



How to prevent ADHD? By not diagnosing it!

**INTERVIEW WITH LECTURER OF THE YEAR 2011:
DR. LAURA BATSTRA**

Congratulations on becoming Lecturer of the year 2011!

Thank you.

How did you become a good lecturer?

I truly do not know. Last year was the first time I taught at the university, so I am a rather new teacher. Maybe it's the fire of a starter? This prize just happened to me, although of course I gave it my very best shot once I was in the final round. In addition, some natural talent may have played a role, because when I did my PhD around 2000 I also won a prize for "best junior lecture" at a congress in Baltimore.

Do you prepare a lot or do you just tell something you are enthusiastic about?

I do feel that I have something to tell, and I am very enthusiastic about my teaching topics. I also prepare, yes. I really try hard to captivate my students' attention. I take that very seriously. I want to teach them to critically analyze what they read and hear, so I put a lot of effort in that.

You are also a researcher, so what do you like best; teaching or research?

I appreciate the combination. When I did my PhD, every day was about research. Missing variation, I decided to do my PhD part-time and I took two other jobs. In my current position, I like the alternation between research

and teaching. Before this job, I used to work in psychiatric practice as a psychologist. My goal was to work in practice and to do research as well. Ideally, I would like to combine the three things: practice, teaching and research. Unfortunately, a week has only five working days.

What is your favorite research topic and why?

My favorite research topic... I am only here for two years now which is relatively short. I have spent these two years on writing about ADHD and psychiatric overdiagnosis and overtreatment in general, so that is what I have published about.

You were psychologist, however you quit because too many children were easily diagnosed with ADHD. Do you think this will change in the future?

I do, because parents and teachers are starting to recognize it. There are simply too many children with that label and medication. People at high positions also worry about this. For instance, Dr. Allen Frances of the DSM IV Task Force is telling the world that the ADHD diagnosis got out of hand, especially in child psychiatry. The new handbook for psychiatric diagnosis is planned for 2013, the DSM-5. The chairman of the DSM-5 Task Force, David J. Kupfer, also believes that ADHD is overdiagnosed and overmedicated in child psychiatry. I think things will change, but it will take some time.

» CONTINUATION INTERVIEW WITH DR. LAURA BATSTRA

Why do you say that ADHD is not a disease?

Diseases are characterized by individual physical features that cause the symptoms of the disease and that can be diagnosed by clinical tests. All of this is not true for ADHD. ADHD is not causing hyperactivity and inattention but is simply a name for these behaviors. If we look at ADHD as a disease, we confuse naming and explaining. The diagnosis of ADHD does not explain hyperactive behavior in any way.

ADHD also has no individual physical characteristics and there are no clinical tests because there is nothing to measure. When you compare large groups of children with and without ADHD you do see some differences at group level. For example, the children with ADHD have thinner brain tissue in some areas of the brain. But this can only be demonstrated at a group level, so most children with ADHD have "normal" brain tissue and most children with smaller brain tissues do not have ADHD. ADHD is diagnosed via behavioral, not physical characteristics. An ADHD diagnosis is always the result of the subjective judgments of clinicians, parents and teachers. Therefore, ADHD – and other psychiatric diagnoses – are especially vulnerable for expansion of diagnostic boundaries.

If ADHD diagnostics will change, would you prefer to be psychologist again instead of lecturer and researcher?

That is a very good question, because I am not sure. I like being a teacher, because I like the contact with my students. I did not know that before, I have experienced it in the last year. Also research suits me, so I fit well within the university. On the other hand, I do miss the contact with children and parents sometimes. It will always be difficult to choose, because it is all very interesting and rewarding.

How should we deal with hyperactive children?**What should be their diagnosis and treatment?**

First of all, I think we should spare children the burden of a diagnosis and medical treatment whenever possible and that is possible in many cases. Of all children receiving the diagnosis ADHD, only about 15% are severe cases. These children do need medical treatment and are better off with a diagnosis, but children with sub-threshold, mild or moderate problems do not need the diagnosis. We can help parents, teachers and children without a confirmed diagnosis of ADHD, so I think we should work with another model. I have developed a model together with Dr. Allen Frances. We have written several articles about it and it is called Stepped Diagnosis. The idea is that you can help parents, teachers and children without a confirmed diagnosis and only in cases where this is not sufficient children should be referred to psychiatry for elaborate diagnostics and medical treatment. Altogether, this is a model to reduce overdiagnosis without risking undertreatment. I have to emphasize that some children do need medical help, but that is only a small portion of the children that receive psychiatric medical help at this moment. Many children can be helped by behavior scientists. The behavior of many inattentive and hyperactive children is a problem, but not a medical problem. Therefore, it should not be medically diagnosed and treated.

Should any help be focused on parents, teachers or the child itself?

The 'state of the art' today is that you focus the treatment for children on their parents, because they spend 24 hours a day with their child. If you teach parents some interventions, for example to provide structure, be positive and praise good behavior, they can do this all day. If a therapist sees the child once a week, he or she does not have that much influence. Therefore we mainly focus on parents and also



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on teachers. Teaching parents and teachers useful strategies is one thing we can do, but we should also educate parents and teachers better about the enormous diversity in normal child behavior and about realistic expectations when raising children. Some parents think something is wrong with their child when raising their child is not big fun, but raising children is very often not as much fun as we would like it to be; it is a difficult job. I think that is also one of the problems. Moreover, advertisements of pharmaceutical companies promote disorders like ADHD. They bring ADHD to the attention, so when raising a child is not going as hoped for and the child is hyperactive and not paying much attention at school, parents get worried that their child might have ADHD. They may believe that terrible things such as derailing at school or depression will happen if ADHD is not recognized and treated, because that is the message that the pharmaceutical industry and some medical opinion leaders are spreading. It can be partially true, because early problems may progress into severe disorders. However, most of these children will find their way when they get older. In addition, medication can only suppress unwanted behaviors for a limited time. It does not resolve the initial problems and we cannot prevent comorbid problems by medication. We should focus more on helping the children to finish school. Not per se on the highest level, because we also need carpenters for instance.

Is it a problem that parents would like to have a brilliant child and have very high demands?

In our society, we focus a lot on diplomas. No diploma mostly means no job, so I believe it is normal that parents worry when their child is not getting through school. We should facilitate that and help parents and children to find schooling and jobs that fit the child. Some children are not brilliant in focusing or concentrating, but often they do have personal talents

and we should help them in finding a way to use those in a job that fits them.

You have written a book about ADHD. The title says that ADHD can be prevented by not diagnosing it. Do you think it is still possible to 'delete' the ADHD diagnosis? What would happen to the already diagnosed people?

It is not my goal to eliminate the entire diagnosis, because the label is useful for severe ADHD cases. This is the category of children for whom the diagnosis ADHD is meant. It is not meant for children with mild problems and I think the diagnosis is overused and misused at the moment. That is the problem. I am not an anti-psychiatrist, not at all. I think psychiatry is a very good profession. I am happy that we have it and I am convinced that some children (and adults) need it. However that is also a reason to be more modest and careful, because if life problems and normal child behaviors are diagnosed on a growing scale, psychiatry will eventually lose credibility.

When will your book be in stores?

The book is already released and available in the book store. The book is written for Dutch parents and teachers to explain what ADHD is and what it is not, because at this point many parents, teachers and children are misinformed. Too many children grow up with the idea that their brain is sick and will never get better. I worry about that and I do not want children to grow up with the wrong idea of their brains being diseased. In psychiatric practice I heard these kinds of sayings from children and parents increasingly, so my goal is now to provide fair education about ADHD.

Thank you for this interview.

■ DAFNE PIERSMA

› HEAD OFFICE MATTERS

25 years of BCN, a rich history...

During the last BCN staff meeting, we realized that BCN is to celebrate its 25th anniversary this year. The BCN board has decided that we will celebrate this anniversary with several events and an organizing committee has already been appointed to coordinate them. Since BCN has few members that have witnessed the earliest days of BCN, we thought it might be worthwhile to briefly review its history.

BCN was founded in 1987 by Prof. Jan Willem Kuiper (Biophysics), Prof. Bela Bohus (Behavioural Physiology), Prof. Heinz Prechtel (Developmental Biology) and 'probably' Prof. Alan Horn (Pharmaceutical Chemistry). Initially three faculties were involved in the founding of BCN: Natural Sciences, Medical Sciences, and Social Sciences. The official founding document of BCN dates back to 1988 and was written by Prof.'s Hans Zaagsma (Pharmacology), Rudi van den Hoofdakker (Psychiatry), Bela Bohus and Jaap Kruyt (Behavioural Biology), and Diek Duifhuis (Sensory Biophysics). In this document, BCN's goals concerning interfaculty PhD teaching, support of interfaculty research, and the acquisition of financial support were formulated.

In 1990 the first official grant proposal outlining support for BCN was submitted to the University Board. By that time the Faculties of Arts and Philosophy had joined BCN and the BCN board was extended to include Prof.'s Michon (Experimental Psychology), Zwarts (Neurolinguistics) and Kuipers (Philosophy). At that time brain imaging became a hot scientific topic and an intense collaboration between BCN scientists and the PET center of the UMCG started; clearly Prof. J. Korf (Psychiatry) was one of the pioneers in this field. Since that time neuroimaging has remained an important part of BCN.

In the early 90's Prof. H. Duifhuis became the official director of BCN (the BCN board then consisted of F. Zwarts, R.H. vd Hoofdakker, J. Zaagsma, B. Bohus and J.A Michon). In the mid-90's a national perspective on inter-university science collaborations came up and was funded by the government.

Of course BCN started collaborations with other Dutch neuroscience schools and many good contacts have remained from this time.

After an extended period, Prof. Frans Zwarts succeeded Prof. Duifhuis in 1999. The directorship of Frans Zwarts was hallmarked by important events. First of all, responsibility for BCN moved from the Faculty of Natural Sciences to the Faculty of Medical Sciences. Together with the graduate school Guide, the BCN staff office moved to one of the old hospital buildings, called het Poortgebouw. During this time, the Dutch government strongly promoted interdisciplinary scientific collaborations, with an initiative called de breedte strategie. BCN obtained financial support for this programme and initiated four interfaculty research programs: cellular signaling, motor control and fatigue, neuroimaging, and behaviour. These research lines have existed and flourished for several years and provided a clear structure in the BCN science program. Together with the BCN board, Frans Zwarts laid the cornerstones for the BCN Neuroimaging Center (NIC). The board of the university and the faculties of Medical Sciences and Natural Sciences decided on the investment for an MRI scanner and the financing of an MRI center.

In 2002 Frans Zwarts became Rector Magnificus of the University of Groningen and was succeeded by Prof. G. ter Horst. Although the decision concerning the MRI center was already made, many tough organizational issues had to be solved. Gert ter Horst successfully established and organized the Neuroimaging Center, including the appointment of an excellent staff. During this period, BCN was due for a KNAW site visit, which was performed successfully. At the same time, the BCN Research Master became accredited. Prof. Serge Daan, together with Erik Boddeke and Hedderik van Rijn set up the structure and organization of the international BCN Research Master. Many excellent young researchers have graduated from this master course and an impressive sign of its quality is the



Two former directors: Frans Zwarts (l) and Diek Duifhuis (r), and the present director Erik Boddeke (m) in the "good old times" (1998).

fact that the BCN Research Master was rated the best Dutch Neuroscience Master in 2010.

Following this, a difficult period for BCN started as the board of our university decided that every faculty should start a graduate school for the administration and education of their PhD students. Around this time, Prof. Kees de Bot succeeded Gert ter Horst as BCN director. In order to clarify the function of BCN, next to the graduate schools, BCN organized a meeting between the deans of its five faculties and the director of the University Board. Here it was decided that BCN would take care of the education of the 'BCN' PhD students and would continue to support 'BCN' research. Soon after this meeting, I succeeded Kees de Bot as director of BCN. The implementation of a transparent and financially sound PhD education, together with an update of the BCN organization including our (inter) national position, the website, and the newsletter have given great satisfaction.

In the past 25 years many scientists have spent their efforts on BCN, they have left us a beautiful organization as their legacy; I think we should thank them all!

■ PROF. ERIK BODDEKE

INTERVIEW WITH CLAUDINE LAMOTH, RESEARCHER OF THE RESEARCH CENTRE SPRINT

Smart Prevention, Rehabilitation & Intervention Technologies at home for improved mobility

The research centre par excellence SPRINT was set up in June 2011. Quite recently, SPRINT received a grant of 1.5 million euros from the Samenwerkingsverband Noord Nederland (SNN) in order to support a total of 16 research projects that all aim to increase the mobility and therefore life-satisfaction of the elderly - a highly relevant topic given the recent trend of a growing elderly population in our society. SPRINT is a research centre that combines the knowledge of many different institutions. As an example, University Medical Centre of Groningen (UMCG), University of Groningen (RUG) and University of Twente (UT) and INCAS3, which is a non-profit research institute in Drenthe, contribute to the realization of SPRINT guided research projects. By this, a variety of institutions support a mutual exchange of knowledge in order to bridge the gap between fundamental scientific insights on age related changes in the perceptual-motor system (gait and postural control) and practical application of sensor systems (smart cognitive sensors) that support data acquisition of the individual's actual performance (e.g., in the health care or environmental setting to monitor the individual's risk for falls or other movement related malfunctioning).

Central research themes of SPRINT are therefore, the understanding of fundamental processes that underlie aging and/or pathology with regard to the perceptual-motor system (e.g., gait-, balance control), the interaction of behavior, coordination, perception and cognition as well as the environmental factors on the elderlies' perceptual-motor performance. The

efficiency of computer-assisted training, exergaming (exercise and gaming), general perceptual-motor learning programs and (home) training protocols for patients and elderly are going to be assessed.

After a brief introduction about Claudine Lamoth (Researcher of SPRINT) the following interview will deal with one of her projects, "exergaming".

Claudine Lamoth

Claudine Lamoth continued her degree in Human Movement Science with a PhD and a follow-up postdoc position at the faculty of Human Movement Science of the Free University of Amsterdam. During this period she established her expertise in clinical coordination dynamics with fundamental insights on movement in aging and health and instrumental gait/posture assessment. 2,5 years ago she moved to Groningen to work with the research group Healthy Aging and Movement within the Centre of Human Movement Science. Since then her research has focused on the effect of aging and age related pathology on gait and postural control. Given that one of her main interests is on sensor technology she attempts to combine knowledge from her scientific background on gait and postural control in the elderly with technology such as smart cognitive sensor systems in order to develop practical applicable intervention systems.

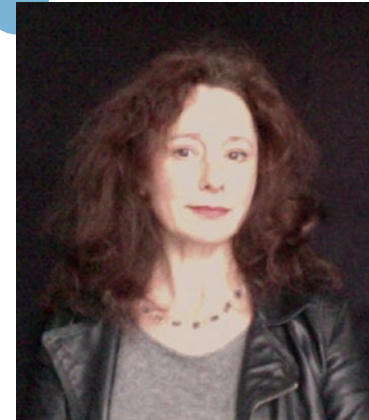
A master thesis proposal on exergaming, which means exercise by gaming, finally caught the attention of researchers involved in SPRINT who asked Claudine Lamoth to join their research group.

What is your project about?

I am the project leader of the project Exergaming for balance training for the elderly. One of the aims of SPRINT is to increase the mobility of the elderly in order to make them live longer independently, to increase their quality of life, make them more mobile and prevent falls, which is a very big issue nowadays. Former research showed that balance training in the elderly (in healthy aging but also in pathological aging) are effective. However, balance is nothing that you would practice if you have no reason to do so. If you have never fallen before why should you worry about your balance performance. So what we would like to do is to develop a device that is on the one hand interesting for the elderly and that on the other hand can be used at home to practice balance by gaming. New developments in the gaming technology as you might be aware of, like the Kinect or Wii fit, are examples of gaming devices that intend to increase the users' level of activity. However, the problem with commercial available systems is that they are not developed for the elderly making them unsuitable to use as a fall prevention training instrument.

How does research within SPRINT look like?

The strength of SPRINT is that we have different disciplines with different expertise that all work together on the goal to develop a new device that the elderly can use at home. There is the scientific part from rehabilitation and movement science that provide the knowledge about which movement should be practiced and how. Further, the game industry, like



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Gameship in Leeuwarden, and INCAS3 provide insights in cognitive sensor technology, data analysis and so on.

And then I haven't mentioned the most important part yet. Namely, the core approach of SPRINT is to develop new technologies/ new devices not from a technical point of view, which is still quite common but from a user-driven perspective. Hence, the perspective of the elderly. Involving the prospective user (in this case the elderly) from the very beginning of the project is by far the most important characteristic of the SPRINT philosophy. Therefore, research conducted by SPRINT is not technically driven but driven from the needs of the user. The prospective user has an equal part in the whole development and ultimate application phase in order to enhance the users' actual motivational level to participate in the game.

How do you assess the opinions of your target population (the elderly)?

We mainly work with focus groups. In a focus group, members of a selected group of people are asked about their perceptions, opinions, and attitudes towards a product. We for example work together with the ANBO, which is an independent organization that supports the interests of the elderly and with the WAAG society in Amsterdam, they are very well known for their research with respect to user requirements and technology development. The practical work is done by one of our master students. She conducts interviews with a focus group of elderly, visits them at home, asks them what their requirements are, looks at their home equipment, asks about their interests, shows them several game concepts and then analyses all the interviews in order to give us an idea what the elderly need and value in their every-day life. Moreover, the elderly are asked about their general attitude towards technology, which is very interesting because we found that older people are much more

interested in technology than we thought, at least if they know that it is beneficial and effective. On the other hand and running in parallel to this project, Mike van Diest (PhD) works on developing the first training game, tests different types of sensors, does some data analysis to prove the software for input and output of the game. There are in fact many actions that run in parallel. However, assessment of the user's requirements is something that runs throughout the whole project, for the whole two years. Then we are going to actually implement the game and the training. Finally, we want to use the game as a telemonitoring device. Meaning that if you have a game somewhere you can monitor someone's behavior (from a distance) and maybe identify whether this person is at risk for falls. Ultimately, data from the telemonitoring should give feedback to the user in order to provide them with care/training in a home based setting.

Can you give us some more information about the focus group you are working with at this stage of research?

They are people of different ages/gender, different social backgrounds and present with different levels of computer experiences. It is a small group of 10-12 people that participate in the experiment for a period of two years. We ask them questions and show them various prototypes of games. We now start with healthy elderly subjects since we aim to develop a prevention tool. However, later on we would like to expand the tool to make it suitable for rehabilitation patients so that they can practice at home.

How do you select the people that would benefit from the device/game, when they are not from a clinical setting but rather when the tool is meant to be used as a prevention device?

It is difficult and at the same time simple. We know that balance deteriorates with age and in fact we know

that people who are 70 years of age or older have worse balance than a younger age group. Inclusion criteria for using the device/game might be those individuals that are not able to practice regularly but who nevertheless want or need to do some training.

How will you validate the tools' efficacy?

