

VIDI grant

The VIDI grant is awarded by the Netherlands Organization of Scientific Research (NWO) and targeted at researchers who have completed their doctorates and already spent some years conducting post-doctoral research. They have shown to be able to generate new ideas and bring them independently to fruition. The grant will give these researchers the opportunity to develop their own innovative lines of research and to appoint one or more researchers to assist them in the task. This year dr. Deniz Baskent received a VIDI grant for "The curious case of phonemic restoration: a cognitive approach to speech perception with hearing impairment". Dr. Jan-Willem Romeijn received a VIDI grant as well for 'What are the chances? An explication of single-case probability'.

› VIDI INTERVIEW DENIZ BASKENT

How do you hear what you do not hear

First of all, congratulations! We wondered if you could tell us something about your plans with regard to your VIDI grant.

Thank you. I have a lot of plans, of course, because it is a very big grant and it gives you very good financial support. On top of that, what is more important, it gives me the opportunity to hire new people. This is really exciting. I proposed to hire two PhD students and one Postdoc in the coming five years, which will be a big extension to my lab. I am really looking forward to it, because with all these new people, I can go from very basic questions to very complicated questions. We can really attack the ideas in the proposal from all sub dimensions, so that is quite nice.

Which questions do you hope to answer?

The title of the project is "The curious case of phonemic restoration: a cognitive approach to speech perception with hearing impairment". The main topic, phonemic restoration, is a very strange phenomenon and it really applies to the situation we are in right now. When you are communicating in a noisy environment, like this café we are sitting now or a restaurant, your brain works very actively trying to fill up for the parts that you cannot hear very well. The brain does this by analysing the situation. In this café, for example, we know the topic that we are talking about and this context really helps. We also track the signal, that would be my voice and the way I speak. By using the words you have heard before and what the words are before and after a word, the brain tries to come up with a plausible answer. These are all highly cognitive mechanisms and this is called phonemic restoration. What I observed before is that a little bit of hearing loss makes it harder for people to use this phonemic restoration mechanism. We studied this by behavioural testing in the lab, by playing sound samples of speech and asking people what they understood. The speech understanding was much lower in hearing impaired

listeners. Now we are of course very intrigued to find out what is causing this situation. Why does a problem in the ear change how the brain works? There is nothing cognitively wrong with hearing impaired people. Therefore, phonemic restoration is a very interesting phenomenon, as it uses both good quality signals that come from your ear as well as all kinds of high level cognitive mechanisms in the brain. We will now use this to look at all kinds of interesting cognitive speech perception mechanisms. That is the proposal in a nutshell: to use such cognitive speech perception mechanisms to learn more about hearing impairment and hearing devices and, eventually, find out whether there is anything we can do on that front. Phonemic restoration is an interesting mechanism to understand, but it is also a very nice tool to use.

In the end, would you like to change the hearing devices to make them able to do phonemic restoration somehow? Is that the ultimate goal in the very far future?

Yes, this is a very good question, because improving hearing devices is of course always a motivation. We look at all the results from all of our studies with that purpose; however, it is hard to tell from the beginning. First, this phenomenon has to be well understood. We start from the basics. We want to know what is hearing impairment about and what happens in the brain; how is the phonemic restoration impaired with hearing problems? Then we go to more complicated studies and in the very end maybe we can do something about hearing-aid or cochlear-implant design. The final application is always in our minds, but it does not always work, so we have to see.

What do you think is the strength of the project, why did you receive a VIDI grant?

I was told one of the strengths was that I presented the proposal well during



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Dr. Deniz Baskent

Deniz Baskent studied Electrical and Electronics Engineering at Bilkent University in Ankara, Turkey. After that she did her PhD in Biomedical engineering at the University of Southern California, Los Angeles, CA, USA. Then she became a postdoctoral scientist at the House Ear Institute in Los Angeles for a year. Thereafter, she worked as a research scientist at the Starkey Hearing Research Center in Berkeley, CA, USA. From 2009 until now, she is an assistant professor and Rosalind Franklin Fellow at the Department of Otorhinolaryngology, University Medical Center Groningen, The Netherlands and School of Behavioral and Cognitive Neurosciences, University of Groningen (RuG), The Netherlands. She will work on a project about phonemic restoration with her VIDI grant.

the interview, but I think the main strength is that the project brings together many different disciplines. I work in the Otolaryngology department, but I am not an audiologist, I am an engineer. Therefore, I already work in a very multidisciplinary area. Within this project, we look at hearing aids and cochlear implants, so there is a little bit of engineering involved. We are also studying very highly cognitive functioning, so there is psychology in it as well. I think it is a very nice, very complete approach to study speech perception and hearing impairment. It is not very easy to do such a multidisciplinary research, but I am very lucky, because I was trained in different fields, and I worked in different departments. I have been collaborating with psychologists and scientists from other disciplines. This puts me in a very special situation where I can get all the help from a variety of researchers. This multidisciplinary nature is what makes this project most special.

