
</tr>
</tbody>
</table>

Tabel 11. Overzicht WP in de verschillende onderzoeksprogramma’s in 2005 alsmede het gemiddelde over de periode 2001 t/m 2005 gedifferentieerd naar functie (in gemiddeld aantal fte per jaar)

<table>
<thead>
<tr>
<th>Omschrijving WP</th>
<th>DO</th>
<th>CMD</th>
<th>C+P</th>
<th>MD</th>
<th>Totaal</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP - sr. investigator</td>
<td>11,1</td>
<td>6,4</td>
<td>11,7</td>
<td>9,0</td>
<td>12,0</td>
</tr>
<tr>
<td>WP - post-doc</td>
<td>7,8</td>
<td>2,4</td>
<td>1,6</td>
<td>1,0</td>
<td>6,2</td>
</tr>
<tr>
<td>WP - jr. investigator</td>
<td>5,8</td>
<td>1,6</td>
<td>7,2</td>
<td>5,2</td>
<td>14,3</td>
</tr>
<tr>
<td>WP - PhD-student</td>
<td>7,1</td>
<td>7,5</td>
<td>12,4</td>
<td>8,9</td>
<td>14,7</td>
</tr>
<tr>
<td>Totaal</td>
<td>31,9</td>
<td>17,9</td>
<td>32,8</td>
<td>24,1</td>
<td>47,2</td>
</tr>
</tbody>
</table>

DO Diabetes and overweight
CMD Common mental disorders
C+P Care and prevention
MD Musculoskeletal disorders
### Tabel 12. Overzicht dissertaties en wetenschappelijke publicaties jaar 2005 alsmede het gemiddelde over de periode 2001 t/m 2005 per onderzoeksprogramma

<table>
<thead>
<tr>
<th></th>
<th>Diabetes and Overweight</th>
<th>Common Mental Disorders</th>
<th>Care and Prevention</th>
<th>Musculoskeletal Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2005 t/m 2005</td>
<td>2005 t/m 2005</td>
<td>2005 t/m 2005</td>
<td>2005 t/m 2005</td>
</tr>
<tr>
<td>Dissertaties</td>
<td>0</td>
<td>3</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>Wet. publicaties internationaal</td>
<td>88</td>
<td>59</td>
<td>93</td>
<td>51</td>
</tr>
<tr>
<td>Wet. publicaties nationaal</td>
<td>7</td>
<td>5</td>
<td>27</td>
<td>19</td>
</tr>
<tr>
<td>Inzet WP formatie per programma</td>
<td>31,9</td>
<td>17,3</td>
<td>32,8</td>
<td>25,0</td>
</tr>
</tbody>
</table>

### Figuur 8. Dissertaties en wetenschappelijke publicaties tegenover WP inzet per onderzoeksprogramma - jaar 2005
Figuur 9. Dissertaties en wetenschappelijke publicaties tegenover WP inzet per onderzoeksprogramma - gemiddelde van de periode 2001 t/m 2005