There are two ways to validate the game's effectiveness. First of all, you could do an intervention study but that is not enough because it is hard to prove that people fall less after training given that people don't fall that often in general. So we have to do experiments in the lab and try to simulate falls. By this we aim to find out whether the participants' reaction to falls is more appropriate after having trained/practiced with the device. In general we want to prove three major things. First, the device has to be effective, secondly, it has to be fun to do and finally it has to be motivating, so that people actually go on with practicing. A lack of motivation has been shown to be one of the most often occurring problems in adherence to balance trainings and fall prevention programs for the elderly. Elderly who had never fallen do not see the reason why they should train. Moreover, for balance exercises to be effective, you have to do it the rest of your life. However most of the balance trainings are really boring.

How have the elderly reacted so far when introducing your ideas? Are they willing to use your device?

Reactions differ a lot. Most of the time, their first reaction is "No this isn't for me" but then when you talk to them, ask them in what kind of device they might be interested in, if it's not a game like the Wii, they often go "Hey if you could design something like a pilot game that would be interesting". So the first reaction is often "No this is nothing for me but then they start using it (and that is also known from the literature) and actually

› The game should support online gaming on the internet, increasing its social value.

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enjoy playing with it. Especially if there are competitive elements in it, when they liked the game and when the game was not too difficult. So most of them prefer games in which you can achieve something but actual achieving something must be possible without losing the challenging character of the game. One of our pilot studies (conducted before the elderly started using the game) showed that people were highly motivated to use it. Motivation was accompanied by a promising effect on the participant's balance. Moreover, when we placed a device in an elderly home, people came together, talking and actually playing the game. So I have the feeling if you keep people involved in the development of such a device from the very beginning and you create a game that is appropriate for that age group, they are going to use it. The group we are focusing on is not the healthy, fit elderly group. Because they can go outside, go on the bike, go hiking but our focus is on the group that stays a lot of their time inside the home, particularly in the wintertime, does not practice, but still lives independently. The aim is that those who live independently should live independently for a much longer time by keeping them mobile, especially in the wintertime when most of them avoid to go out.

Can you give us more details about the device you are developing, how it will look like?

We are still in the developing phase. For sure it will be something that can be used at home. We still don't know whether it is going to be a Kinect kind of device or if it is going to be a plate. It will be something the elderly can train their balance at home and with which we can record the performance and estimate whether someone is at risk. Not only the game performance will be monitored but also whether they get better/improve in their overall balance performance. The idea is that in two years we will have the first prototype and then test the game/the device in the Caren Lab here

in Groningen. After this testing phase we intend to transform it to a mobile device that people can use at home. Another thing that has to be kept in mind while developing the device is that the game should support online gaming on the internet, increasing its social value. You could imagine grandparents playing the game at the internet with their grandchildren even if they live at a distance. I could picture that this is going to have an additional effect on the elderly's motivation or might be even the only reason they will play it.

What kind of software is involved/ will be necessary?

First of all, sensor data software will be involved so that the data obtained during performing the game will be transformed in the game situation to give feedback to the user and the game (two directional). And we will use software to assess balance performance, to see whether someone is improving or not.

Do the people at home need special actions in order to use it?

The game will be implemented on a TV screen. Since it is not a medical instrument but a commercial instrument that in first instance should be used for the prevention of falls, we want people to be able to buy it in a store like a Wii or Kinect. At this moment our work rests upon putting many, many sensors on the bodies of participants, on different kind of plates, installing cameras and obtaining data from all of these devices. After all, we are going to decide which type of sensor is most appropriate for our final goal – this is the topic of Mike van Diest's ph.d. project.

When can we expect the first results, the first prototype?

We received the financial support for 3 years leading us to intend to test and validate the first prototype within this period.

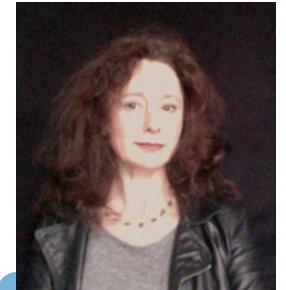
What do you expect from BCN?

I think it is a good platform for many people that are interested in similar or related topics. Overall, being a member of a research school broadens your scope and might help you to realize your research projects in the future by becoming a member of a scientific community that might lead to new opportunities of applying for grants or getting to know other researchers that are willing to contribute their particular knowledge to the project.

Final comment about your own experiences within SPRINT.

Through working for SPRINT I have learned a lot. I was not used to conducting that kind of qualitative research (analyzing interviews etc.). However, I really appreciate the social and society-driven approach of SPRINT. Using and implementing scientific knowledge to everyday life issues is in my opinion one of the strengths of SPRINT and makes research highly fascinating and rewarding.

■ KATHI MÜLLER



Diversity at the top

Diversity at the top of organisations results in more innovation at a higher quality and with more flexibility in the decisions made. Diversity is not only good for organisations like the University of Groningen (RuG) and the University Medical Centre of Groningen (UMCG). It is also good for you, because it improves the working atmosphere and your talents are more appreciated. At the moment however, diversity is quite low at the top. Women are underrepresented, which may result in less innovation, lower quality and less flexibility in the decisions made. It also means that not all available talent is fully appreciated.

Ir. Laura de Jong, director of Human Resources (HR) at the UMCG: "As a HR-professional you need to like setting up the organisation's strategy, thus having an indirect influence on the organisation". Elements of De Jong's work are designing the broad HR-strategy, communicating with the outside world and negotiate collective agreements for the 8 UMC's. HR supports the organisation to fulfil its core tasks. De Jong: "We want to take care of people, pioneer research and share and check knowledge. We can only reach these goals with the most talented people".

This means that it is important for organisations to use all the available talent. However, looking at the number of female professors, the UMCG and RuG do seem to miss out on talent, and thus diversity. De Jong: "If we all believed that men are more talented than women, we would have no problem". Looking at the numbers though, for the past fifteen years there have been more female than male students. Furthermore, De Jong: "Female students have higher grades and pass their exams at a higher speed". This implies that female students are just male counterparts.

To get a better reflection of society and more diversity into the organisation, both the UMCG and the RuG have signed the charter 'Talent naar de Top' (Talent to the Top) in 2009. De Jong: "Signing this document shows that we take diversity at the top seriously". The charter is signed voluntarily. After signing, organisations have to take initiatives to appoint and retain female talent. De Jong: "The interventions are not only aimed at women, but at the organisations as a whole", so an 'and-and' approach is taken to improve diversity and help women to the top.

Several interventions have been made. One of the interventions is making the organisation aware that men and women are different in some respects. De Jong: "If a man reads an advertisement for a job and he fulfils 6 out of 10 criteria, he applies for the job. A woman however thinks it is problematic that she does not fulfil all the criteria and does not apply". Awareness of this difference can stimulate organisations to invite women to apply for certain positions, according to De



Jong: "It is not true that women do not want to apply, they like to be invited to apply".

Another intervention is the mentoring programme of the UMCG and RuG. The programme is aimed at female academics who are finding their way in the academic world. In this program, mentees are assigned to a mentor, who is an experienced academic. De Jong: "The questions of mentees are very diverse. Some women want to know how someone organises life outside work, while others would like to know how to play the game of getting money in". This programme works in two ways: the mentees get their questions answered and the mentors become aware of the questions women run into.

» CONTINUATION DIVERSITY AT THE TOP

To measure how successful these interventions are, objectives have been set to appoint a certain number of women per year for top positions. These objectives are not reached by lowering the standards - those are the same for everyone - but are rather reached by, for example, specifically inviting women to apply for a position. Furthermore, it would be quite naïve to think that things will just take their turn. If you would like to get to the top as a woman, you need to make your ambitions known and work on your career. De Jong: "The objectives are going in the right direction, but we are not there yet".

Overall, the UMCG and RuG are working on becoming more diverse organisations and have committed themselves to this task by signing the Charter Talent naar de Top. De Jong: "To get more diverse organisations, we do not only need to pay attention to the women but also to the men and the organisation as a whole".

More information about the initiative "Talent naar de Top" please check the website www.talentnaardetop.nl (in Dutch) or www.rug.nl/medewerkers/voorzieningen/vrouwennaardetop.

For more information about the mentoring programme of the RuG and UMCG please contact Nicole Liefers (N.H.Liefers@umcg.nl) for the UMCG or Delinah Halvorsen-Molen (d.halvorson-molen@rug.nl) for the RuG.

■ RENSKE BOSMAN

Introducing new co-chair

» Dr. Sander Martens



Sander Martens is an assistant professor and director of the EEG and NIRS lab at the Neuroimaging Center of the University Medical Center Groningen. His research focuses on individual differences in temporal attention using behavioural, pupil dilation, and EEG studies. As an undergraduate student of cognitive science at the University of Nijmegen (the Netherlands) he became intrigued by selective attention (the attentional blink phenomenon in particular) during an internship at the MRC-Cognition and Brain Sciences Unit (Cambridge, UK). He obtained his Ph.D. at the University of Leiden (the Netherlands) in 2001, and as a postdoctoral fellow, he continued to work on this topic using MEG at Heinrich-Heine University (Düsseldorf, Germany) and EEG at the University of Groningen. He was awarded VENI and BCN-BRAIN grants for his work on individual differences. Previously, he has been chief editor of "de Psychonoom", the newsletter of the Netherlands Society for Psychonomics (NVP). Together with Deniz Başkent, he will chair the BCN newsletter, and will frequently make photographic contributions.

Interview Prof. H.P.H. (Berry) Kremer

DIRECTOR RESEARCH INSTITUTE BCN-BRAIN - 'RESEARCH INSTITUTE FOR NEUROSCIENCES OF HEALTHY AGEING'



Prof. Berry Kremer, born in the southern province of Limburg, studied medicine in Utrecht and received his PhD from the University of Leiden. Next, he conducted research for two years in Vancouver, Canada, before making his move to the Radboud University of Nijmegen, where he was appointed professor in 1999. In 2010 Berry Kremer moved to the University Medical Center Groningen where he became head of the Department of Neurology and director of the Research Institute BCN-BRAIN - 'Research Institute for Neurosciences of Healthy Ageing'. His main research interest is in hereditary neurodegenerative diseases.

BCN-BRAIN is participating in the multi-faculty Research School BCN. What is the importance of BCN for neuroscience research in Groningen?

BCN is a well-known research school in the Netherlands and abroad. BCN organizes interesting and high quality research masters and PhD programs and the multidisciplinary nature of BCN is an excellent

breeding ground for innovative research. Inside BCN a large number of excellent researchers from five different faculties and a multitude of disciplines are active. By organizing courses and activities BCN offers young researchers the opportunity to get in touch and collaborate with these specialists.

In addition, BCN represents the neuroscience research community for neuroscience researchers in Groningen to get in touch and collaborate with each other. To obtain large national and EU subsidies, it has become increasingly important for individual researchers to organize themselves on a national and international level. With its broad field of expertise and extensive network BCN provides an excellent basis for such collaboration. It is also home to large material and infrastructural investments, such as imaging equipment and facilities - in this way, BCN represent the neuroscience research community in Groningen.

You have been working for some time in Groningen now. What are some remarkable changes that have occurred since you started working here?

Already quite some changes have taken place, but one striking change, which is still going on, is the change of the research organization within the UMCG. Here, the research organization is completely restructured. Research programs become clustered around groups of 5-20 excellent researchers, so-called 'principal investigators' (PIs), and the research performed has to be in line with the research theme of the UMCG, 'Healthy Ageing'.

In line with strategy of the UMCG, BCN-BRAIN aims to focus its research on the understanding of the function of the healthy brain and dysfunction of the nervous system in the context of neurological and psychiatric disorders - the 'Ageing Brain' program. Within BCN-BRAIN 50-60 PI's are active and they have organized themselves into 5 new programs around this central theme. I should specifically say



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'organized themselves', because one of the aims of the restructuring of the organization is that it should be PI-driven, from bottom-up.

Why these changes in the research organization?

Research programs within the UMCG are becoming increasingly important. That's where things happen. In addition to joint work discussions, these teams should aim for joint publications and joint grant applications. BCN-BRAIN sees it as its task to stimulate communication between the researchers of the various programs and between programs and the board of the UMCG and the University. In addition, the 'Ageing Brain' oriented initiatives of individual researchers and/or research programs will be (financially) supported by BCN-BRAIN when they are in line with the strategic goals of BCN-BRAIN.

What other issues are important for the near future?

In addition to collaborations within Groningen, BCN-BRAIN is increasingly focused on strategic research collaboration with the universities of Twente, Wageningen and Nijmegen. For example, the UMCG/BCN-BRAIN, University of Twente and Siemens are closely collaborating in the Center for Medical Imaging (NEN) jointly based at the Universities of Groningen and Twente. BCN-BRAIN also pursues collaborations in other areas of neuroscience research like protein aggregation, biomonitoring and nurse robotics, as well as training and education of research master and PhD students. Researchers from BCN-BRAIN also participate in TI Food & Nutrition (TIFN) in collaboration with the University of Wageningen.

On an international level BCN-BRAIN participates in the U4 initiative, a strategic collaboration between the universities of Groningen,

Ghent, Göttingen and Uppsala. One of the focal themes of this strategic collaboration is 'Ageing Brain'. To boost the 'Ageing Brain' initiative, the boards of the four universities decided last year to finance seven joint PhD positions.



In line with the U4 initiative, BCN-BRAIN, as the coordinating institution, recently submitted an application for the Erasmus Mundus Joint Doctorate program. Within this doctoral training program, called the NEU4EU Network 'Ageing Brain', the universities of Groningen, Copenhagen, Ghent, Göttingen, Lisbon, Uppsala, British Columbia (Vancouver, Canada) and industrial partners Siemens, Danone and KWIC Healthcare collaborate. Initiatives like the NEU4EU Network 'Ageing Brain' constitute the primary added values of the research institute BCN-BRAIN to researchers of BCN-BRAIN and collaborating institutes, faculties and universities.

■ DR. MICHEL HOOVELD

The Research Institute BCN-BRAIN - 'Research Institute for the Neurosciences of Healthy Ageing' was established in its present form in 2005 and is one of the five research institutes of the UMCG. The institute is part of the university-based multidisciplinary/interfaculty Research School Behavioural and Cognitive Neurosciences (BCN).

The mission of BCN-BRAIN is to promote research that is aimed at understanding the function of the healthy brain and dysfunction of the nervous system with reference to neurological and psychiatric disorders. Research carried out by BCN-BRAIN emphasizes translational collaboration between lab-based and hospital-based researchers with integrative aspects (integrating different levels of neuroscience research). BCN-BRAIN's mission also entails educating and training master and PhD students to become independent neuroscience researchers.

'The Ageing Brain' program

In line with the strategy of the UMCG ('Healthy Ageing'), research conducted by BCN-BRAIN is focused on the 'Ageing Brain'. Within the 'Ageing Brain' programme more than 100 neuroscientists with a broad range of expertise (from basic to clinical research fields) are actively performing multidisciplinary and translational research on the normal processes of ageing and the pathophysiological mechanisms of (acute) psychiatric and neurodegenerative disorders.





New book: Cochlear mechanics

INTERVIEW WITH PROF. H. DUIFHUIS

Congratulations on the release of your book Cochlear Mechanics: Introduction to a Time Domain Analysis of the Nonlinear Cochlea. Could you briefly describe which information the book contains?

Thank you. The book contains primarily information about the transmission of sound vibrations to the nervous system. This occurs within the cochlea, which includes the sensory cells, the hair cells. The external acoustic vibrations reach the cochlea through the middle ear. Those vibrations bring the fluid with which the cochlea is filled into motion. The difficulties in cochlear mechanics are primarily problems of linearity and nonlinearity and of fluid mechanics, so it is a lot of physics, which tends to be difficult for people who have insufficient training in mathematics and physics. If you look through the book you will see that it contains many mathematical formulas. The derivations of some parts rely on that. I did not come up with all the mathematics myself. I have used a lot of mathematics from text books from other areas, but I combined it in a way that I think is useful for the readers, for instance, for graduate students who have a background in biophysics or other areas of physics, or mathematics. It is a bit difficult if you come from experimental biology or psychology. Then you need some extra training in mathematics and physics.

Why did you write this book?

I have been interested in this topic for a long time, ever since I came to Groningen around 1980 or a bit earlier. I started my academic career in the early 70's. I graduated in 1969. I did my PhD in 1972 followed by a PostDoctoral year in the US (at MIT). All this was mainly about psychophysics, not so much theoretical modeling, and certainly not cochlear mechanics. Later in the 70's, I became very much interested in certain properties of the cochlea in detail, because it had problems that remained unsolved for a long time. They are still not completely understood; some ideas are converting to solutions, but there are still several questions left. We explain some problems in this book or make good guesses; however there are competitive explanations as well. The book is not yet an end result, I am sure.

Is this book an opportunity to give your view on the field?

I do that in certain chapters. It starts with general chapters but it finishes with results chapters in which I very much focus on views that I consider worthwhile and that I want to stress. It is sort of politely, but I hope I also clearly make a difference with other views.

How long did it take to complete your book?

It took about two and a half years, maybe even three years. In the first year I primarily thought about it and made a couple of notes. Then I thought 'I have a contract and the book must be done in another year', because my contract said I would write it in two years. I certainly could not make that, so I wrote the publisher about it. The publisher was a young lady and she told me it was not a real problem. I think it happens every time, so they are quite used to that. Actually the publisher was reasonably helpful, especially after she had read the introduction. I have to be honest and tell you that the first chapter was primarily written by somebody who graduated with me as master and PhD student: Peter van Hengel. He wanted to cooperate with me on the book, but he dropped out after he had done some initial work. Therefore I had to change the contract. I do acknowledge him in the preface for his work, but he is not a co-author anymore. I think that (1) he wanted to put the emphasis differently in some of the chapters and (2) he did not have so much time. He was going to become an audiologist, so he needed his time. I was an emeritus, so I had more time to spend on writing. Anyway, his name is in there!

Who would you advice to read the book and why? Is there any difference between countries?

I do not think there is much difference country wise. The world of cochlear mechanics is reasonably active all over the world. Maybe a little bit less in Africa, although I have a young friend in Southern Africa. I do not know people from other African countries that are interested in this field. In Southern America the activity is also somewhat limited,

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but there are some people in Chili and Argentina. In the United States, Canada and all over Europe, Russia and Japan there are many people in the cochlear field who could read the book. Their background can be in physics and fluid mechanics. Fluid mechanics is the discipline that studies the flow of fluids on large and small scales. It includes the study of liquid motion in the ear and also acoustic and wind motion in the air. Did you know air is also a fluid in the American language? Altogether the book is meant for people who are interested in otoacoustic emissions and other auditory phenomena such as combination tones. Otoacoustic emissions are sounds generated in the ear spontaneously with or without a stimulus. You can measure them in the ear canal with a very sensitive microphone. You do not necessarily hear the tones yourself. Spontaneous otoacoustic emissions are particularly prominent in young children and they disappear when you get older. People are usually not aware of that, only when they are exceptionally loud. They are usually just 10 to 30 dB above threshold. Normally the environmental noise is already 40 dB above threshold, and then you never hear it.

If we do hear a non-present tone in our ear, is it an otoacoustic emission?