How does this project relate to BCN?

Speech perception alone, without hearing impairment, is a topic that fits very well within BCN, because there is perception and cognition and neuroscience behind it. Moreover, all disciplines we talked about, psychology, linguistics, otology and auditory perception, they all fit well in BCN. If there is one part that does not fit, it could be the hearing aid design part. All in all, we can say that it is an 80% BCN project.

Where does your fascination for hearing impairment come from?

That is hard to answer for me; I have always been fascinated by the ear. I was trained in the

electrical engineering area and I remember when I was applying to graduate schools, I applied to the departments that showed pictures of the ear, but I could not tell why I liked it so much. It could be because, when I studied electrical engineering, I found it a bit too theoretical. I went to the best technical school in Turkey. I got a very good education, but the kinds of problems that we were dealing with were very theoretical and arbitrary to me. We could solve very complicated problems, say, with thousands of parameters in a very short time, but I always wondered, why are we doing this? How is it going to help anybody? I am not saying that every science project should help somebody. We cannot expect that. Some things should be done for the sake of knowledge itself. But for myself I find it more satisfactory to work on something that might actually help people. If I am going to put some effort into a study, it really motivates me to know that the results have potential to help somebody at some point. Thus, I think my fascination for the ear or hearing comes from this. It is a very nice area, because there is always potential to come up with something very applied and useful.

When will your project start and are you still looking for your PhD and Postdoc candidates?

The project will start in March 2011. I will start looking for PhD students very soon. The idea is that the students will start around September from next year, so there will be a long search process. We need students that are also interested in multidisciplinary work and have the right skills, but I think we have enough

time. For the Postdoc, it is a bit different, because the Postdoc in this project will not do experimental work. Therefore, we will try to find a Postdoc in two or three years. The PhD students will do the experimental work and the Postdoc will take the results from the experiments. He or she will come up with a speech perception model. Therefore we still have a little bit more time for this person to come in.

Which skills would be important for the PhD students to have already?

It is useful to have the right skills, but if the students do not have them, with the right motivation, I believe, they can still learn. There are some skills they will need in the end, such as technical programming in Matlab. Therefore, the students will need some technical background or the interest to learn how to programme. But also some interest in working with people is important, because there are many behavioural studies to be done. They have to design these experiments and have to know or learn some statistics. And, they have to have some interest in writing papers, because writing is a huge part of the PhD programme. But then, if they have the right interests, they can come from a lot of different departments. They can come from engineering, psychology, linguistics or biomedical background. If they have the motivation, they will learn everything in this multidisciplinary lab. If somebody tells me 'I am ready to learn', then that is a good start. BCN students can be very suitable for this project. They are often of high quality, so if you are an interested BCN student, please contact me by email: d.baskent@med.umcg.nl.

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» VIDI INTERVIEW JAN-WILLEM ROMEIJN

What is your chance?

First of all, congratulations with your VIDI grant. Could you tell us something about your plans with regard to this grant?

Yes, there will be two PhD students working on the project. It is set up in such a way that I will myself work on the most speculative part of the project, concerning the nature of chance, while the two PhDs will work on statistical methodology. The central question is: what is chance and how can we apply it to an individual? If you have a large population then typically you have chances. You can trace these chances back to frequencies or proportions of the population. For instance, you can take a large population of smokers and find that fifty percent of them will die within twenty years. Then the question is: what would the chance for each and every individual in that population be? What can you say about the individual? I am going to try and figure out exactly that: could it be some kind of tendency, or what is sometimes called a propensity, for that individual to die, or perhaps something else? It is at heart a metaphysical project on the nature of chance and on their application to individuals, especially considering that we might live in a deterministic world. At least that is what I think. Brain processes are eventually mechanistic, so it should be completely determined somehow whether I will die or not if I smoke.

How will you do that? Will you make use of already existing data or models?

This is a discussion that has been going on in philosophy for a century, so there is lots of conceptual material, most of it mathematical, and also material deriving from analyses of particular fields of science. I will try to recombine some of those ideas and develop them. That is conceptual and mathematical work of which a very important part concerns the mathematical notion of randomness: when can you say that a process is random? I will try to clarify how this randomness might apply to individuals, real life individuals, like us. Furthermore, there are two PhD projects that are more methodologically oriented. There are many methods and statistical tools available for determining chances, and all those techniques bring up the question of what chances are supposed to be. A particularly interesting tool is model selection, with which you choose between different statistical models on the basis of both simplicity and fit. Akaike's information criterion is more and more used in sociology and psychology. That is one statistical tool that I think can be improved upon by slotting in a better understanding of chance. So one PhD project will take up model selection as a particular domain within statistics, and use insights from my project about what chances are to improve those methods and interpret them better. The other PhD project is structurally

similar, because it also concerns a particular statistical technique, namely causal Bayesian networks. Causal Bayesian networks are a very pretty technique for, first of all, representing probability functions by network structures. That makes probability functions much more easily computable, but it also is a very attractive technique because it ties in with the causal structure of what you are investigating. By improving the idea of what chances are, I hope to improve our understanding and application of causal Bayesian networks.

Would it be the ultimate goal to improve methods?

Yes, this is a very important part of the work, to assist science in improving its methods and thereby to indirectly contribute to the reliability of scientific knowledge. Science has such a tremendous status in our society. It has a huge impact on everyone; medical science is a good example of that. Hence, it is really important that we do it well. That is the goal, to improve on scientific methods.

So, basically for all scientific research that includes statistics?

Yes, it is indeed a major goal. I am, of course, not the only person working on improving statistical methods. The same goes for lots of statisticians, obviously, and for applied scientists developing statistical methods. But I am really on the more theoretical side of this.



Dr. Jan-Willem Romeijn

Jan-Willem Romeijn studied at Utrecht University, where he graduated cum laude in both physics and philosophy. After that he worked as a financial consultant for two years. Then, he worked on a doctorate in philosophy at the University of Groningen, for which he also graduated cum laude in 2005. The first two years after that he lectured in philosophy of science and statistics at the Psychology Department of the University of Amsterdam. Until 2009 he carried out a research project on the intersection of cognitive psychology and philosophy of science at the University of Groningen.

Together with Ernst Wit and Edwin van den Heuvel, Jan-Willem Romeijn is organizing a conference in Groningen in March 2011, entitled "All models are wrong". From 2011 onwards he will work on a research project concerning single-case chance and statistics making use of the VIDI grant.

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› We are really like machines.

I look at the conceptual foundations of statistics, and I think that will help significantly to improve statistical methods. Next to this main goal, there is also a more internal, philosophical goal in the project. It is to resolve some of the problems in the philosophy of probability concerning this concept of single case chances. Not as subjective opinions, like when I express my belief in 'FC Groningen will win this year's competition' in a probability. Rather I am interested in chances as pertaining to tendencies in the events, like the chance that a coin lands heads. At first sight this is not about an opinion; this is about an event in the world, which presumably has some kind of tendency to be in a certain way. What that might be is a philosophical and metaphysical issue; the more internal, philosophical goal of the project.

What is the strength of your project, why did you receive a VIDI grant for it?

You see often in NWO reports and communications that they emphasize that research done under this innovation grant scheme should have wider appeal. I think my research has most certainly got wider appeal. If it is done well, it might help lots of scientists and that is probably one major part of why it is funded. Furthermore, the philosophical contributions that we hope to make are of an analytic, mathematically oriented type, and such philosophy with a scientific outlook has gained quite a lot of popularity in the last few decades. For a committee that is also worrying that a project should actually lead somewhere and deliver something, this may have looked attractive. But of course this is all guessing, I do not know. For all I care, they just thought 'oh, that sounds very nice'. It is not very transparent what determines the choice of a committee in the end.

How does your project relate to BCN?

It might affect a lot of people working on anything that is represented by chances. For people using causal

Bayesian networks or model selection the results will be directly applicable. This project might lead to changes in statistical techniques or in the presumed domain of applications. More indirectly, it will help to interpret the concept of chance. One might say "people who take this particular drug have an increased chance of developing XYZ". This is something you see all the time, but what does that mean for the individual? If you are one of those people, what does it mean for you? You need an understanding of the concept of chance to interpret these sorts of statements.