It can be an emission, but is more likely to be tinnitus. People think tinnitus is a different phenomenon, because you cannot measure that in the ear canal. Nevertheless you do hear it, so it may be something that happens in the brain. The book focuses on explanations in the peripheral ear.

Where could interested people buy your book?

It is available in the book store. It is a Springer book and Springer is a common publisher. People can go to Selexyz, at least if they do not go bankrupt. The problem of Selexyz is that people do not buy that many books anymore

Do they read everything on the internet?

Yes. There is also an e-book version of my book. This type of book usually goes primarily to university libraries. Much fewer books go to specialists and graduates students. However, quite some university libraries start to use e-books and do not have the hardcover version anymore. Besides the fact that the community is moving to e-books they also put extra materials which they used to put on CDs or DVDs for a while on the internet. Thus, when you do buy the hardcover book, you can find the extras on the internet at extras.springer.com. These extras were absent at first when the book came out, but I hope it is available now.

Would you like to write another book some day?

I would like to write some other things, because at some point you have to end your book and be practical about that. Still you know you are not done with the topics you write about, so maybe there will be a sequel. It depends a little bit on how well this book will do and the comments that I will get. I know that not everything is 100% correct and I have discovered the first errors already, but that always happens. It is impossible to write an error-free book, but I hope not to discover more errors.

What do you prefer: writing an article or writing a book?

I have mixed feelings about both. This is a sensitive point for me. I believe good review articles are very important, but many recent articles are 'survival articles' for the scientists who write them. They are too short and not much different from previous articles. I think the majority of articles are written to achieve enough publications to keep jobs instead of to improve science. I do not like that, but they cannot survive if they do not do it, so the system is rotten, I would say. Gradually some people are complaining

about it and say that this is not the way we should do it. I am one of them, but I am not sure how successful we will be on the short run. I think on the long run it will change again, but I do not know when. I was brought up with the idea that you write a paper if you have substantial knowledge to present. Otherwise is it not worthwhile publishing. At the moment you cannot survive on that when you are in science. For a book you have more space. You have to be as critical as with an article, I think. The fun of writing a book is that you can combine a lot of things that you think should be combined. The reason that I in particular started with this book is that I have been in too much administration all the time in Groningen. In the first five years I did not do much administration, but then I was in the faculty board and the graduate school. I was one of the founders of BCN and the first director. In 1998 Frans Zwarts came and I went back to physics and became education director for the physics department. Then I got into biomedical engineering and at the end of that I quit, but there was a lot of organization and not so much time to write scientific papers. I had a number of PhD students who graduated and wrote theses. Some of them are mentioned in the book. Sietse van Netten was the first one. He did his master thesis on a topic that is still relevant in this book, but his PhD thesis was on a different topic.

The disadvantage of writing a book is that it takes much longer. You have to do a lot of work and make reference lists for every chapter and I like to make some figures myself. When you want to copy figures from others you have to write them for permission to use them. People may think that the publisher does such work, but nowadays they do not do that anymore. This is cheaper for the publisher, but more work for the author. Even for the lay-out you receive the tools to make it either in Word or in LaTeX and the publisher changes the final version, but before



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that you have done the lay-out already yourself within the framework that they gave you. This is not the case with an article in my experience. Another difference is that you use fewer reviewers for a book. The publisher asked two reviewers whether they should trust me as an author for a book on this topic. I do not know who the reviewers were; I can guess, but we never communicated with each other about the book.

The review process was anonymous, but you know everyone in the field. Therefore you can guess who they were?

Yes, you know almost everyone. I do not know all the younger people. I am getting older and there are quite a few new people entering the field every year. It is hard for me to keep up with that. I am over 65 years of age, so my memory will also go down a bit.

Do you still do other work-related activities?

Well, I go to meetings, once or twice a year. I go to the conferences of the association of research on oOtolaryngology (ARO) and the Working group Auditory System (WAS) day in the Netherlands with some Flemish people and all the Dutch laboratories in the ENT departments and some biophysical groups. I visit the mechanics of hearing conferences every three years. This year, there is the international symposium on hearing. Thus, I still go to conferences and I like to talk to graduate students. I also review papers for journals.

Would you ever like to quit working in this field or do you keep working as long as possible?

As long as my brain keeps me in a state that I can work, I will do it. One of the things that I like about being an emeritus is that you do not have to worry about the organization anymore. I was sort of bored of organizing after more than 25 years, but I was not bored of the interest of young people in science and

my own interest in science itself. Those things will always remain.

Is there anything else you would like to share with the BCN community?

I haven't really been visiting the annual meetings of BCN in the last years, but I kind of plan to go to the next meeting. However, I am also chair of the local sailing club at the Paterswoldsemeer. I have to be careful about not making conflicting appointments. If I can, I will probably come to the annual meeting, but if not I have other priorities and I will be on the lake.

■ DAFNE PIERSMA

Introducing new editors

› Annika Luckmann



I am a first year N-track BCN Research Master student. After finishing my BSc in Psychology, I made the decision to further specialize in the field of Neuroscience. Having read the last issue of the BCN newsletter, I immediately decided to get involved. I am looking forward to writing my first articles and conducting interviews. I hope to gain insight and meet new people in order to get a broader and richer impression of the field and, perhaps, new ideas for my own research and future academic career.

Meet the new BCN members

DR. MARIJE AAN HET ROT: UNRAVELING THE PSYCHOLOGY AND BIOLOGY OF SOCIAL INTERACTIONS



Have you ever wondered why on some days you feel blooming in the morning only to feel blue in the afternoon? Or have you encountered a person who cannot seem to hold a conversation without making sarcastic remarks all the time? Or a person you want to be with because of the positive energy he projects every time you talk to him? These and other related questions about mood and social interactions are what keeps Dr. Marije aan het Rot busy.

Dr. aan het Rot is an Assistant Professor in the Department of Psychology. With a PhD degree in Neuroscience in 2007 from McGill University (Montreal, Canada) and a postdoctoral fellowship in the Mood and Anxiety Disorders Program at the Mount Sinai School of Medicine (New York, USA) until 2009, she has been working in the University of Groningen (RuG) since August 2009 where she studies serotonin and social interactions in the context of psychopathology. She received a VENI award from NWO to study the regulation of social functioning by serotonin in people at risk for depression. She is very curious about the interplay between social and biological factors in determining mood and influencing risk for mood disorders.

In the university website, under your research impression page, it says “for positive social interactions, you need both psychology and biology.” What’s the difference between the two fields?

“I don’t think there is necessarily a difference. You have a lot of people arguing that there is mind on one side and the brain on the other side, but that’s already a philosophical debate. Here in our department, I’m the only one who does experimental manipulations on the biological level, everybody else does cognitive manipulations, which is equally interesting and I learn a lot about that. For example, they let people read a very sad story; how does that influence people’s mood? Or they let people listen to a certain piece of music; how does that influence mood? So those are more psychological experiments, but at some level, I believe, they must get to the biology. Similarly, if I do a biological experiment, I am getting to the psychology because I am eliciting effects on mood.”

In February 2012, aan het Rot formally joined BCN, but she started supervising Kristina Miloserdov, a BCN Master student, before that, together with Marijke Gordijn (Chronobiology).

Who introduced you to BCN?

“I knew several people in BCN (Marijke Gordijn, Mark Nieuwenstein, Deniz Baskent) and I am currently co-advising a Master student on a joint project with Marijke. Also my PhD student Koen Hogenelst is a former BCN Master student.”

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When you joined RuG you did not immediately become a member of BCN?

"No, I did not. I started working in Psychology, but the VENI project I am doing and also some other projects that I would like to do, but with unsuccessful grant applications so far, are very much interdisciplinary. One of them has something to do with light exposure and that is how I got to know Marijke. Then I knew Deniz Baskent through one of my colleagues here in psychology who is her husband. He is working in auditory psychology. Mark Nieuwenstein is involved in the teaching in BCN. He works here in the building and I talked to him about my projects that BCN Master students might be interested in joining. Through them I realized that I should really join BCN."

You like the interdisciplinary nature of the BCN research school?

"Yes, because there's people with all different kinds of backgrounds like engineering, psychology, genetics, physics, and hardcore neuroscience, of course, biochemistry, nutrition, who knows. It makes it more diverse."

What would be your advice to students who are thinking of doing projects in BCN?

"To really find a project that somehow you connect with. One of the reasons I always ask students to write a motivation letter is that it forces them to put into words why they might be interested in working with me. Oftentimes, students, at least the ones here in psychology, get very nervous when I ask them to give a motivation letter and a CV. But it's very helpful because it's an effective way for me to get to know them. They get nervous but they have to make a choice; why choose to do this project and not another project. It's important to look around I think but to also make a decision with something that somehow feels good because you're going to spend a lot of time on it, and if

you're not enthusiastic about the research question, it's going to be hard to pursue it."

What can be improved in BCN, if anything?

"Perhaps I haven't been a member long enough to give a good answer to this question, but on the website I could not find the list of members. I know that individual staff can add their discipline to their staff website. In my case, the default is psychology but I can add other disciplines myself like, for example, neuroscience, and then I suddenly show up in the BCN website. But I have to do it myself. I don't think those in the database of BCN are automatically affiliated on the BCN website. Some people might do this and some don't. I could not readily find in the BCN website who are the members. I personally think that increasing transparency at this level might be helpful to all members (faculty and students)."

Marijke told me about an incident at an international conference. A participant from Canada, Diane Boivin, approached her and asked her if she knew this really good Dutch scientist that Diane had worked with. Marijke said she did not know you at that time but she recalled that incident later when she met you.

"I worked with Diane Boivin during my PhD studies. It is nice to hear this, because when you work with her, she teaches you very strict lab methods. She's very precise and thorough; time is very important, of course, because she does chronobiology studies. I did not do a chronobiology study so for me sometimes it was a little bit like "Do I have to do this? I will lose research participants, and it's not essential". But she told me a lot of valuable things about the importance of time-keeping and being very precise and good about data recording. Things like that. So I had to learn that. And I think that once I learned that, we got along very well. I know she was happy when I left, especially because

the paper got published in a nice journal.

It's nice to hear that I made a good impression on her especially because I know it is difficult to get to that level with her. She sets her standards very high."

You live in Zwolle. Why not closer to Groningen?

"The way it worked is that my husband got an offer to work at the University of Twente. He does work in medical robotics. So if one of us is in Enschede and the other one is in Groningen, then the only place you can be is in the middle, and that is in Zwolle."

How did you meet your husband?

"I was a student in Maastricht. In my last year, I did an internship in McGill, in this group where eventually I did my PhD. My husband was doing his master's at McGill at the time. He worked on space robotics, and then he switched to medical robotics for his PhD."

Tell us about your education prior to your PhD.

"I did my undergraduate degree in Maastricht. It usually takes four years to finish this degree but I did five years because there was one more year of my scholarship. That is why I went to Canada in the fifth year. I did 9 months research in McGill then I had to come back to the Netherlands because I had decided to apply for the PhD program, and that took one year. So I got my degree from Maastricht in 2000 and I started my PhD in 2001. In between, I took courses in psychology in Amsterdam, because I did my research project in the psychology department. I did not study psychology before so I wanted to learn many things specifically about that. I studied Biological Health Sciences; it's like human biology but more focused on nutrition. It was a study on food and the brain."

You were supervising BCN Research Master students before you became a BCN member?

"Yes, Kristina Miloserdov. She's a great student; very

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proactive and excited about her study; and she's very precise. She started her 6-month project officially in January. It's very, very pleasant to work with her. It's a collaboration project with Marijke. Also like I said Koen Hogenelst, my PhD student, is a former BCN Research Master student. I am very happy with him as well."

Let's talk about your research. I am not familiar with psychology so I should ask this question first before we proceed to your research findings so far: how do you define "mood"?

(After about 15 seconds of silence) "I think that is already a very hard question. For me, what I find interesting most about it is how much it may vary, not so much on how it is at the general level but on the variability around the mean that people have. Some people feel the same – whether you call that mood, affect, or emotion, I don't really care – but some people feel the same pretty much all the time, while other people are very much influenced by their environment. I am really interested in what might cause that variability around the mean. Again, I don't really care if you call that mood, or emotion, or feeling."

Can we call it a subjective interpretation of the individual about himself?

"I think it also has something to do with wellbeing. I think I would mostly equate it with that in some way, at least over longer periods of time."

From your 2006 paper, my impression is that tryptophan can make a person less quarrelsome and more agreeable to others. Is this an accurate interpretation of your results?

"Sure. What I like about this study, and, in fact, I still use the method is that when you ask about social interactions, you can ask people to come in to the lab and either do a computer task or interact with one random person. It does not really tell you much

about how most people go about their daily lives. So what I like about the method used in this study is it asks people to keep a 'diary', to simply fill-out forms every time they had a social interaction, and on that form there's a list of behaviors which you might have such as, for example, 'making a sarcastic comment' while you talk with someone else. That would be a good example of a 'quarrelsome behavior'. You can also 'compliment or praise' the other person in the social interaction, and that would be an example of an 'agreeable behavior'. What I like about this is that the very concrete behaviour that a lot of people have all the time depends on who they talk to, whether it's Monday or Friday, and what time of the day, and so forth, they record it in the diary. They fill out forms every time. (Showing the form) So there is a defined number of items in each of the forms, and the forms change from day to day."

This looks to me as a simple task. If I were a subject in your experiment and without any formal background in psychology, I could easily fill out that form.

"So what I like about it is (a) that we use that method and (b) when you read the serotonin literature on behavior you often see links with aggression. However, there's much less information about agreeable behavior, so in my study when I gave people tryptophan not only did it inhibit some sort of undesirable behavior and people made fewer sarcastic comments, but also people effectively became more pleasant towards others, which I think was the most interesting part of the finding."

You selected people who were relatively more hostile or quarrelsome than others?

"Exactly. This was specifically done with a group of people who responded to my ads in the newspaper that said things like 'Do you easily get upset with

others?' or something along those lines. So people came in and said 'Yes I have so many troubles at work because I can't keep my mouth shut, et cetera.'"

Being a non-psychologist myself, I wonder if it is safe to say that eating tryptophan-rich food will make a person less quarrelsome and more agreeable to others.

"Can you give an example of a tryptophan-high food?"

Well, in Wikipedia, there's a list of food items and their tryptophan content.

"This is in line with what people commonly think and in a way it may indeed be correct. However, foods that are high in tryptophan are usually also high in other amino acids. For tryptophan to increase the serotonin levels in the brain, tryptophan has to be high relative to other amino acid levels because they compete for transport into the brain. So if you give a tryptophan pill then of course you are changing the balance in favor of tryptophan so it becomes easier, but if you increase tryptophan by eating a protein-rich food that also has other amino acids then the balance doesn't really change. If anything, when you eat a protein-rich food, because tryptophan is one of the least abundant amino acids in protein-rich food, you usually decrease it a little bit."

So does eating protein makes us more quarrelsome?

"No, because most people eat it with at least a small amount of carbohydrate and it nullifies the effect. There are people who will say that you might be influenced to some degree, but I think this research is mostly based on animal studies, and animals ingest a much larger proportion of their body weight with each meal so of course you can imagine that the effects in the brain will be higher than in humans. At least that's the theoretical idea about it. There is some debate



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about it but I would be the last person to convince people that that is true. And I would be the last person to say that everybody should start taking tryptophan, for example."

In your 2010 paper about the effects of bright light in relation to tryptophan depletion, it seems that bright light can shield a person from the negative effects of tryptophan depletion. First of all, can you describe what tryptophan depletion is and how it occurs in an individual?

"Tryptophan depletion is very much the opposite of what I just told you. If you give people a protein shake, an amino acid mixture, and you specifically leave out tryptophan, then the competition at the level of the brain will not be in favor of tryptophan so there is less tryptophan going into the brain and, temporarily, the serotonin level is known to decrease."

So that's the way you do it in your experiment?

"Yes, we give people an amino acid mixture that lacks tryptophan, or not in the placebo."

Sounds like an easy and straightforward experimental procedure.

"Well, that protein shake does not exactly taste like a McDonald's milk shake and people tend to become full from them, but otherwise, yes it's a relatively simple experiment. That's what I like about the method. That's how I ended up working in McGill because I used this method in Maastricht and I liked it and went to McGill to work with the person who invented the method, and I did my PhD with him."

What comes to mind are protein supplements used by people who, for example, want to build muscles in their body. Do you know the tryptophan component of these supplements?

"Usually they are mixed on the spot. I asked actually

at my gym about that and I even asked what's in the tryptophan bottle, but it's mixed with other things as well. So it's not only tryptophan that people are getting, usually they get a mixture of things. It's not as clean as what we use in our experiment. We get those protein mixtures from the pharmacy; they are specially made at the UMCG."

In relation to the bright light aspect of your study, would you say that people closer to the equator, where light is more abundant, are more sensitive to the emotions of others?

"I don't know if you can generalize it that way, but people who live close to the equator are known to be less sensitive to seasonal affective disorder (SAD). They're less likely to develop winter depression, effectively. If I would continue along that line, their mood is less influenced by the environment, in this case their physical environment in terms of light exposure, but maybe it also means that they are less emotional towards other people. I don't think I can make that claim but the question surprises me because based on the prevalence rate of SAD, it might be easier for me to explain the opposite."

So they are less sensitive to the emotions of others? My understanding of your study is that bright light can suppress the negative effects of tryptophan depletion on recognizing emotions in faces.

"Yes, bright light helps to regulate mood. So if you get more light throughout the year, in some ways your mood is going to be more regular. But it's very hard to make that claim because you have to keep in mind that, for example, temperature also affects mood. High temperatures in tropical areas can affect your mood in terms of increasing irritability and so forth. So temperature plays a role as well. And maybe people in more northern places have developed cognitive ways in dealing with their emotions."

So it is clear that bright light affects mood. Could you explain the biological basis of this effect?

"Marijke Gordijn can better tell you about this. There is a recently discovered photoreceptor (melanopsin) that has nothing to do with vision, but it goes to more emotional pathways, that's my understanding of it. It's also present in other species. The idea is that it helps regulate mood either through serotonin pathways, or by dopamine pathways, or melatonin pathways."

Which is more effective: antidepressants or sunlight?

"When I said that I would not be the first person to recommend tryptophan to everybody, it is because it is related to the fact that tryptophan increases serotonin and you can argue that antidepressants often do it as well. I am the last person to say that all depressed people should start taking antidepressants. However, there certainly is evidence, such as the tryptophan depletion study that I did, that suggests that bright light can help regulate the serotonin system as well. You know that most people these days sit in an office. Well I have a nice window where much light can come in, but I live in Groningen where there's not that much sunlight. You can argue that I may be getting a lot less sunlight than a lot of people in places with better weather. It is also possible that before the industrial revolution people would get a lot more light exposure. You might even argue that maybe depression is now more prevalent because people don't get enough light exposure. In the US, especially in the northern part, and in Canada, there are so many people who go to Florida during winter, that's not without reason. I don't think I can argue that one is better than the other, but I certainly think that getting light exposure for the sake of stimulating your brain is not a bad thing."