Where does your fascination for single-case chances come from?

I do not know if I can really answer this question, but I find it truly fascinating that on the one hand we seem to be completely determined creatures, manoeuvring around the world and reacting to all the stimuli. We seem to be completely jammed in by all the other mechanistic stuff happening in and around us, like a majestic game of pool that we are part of. I really have a picture of human-beings that is much like this; we are really like machines. On the other hand, however, somewhere in these machines we presumably need to locate chances. This becomes particularly vivid when we are applying it to ourselves or to friends and when it is about serious things like 'I might be ill', or 'will I make my test' or 'will I get my VIDI'? It is unclear where exactly to locate those chances, but they seem so real to us because we experience them, we live with them and we reason on the basis of them. I hope that you can sort of imagine why that is fascinating. The title of my project is 'what are the chances?' And this is exactly what I thought about the VIDI proposal! This fascinating aspect of chances was very clearly applicable to me when I was applying for the VIDI.

When will your project start?

Officially on February 1st 2011, but I should perhaps

say that this research is already ongoing for a few years. Indirectly I have been thinking about these things for at least three years. Anyway, it will start in February and then the PhDs will hopefully be hired somewhere in the summer.

Are you still looking for PhD candidates?

Yes, I am still looking, so people who think this is very interesting, who have some ability in mathematics or some knowledge of statistics, and who have a strong interest in philosophy should definitely look me up. The website of this project is <http://www.philos.rug.nl/chance/>. You find a short description of the project and contact details there.

■ DAFNE PIERSMA



› HEAD OFFICE MATTERS

Laus Stultitiae

Scientific education and research are of utmost importance for the future of the Netherlands and provide the only guarantee to improve its international position as a knowledge society. Knowledge is the most valuable tool of the future and it is very clear that we need to invest in the development of knowledge. If we fail to do these investments then the national employment rate will decrease and the future of young people as well as the quality of our society will suffer. It is the ambition of our parliament to reach the top 5 of the international world economy rank order. The recently announced budget cuts in scientific education and research are in gross contradiction with this ambition and also counteract the current increasing number of students that intend to participate in bachelor-, masters- and PhD programmes. It is absolutely clear that the Netherlands, given the governmental budget plan, will not reach the top 5 of world economies but instead will disappear from the top 10. Furthermore, due to the planned budget cuts approximately 5.000 positions in scientific education and research will disappear.

In a recent interview, vice minister Halbe Zijlstra suggested that the universities might reduce their managerial structures in order to reduce expenditure. Clearly the vice minister does not realize that Dutch universities have a surprising "flat" management structure; most managers are researchers that participate in research and education. Indeed the average overhead of the universities amounts to 23% whereas most ministries have an overhead of 45%.

Both the government and the universities agree that the individual performance of students and the overall success rate of scientific education should increase, such that the number of drop outs and the duration of the study decrease. This, however, requires intensive and stimulating education and matching capacity. In contrast, from 2012 on, 10% less budget is available for teaching. This does not seem a very constructive measure.

The vice minister Halbe Zijlstra mentions that he has an open mind about education and research, but as long as he doesn't hear good arguments he will not change his policy. Not hindered by any competence or even common sense he is heading for disaster.

■ **PROF. ERIK BODDEKE**
BCN DIRECTOR

› ANNOUNCEMENT

Upcoming BCN Sports day: Canoeing!

Visit tinyurl.com/CanoeingBCN to RSVP for the upcoming Sports day, because this year's special Sports day will be the exciting sport of canoeing. This event will happen on Friday the 13th of May. What better way to avoid black cats and bad luck? The previous canoeing Sports day was a great success. Lots of people showed up and we had a good time during a very sunny day. Hence, we decided to go canoeing again! Make sure you do not miss it!

Location and the exact time are still a surprise, but BCN members go free. We will keep you updated through this newsletter, the Facebook page, by e-mail, and by flyers. It is now up to you to pre-register for this great event, as there are only limited places (30). Make sure to reschedule all your appointments at Friday the 13th of May to some other day, and to join us for an exciting day of canoeing! Go and visit tinyurl.com/CanoeingBCN (Facebook) right now to register or tinyurl.com/BCNCanoeing if you are not on Facebook.



› INTERVIEW WITH VISITING PROFESSOR JOHN M. MCNAMARA

Exposing the Logic of Things

In 2009, the Royal Netherlands Academy of Arts and Sciences (Koninklijke Nederlandse Akademie van Wetenschappen, KNAW) selected eleven international top scientists for their Visiting Professors Programme. Of all nominees, the best of them were selected to pay a visit to a university in the Netherlands with the purpose of providing a new and fresh stimulant to the Dutch research community. The University of Groningen was blessed having two visiting professors, one of them being the famous behavioural ecologist and evolutionary biologist John M. McNamara. The BCN Newsletter met up with John McNamara at the end of his stay in Groningen to talk about his research, his goals, and of course, his stay at the University of Groningen.

From Mathematics to Biology

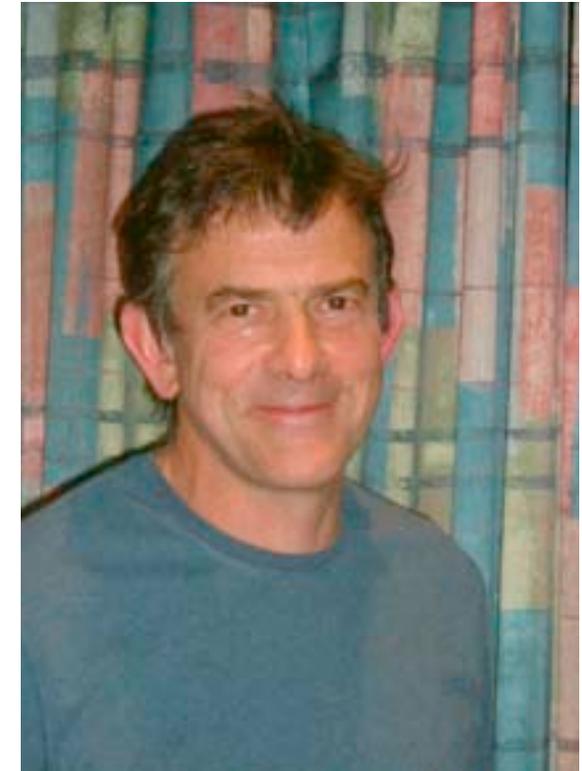
John McNamara is a Professor in Mathematics at the University of Bristol and has proven to be a real scientific centipede. Being a mathematician by training, John was not one of those people who "started off being fascinated by the natural world". Instead, he started off as someone being interested in concepts, mathematics, chemistry and physics. While he was doing his PhD on black holes, he wandered into astronomy, astrophysics, and relativity. "During that time, I also started to talk to graduate students who were working in evolutionary biology. I realised that whereas biology in school mainly concerns descriptive

aspects, there were interesting conceptual issues there as well. I think these conceptual aspects originally motivated me to move towards behavioural biology. Mathematics gradually went down the interest scale and it did not fire me the way biology could."

Ultimate why-questions

Although his interest moved from mathematics to evolutionary and behavioural biology, almost all of his work is related to one main interest: conceptual aspects. As a modeller, John McNamara is interested in evolutionary questions and, more specifically, in why animals do what they do in evolutionary terms. "As a biologist, you can ask different why-questions. You could, for example, focus on questions concerning the why's and what's of cortisol receptors in humans and ask 'Why does cortisol suppress the immune system in humans?' A physiologist might give an answer to this in terms of mechanisms; for example 'because the thymus and other components have cortisol receptors ...'. As an evolutionary biologist, I would like to go one step further and ask 'Why are there receptors at all? In other words what selective forces have, over the course of evolutionary history, selected for there to be receptors?'"

These ultimate why-questions are an attempt to expose the logic of things. "My main objective, in studying animal behaviour, is to provide theoretical explanations of known phenomena and also to motivate and steer the direction of new experiments." Originally, when John McNamara got into behavioural biology in the late seventies, people were very much interested in animals and their foraging strategies. Many researchers at that time were investigating how animals choose which prey items to take and which to reject. "It was always assumed that animals would try to maximize their rate of energetic gain within the environment, but this was obviously not the only thing: a small bird is, of course, also concerned with predators. If you want to make a predictive model then you need to be able to combine



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aspects like food and predation risk into a common currency."