"One third of our life involves interaction with other people." What is the basis for this estimate?

Getting light exposure for the sake of stimulating your brain is not a bad thing.

» CONTINUATION INTERVIEW WITH DR. MARIJE AAN HET ROT

"Of course, it's just an estimate. I think I read it somewhere. But I think I can argue that as well. There's 24 hours in a day and I work in 8 of them. I spend a lot of my time at work talking to people. Even if I'm sitting in my office and I don't talk to people, I'm at home or I go to places and I talk to people, so 8 hours is easy to achieve."

Can using Facebook be considered a kind of social interaction? If so, what would be the difference in effect on mood between using Facebook and face-to-face interactions?

"I cannot answer that question right now. Actually, in the diary study that I am doing now, I ask people to distinguish in-person or on-the-phone social interactions, and I want one of the Psychology Master students currently working with me to see if people's behavior and mood during those social interactions are different. I don't think people have really looked at it in that much detail. For people who are participating in this study, they ask the students: what about text messaging, can we use it? For this study, we decided no, because it creates a variable that we cannot control right now. We would have to change the forms and add it. For future study, I would be interested to look at this question. If you can call it an interaction, I would probably argue that the interactions might be very short, and you might be distracted by other things happening as well. Whereas if you are sitting at someone's house and you're having dinner together, for starters the interaction is longer and you're probably much more focused on the person, unless of course you're checking your phone all the time."

Many students use Facebook nowadays, do you think professors should also start using it?

"I have a Facebook account, but I set it such that people, unless they are my direct friends, cannot look at it. I use LinkedIn and people can look at that because

I think that's a professional alternative. For example, in my LinkedIn page I refer to my staff website, and also to BluesClues.nl, which is the Dutch website that is talking about the research that my PhD student is doing."

Would you like to invite students to work with you?

"I honestly think that the projects that I am currently running and one that I am thinking of as well can actually be very interesting especially to BCN students. I think their background will be fairly similar to mine. There are suitable projects to be helping out on and for half a year. In one of the projects that I'm thinking of, I don't think I can actually do it otherwise."

Other things you would like to add?

"One thing that has not come up which I like is that, we've talked about this diary method and I supplement it with laboratory methods of looking at social behaviour because you need the two in order to be able to really say something. In the lab you have a much more controlled environment, so having people do computer tasks and just trying to find ecologically valid ones with respect to social interaction is going to be helpful in terms of finding out what I want to know."

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■ KIM GARGAR

Avril McDonald Memorial Fund and charity dinner, 31.8.2012

In May 2009 the third round of Rosalind Franklin Fellows, newly appointed, were welcomed by the University of Groningen. It was a festive occasion and memorable day. Many women present that day made a lasting impression on me – among them Rosalind Franklin's sister, Jenifer Glynn; her biographer, Brenda Maddox, and her Royal Highness, Princess Maxima. Also present were many fellows, some of them new to the RUG, others who had worked here for longer but whom I hadn't encountered before.

Many of the people I met that day stand out in my memory, and one of them is Avril McDonald, who had just started her appointment as Rosalind Franklin Fellow in the Law Faculty. Avril's specialism was international humanitarian law. Her other specialism was a truly wicked and truly Irish sense of humour. I cannot recall specifically what we talked about, but I remember that a great deal of laughter came into it. Avril had had an interesting and anything but straightforward life, having come to law and academic life after a first career as a journalist. She had many stories to tell, and it seemed clear that she had a long and interesting life ahead of her.

Less than a year later, the shocking news came that Avril had died. On April 15th 2010, at only 44 years of age, she passed away very suddenly and unexpectedly. She left a great void in the lives of her family and friends, and also of her colleagues. We – the other Rosalind Franklin Fellows – decided to set up a fund in her name which would allow a student each year to spend some time at the University of Groningen. This fund, the Avril McDonald Memorial Fund, is managed by the Ubbo Emmius Foundation, and is therefore recognized as an 'algemeen nut beogende instelling' (public benefit institution). This means that your donation is tax deductible.

One of the activities to raise money for this fund is an annual charity dinner on the Friday before the beginning of the Academic Year. This year, the dinner will be held on August 31st, from 6 pm onwards, at the Hanze Societeit. The dinner will be accompanied by music and a charity auction. Tickets are EUR 70,-. To make a reservation, please contact us at this e-mail: benefiet2012@hotmail.com.

Monika S. Schmid, Rosalind Franklin Fellow, English Department

Prof. Marina A.J. de Koning-Tijssen and her exciting research on involuntary movement disorders

When I was around 11, there were times when my eyes uncontrollably blinked fast for a few seconds and my head would nod along with the blinking. My classmates and siblings noticed them and just laughed, possibly wondering what was going on with me. I remember my frustrations for not being able to stop them at will as soon as they began. These episodes spontaneously stopped occurring after about a year. I don't remember anymore how I managed to suppress them, and I still have questions about those experiences until I met Neurology Professor Marina AJ de Koning-Tijssen.

Prof. Tijssen: "What you had was tic disorder. It is common among Asian boys around age 9-12, and they usually go away naturally without any interventions."

Prof. Tijssen is a new addition to the list of BCN PIs. She works with the Neurology Department of the UMCG finding answers to question surrounding hyperkinetic movement disorders. She got her PhD degree (Leiden) in 1997 on hyperekplexia and did a one-year training in London before moving to the Amsterdam Medical Center (AMC).

You've been working for around 10 years in Amsterdam, but is it true that you never became a westerling or an amsterdammer?

(Laughter) "I am a westerling, that's a misunderstanding. I came from the Hague but I did my medical training and also my neurology training in Leiden, which is a bit to the North of the Hague. Then I went for one year training to London, which was excellent, and then I worked for 10 years in Amsterdam, at the AMC. I had a great time, had wonderful patients, and great research, but I never really became an amsterdammer."

What is your idea of an amsterdammer?

"Well, this is quite funny because when I had an interview when I just came to the AMC, they asked me things which you are asking me now. In the end, they asked 'What do you think is most typical of AMC?' I said that is the "Ajax-gevoel". Ajax is the famous football club and what Ajax always feels is that whether they played good or they played bad, they always consider themselves the best. That is really the image of Amsterdam, including the AMC. That's something you really should get used to when you start working there. So over the years, I started to appreciate it a bit because it's something that makes you feel good, and then you're doing good as well. But it never really got into my personality although I learned from that, that you have to present yourself as well. That's very important because it helps you to be visible; it helps you to get funding. I learned from it, but I'm still not a fan of it."



» CONTINUATION INTERVIEW WITH PROF. MARINA A.J. DE KONING-TIJSSEN

› I think it's very refreshing at some point to take out your coat and put on a new coat.

Why did you move to Groningen?

"There are two reasons to come to Groningen. One is they gave me the opportunity to give more time to research. I got more time than in Amsterdam. I think that's the main thing. If you are a clinician, you have clinical work, you see patients, you have research, and you have teaching. In Amsterdam, I did a lot of clinical work besides movement disorder clinics. That took much of my time and limited my possibility to do research. If you do international studies and you're in the clinic all day, you can't go away. I mean I will not go away here in Groningen all the time, but I will have time to think of new projects, to write applications for grants. I just didn't have that time before. I had my clinical work. I had seven PhD students which was a lot. Here, I will have the ability to do my clinical movement disorder work, which I enjoy a lot. It's not that I don't like it, but now I can give more focus on movement disorders and do research."

How many PhD students are you supervising right now?

"I have seven in Amsterdam, three of them will finish this year and the others will take another two or three years to finish. I just started supervising one PhD student here in Groningen. I can't force all those Amsterdam students to come here because there are social side-effects too. Most of them will finish in Amsterdam, so I will just go there once in a while."

How do you manage to supervise all of them?

"That was a big job, and I am always very responsible. All my PhD students up to now have finished their PhD because I think that's important, but yes it took a lot of my time. What I usually do is I have regular meetings. For example, every week or every two weeks I have a meeting with each of them and in between we have exchanges through email, I look at their papers."

When did you become a member of BCN and why did you join?

"Prof. Kremer introduced me to BCN and I started in February 2012. I think what's very good is that you have all the people from the different disciplines involved in brain research together so you can have different influences. I think that's very useful that you just know the people. I think that's a very good structure."

Any advice to students who are thinking of studying in BCN?

"I think that there is a very good website on all sorts of projects that you can do and I think they give very good courses so I would look on the website, which I think is pretty good, and get an insight as to what kind of research you want to do. Do you want to do a bit more clinical, or more basic, or more translational, and see which people are involved in that research. I think that's the way to go. And then try to have a meeting with someone like that. I think it's always very important if you do research with someone with whom you have a good personal contact."

What is the difference between clinical, basic, and translational research?

"In a clinical research, I can imagine that you look at a group of patients and describe the phenotype of those patients, how they look like. Or you do a little research on a medication trial. More basic researches like genetics or imaging. And I think in between is the most interesting, the translational one, where you study certain groups of patients, certain types of basic research that you make, and the translation between basic science and clinical applications. I think that's where the most fun is. For medical students, that depends on which phase of their studies they are. Like what I had in the AMC, I also had students from the psychology department or students from the physics

department then they did more like the basic part while the medical students do the more clinical part, and they could do it together."

What projects can you offer to interested PhD or MD students?

"I thought about that. Basically, I like to look at patients, look at the phenotype, how they look like. I look at dystonia, which is involuntary movements, and I also investigate jerky movements like tics, myoclonus, and also psychogenic movements. I like to look at phenotypes, how we can classify them, and based on that how we can do genetic research. That's one of my research lines. And the other thing is if you have homogeneous groups, can you look at what the background of it is. Can you do imaging or clinical neurophysiology research? What is the background of the involuntary movements? What I also like about it is the area between the involuntary movements and psychiatry. If you have patients with these involuntary movements, they usually also have psychiatric problems. On the other hand, psychiatric patients, if they use medication they usually have dystonia. That's an area I'm really interested in."

"So in those groups I like to look at functional aspects; what causes those involuntary movements. Using fMRI studies with EMG, you look at involuntary movements; what do you see in the brain? I did Spect studies with dopamine and serotonin, and I'm looking forward to doing PET studies because they have a very good PET center here."

"I also like to see if we can treat them and then do we see those functional changes or improvements. There are two studies now going on. One is with physiotherapy with dystonia where we develop a programme on how we can improve dystonia with physiotherapy. We are also doing, and it's

» CONTINUATION INTERVIEW WITH PROF. MARINA A.J. DE KONING-TIJSSSEN

more specific, botulinum toxin studies to improve psychogenic jerking.”

That's a lot of projects to work on. You seem really excited about your research.

“Yes, I am. What I'm thinking about of doing here with these disorders is the development of different phenotypes from early childhood to adulthood in one patient, and I think a very interesting point especially in the healthy ageing thrust here in Groningen is to see if I can do a project to see how functional changes are changing over the years. It will be very interesting in these disorders.”

“But you asked about projects for the students?”
Yes.

“What I would like for students to do is work from the clinical to the genetic side, to look at patients and study the genetic side. That's an area where I would like the help of students. Also on imaging, I think I also need students to work on that side, to look at patients and use imaging to see what's going on.”

How is life in Groningen?

“Good! It's nice. Very friendly. It gives me a feeling that there are many opportunities. If you're working hard and you want something then it's possible. That's the feeling I get. I've met a lot of people in these last two months since I've been here. I have this general feeling that there are possibilities that you can achieve.”

“For example, the MD/PhD project. I think it's a very good way of promoting research and giving students the possibility. If they're good, then there is money to do research. I think it's a very good way of promoting research and giving good students the opportunities that they need. I think this is well organized from the beginning. It gives you a feeling that if you have good

students, good projects, it's likely that you're going to get it.”

Do you think it might be overwhelming at some point?

“That might be, but that won't happen because of my experience, I know what I can handle. I think that's good about making the move, because I found it pretty hard to leave my group behind, it was a whole group of students and other staff members, but I think it's very refreshing at some point to take out your coat and put on a new coat and you bring your experience so that you know what you want. Some of these things I will leave a bit and others I will push forward. I will make my choices and in that area I will do it. If it's too much, I will get other people involved who can do that part. Like with the genetics, just before I left, we found two new genes, and if there are functional studies coming, I will get involved but I won't lead it because it's too complicated for me. Then you can grow without being the leader in everything.”

Do you have any ideas for how to improve BCN?

“I think that's a very difficult question. I'm afraid I don't know much about it yet. I don't know about the structure. I think it's very valuable and important that they also have clinicians in BCN, and not only basic scientists. The head of BCN brain is the head of my department, Prof. Kremers, he is a clinician. I think it's important especially in a hospital that there are also clinicians who are interested in translational research. But perhaps that is already the case.”

■ KIM GARGAR

IMPRESSIONS FROM BCN NEW YEAR'S MEETING

Were the tears shed at Kim Jong-il's funeral sincere from a neuroscience perspective?

As always, the BCN Forum was one of the most spectacular parts of the traditional New Year's Meeting. Students had made every possible effort to formulate difficult questions and many staff members showed up to provide answers. Why, after more than a century, are we still not able to cure Alzheimer's disease? Can all psychiatric disorders be modeled in mice? Do plants have brains or something analogous to it? Can they be trained to show a particular behavior? Why are crows so incredibly smart if they lack a neocortex? Who owns the intellectual property rights of research that was funded with public funds? Why does aging result in memory loss? How can humanity increase its collective wisdom? And why are linguists often not regarded as scientists? Being a linguist myself, I felt immediately great sympathy for Harwintha Anjarningsih, who asked the last question. Unfortunately, I could not answer her, because Bert Otten was ahead of me. To be honest, he did a fantastic job, much better than I would have been able to do. And so did Sjeff Copray, Peter Paul de Deijn, Jaap Koolhaas, Paul Luiten, and Eddy van der Zee. The only one who could not be present was André Aleman. We therefore did not get an answer to the question whether the tears shed at Kim Jong-il's funeral were sincere from the perspective of neuroscience. I insist that this will be our starting point at next year's Forum.

■ PROF. FRANS ZWARTS

Will you be converted to Bayesianism?

Some herald Bayesian Statistics as the new savior, a revolution, a panacea. Others are skeptical. What should we make of this?

I decided to ask Prof. dr. Ernst Wit, professor of Statistics and Probability at the University of Groningen.

Why am I so interested in Bayesian Statistics? Well, In January 2012, I participated in a hands-on fMRI course for first year students in the BCN Research Master. In this course, a lecture was given about the danger of circular reasoning, sometimes called "double dipping". Double dipping occurs when the same data set is used for selection and selective analysis. Due to selection criteria, statistical results appear to be much stronger than they really are. It is like asking thousands of people to predict the weather tomorrow and statistically comparing the predictions of the people that correctly predicted the weather with the rest. Something is obviously wrong here.

But I wondered, isn't this problem more general? Is not most, if not all, reasoning in science circular? For instance, I see cells through a microscope if a microscope enlarges reality (and does not distort it). We assume it does not distort reality if it corroborates with another measure and if that measure is also not distorted. This measure is not distorted if... Well, we can go on until we conclude that a cell exists if a cell exists! It led me to think that if I don't know at least some things for certain a priori, I cannot know anything at all. Is there a way out? According to Dr. Renken, the

main lecturer of the fMRI course, there is. The solution is called: Bayesian Statistics (BStat). It can be used to reason under uncertainty. While no theoretical claim can ever be certain, the probabilities of it being true can be updated by each new experience. It is a way of relating a priori probabilities of data and theory with their probabilities after the results of a new experiment.

Because of this claim to solve extra-statistical, philosophical problems I became interested in BStat. There is something enigmatic about it. There is a totally different aura around it than ordinary statistics. And it's hot. In edition 82 of the BCN newsletter, BCN master student Florian Sense showed how BStat can be applied to meta-analysis. He showed how the claim of social psychologist Daryl Bem that people can predict the future is far less likely when a Bayes factor is applied. Florian claimed that BStat is a way of filtering out pseudo science. Science would not be a scattered mess of research findings, but a neatly woven web of 'Truth'. In fact, in the 14 September 2011 newsletter of the University of Amsterdam, Prof. Dr. Wagenmakers states that there should be a Bayesian revolution in the social sciences. He is currently working on a Bayesian software package that has the look and feel of SPSS, in order to ease the application of BStat. And there are already many practical applications. For instance, did you know that BStat is used by the Internet Movie Database (IMDB) to calculate the 'true' grade of a film, which is used to calculate the position in the top 250 films?

So is BStat the panacea for all the problems in science? Not everyone is as enthusiastic about BStat.



» CONTINUATION 'WILL YOU BE CONVERTED TO BAYESIANISM?'

» *While radical Bayesians or Frequentists still exist, the distinction is becoming less and less important.*

In edition 84 of the BCN newsletter, Dr. Dave Langers argued that, although very useful, BStat faces a few substantial problems. First, because BStat takes the prior probabilities into account, conclusions do not reflect pure observations, but rather preconceptions. Second, because it includes probabilities derived from previous research, it can cause hidden dependencies across studies, which according to Langers "may lead to a fuzzy state of affairs". How can BStat overcome these problems? And is it the grand savior or a mere tool out of thousands? In order to answer these questions I interviewed Prof. Dr. Ernst Wit, professor of Statistics and Probability at the University of Groningen.

The interview proved to be very interesting. We were still stuck at question 1 after about an hour. So let us peak into the career of Prof. Dr. Wit.

Prof. Dr. Wit obtained a degree in Philosophy and Mathematics at the Vrije Universiteit in Amsterdam in 1994. At the time, he was mostly interested in the philosophy of science, so he conducted a Ph.D. in philosophy at the Pennsylvania State University. The subject of this Ph.D. was normative reasoning under uncertainty, including game theory and uncertainty in statistics. After finishing this Ph.D. he was a bit disappointed with philosophy, therefore he decided to do another Ph.D. in Chicago, this time in statistics. Chicago was once the 'hot bed' of BStat. One of his teachers was the famous David Lee Wallace, who showed BStat could be applied to derive the author of papers of which the authorship was disputed.

What was interesting to hear was that when he arrived in Chicago, most of the Bayesians were already retired. They made way for a new badge of statisticians: The Frequentists. These are the guys you are probably familiar with: Fisher, Neyman, Pearson and McCullagh, one of the people behind Generalized Linear Mixed

Models. So even though BStat is currently hot, it is in no way new.

The battle of Bayesians vs. Frequentists was mainly fought in the 60's 70's and 80's. Frequentists would attack the quantities the Bayesians were working with, such as the prior, stating that such prior distribution would introduce a subjective element in science. Nowadays the debate is more refined. Actually, the difference between Frequentist and Bayesian statistics is becoming more and more blurred.

An example of such convergence can be found in methods to analyse fMRI data. Bayesians use the prior to correct for noise in the data. That's why the Bayesian data often look much smoother. While the Maximum Likelihood procedure (Frequentist) often results in lots of little dots, the Bayesian voxels appear more smeared out. But Frequentists can do what Bayesians do by using the Penalized Maximum Likelihood procedure. Here, the penalty is equivalent to the prior in BStat.

So is there an advantage to using BStat? Why is it so hot? According to Prof. Dr. Wit, the increased popularity of BStat has to do with recent developments in Markov Chain Monte Carlo methods (MCMC) in combination with the enormous computational power of modern computers. MCMC methods are sophisticated sampling methods that can approximate a target distribution. While this iterative sampling method would have taken days or weeks to complete in the past, nowadays it can actually be faster than Frequentist methods like the Maximum Likelihood, especially when applied in complex modeling situations. Therefore Bayesians have a clear computational advantage and are able to model more complex and hopefully more realistic situations. But Prof. Dr. Wit agrees with the critique of Dr. Langers that BStat may lead to 'a fuzzy state of affairs'.

However, it depends on the prior that is used. If you have an ignorant, or 'flat' prior, reflecting "no previous knowledge", then the Bayesian posterior view only reflects the Frequentist likelihood landscape. In the case that the prior reflects true knowledge, it would be silly not to use it. For instance, certain parameters may be bound by certain quantities. Priors about generic information can be an example of such priors reflecting true knowledge. For instance, we may not know which parameters are correct, but we know there shouldn't be too many. These structural priors are very useful in modeling.

Biased priors are a big problem however. If there is no good reason to believe that certain parameters should have certain boundaries or different experts come up with different priors, it is highly problematic. In fields of that nature, such as sociology and psychology, where sometimes it is not even clear what counts as a parameter, you should become worried.

Prof. Dr. Wit also attenuates the optimism with which BStat is heralded as meta-analytic tool. BStat is not a magic bullet. BStat will not distinguish between good and bad science. If rubbish goes in, rubbish comes out. And besides, Frequentist meta-analysis can do roughly the same thing.

What can we conclude? First of all, BStat is not new. And while radical Bayesians or Frequentists still exist, the distinction is becoming less and less important. What Bayesians can do, Frequentists can do in pretty much the same way. It depends very much on the nature of the problem at hand, which approach is the most suited: A mix-and-match. Unfortunately, BStat is not a panacea.

■ ROBIN MILLS

› BCN RESEARCH MASTER

A Dream Comes True

It's been about eight months now since I left my oriental motherland and set foot in this beautiful European city. However, sometimes I still feel like living in a dream.

I can remember how I felt during my first few days in the tranquil yet lively Dutch city Groningen. Though the city itself is small enough to be called a town by Chinese standards, everything in the "town" is at least one size bigger than that in China. For example, the huge windows covering almost half of the wall, the more-than-a-meter-high plants reaching out from the gardens, the tall residents that I had to look up to in order to find their smiling faces and so on. All these seemed so amazingly strange that I felt like one of the "little people" walking in a fairy tale.

If there is a "monster" in this fairy tale, it should be the typical oceanic climate here. I had a really hard time getting used to walking or cycling in the strong wind that always comes in front of me no matter what direction I am heading or in the rain that can pour "down" horizontally at any unexpected moment.

As time goes by, amazement in the face of novelty gradually fades away but it doesn't make my normal daily life any less dreamy. On the one hand, Groningen is so ideal for both living and studying that it has become my favorite city among those I have ever lived in. On the other hand, the BCN master programme is exactly what I have been longing for. I always believe it is impossible to solve the puzzle of the human mind without a comprehensive grasp of the interaction of human behavior, thoughts and the underlying activities of the brain. The multidisciplinary education highlighted by the BCN programme provides

me a precious opportunity to broaden my horizons. Although the strange terms in B-track and N-track talks sometimes make me frustrated, I am grateful that I have been given the chance to draw a bigger picture of the field in my mind.

Another benefit from the programme is its emphasis on research. I have been working hard for my minor project for about three months and I have learned a lot more than expected, not only from the progresses but also from the setbacks. Owing to the more than ten different versions of unsuccessful pilot experiments, I am a lot more experienced in programming experiments and more importantly a precise attitude towards research is internalized. Thanks to the EEG labs being really busy in this period, I have had a chance to train my time management skills and also to work and make friends with many researchers from different disciplines.

When it comes to people I know in my dream-like new life, my heart only fills with gratitude. As the only truly international student in C-track (and seemingly the only Asian student in the whole master programme this year), I did feel at a loss right after the welcoming meeting. Fortunately, my fellow C-trackers have been a great source of comfort and support to me even before I could recognize each of them by their names or faces. I would have been late for every lecture in the very first week if no classmate ever showed up to "rescue" me from the maze-like buildings. I would have been much less accustomed to the new school life if the C-trackers did not get along so well that we always chatted in a group for at least half an hour after every lecture. I would have not been so enthusiastic to know



about this country and western life if no one organized the wonderful game night when we played and got to know more about each other's lives outside school.

The city, the programme and the friends in my new life are all too wonderful to be true. If it is not a dream now, it must have been a dream once that has come true after the dreamer walked through her long long journey.

■ YINGYING HAN, C-TRACK, BCN REMA

BCN MATCHMAKING MEETING WITH THE GRADUIERTEN KOLLEG

'Modulation of Neuro-Immune Interactions across Species' of the Universities of Gießen and Marburg



On 18th of April 2012 BCN director Prof. Erik Boddeke and Prof. Ulrich Eisel as organizer welcomed visitors from the University of Gießen and University of Marburg. Under the leadership of Prof. Christiane Herden and Dr. Christoph Rummel both universities plan to set up a so-called 'Graduierten Kolleg' (Training Research Group) on 'Modulation of Neuro-Immune Interactions across Animal Species'. For them BCN with their research themes come as natural partners. For this reason they contacted BCN member Prof. Eisel, a former Gießen University alumnus, to organize a matchmaking meeting. Longstanding research connections of BCN members with several groups from both German universities helped to establish this connection. One presentation was given by the former Groningen BCN PhD student Dr. Amalia Dolga who is now working in the group of Prof. Carsten Cullmsee in Marburg. Areas of interaction between the Graduierten Kolleg and BCN are the establishment of common research and methodological seminars, lab rotations, comparative morphology and neurobiology, common summer schools and student research days. Of high interest to our guests was especially the traditionally high expertise in Groningen on behavioral testing of animals and the field of neuroimmunology.

After a short introduction on BCN given by Prof. Boddeke, Prof. Herden and Dr. Rummel gave a brief overview on the Graduiertenkolleg structure. Lively and interesting discussions between BCN members and guests developed during the scientific presentations given by Christiane Herden (Astrocytic Dysfunction in Inflammatory Epilepsie), Rüdiger Gerstberger (BBB and P-Glycoprotein), Christina Nassenstein (Vagal sensory neurons in allergic Asthma), Christoph Rummel (Age dependent modulation of viral mimetics and interferons in rats), Miriam Bertoune (Rabies and astrocytic dysfunction and innate immune response in mice), Martin Schmidt (Substance P and cytokines in neuropathic pain of dogs) and other topics. We invited researchers from Groningen to match these topics during the event, which was located in Het Paleis. However, other research groups from our university expressing interest are welcome to make contact via Prof. Eisel.

The next day the organizers from Gießen met the BCN staff and Dr. Boddeke to exchange information on the organization of the research school. The German visitors were impressed by helpful comments they received from BCN and expressed their gratitude. It was an interesting event that hopefully generates more future cooperations between BCN and researchers in Gießen and Marburg.

■ PROF. ULRICH EISEL

The first BCN investigator meeting

The first Annual BCN Investigator Meeting took place on 12 April, in Het Paleis, Groningen. All researchers affiliated with BCN were invited. Around 40 researchers from all four faculties participated and there were 9 very interesting talks. There was also a round table discussion with the BCN Board members.

The origin of the idea

The idea for the BCN investigator meeting came up during a visit by some BCN investigators to the Donders Institute, Nijmegen. There we observed that the principal investigators meet each other regularly. As a result, they are aware of each others' research. BCN is an interdisciplinary community with many members. Yet, unlike the BCN PhD retreat where BCN PhD students meet each other, we had no such event for non-student members. As a result, sometimes it is difficult for researchers to know who else is a BCN member, and what other research is going on within BCN. Upon our return, we proposed our idea for organizing such a meeting to the board of BCN, who reacted very positively to the idea and provided the support for the meeting to happen.

What have we learned from the talks?

› Serendipity plays a role in science: Dave Langers (Otorhinolaryngology, UMCG) discovered how the sounds of different frequencies are tonotopically

mapped in the brain while he was researching the connection of the limbic system with tinnitus (ringing in the ear).

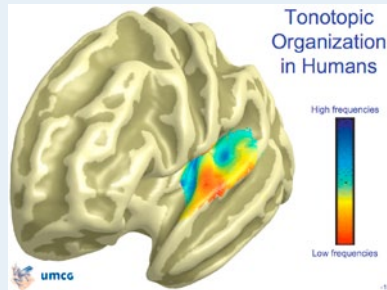
- › Not everything is what it looks like, you need to take a closer look: Charlotte Hemelrijk (Biology, FWN), showed that a behavior by corvids that looked like an example of "theory of mind" could actually be explained by simpler factors, such as stress. Jacob Jolij (Psychology, GMW) showed that our brains can play tricks on us and make us perceive external stimuli differently, depending on our memory, expectation and mood. Marije aan het Rot (Psychology, GMW) pointed out that depression is not simply a brain regulation problem, but is also closely connected with social functioning.
- › It is easy to make fruit flies engage with each other in the lab but not so easy to do the same with humans in sex research: Jean-Christophe Billeter (Biology, FWN), with beautiful videos, showed how the mating behavior of fruit flies can differ with a simple change in hydrocarbon chemical cues. Janniko Georgiadis (Neurosciences, UMCG), without videos, showed how brain activity changes during sexual arousal and orgasm in humans.
- › If you are going to use an idiom, you have to do it right: Laurie Stowe (Neurolinguistics, FL) mentioned that idioms are only useful if they are used in their exact form. Further, when used as an experimental tool, they can reveal effects of aging or disorders on language processing.
- › Complex data can be made accessible through clever visualization: Jos Roerdink (Scientific Visualization and Computer Graphics, FWN) illustrated how data from different imaging modalities can be presented such that novel insights can be gained. Their new 'giant



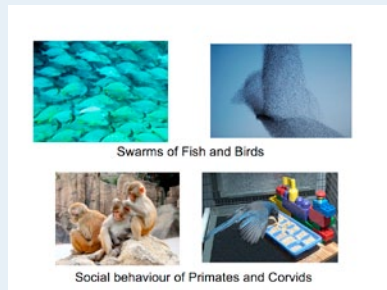
» CONTINUATION 'THE FIRST BCN INVESTIGATOR MEETING'

Relevant literature and representative slides for the talks

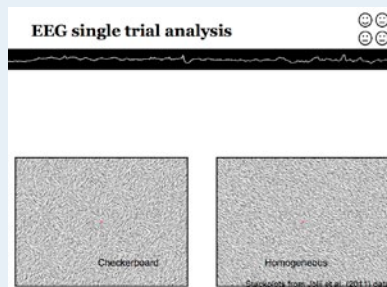
D.R.M. Langers, P. van Dijk, 2011. Mapping the tonotopic organization in human auditory cortex with minimally salient acoustic stimulation. *Cerebral Cortex* 2011. <http://dx.doi.org/10.1093/cercor/bhr282>



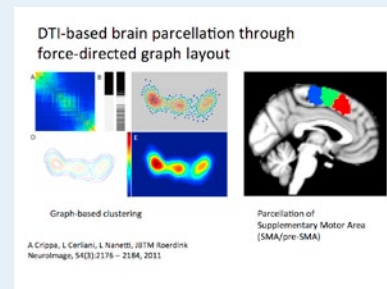
Hemelrijk CK, Hildenbrandt H, 2011. Some causes of the variable shape of flocks of birds. *PLoS One* 6(8): e22479. doi:10.1371/journal.pone.0022479



Jolij J, Meurs M, 2011. Music alters visual perception. *PLoS One* 6(4):e18861.



A Crippa, L Cerliani, L Nanetti, JBTM Roerdink, 2011. Heuristics for connectivity-based brain parcellation of SMA/pre-SMA through force-directed graph layout. *NeuroImage*, 54(3):2176 – 2184.



'iPhone' now allows users to interact with your data 'up close and personal'.
 » Even seemingly well-functioning brain and limbs can yield a paresis: Marije van Beilen (Neurology, UMCG) made a case for her idea that medically unexplained symptoms may actually have a correlate in the brain.

What have we learned from the round table discussion?

BCN Board members Erik Boddeke, Domien Beersma, Berry Kremer, and Ben Maassen answered questions from BCN members in a round-table discussion. Some of the topics involved the potential benefits of BCN membership, and how interfaculty/interdisciplinary collaborations could be encouraged.

As for BCN membership, only in the BCN-BRAIN subsection (UMCG) is there a structured benefit package, but only for those who are officially recognized as a PI by the new UMCG rules. These benefits include the departments' receiving funding in proportion to the number of PIs that they have or for the PIs themselves, the right to supervise MD/PhD students. For other faculties, the benefits are mostly in having a well-structured PhD and master programme where the students benefit from many useful courses offered, having a network of scientists with similar interests, and the opportunity to participate in events such as this meeting or regularly organized symposia.

BCN currently accepts any researcher who wants to become a member as a member, and it was decided that we would like to keep the community open to everyone by continuing with this practice.

As for interdisciplinary collaborations, it was decided that opportunities to bring the PIs together, such as through meetings like this or using the BCN newsletter, would be useful. The benefit of these collaborations is

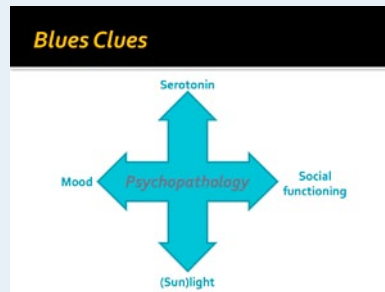
All presenters obviously loved their work. And the listeners enjoyed the talks, as was obvious from the vivid discussions. I greatly enjoyed the broad scope of behavioral and cognitive neuroscience, as displayed today.

Prof. Pim van Dijk
 Otorhinolaryngology, UMCG
 Faculty of Medical Sciences (FMW)

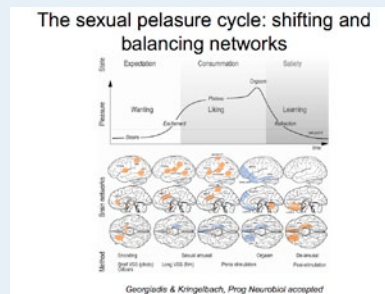


» CONTINUATION 'THE FIRST BCN INVESTIGATOR MEETING'

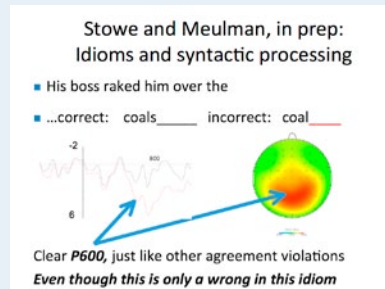
aan het Rot M, Benkelfat C, Boivin DB, Young SN, 2008. Bright light exposure during acute tryptophan depletion prevents a lowering of mood in mildly seasonal women. Eur Neuropsychopharmacol.



Georgiadis et al., 2010. Dynamic subcortical activity during male sexual activity with ecological validity: a perfusion fMRI study. Neuroimage.



M-Z Zemleni, M Haverkort, R Renken, LA Stowe, 2007. Evidence for bilateral involvement in idiom comprehension: An fMRI study. NeuroImage, 34, 1280–1291.



van Beilen M, de Jong BM, Gieteling EW, Renken R, Leenders KL. Abnormal parietal function in conversion paresis, 2011. PLoS One 6(10):e25918. Epub 2011 Oct 24.

Brain = Behavior = Body

- Medically Unexplained Symptoms can be explained and manipulated via cerebral functioning
- Psychopathology may be partly result of 'being unexplained'.

not only in using each other's expertise for conducting good research, but also with today's grant applications, these collaborations bring a distinct advantage.

In short, BCN is a community of scientists who have similar interests and who also want to thrive within a group of scientists. To keep it alive, we each have to put in some effort.

What have we learned from the meeting?

- › BCN investigators do enjoy meeting each other and learning about different types of research within the research school.
- › Long pauses between talks are useful for attendees to have the chance to speak with each other.
- › The meeting format with many short talks and the ample breaks allowed people to get to know each other('s research interests) quickly, resulting in new contacts being made and new research ideas being produced.
- › It should definitely be repeated!

Save the date

We have already planned the next year's meeting: Save the date for 14 March 2013!

- PROF. DENIZ BAŞKENT
- PROF. NATASHA MAURITS

When I biked to the Kasteel at the Boterdiep I wasn't quite sure what to expect. PI meetings can be disastrous with a mishmash of talks that nobody understand, or they can be thought-provoking experiences with lots of discussion. Thankfully, it turned out to be the latter. With a small but enthusiastic group we listened to talks ranging from models of bird flock formations to courtship behavior in fruitflies. We learned about how PCA was instrumental in uncovering tonotopic maps in fMRI in humans (I did not know that was such a recent discovery!) in the talk by Dave Langers. We watched beautiful movies and animations of bird flocks and fish flocks in a talk by Charlotte Hemelrijk. We ended up having an interesting discussion about how the same models could potentially be used to describe dynamics of flocks of cyclists. Given some traumatic experiences in a course in molecular and cell biology during my PhD, I had never thought that a talk about fruit fly genetics could be interesting. But Jean-Christoph Billeter talked about how males start to mate males when simply one molecule is missing from the display of a fruit fly, and how this behavior can be reversed by spraying this molecule onto it. In the last talk before a delicious lunch, Jacob Jolij told us about how he tries to visualize people's emotional states by looking at the patterns of facial expressions they see in noise. For me, as a fairly new faculty in BCN, this was a good opportunity to get to know some interesting new science, hang out with old friends and meet new ones.

Dr. Marieke van Vught
Artificial Intelligence
Faculty of Mathematics and Natural Sciences (FWN)



GRONINGEN – OLDENBURG SEMINAR

Auditory science without borders

The University of Oldenburg, Germany is just across the border from our university, and only a short drive of 1.5 hours (thanks to the fast German autobahns). The close proximity is an advantage for Groningen researchers who are interested in international collaborations.

Prof. Pim van Dijk and Prof. Deniz Başkent, both from the ENT Department of the UMCG, recently organized a joint Groningen-Oldenburg seminar in collaboration with Prof. Birger Kollmeier from the Physics Department of the University of Oldenburg. The purpose was for hearing researchers from both sides to meet with each other and to learn about research that is conducted on either side of the Netherlands-Germany border. The meeting was also a continuation of the International Graduate School of Neurosensory Science,

Systems and Applications (InterGK, 2002-2010) that established a long-standing successful collaboration between our universities. Prof. van Dijk and Prof. Kollmeier introduced the structure of hearing-perception related research in their universities. Following this, other researchers from the ENT and Artificial Intelligence Departments and the Neuroimaging Center of the RUG gave presentations on a wide range of topics, including speech perception, auditory cognition, biophysics of hearing, real-life

listening environments, animal models of hearing, cochlear implants and hearing aids. A highlight of the day were the student presentations. The students each had only 5 minutes to introduce a poster about their work and they all managed to do the impossible task of summarizing years-worth of work in those few minutes. The Groningen-Oldenburg seminar turned out to be a very interactive meeting that highlighted vital opportunities for collaboration between our universities. A follow-up seminar is being organized and the researchers have already started working on a number of collaborative projects.