This led John McNamara to think about a framework that exposes the logic of how individual actions contribute to lifetime reproductive success, providing a common currency for actions. "I started to think about 'what are the consequences for reproductive success of a food item and what are the consequences of reproductive success for being killed by a predator?' There is obviously a cost of being killed; it is your loss of future reproductive success. The value of food and the value of your life depend on how much food and/or energy you have got already. The more energy you have got, the more able you are to reproduce, and the greater the value of life. The cost of death and the value of energy thus depend on state, energy reserves, body condition, and maybe also social status. Furthermore you cannot consider one action in isolation, because how valuable it is to have a food item now also depends on how plentiful food is in the future." In this framework, John tried to consider future expectations, including what the animal itself would do in the future to provide "a natural way of building more realistic models of behaviour, allowing behaviour to depend on state and time."

'You cannot consider a situation in isolation'

In principle, the models and theoretical explanations that John has developed are applicable to all organisms. Humans, however, appear to be very complicated. "If you are looking at something like the fattening strategies of a bird over winter, it is relatively easy to understand. In humans, strategies are also essentially genetically determined, but what you see is not the strategy. What you see is how the underlying genetics and what has happened during development have interacted with the world to produce the organism. So, this is an awful long way from the genes and it really is quite difficult to

model humans: it is a can of worms really." According to John, the danger is always to treat one situation in isolation from other situations. "I think that is especially true with humans. For example, there's a very simple experiment called the ultimatum game. One person has, for example, 100 Euros and he has the choice to give a certain amount of it to another person. Suppose that he offers to give the other person 10 Euros and keep 90 Euros to himself. Then if the other person accepts the 10 Euros both people get an amount of money. If, however, the other person rejects the 10 Euros, then neither of them gets anything. The only rational thing to do is to accept anything that is offered to you, but humans do not behave like that. I think that has to do with the fact that you have taken this situation out of context. People actually are not used to sitting in a room, knowing for certain that they are not being observed, and knowing that they will never see the other person again. You really cannot consider those things in isolation. Instead people behave as if what they do will affect their reputation and will have future consequences."

Similarly, John McNamara has been developing an evolutionary game theory to explain how games are influenced by individual differences. In natural populations, there are usually differences between population members and game theoretical models often ignore these differences. "Some individuals are more cooperative than others. If all people would be equally cooperative, there would be no need for anyone to change partners. If, on the other hand, there is variation, then you may want to change for a better partner. In this way, your previous and less cooperative partner is penalized. Uncooperative people are thus at a disadvantage." Thus differences should also be taken into account since they promote choosiness, and "the co-evolution of choosiness and cooperativeness can lead to high levels of cooperation when repeated interactions with the same partner are possible."

From Biology back to Mathematics

John McNamara is interested in animal behaviour in a very general sense. "Often the approach is as follows: if you think something is a product of the action of natural selection, then you might think that natural selection has produced organisms that approximately maximize their fitness within their natural environment. If you can then define what fitness is, you can think of what strategies are possible to evolve. Then you can try and make predictions based on trying to see what strategies maximize fitness. And that is really where the mathematics comes in, because you have got to formulate what the strategies are, what their fitnesses are, and eventually apply some mathematical optimisation technique to find the strategy maximising fitness."

John McNamara's ultimate goal is not to provide a mathematical theorem, but his main goal is to guide people into the direction of incorporating individual differences as well as environmental influences into models. "I believe we should think more about behaviour in the context of the underlying physiology, because many trade-offs in biology are mediated by physiology. People sometimes try to model behaviour, but their view of the world is often too simplistic. The environment is often periodic, seasonal, but also unpredictable and we need to think of behaviour in the context of both the underlying physiology and the environment."

"If you go back to the work where I started, small bird fattening in winter, there I was thinking in terms of food-predation trade-offs. It was clear that there were benefits of carrying fat around in winter, which are fairly obvious in terms of avoiding starvation. There, however, also had to be some cost to it, otherwise birds could be heavy all the time and they are not. The question I try to answer with my models is 'What are those costs?' Now if a bird has to carry more fat around, it also has to be



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out there more during the day leading to a higher amount of used energy. This means that you have to replenish those costs, which in turn leads to you being more exposed to predators, but it also possibly means that you are less mobile and more vulnerable to predators." Putting all these food-predation trade-offs into a model has subtleties. "A theory or a model normally takes different aspects in isolation and how complex you make theory often depends on what you want to get at. The important thing with any model is to understand what you can learn from this model, what its limitations are, and what you can predict using the model. Sometimes it is just too complex and you have to be very precise about it. The precision of mathematics allows you to tease apart the logic as well as to understand this logic."

John McNamara and Groningen

John McNamara's work is quite diverse: from looking at foraging strategies in small birds to looking at models of the evolution of cooperation and the evolution of psychological mechanisms. It is thus not surprising that a large group of the Groningen research community was very excited about John's stay here, but John had a good and productive time at our university as well. John McNamara sees his time spent in Groningen as very useful "in altering how I think about things. Groningen is an extremely good place to come to, because it has a lot of different groups working on diverse

subjects that interest me. There is a very good theoretical group with Franjo Weising who is one of the world's top theoreticians. Similarly, Teunis Piersma works at the Animal Ecology Group on migratory behaviour of birds. And of course Simon Verhulst, whom I spent a lot of time with and who is more concerned with issues related to the effects of hard work and ageing. All in all, there are different groups that I have interests in common with."

Although his stay in Groningen has ended, John believes that his visit has provided a lot of opportunities to work together with researchers in Groningen. "For some new projects you need quite a large sum of money and a big group of people, but sometimes you simply need a clear hand and the right people to talk to. In Bristol, there is a group of people whom I talk to, but of course we have a certain perspective on the world. People here in Groningen think about things slightly differently and that has been really useful for me to gain new insights. The seeds for new projects and ideas have been planted now and we will see how they will grow."

■ HANNEKE LOERTS

» PHD AND OTHER NEWS

BCN Training Programme 2011

The new edition of the BCN Training Programme is almost ready. All the information is already accessible on the BCN website. We will invite you by email for BCN courses. I expect that the GSMS training programme with an overview of all the courses within the GSMS will be ready during spring 2011.

BCN Retreat 2011

The BCN retreat will take place on March 17 & 18, 2011. It is possible to apply for this event. The 2nd and 4th years PhD students will get an invitation to give a presentation. 1st and 3rd years PhD students are welcome as audience. We are working on some new items to improve the social part of the retreat. If you would like to participate, please send an email to janine.wieringa@med.umcg.nl

BCN Symposium 2011

Please block May 11 in your agenda for the BCN Symposium Epigenetics and behaviour. Please check the BCN website, there you will find detailed information about the programme. Please apply for the Symposium by sending an email to janine.wieringa@med.umcg.nl

BCN Awards

Winner of the BCN Dissertation Prize

The winner of the BCN Dissertation Prize 2009-2010 is Ivica Granic. His dissertation, entitled "Neurodegenerative Mechanisms in Alzheimer's Disease Amyloid Aggregation, Neuroinflammation and Apoptosis" was chosen as the best of the 18 nominations. The committee considered that besides the winner, the thesis of Yvonne Groen, Cris Lanting and Ans Vercammen were the best theses defended during the Academic Year 2009/2010.

Winner of the BCN Summary Prize

Leendert van Maanen is the winner of the BCN Summary Prize 2009-2010. His summary was chosen as the best of the 31 nominations. The title of his dissertation is "Context Effects On Memory Retrieval: Theory and Applications". All nominations are printed in the booklet "To the Point". Please contact me if you would like to receive a copy.

Accredited educational activities

Not every one is aware of the possibility of accrediting educational activities organized by our group. If your group organizes lectures, conferences, symposia, journal clubs or other events, please ask the organiser to inform BCN by filling in the form on page 54 of the BCN Training Programme.

■ DIANA KOOPMANS

› BCN NEWSLETTER MASTER COLUMN

Experiences of BCN students from far away

When the new cohort of BCN research master students started the programme last September, some of them arrived in Groningen for the first time and have studied in other countries before. Now that the first semester is over, they had some time to get used to their new environment and get to know the country and the university a bit. We have talked to four of them to find out more about what they think about Groningen, the University of Groningen and their lives in the Netherlands in general.

Let us introduce the interviewees. Aayush was born in India and obtained his Bachelor's degree in medicine in Shanghai, China before he came to the Netherlands. Anuka is from Argentina and studied biochemistry in Cordoba. Adriana is from Mexico and studied veterinary sciences in Hannover and at the Autonomous University of Nuevo Leon, Mexico. Zach was born in the USA, grew up in the UK, and studied psychology at the University of Wyoming, USA.