- PROF. DENIZ BAŞKENT
- PROF. PIM VAN DIJK

For more information on auditory research in Groningen:

<http://www.rug.nl/umcg/faculteit/disciplinegroepen/kno/audiology/index>
http://dbaskent.org/DB_SPL/People.html
<http://www.rug.nl/staff/p.van.dijk/research>
<http://www.ai.rug.nl/~tjeerd/interests.html>
<http://research.ai.rug.nl/index.php/lsc-group/projects>

Auditory research in Oldenburg:

<http://medi.uni-oldenburg.de/44747.html>
<http://www.hoertech.de>



International Symposium on PET and SPECT in Neurology and Psychiatry

A very unique symposium, held from April 23rd to 25th, attracted many researchers from all over the world and made Groningen the capital of PET and SPECT for these three days. The target audience consisted of neurologists and psychiatrists, as well as experts from other related fields, with the purpose of stimulating a multidisciplinary atmosphere to provide the guests new insights to the field.

Positron emission tomography (PET) images metabolic activity through the injection of an analogue of glucose, namely Fluorodeoxyglucose (FDG). This technique is widely used, for instance, in tumor research. Single-photon emission computer tomography (SPECT) on the other hand works through the injection of radio isotopes. This technique provides 3D information by means of gamma rays.

The location of the symposium was the UMCG. At the Fountain patio the poster sessions took place while the presentations were given in the 'Rode Zaal'. Due to the fact that only one speaker was presenting at a time, the lecture hall was well-attended throughout the symposium. Next to the president of the symposium, Prof. Dierckx, who is the head of the Nuclear Medicine and Molecular Imaging of the UMCG, a number of BCN affiliated researchers took part in the organizing and scientific committees.

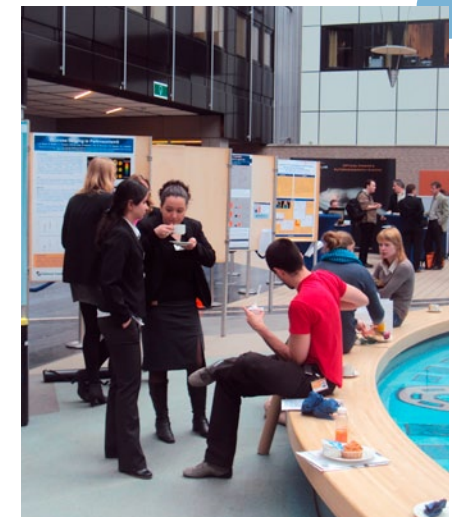
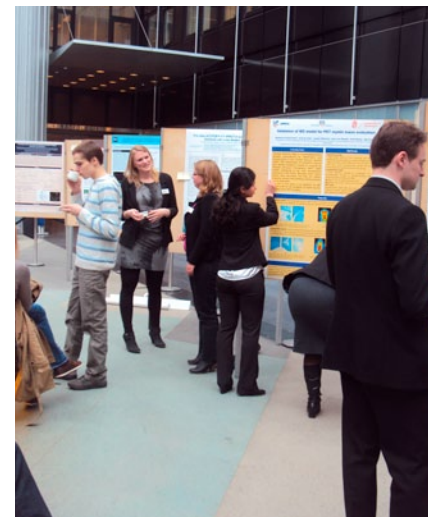
There were 13 sessions in total, each hosted by two chairpersons from the UMCG with expert knowledge about the topic in question. As the people in the audience came from a variety of backgrounds, such as psychiatry, neurobiology, nuclear medicine and medicine, the organizers of the symposium were successful in covering each branch's interests.

Specifically, the ways SPECT and PET can be used in psychiatric disorders, like eating-disorders and schizophrenia, were highlighted. Furthermore, techniques and modeling, as well as imaging of different neurotransmitters and receptors were discussed.

Next to the experts of the fields mentioned above, a few BCN students were given the opportunity to attend the symposium. By this, it was possible to gather new insights about current topics and state of the art research outside the lecture hall.

Overall the three days were a rich experience and we hope that Groningen could become a regular host for experts in this important field of research.

- RICCARDA PETERS
- ANNIKA LUCKMANN



'Als onderzoek je zorg is...'

SYMPOSIUM TO MARK THE RETIREMENT OF PROFESSOR RUUD MINDERAA

Recently, the University Center Child and Adolescent Psychiatry (UCKJP) organized a symposium to mark the retire-

ment of Professor Ruud Minderaa. With his retirement, one of the founders of modern child and adolescent psychiatry in the Netherlands says farewell. In honour of his exceptional efforts in the field of Child and Adolescent Psychiatry, he received a royal award.

Both in his role as doctor/psychiatrist as well as researcher, Ruud Minderaa has had a significant impact on thinking about autism spectrum disorders. He was one of the first psychiatrists in the Netherlands who saw the need for behavioral interventions in child psychiatry. His scientific interest was focused on the biological aspects of developmental and behavioral disorders and information processing in children with developmental disabilities. The importance of the role of parents, both in diagnosis and in treatment, was always central to the work of Ruud Minderaa.

Ruud Minderaa's studies have become lines of research that are meaningful within the national and international field of child and adolescent psychiatry.

However, Ruud's interest went beyond research alone. He always tried to connect research, education and care, and in this way he inspired many of his colleagues.

He was instrumental in the creation of the Dutch Knowledge Centre for Child and Adolescent Psychiatry, which is now one of the major institutions in the field of child and adolescent psychiatry in the Netherlands. The aim of this centre is to make knowledge available for young patients, parents and professionals.

Large numbers of medical, psychology and pedagogy students and countless children, youngsters and parents will continue to admire Ruud as an inspiring teacher and an experienced and committed psychiatrist.

Professor Minderaa studied medicine and was trained as psychiatrist in Rotterdam. After a brief stay in the United States, he joined the University of Groningen in 1987, first appointed as Associate Professor and later as Professor at the Department of Child and Juvenile Psychiatry. In 1988 he was appointed Professor of Biological Child and Adolescent Psychiatry and in 1993 full Professor of General Child and Adolescent Psychiatry. He was a tutor and Professor/Medical Director of the UCKJP (later part of Accare). After the merger in 2001, he became a member of the board of Accare, which is the specialist in child and adolescent psychiatry in the Northern Netherlands.

■ RICCARDA PETERS

■ DR. MICHEL HOOIVELD



You Think You Know How to Be a PhD? Come and Try the BCN retreat!

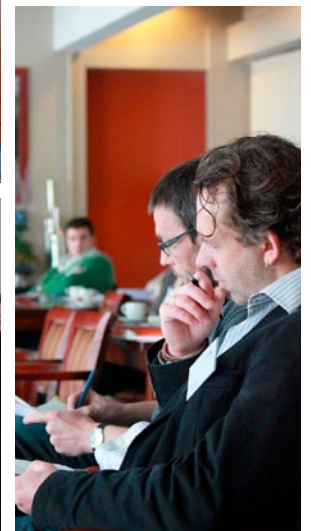
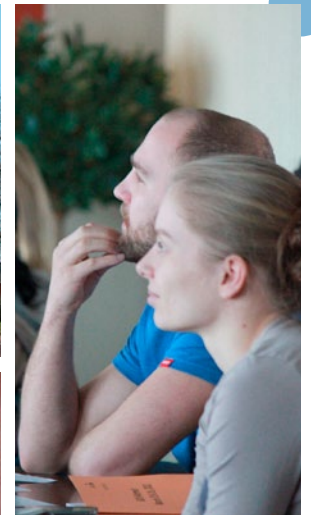
After half a year of PhD life, there are still some questions about being a qualified PhD student lingering in my mind. No.1 While composing the literature review, at which point should we stop reading and summarize? No. 2 If we hear no reply from a prestigious scholar in our field, what should we do next?...During the speed dating session, I found that many other PhD students, regardless of their background, have similar questions. Our discussions ranged from how to keep a close relationship with our busy supervisors to how to make our plan more practical, etc. Suggestions, such as writing two hundred words each day, rain or shine, or establishing a shared google doc with our supervisors, are all practical and feasible. Experiences handed down from senior PhD students enlightened the day. It's hard to imagine a better chance to pour down your concerns and solve them in such an effective way.

To be honest, it is not easy to understand protein synthesis and test-tube babies from my linguistic perspective. However, presentations from other disciplines inspired me in terms of experiment design, analysis approach and presentation skills. It was also exciting to find a different perspective on the same issues we were dealing with, like seeing a familiar world from a kaleidoscope. These two days, were exhausting but fruitful: groups of new friends, sparks ignited by various talks, funny moves and big laughs while bowling, a nice trip to the woods....all made for a sweet experience.

■ HE SUN (SABRINA)

As a PhD student from clinical psychology, I really enjoyed the BCN retreat. It was a good balance between intellectual content and relaxation. There was plenty of chance to get to know other PhD students. My project focuses both on environmental/psychological factors and biological factors related to depression. Because I am situated in the psychology department, we usually talk about abstract psychological constructs such as mood, attention, cognition. Therefore it was really refreshing to discuss the neurobiology of psychiatric diseases with fellow BCN members. You think you know all about your subject, but then you talk to someone with more specialized knowledge about a certain part of your project or with someone who has a different view/perspective on the matter, it can be really informative. Especially for those PhD students whose projects are so-called interdisciplinary, BCN is a great research school. In addition, it was interesting to experience the subtle differences between the beta type research and analysis performed by most BCN members and the gamma type of research generally performed in psychology. I will definitely join next time!

■ KOEN HOGENELST



» CONTINUATION 'BCN RETREAT'



According to my high school dictionary the noun retreat indicates the act of withdrawing from something extremely arousing, something risky and difficult to manage. A second definition even states that a retreat is a place of quietness, security and peace (holiday - vakantieverblijf). However, the BCN interpretation of retreat did not meet my expectations based on these determinations in many ways. Whereas hotel de Oringer Marke and Odoorn itself seemed perfectly suitable for the quietest two days I would ever had, I instead spent my time speed dating myself into an incredible dry mouth and throwing myself an RSI arm on the bowling alley. A quick heartbeat, sweat and anxiety kicked in on Friday morning before my presentation. So, in regard to this my new definition of a retreat would be slightly different than my high school dictionary's. Nevertheless, the valuable constructive feedback, the new ideas and new contacts will contribute to my PhD project in such a way that it will be less stressful, less risky, and a lot easier to manage. So maybe my dictionary was not wrong after all...

■ SANNE BERENDS

As PhD students, we are mostly completely immersed in our own research topic, focussing on the tiniest possible aspects within our field of study. The invitation to spend 2 days in Odoorn, away from our study of the tiny details, may well have come at an inconvenient time for most of us. And to make the event challenging enough, the BCN kindly asks the presenters of the retreat to explain their entire project within 15 minutes to a group of scientists, the majority of whom are not familiar with the specific topic at all. Initially, the entire outing felt like an unnecessary torture to me with the layman's talk as an impossible task and maybe even a waste of time.

Well, nothing could be further from the truth! Who knew that a combination of speed-dating, forest walks, and a bunch of scientific talks is exactly what brings us further in our research. It sometimes helps to talk to a colleague from the same field about the precious details of your study, but it can sometimes be even more helpful to talk to a scientist from a completely different field about the general purpose and the big picture that made us start our project in the first place. The beauty of BCN lies within its diversity of disciplines and this is exactly what we, the PhD students, should make full use of. In all honesty, BCN's beauty is sometimes in danger of becoming its pitfall. As a linguist, for example, I do not have a particular interest in microglia and the non-linguists of BCN typically stop listening when we talk about morphemes or suffixes. I will not pretend that these kinds of situations did not happen a couple of times during the last retreat, but with the very useful comments and constructive criticism of the scientists who gave feedback to the presenters, we have all learned to look at our project from a more global scientific perspective. The BCN retreat thus challenges us to bridge the gap between the various researchers within different fields and to practice thinking like our target audience. And that is a skill that, especially in the world of research, should never be overestimated.

■ HANNEKE LOERTS

Introducing the Buddy system to the BCN PhD students

Each year, a large number of new PhD students start their project within our research school. Some of them are not familiar with the RuG/UMCG. Therefore, it is important for them to have someone who is accessible for practical questions, and will help establish social integration in the PhD community and their faculty. For that purpose BCN has recently introduced the buddy system, in which new PhD students (the buddies) are paired with senior PhD students (the mentors). The new students can choose between a personalized one-to-one buddy system, where one buddy is paired with one mentor, or they can decide on being part of a mentor group, where a senior PhD student is paired with multiple buddies. In either format, the buddies and their mentors meet in informal settings and can discuss various academic and social topics that concern them. These topics can vary from discussing the impact factors of research journals to finding out which is the best spot in Groningen to hangout with friends, colleagues or frolleagues. BCN puts interested PhD students in contact with each other and the buddy-mentor pairs decide the details of their relationship themselves, depending on their needs and available time.

Since the buddy system is fairly new to BCN we interviewed two PhD students in the faculty of Economics and Business, where this system is functional and running successfully. In this faculty new students are matched with experienced PhD students with a similar background who work at the same research programme. Meet Addisu Lashitew and Silke Bumann and find out about their experience with the buddy system. Of course, we hope that their experience will convince you to be a PhD-mentor for one of the new PhD-students.

› 1st Interview

Can you introduce yourself shortly?

My name is Addisu Lashitew. I come from Ethiopia and I am a PhD student in the Faculty of Economics and Business. My PhD project is about productivity and resource allocation among developing country manufacturing firms. I am already into the fourth year of my PhD so I have lived in Groningen for more than 3 years now. In the first year of my PhD, I was assigned to a 'mentor' who was a senior PhD student in my department. She helped me with some

practical matters, like where to go and what to do when you want to get something fixed. That was a lot of help. Just as I had a mentor in the beginning of my project, I also became a mentor for two PhD students in the academic years since then.

How did you find out about the buddy system?

By the time I joined the university the buddy system was already in place. But I learned about it only once I came here. So I came to know about it only when I was assigned a mentor.

Why did you decide to become a mentor?

I was approached by our research school if I could be a mentor to new coming students, and I agreed because I was glad to help them adapt here.

How many buddies do you have?

Overall, I was a mentor for two new students - once during my 2nd year and another time during the 3rd year of my study. I was not assigned a buddy this year because I was not around when the academic year started.

When and how was the first contact with your buddy/buddies?

Both times I became a mentor our research school SOM asked if I could become a mentor for the students. I assume they matched me with the students based on our interests and background. Once I consented, they gave me their contact address, including telephone and office number. After that I contacted them directly. But this can also be handled differently as in the case of my friend who was directly introduced to his buddy by the research school coordinator.

How often do you meet?

There is not really a clear-cut rule on how often we meet. It also depends on how the relationship evolves. In my case I became good friends with my buddies both times. So we often met for coffee or lunch in the canteen, a couple of times per week on average. And I know of a friend who was assigned to a buddy

when he was in his first year, and they meet every Wednesday afternoon for years now! So how regularly you meet presumably depends on the habits of both buddies.

What do you discuss?

Functionally speaking the buddy system is meant to help new students deal with practical matters. When you are new to the system in general, it often happens that you lack basic information that is very much necessary. So your buddy will serve as a point of reference where you can often go and ask all those silly but useful questions. But again, the longer you know your buddy the more close you become. You are working in the same department, you attend the same seminars, your research areas perhaps overlap, and you are to some extent new to the environment, so there will be much to discuss. In the initial days, the conversations could probably be such that the new student asks and the mentor explains. As the new student gets familiar, the themes of the discussions surely change.

Is the nature of the contact strictly related to the PhD or is there also a social side to it?

That really depends on the situation. In the case of my first buddy, he was from the same country I come from. So it was easier for us to talk or meet for a drink. When I became a mentor for a second time, my buddy was from Indonesia. I soon realized that he already had many contacts with students from his own country. In any case, I offered to show him

» CONTINUATION 'INTRODUCING THE BUDDY SYSTEM TO THE BCN PHD STUDENTS'

around the city in case he needed it. Then I understood that he is already pretty familiar with the town and he did not need my help. Do you think being a mentor is a lot of work? Not really. In the first place I myself was helped by a mentor when I was new, so I was glad to help others this time around. Besides, a talk with a buddy is a good excuse to leave your computer and have a good cup of coffee! At least in my case, being a mentor was not at all demanding.

Do you think that your help may have made the life of a new PhD student slightly easier?

That very much depends on the level of connections the new student has. Often times, new students have many questions, but it is only sometimes they have many friends to ask. In case the new student does not have a lot

of connections in the work place, the buddy system can be very helpful.

What are your good (and bad) experiences?

Personally, I do not have any particular experiences to speak of. One thing to be careful while matching buddies is about their experience with the system. If you match a 2nd year PhD student from outside the Netherlands as a mentor of a new Dutch student, it can be the case that the new student will show around his senior buddy.

» 2nd Interview

Can you introduce yourself shortly?

I am Silke, a second-year PhD student in Economics. My origin is German and I have been in Groningen since September 2010.

Before my arrival at the faculty, I was informed by the graduate school that I was assigned a mentor who would take care of me throughout the first months, helping me to find my way in the new environment. After my own experience, I also became a mentor to new PhD students.

How did you find out about the buddy system?

I found out about the buddy system through my own experience in the first year (when I had a mentor).

Why did you decide to become a mentor?

I decided to become a mentor since I think the buddy system is a very valuable initiative. Mentors can help new PhD students in many day-to-day situations, provide guidance with respect to organizational issues and offer advice. In addition, mentors are the first contact with new colleagues apart from the graduate school.

How many buddies do you have?

Currently I am the buddy of a student from Tanzania. It is my first experience with being a mentor of a new PhD student.

When and how was the first contact with your buddy/buddies?

I met my buddy in our faculty on her first day. But before, I was asked by the graduate school whether I was interested in acting as a mentor.

How often do you meet and what do you discuss?

By coincidence, we share the same office. So, I meet her on a regular basis. We talk about

practical issues, such as borrowing a book from the library, and about issues related to our PhD programme, such as the preparation of our research proposal.

Is the nature of the contact strictly related to the PhD or is there also a social side to it?

Of course, there also is a social side to it. It is always interesting to talk with people from other countries.

How long do you keep the contact with your buddy?

In principle, I think, there is no limitation to the duration. After a certain amount of time, practical issues may become less relevant since the PhD becomes familiar with the facilities/organization of university him/herself. However, concerning research, there is always something you can talk about.

Do you think being a mentor is a lot of work?

No, it does not require a lot of preparation or work. I can benefit from my knowledge of the facilities and organization of the university. If you want to show the library, etc. you should reserve some time. But this can be arranged with the new PhD by yourself.

Do you think that your help may have made the life of a new PhD student slightly easier?

Yes, I think so because new PhD students know immediately whom they can contact and ask questions. It offers them a smooth entry into a new environment.

■ PHD COUNCIL



> PHD AND OTHER NEWS

BCN Orientation 2012: start September 7, 2012

The 2012 Orientation course will start on September 7. Other course dates are: September 21, October 5, and 19, November 9 and 23, 2012.

If you would like to participate, please send an email to d.h.koopmans@umcg.nl

Save the date: Friday November 2, 2012!!!!

On this date we will celebrate the 25th anniversary of BCN!! On November 2, BCN will organize a symposium and a party. Be sure that you will not miss this event!!

Change to no-show policy

Cancelling participation in BCN courses implies a lowering of financial support for conferences by 200 euro when courses are cancelled less than 2 weeks before the starting date of the course. Please inform BCN immediately if you are unable to attend the course you applied for.

Training-program-registration-form

In July you will receive the training-programme-registration-form. On this form you will find the information that we have registered for you in our system. Please have a good look at the contents and complete the list with your training activities until then. Send the corrections and additions to Janine:

janine.wieringa@umcg.nl

Description of your PhD projects on the website

We would like to have a description of the PhD projects of all our PhD students on our website, but there are still a few missing.

You can help us to complete the overview; if your description is missing please send it to Evelyn: e.t.kuiper-drenth@umcg.nl

PhD student card

BCN can help you to get your PhD card. This card can be used as proof that you are a PhD student, and will sometimes give you discounts at conferences. In order to apply for this card, we need your P-number and a passport photograph. Please bring this to our office if you are interested in this card.

Agenda BCN Activities

June 20, 2012:

start of the BCN Statistics Course

September 7, 2012:

start of the BCN Orientation Course

November 2, 2012:

BCN celebrates its 25th birthday!

Check the website for detailed information.

■ DIANA KOOPMANS

REPORTED SIGHTINGS OF PROF. _____ IN THE LAB

PLEASE POST THIS ON YOUR LAB/OFFICE. AUTHORITIES NEED YOUR HELP TO ENSURE ACCURATE MONITORING OF LOOSE FACULTY IN THE EVENT OF THEIR ESCAPE FROM CAPTIVE SITUATIONS.

REASON	SIGHTINGS
GIVING A TOUR	✓✓✓✓✓✓✓✓✓✓✓✓
GOT LOST TRYING TO FIND THE CONFERENCE ROOM	✓✓
LOOKING FOR GOLDEN BOY/GIRL	✓✓✓
WANDERING THE HALLS TO AVOID WORKING ON A GRANT PROPOSAL	✓✓✓✓✓
ACTUAL LAB WORK	
STOPPED BY TO TELL EVERYONE ABOUT THEIR RECENT VACATION	✓✓✓

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> ORATIONS

Orkestratie van de prenatale zorg

ORATIE

C.M. Bilardo

TITEL

Orkestratie van de prenatale zorg

LEEROPDRACHT

Foeto-maternale geneeskunde, i.h.b. de prenatale diagnostiek en therapie

14 februari 2012

In haar oratie bespreekt prof.dr. Katia Bilardo het relatief nieuwe vakgebied – tevens haar leeropdracht – foetale geneeskunde. Deze discipline is ontstaan met de komst van de echoscopie in de verloskunde, waardoor het mogelijk werd toegang te verkrijgen tot de baby in de baarmoeder. Voeg daarbij de snelle ontwikkelingen in de genetica en het wordt duidelijk dat momenteel heel veel van de stoornissen in de ontwikkeling van de ongeborene tijdens de zwangerschap zijn vast te stellen. Dit betreft niet alleen aangeboren afwijkingen, maar ook bepaalde zwangerschapsaandoeningen zoals hoge bloeddruk en zwangerschapsvergiftiging, die al vroeg in de zwangerschap kunnen worden voorspeld, waarna preventieve behandeling kan worden ingesteld.

Het mag duidelijk zijn dat zwangere vrouwen door deze ontwikkelingen vroeg in de zwangerschap steeds meer informatie zullen krijgen. Daarbij moeten zij zelf de keuze maken van welke onderzoeken zij gebruik willen maken. Goede 'counseling' is een eerste vereiste.

Daarnaast vereist vroege diagnostiek van aangeboren afwijkingen een intensieve samenwerking tussen een breed scala aan specialisten die betrokken zijn bij de prognose en behandelopties voor deze kinderen en zorgdragen voor opvang en begeleiding na de geboorte. Samenwerking in de gehele noordelijke regio is daarbij van groot belang.

Deze intensieve samenwerking tussen vele disciplines kan gezien worden als een orkest dat zich op een belangrijke première voorbereidt. Harmonieuze samenwerking in Noordoost-Nederland moet tot een perfecte uitvoering gaan leiden. Daarmee worden unieke kansen gecreëerd voor een kwalitatief hoogwaardige patiëntenzorg en voor topwetenschappelijk onderzoek.

■ **EVELYN KUIPER-DRENTH, OP BASIS VAN PERSBERICHTEN VAN DE RIJKSUNIVERSITEIT GRONINGEN**

> PROMOTIONS

Sleep loss, brain vulnerability and psychopathology: experimental studies on the neurobiological consequences of chronic sleep restriction in rats

PROMOVENDUS

A. Novati

PROEFSCHRIFT

Sleep loss, brain vulnerability and psychopathology: experimental studies on the neurobiological consequences of chronic sleep restriction in rats

PROMOTOR

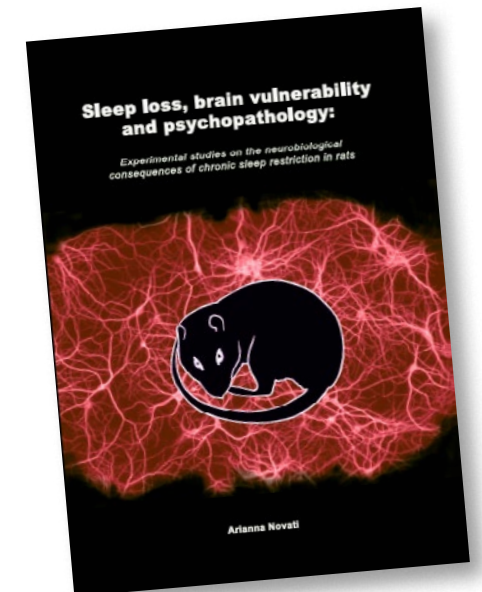
Prof.dr. J. Koolhaas

Een goede nachtrust is in de huidige 24-uurssamenleving een hele opgave. Een tekort aan slaap kan echter zeer schadelijk gevolgen hebben voor de hersenen. De Groningse neurobioloog Peter Meerlo en zijn collega Arianna Novati laten zien dat de hippocampus, het hersengebied dat betrokken is bij leren, geheugen en emoties, zelfs krimpt bij ratten met een chronisch slaapttekort.

Peter Meerlo en Arianna Novati onderzochten de hersenen van laboratoriumratten die slechts vier uur per dag nachtrust kregen, terwijl de dieren normaal ruim tien uur slapen. In eerder onderzoek vond Meerlo al dat een week slaapttekort ernstige gevolgen heeft voor het rattenbrein: het serotoninesysteem, dat betrokken is bij stress en emotie, raakt ontregeld en is veel minder gevoelig voor de neurotransmitter serotonine.

Een maand lang slaapttekort blijkt echter ook gevolgen te hebben voor de rattenhersenen zelf. Meerlo en Novati ontdekten dat er dan veranderingen in de hersenstructuur optreden. Meerlo: 'Bij ratten die een maand lang te weinig hebben geslapen, zien we het hersengebied dat betrokken is bij leren, geheugen en emoties -de hippocampus- ongeveer tien procent kleiner worden. De hippocampus blijkt dus heel gevoelig voor verstoringen zoals slaapttekort.'

Een verkleining van de hippocampus zou van invloed kunnen zijn op leerprestaties en stemming. Meerlo: 'Ook bij depressieve patiënten is een verkleining van de hippocampus en een ontregeld serotoninesysteem te meten. Deze resultaten bevestigen dan ook dat slaapproblemen niet alleen tot de symptomen van depressie behoren, maar ook oorzaak kunnen zijn.'



» CONTINUATION PROMOTIONS

Of de krimp van de hippocampus omkeerbaar is, weet Meerlo nog niet: 'Dat is een van de belangrijke vragen voor ons vervolgonderzoek. We weten alleen dat er krimp is; het mechanisme is nog onduidelijk. Misschien sterven de hersencellen af of vermindert de aanmaak van nieuwe cellen; maar de aanwezige cellen kunnen ook gewoon afnemen in volume.'

Slaaptekort is een fenomeen dat steeds vaker voorkomt in de Westerse samenleving. Niet alleen bij volwassenen die te maken hebben met ploegendiensten of een hoge werkdruk, maar ook bij kinderen die tot laat televisie kijken of surfen op het internet en de volgende ochtend weer vroeg op school zitten. De onderzoeksresultaten dwingen ons om slaap in de huidige 24-uurssamenleving serieuzer te nemen, aldus Meerlo: 'We houden ons bezig met gezond eten, niet roken, genoeg lichaamsbeweging. Maar voldoende nachtrust schiet er vaak bij in, terwijl slaap ook gewoon in dat rijtje met goede gewoontes zou moeten staan.'

Arianna Novati (1979). Zij promoveerde op 3 februari 2012.

Feelings with no name. In search of a neural basis for alexithymia

PROMOVENDUS

K.S. Goerlich

PROEFSCHRIFT

Feelings with no name. In search of a neural basis for alexithymia

PROMOTOR

Prof.dr. A. Aleman

Hersenactiviteit bij alexithymie nader in kaart gebracht

Bij mensen met alexithymie is abnormale hersenactiviteit waarneembaar wanneer zij emotionele muziek of spraak waarnemen, en wanneer zij zich verplaatsen in de gevoelens van anderen. Dat blijkt uit onderzoek van promovenda Katharina Goerlich.

Alexithymie (a - 'gebrek aan', lexis - 'woord', thymos - 'emotie') is een persoonlijkheidstrekk waarbij men problemen heeft met het verwerken van emoties. Mensen met alexithymie ervaren soms geen emotionele opwindings, ze kunnen gevoelens niet van elkaar of van fysieke sensaties onderscheiden, en kunnen gevoelens moeilijk beschrijven. Ongeveer een op de tien Nederlanders heeft deze kenmerken in meerdere of mindere mate. Wie kenmerken van alexithymie vertoont, heeft een verhoogd risico op psychiatrische en medische aandoeningen.

Katharina Goerlich bracht hersenactiviteit van mensen met alexithymie in kaart met EEG- en MRI-scans. Ze concludeert dat alexithymie lijkt samen te hangen met abnormale hersenactiviteit bij het verwerken



van emotionele spraak en muziek en het verplaatsen in de gevoelens van anderen. Ook lijkt alexithymie gepaard te gaan met verschillen in de structuur van de hersenen.

Katharina Goerlich (Duitsland, 1980) studeerde toegepaste taalkunde in Potsdam (Duitsland), Joensuu (Finland) en Groningen. Ze verrichtte haar promotieonderzoek aan de afdeling Neuroscience van het Universitair Medisch Centrum Groningen (UMCG). Het onderzoek werd mede gefinancierd door de Europese Commissie. Goerlich werkt inmiddels als onderzoeker aan de universiteit van Kiel, Duitsland. Zij promoveerde op 15 februari 2012.

Systemic medications and other risk factors of open-angle glaucoma

PROMOVENDUS

M.W. Marcus

PROEFSCHRIFT

Systemic medications and other risk factors of open-angle glaucoma

PROMOTORES

Prof.dr. J.M.M. Hooymans

Prof.dr. J.R. Vingerling

Meer zicht op effecten van geneesmiddelengebruik op openkamerhoek glaucoom

Glaucoom is de verzamelnaam voor aandoeningen aan de oogzenuw die leiden tot gezichtsveldverlies. Onbehandeld leidt glaucoom tot blindheid. In de westerse wereld komt openkamerhoek glaucoom (OKG) het meeste voor. Risicofactoren voor het ontstaan van OKG zijn een verhoogde oogdruk en het gebruik van bepaalde medicijnen. Promovendus Michael Marcus onderzocht hoe het gebruik van geneesmiddelen, zoals ontstekingsremmende corticosteroïden, anti-trombosemiddelen en cholesterolverlagende statines, samenhangt met het risico op OKG.

Marcus analyseerde de gegevens van 3939 deelnemers van 55 jaar en ouder aan het Erasmus Rotterdam Gezondheidsonderzoek. Hij stelt vast dat het langdurig gebruik van cholesterolverlagende statines samenhangt met een verlaagd risico op OKG. Het effect is onafhankelijk van de oogdruk. Deze bevindingen bevestigen de resultaten uit eerdere studies.

» CONTINUATION PROMOTIONS

Van corticosteroïden is bekend dat ze een aanzienlijke stijging van de oogdruk kunnen veroorzaken en als gevolg daarvan glaucoom. Marcus vond geen verband tussen het gebruik van corticosteroïden en het vóórkomen van OKG. Voor het eerst is gekeken naar een verband tussen het gebruik van anti-trombosemiddelen en de ontwikkeling van OKG. Marcus vond geen gunstig effect van deze middelen. Tot slot heeft Marcus gevonden dat mensen met bijziendheid een verhoogd risico hebben op het ontwikkelen van glaucoom. Dit effect was zelfs al bij een lage myopie (bijziendheid tot -3 dioptrie) waarneembaar.

Michael Marcus (Liberia, 1979) studeerde epidemiologie aan de Universiteit Utrecht. Hij voerde zijn onderzoek uit bij de afdeling Oogheelkunde van het UMCG en bij de Onderzoeksschool BCN. Zijn onderzoek werd gefinancierd door Stichting Lijf en Leven, MD Fonds, Rotterdamse Vereniging Blindenbelangen, Stichting Oogfonds Nederland, Blindenpenning, Blindenhulp, Algemene Nederlandse Vereniging ter Voorkoming van Blindheid, Landelijke Stichting voor Blinden en Slechtzienden, Swart van Essen, Stichting Winckel-Sweep, Henkes Stichting, Professor Mulder Stichting, Stichting Nederlands Oogheelkundig Onderzoek, Laméris Ootech BV, Medical Workshop, Topcon Europe BV, allen in Nederland, en Heidelberg Engineering in Duitsland. Hij promoveerde op 29 februari 2012.

Oncostatin M and leukemia inhibitory factor in excitotoxicity

PROMOVENDUS

S. Moidunny

PROEFSCHRIFT

Oncostatin M and leukemia inhibitory factor in excitotoxicity

PROMOTORES

Prof.dr. K.P.H. Biber

Prof.dr. H.W.G.M. Boddeke

Nieuwe inzichten in natuurlijke bescherming tegen alzheimer en parkinson

Cytokines van de IL-6 familie leveren mogelijk aangrijpingspunten in de strijd tegen ziektes als alzheimer en parkinson. Dat blijkt uit onderzoek van promovendus Shamsudheen Moidunny.

Oncostatine M (OSM) and leukemie inhiberende factor (LIF) zijn cytokines die tot de interleukine-6 (IL-6) cytokine familie behoren. Bij neurodegeneratieve ziekten zoals alzheimer en parkinson worden deze stoffen in overmaat geproduceerd. Eerder onderzoek suggereerde dat OSM en LIF een beschermend effect hebben. Het mechanisme hierachter was echter nog onduidelijk. Het onderzoek van Moidunny brengt hier voor het eerst enige helderheid in.

Een belangrijke oorzaak voor celdood van neuronen bij neurodegeneratieve ziekten is de toxiciteit van glutamaat, een stof die signalen overdraagt tussen zenuwcellen. Het onderzoek van Moidunny laat zien dat zowel OSM als LIF neuronen beschermt tegen glutamaat. Hoewel de cytokines op elkaar lijken, gebruiken ze



verschillende mechanismen bij de bescherming van neuronen.

Het beschermende effect van OSM wordt veroorzaakt door verhoging van de hoeveelheid adenosine A1 receptor (A1R), een membraaneiwit dat neuronen bescherming biedt, zo laat de promovendus zien. Het beschermende effect van LIF lijkt onafhankelijk van de hoeveelheid A1R in de membraan van neuronen en hangt meer samen met de vrijzetting van LIF uit astrocyten.

Shamsudheen Moidunny (India, 1982) studeerde biotechnologie te Kozhikode, India. Hij verrichtte zijn onderzoek aan de afdeling Neurowetenschappen van het Universitair Medisch Centrum Groningen (UMCG) en binnen onderzoeksschool BCN. Hij promoveerde op 14 maart 2012.

The brain at low temperature: neuronal and behavioural dynamics in mammalian hibernation and torpor

PROMOVENDUS

A.S. Boerema

PROEFSCHRIFT

The brain at low temperature: neuronal and behavioural dynamics in mammalian hibernation and torpor

PROMOTORES

Prof.dr. S. Daan

Prof.dr. E.A. van der Zee

De hersenen van dieren in winterslaap ondergaan grote temperatuurwisselingen en perioden van energietekort.

Neurobioloog Ate Boerema toont aan dat de hersenverandering die optreedt in winterslapende goudhamsters door energietekort en temperatuur sterk lijkt op de hersenschade bij Alzheimerpatiënten. De goudhamster is daarmee een goed model om hersenveranderingen bij de ziekte van Alzheimer te onderzoeken.

Winterslaap is een manier om te overleven onder zware omstandigheden. Om energie te besparen gaan winterslapers in 'torpor': een periode waarin de stofwisseling op een laag pitje staat. Het lichaam koelt af tot temperaturen die soms maar net boven de omgevingstemperatuur liggen.

Lang niet alle winterslapende dieren blijven de hele winterperiode in torpor; ze warmen tussentijds weer even op, waarschijnlijk om onderhoud te plegen aan hun hersenen.

» CONTINUATION PROMOTIONS



Boerema onderzocht de hersenen van een dergelijke 'intervalslaper', de Syrische hamster (goudhamster). De hersenenveranderingen die Boerema bij deze hamster in winterslaap vond, komen overeen met veranderingen in de hersenen van Alzheimerpatiënten: het zogenaamde tau-eiwit blijkt sterk gefosforyleerd (verbonden met fosfaatgroepen).

Tau-eiwitten maken onderdeel uit van gezonde zenuwcellen, ze verstevigen het skelet van de cel, zoals de sporten in een ladder en maken daarnaast transport van stoffen in de cel mogelijk. Wanneer fosfaatgroepen zich op het tau-eiwit ophopen – fosforylering – functioneert het eiwit minder goed en krult het uiteindelijk zelfs op. Met een desastreuze afloop: de cel sterft af. 'Dat is verandering die ook plaatsvindt bij mensen met de ziekte van

Alzheimer,' vertelt Boerema, 'de opgekrulde tau-eiwitten vormen in de hersenen de voor Alzheimer kenmerkende tangles (kluwen eiwitfragmenten in de cel).'

Die desastreuze afloop blijft bij de winterslapende goudhamster echter uit. Nog voordat er sprake is van onomkeerbare hersenschade, komt het dier tijdelijk uit de torpor en warmen de hersenen op. Boerema: 'De hersenen als eerste, daarna pas de rest van het lichaam. Bij een temperatuur van ongeveer 28°C verdwijnen de fosfaatgroepen weer van het tau-eiwit, dezelfde temperatuur waarbij de fosfaatgroepen in eerste instantie ook verschijnen.' De hamsters lijden ook niet aan Alzheimer, zegt Boerema: 'Na een winterslaapperiode herinneren de dieren zich nog uitstekend waar ze voedsel hebben opgeslagen.'

Over de vraag waarom de fosforylering juist bij 28°C plaatsvindt, kan Boerema alleen speculeren: 'Het is precies het moment dat de REM-slaap bij afkoelende winterslapers uit het EEG wegvalt; bij lagere temperaturen zie je nauwelijks nog hersenactiviteit op een EEG. We suggereren dat de fosfaatgroepen op het tau-eiwit de plaats innemen van suikers. Hierdoor is de mogelijkheid van de cel om energie te spenderen beperkt. De fosforylering fixeert dan als het ware de hersenstructuur en helpt tijdens het afkoelen het energieverbruik van die zenuwcellen te beperken en daarmee tegen schade te beschermen.'

Boerema's vindingen betekenen niet dat de hyperfosforylering van het tau-eiwit en de ontstane tangles in Alzheimerpatiënten

omkeerbaar zijn. Boerema: 'Er zijn ook verschillen tussen de hersenen van Alzheimerpatiënten en winterslapers. Bij de ziekte van Alzheimer is er sprake van veel factoren die het ziekteproces beïnvloeden, waaronder een energieprobleem in de hersenen waardoor de schade ontstaat. Die onderliggende problemen moet je eerst oplossen. Belangrijk is dat we met dit onderzoek een natuurlijk diermodel hebben gevonden om de hersenveranderingen te bestuderen die je ook tijdens de ziekte van Alzheimer in mensen ziet.'

Ate Boerema (Groningen, 1979) studeerde biologie aan de Rijksuniversiteit Groningen. Na zijn afstuderen voerde hij zijn promotieonderzoek uit bij de afdelingen chronobiologie en moleculaire neurobiologie van de RUG. Hij promoveerde op 16 maart 2012.

Visual pathway morphometry in visual field defects

PROMOVENDUS

A.T. Hernowo

PROEFSCHRIFT

Visual pathway morphometry in visual field defects

PROMOTOR

Prof.dr. J.M.M. Hooymans

Oogziekten tasten ook de hersenen aan

Glaucoom en macula degeneratie zijn niet alleen oogziekten, maar hebben ook betrekking op de hersenen. Onderzoek van promovendus Aditya Hernowo geeft daarvoor nieuwe

aanwijzingen. Als bij de behandeling van deze oogziekten meer aandacht wordt besteed aan de hersenen, is de kans op herstel van het gezichtsvermogen mogelijk groter, aldus de onderzoeker.

Macula degeneratie en glaucoom zijn aandoeningen waarbij het perifere zicht (dat wat men 'vanuit de ooghoeken' waarneemt) wordt aangetast. De precieze oorzaak van glaucoom is nog onbekend. Macula degeneratie is een aantasting van het netvlies, een laag aan de achterkant van de oogbol die het licht ontvangt en verwerkt.

Met behulp van MRI-onderzoek bracht Hernowo de hersenen van patiënten met deze ziekten in kaart. Hij stelt vast dat het volume van de visuele banen bij patiënten met glaucoom en macula degeneratie is aangetast. Visuele banen zijn die delen van de hersenen waardoor visuele informatie wordt doorgegeven, voordat ze verwerkt worden. Wanneer macula degeneratie op jonge leeftijd begint, zijn de visuele banen ernstiger aangetast dan wanneer de ziekte op latere leeftijd begint. Bij glaucoom geldt: hoe ernstiger de ziekte, hoe groter het verlies van volume van de visuele banen. Wanneer de visuele banen zijn aangetast, is er wellicht minder kans op herstel van gezichtsvermogen, zo stelt Hernowo. Hij beveelt aan meer aandacht te besteden aan de hersenen, en hoopt dat er manieren worden gevonden om zenuwcellen in de hersenen te beschermen tegen beschadiging.

Aditya Tri Hernowo (Indonesië, 1981) studeerde geneeskunde te Yogyakarta. Hij verrichtte zijn onderzoek aan de afdeling

» CONTINUATION PROMOTIONS

Oogheelkunde van het Universitair Medisch Centrum Groningen (UMCG). Het onderzoek werd mede gefinancierd door het Eric Bleumink Fonds, Uitzicht, SNOO en het Nelly Reef Fonds. Hij promoveerde op 19 maart 2012.

Galectins, (re)myelination and multiple sclerosis pathology

PROMOVENDUS

M. Stancic

PROEFSCHRIFT

Galectins, (re)myelination and multiple sclerosis pathology

PROMOTOR

Prof.dr. D. Hoekstra



Nieuw aangrijpingspunt voor MS-therapie

Multiple sclerose (MS) is een aandoening van het centraal zenuwstelsel, waarbij de isolerende laag die om zenuwvezels zit wordt aangetast. Hierdoor kunnen onder andere verlamingsverschijnselen ontstaan. Oligodendrocyten zijn de cellen die verantwoordelijk zijn voor het herstel van de isolerende laag myeline rond zenuwvezels.

Promovenda Mirjana Stancic onderzocht hoe voorlopercellen van oligodendrocyten gedurende de ontwikkeling van het centrale zenuwstelsel uitrijpen tot volwassen myelinevormende oligodendrocyten. Uit haar onderzoek blijkt dat zogeheten galectines (eiwitten die binden aan β -galactoside bevattende eiwitten en lipiden) een belangrijke rol spelen tijdens de uitrijping van oligodendrocyten en in MS-laesies. Verder blijken galectines het gedrag van gliacellen te beïnvloeden, die ook een belangrijke rol spelen bij het herstel na hersenschade. Ten slotte vond Stancic een verhoogde aanwezigheid van een aantal galectines in MS-laesies, wat een rol in de pathologie suggereert. Galectines, zo stelt de promovenda vast, lijken veelbelovende doeleiwitten voor de ontwikkeling van therapieën voor de behandeling van MS.

Mirjana Stancic (Servië, 1981) studeerde moleculaire biologie te Belgrado. Ze verrichtte haar onderzoek aan de afdeling Celbiologie van het Universitair Medisch Centrum Groningen (UMCG) en binnen onderzoeksschool BCN. Stancic werkt inmiddels als onderzoeker in het universitair ziekenhuis van Zürich, Zwitserland. Zij promoveerde op 28 maart 2012.

Cognitive dysfunction in bipolar disorder: between determinants and consequences

PROMOVENDUS

M.J. van der Werf-Eldering

PROEFSCHRIFT

Cognitive dysfunction in bipolar disorder: between determinants and consequences

PROMOTORES

Prof.dr. W.A. Nolen

Prof.dr. A. Aleman

Cognitieve stoornissen bij bipolaire patiënten verdienen meer aandacht

Patiënten met een bipolaire stoornis hebben naast stemmingsstoornissen ook vaak problemen op het gebied van cognitief functioneren. Zo hebben sommige patiënten geheugenproblemen of kunnen zij minder snel informatie verwerken. Cognitieve stoornissen gaan bovendien gepaard met een ernstiger ziektebeloop en vergroten de psychosociale en werk gerelateerde problemen van de patiënt. Onderzoek van promovenda Marieke van der Werf-Eldering wijst uit dat bij bipolaire patiënten bepaalde cognitieve stoornissen, met name op het gebied van aandacht en snelheid, samenhangen met depressieve symptomen. Eerdere studies wezen uit dat de samenhang tussen cognitieve stoornissen en depressieve symptomen mogelijk mede veroorzaakt wordt door een verstoring van het stresssysteem (de HPA-as). Hiervoor vond de promovendus geen duidelijke aanwijzingen. Klagen over het eigen cognitief functioneren blijkt niet samen te hangen met aanwijsbare cognitieve stoornissen, maar wel met depressieve symptomen, zo laat zij verder zien.

» CONTINUATION PROMOTIONS

Van der Werf-Eldering concludeert dat bij de behandeling van bipolaire patiënten – naast het streven om de stemming te stabiliseren – rekening moet worden gehouden met de mogelijke aanwezigheid van cognitieve stoornissen. Ze stelt dat er meer consensus moet komen over hoe cognitieve stoornissen het best in kaart kunnen worden gebracht en hoe ze kunnen worden bestreden.

Marieke J. van der Werf-Eldering (Sneek, 1976) studeerde psychologie en geneeskunde te Groningen. Ze verrichtte haar onderzoek aan de afdeling Psychiatrie van het Universitair Medisch Centrum Groningen (UMCG). Het onderzoek werd mede gefinancierd door AstraZeneca Nederland. Van der Werf werkt als psychiater in het Antonius Ziekenhuis te Sneek. Zij promoveerde op 11 april 2012.

The problem state bottleneck. Modeling the behavioral and neural signatures of a cognitive bottleneck in human multitasking

PROMOVENDUS

J.P. Borst

PROEFSCHRIFT

The problem state bottleneck. Modeling the behavioral and neural signatures of a cognitive bottleneck in human multitasking

PROMOTOR

Prof.dr. N.A. Taatgen

Ons werkgeheugen kan slechts één element tegelijk bevatten. Als we meer elementen moeten onthouden, slaan we die op in ons langetermijngeheugen. Met als gevolg dat het terughalen van die informatie meer tijd kost en leidt tot meer fouten. Dat concludeert Jelmer Borst uit zijn onderzoek naar multitasken.

Al eerder was bekend dat multitasken goed gaat, zolang voor de verschillende taken niet dezelfde hersengebieden nodig zijn. Borst onderzocht hoe ons geheugen omgaat met verschillende taken. Hij liet proefpersonen steeds schakelen tussen twee taken. Ze moesten bijvoorbeeld twee grote getallen bij elkaar optellen en tussendoor – met telkens onderbrekingen, 'ga nu weer terug naar de som' – een woord van tien letters intypen, zonder dat dat op een scherm zichtbaar was.

Soms was het afwisselen van die taken eenvoudig: proefpersonen moesten dan maximaal één element onthouden. Andere keren was de afwisseling van taken minder eenvoudig: proef-



personen moesten in dat geval tegelijkertijd verschillende elementen onthouden. Dat laatste is tijdens multitasken vaak aan de orde.

Borst zag dat proefpersonen bij die complexe taken langzamer waren en meer fouten maakten. Naar aanleiding van zijn tests postuleert Borst een model over de werking van ons werkgeheugen, met als basis het gegeven dat het werkgeheugen maar één element tegelijkertijd onthoudt.

Aan de hand hiervan ontwikkelde Borst een computermodel waarmee hij kan voorspellen welke taken goed gaan. Bovendien wordt daarmee meer duidelijk welke delen van de hersenen erbij betrokken zijn. Toen hij zijn voorspellingen testte met een functionele MRI, bleken die verrassend goed te kloppen. Borst

laat daarmee zien dat multitasken alleen efficiënt kan zijn, zolang er niet meerdere elementen tegelijk onthouden hoeven ten worden.

Het promotie-onderzoek van Borst is een onderdeel van het onderzoek van zijn promotor, Niels Taatgen, hoogleraar Cognitive Modelling aan de Rijksuniversiteit Groningen. Dat onderzoek begon met de primaire vraag wanneer multitasken goed gaat en wanneer niet. Die vraag is nu beantwoord: multitasken is lang niet altijd efficiënt en vraagt om keuzes. Taatgen gaat daarom nu aan de slag met een vervolgvraag: hoe maken mensen keuzes in multitasken en wanneer is een keuze wel of niet goed?

Een antwoord op deze vraag kan ons helpen om manieren te bedenken om mensen betere keuzes te laten maken, denkt Taatgen. De werkomgeving kan zo worden ingericht dat mensen op de juiste momenten besluiten om hun e-mail te lezen, of juist toegankelijk te zijn voor onderbrekingen door collega's. Taatgen: 'Dit zorgt er niet alleen voor dat mensen efficiënter werken, maar geeft ze ook het idee dat ze werk gedaan te krijgen, in plaats van het gevoel dat ze speelbal zijn van hun omgeving.'

Jelmer Borst (Oenkerk, 1983) studeerde Kunstmatige Intelligentie met een master Behavioral and Cognitive Neurosciences aan de Rijksuniversiteit Groningen. Momenteel is hij als postdoc werkzaam aan Carnegie Mellon University in Pittsburgh, VS. Hij promoveerde op 20 april 2012.

■ EVELYN KUIPER-DRENTH, OP BASIS VAN PERSBERICHTEN VAN DE RIJKSUNIVERSITEIT GRONINGEN

› ONE CAN ALSO LEARN FROM “STELLINGEN”

The statement “We can't add days to life, but we can add life to days” (Cicely Saunders 1918-2005) illustrates an important difference between humans and hibernating animals.

› Ate Boerema

You also can't play 20 fMRI studies with nature and win.

› Jelmer Borst

Alexithymia: when the tears on the cheek become not sadness but a defective tear duct.

› Katharina S. Goerlich

Good researchers and photographers share a similar aptitude: the ability to render the unobservable observable.

› Shamsudheen Moidunny

In natural sciences it is more difficult to come up with a simple explanation than a complicated one.

› Mirjana Stancic

Ook onderzoek dat gefaciliteerd wordt door de farmaceutische industrie, heeft een rol in het publiceren van negatieve studieresultaten, zodat er een krachtig signaal uitgaat naar het bestrijden van de moeilijk uitroeibare publicatiebias.

› Marieke van der Werf

› COLOPHON

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9713 AV Groningen, 050 363 4734

Editors

Deniz Baskent, Chair, d.baskent@umcg.nl
Renske Bosman, r.c.bosman@student.rug.nl
Léon Faber, l.g.faber@rug.nl
Kim Gargar, kgargar@yahoo.com
Emily de Hartog, e.a.de.hartog@student.rug.nl
Inge Holtman, i.r.holtman@umcg.nl
Michiel Hooiveld, m.h.w.hooiveld@umcg.nl
Evelyn Kuiper-Drenth, BCN Office,
050 3634734, e.t.kuiper-drenth@umcg.nl
Annika Luckmann, a.luckmann@student.rug.nl
Sander Martens, Co-chair, s.martens@umcg.nl
Robin Mills, r.mills@student.rug.nl
Kathi Müller, a.k.mueller@rug.nl
Riccarda Peters, riccarda_p@gmx.de
Dafne Piersma, dafnepiersma@hotmail.com
Florian Sense, floriانسense@gmail.com
Kashmiri Stec, k.k.m.stec@rug.nl

Contributors

BCN PhD Council Committee,
bcnphdcouncil@list.rug.nl
Laura Batstra, l.batstra@rug.nl
Sanne Berends, s.m.berends@rug.nl
Erik Boddeke, BCN Director,
h.w.g.m.boddeke@umcg.nl
Ate Boerema
Jelmer Borst
Silke Bumann, s.bumann@rug.nl
Diek Duifhuis, h.duifhuis@rug.nl
Pim van Dijk, p.van.dijk@umcg.nl

Ulrich Eisel, u.l.m.eisel@rug.nl
Katharina Goerlich
Yingying Han
Koen Hogenelst, k.hogenelst@rug.nl
Laura de Jong, l.j.de.jong@umcg.nl
Marina de Koning-Thijssen,
m.a.j.de.koning@umcg.nl
Diana Koopmans, d.h.koopmans@umcg.nl
Berry Kremer, h.p.h.kremer@umcg.nl
Claudine Lamoth
Addisu Lashitew, a.a.lashitew@rug.nl
Hanneke Loerts, h.loerts@med.umcg.nl
Natasha Maurits, m.n.maurits@umcg.nl
Shamsudheen Moidunny
Marije aan het Rot, m.aan.het.rot@rug.nl
Monika S. Schmid, m.s.schmid@rug.nl
Mirjana Stancic
Jorien van der Velde,
jorien.van.der.velde@umcg.nl
Marieke van Vught, m.k.van.vught@rug.nl
Marieke v.d. Werf
Ernst Wit, e.c.wit@rug.nl
Sabrina Sun, h.sun@rug.nl
Frans Zwarts, f.zwarts@rug.nl

Lay-out

Studio Dorèl, eddy@studiodorel.nl

Photo's/illustrations

Dennis van Beek, Ate Boerema, Katharina Goerlich, Michiel Hooiveld, Shamsudheen Moidunny, www.phdcomics.com, Mirjana Stancic, Lisanne Woudt, Jorien van der Velde, Marije aan het Rot, Marina de Koning-Tijssen, Claudine Lamoth, Annika Luckmann, Sander Martens

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> COLUMN

Reappraising your PhD-project

When I heard I was the next person to write this column, I got a bit scared. What to write about? Is my English good enough? Soon I began to wonder if it was the right choice to accept this 'challenge'. However, I realized it was a nice opportunity to share my thoughts and feelings in a column I always like to read myself. Furthermore, I would have enough time to come up with a topic. So, I found myself 'reappraising' my original feelings towards writing this column.

Reappraising is a form of emotion regulation. During reappraisal, a possible negative situation becomes less negative or even positive. In my research project, we study the neural correlates of emotion regulation in individuals at risk for schizophrenia. We investigate siblings who have a genetic risk for developing schizophrenia and individuals who have already shown signs of developing a psychosis but who have not yet developed a full blown psychosis. These people undergo an fMRI-scan in which they are presented with negative pictures, which have to be reappraised. For example, they see a picture of woman crying in front of a church, their first reaction could be: 'she is crying because somebody died'. However, after reappraising they can think: 'she is crying because her daughter just got married, so they are tears of joy'. The aim of this study is to investigate if those 'at risk groups' differ in emotion regulation from the control group. The hypothesis is that 'at risk groups' experience problems during reappraisal. Because of this, they might switch to less healthy emotion regulation strategies like suppression. Consequently, they will experience more stress which might enhance the risk of developing a psychosis.

However, I do not think that only these 'at risk'-groups could benefit from reappraisal. Also during your PhD, reappraisal can be a very useful tool. For example, when your promoter wants you to write a meta-analysis on the topic that you study. You might dread this at first, because of all the work that is involved. On the other hand, you may (eventually) realize that it is a good way to get familiar with all the literature available. After weeks of searching different databases and reading around 50 articles, you are finished and awaiting your results. Nothing came out of it. The literature was scarce and not cohesive enough to lead to any significant findings. In this case, you can get really bummed out. All the work, time, and effort leading to nothing. Although, after a bit of reappraising, you might think that it can be a good sign as well. There is still too little research on the topic that you are investigating. So, your research is very much needed in the field. The outcome does not seem that bad after all, right? Or what about research where the outcome was not quite what you expected? You do not throw your results away. Instead, you 'reappraise' your results in such a way that a nice article can still be written.

When I think about it, we PhD-students really need to reappraise a lot. I saw in the literature that there are already articles written about the emotion regulation qualities of police officers. Maybe we also need to start a project on emotion regulation in PhD-students, would be interesting to see what comes out of this....

■ JORIEN VAN DER VELDE