First, we asked them about their impressions of the BCN programme and the University of Groningen so far and their answers were surprisingly similar. The programme is interesting, challenging, and nicely combines theory and practice. Also, the multi-disciplinary approach is very appealing and the standard of education is high. Even though the standard and expectations are high, they all like the relaxed atmosphere and the teacher-student relationship. Anuka points out that the university has very good equipment and that she learns more efficiently since the courses are not as overcrowded as they were in Cordoba.

Not only do they seem to like the university, but also the city Groningen. None of them regrets moving here and all of them perceive the Dutch as very helpful and friendly.

Aside from Groningen, they all have been to Amsterdam. Adriana and Zach have travelled a little more and appreciate the public transportation system and how easy it is to get to different places.

When asked about how their lives have been changed since they moved to Groningen, their answers became pretty diverse. Anuka and Adriana mention that they enjoy the cycling. Another factor is the change in their social lives because of the new environment. Aayush indicates that his future plans have been changed due to the experiences he had in Groningen so far. Anuka said that one of the biggest changes is that she has to spend a lot more time indoors since the weather is not as sunny as in Argentina. That is also one of the things she misses most: the warm Argentinean weather. Although, she did enjoy the snow we had this year! Something everybody seems to miss is their traditional food and, not surprisingly, their family and friends. Adriana also misses speaking her mother tongue.

To summarize, although there is a lot of diversity in the background of the new BCN master students, there is general consensus that it has been an excellent move to come here. We would like to thank Anuka, Adriana, Zach and Aayush for their personal answers in the interviews. We hope the rest of their BCN programme will be a positive experience for them as well.

■ DAFNE PIERSMA
■ FLORIAN SENSE

› VENI INTERVIEW WITH THOMAS POLLET

The Napoleon complex: Fact or fiction?

Can you tell me a bit about yourself and your background?

My name is Thomas Pollet and I'm from Belgium, and I work in Groningen since 2008. I first studied sociology in Antwerp. I, however, have always been interested in the biological basis of behaviour and that drove me more and more towards evolutionary psychology. In Antwerp it was not really possible to study that, so they told me that I should go to Ghent for the biological approach, where eventually they told me that in Belgium it would be very difficult to do a Ph.D. on that topic because the field is too fragmented and they suggested that I should go to England. So that's what I did: I first went to Liverpool and later to Newcastle, to do my master's and doctorate, and after that I came to Groningen.

What is your research about?

I work on very different topics concerning the evolutionary basis of behaviour. Sometimes the different problems that I study lay far apart. The way I work is that sometimes I read something and I become interested, and then I just investigate it, and when after a while I get bored with it I go and work on a new problem, so I study a wide spectrum of topics. Examples of topics that I study are for example partner selection – what makes men and women attracted to each other – or birth order – like whether first-borns are more conservative than younger siblings and whether the middle ones have been neglected and have a disadvantage because they have to compete with the oldest and youngest siblings.

Furthermore I investigate family relations in general and sex ratio allocation – what determines whether parents get boys or girls.

The upcoming three years, the focus of my Veni project will lay on body height and the perception of body height. The title of my Veni is also: "The Napoleon complex: Fact or fiction", so I will look at explanations of why smaller men are thought to be more aggressive and dominant than taller men. I have to mention though that the origin of the Napoleon complex is a myth. It's probably a perceptual effect because Napoleon let himself be surrounded by elite soldiers, who had to have a certain minimum height. Napoleon himself was most likely to be of average height. However, Alfred Adler, a psycho-dynamic/Freudian psychologist, believed that there must be something like a Napoleon complex, where shortness during development has an influence on how people behave later in life. He characterized it as being extremely dominant and short tempered. Because it's so intuitively pleasing, people just seemed to take Adler's theory for granted. Everyone can think of examples, such as Nicolas Sarkozy, Kim Jung Il and Silvio Berlusconi. However, there was never much research done on whether it is an actual effect or just perception.

In order to investigate this, I will set up a couple of experiments concerning perception and body height, where we will actively look at effects that relative body height has on aggression. I hope to use virtual reality for this, because body height is a variable that's hard to manipulate. I'm thinking of an experiment where you are waiting in line for a virtual joy ride and you see



some people cutting in line, in front of you. How will you react? Will you just observe this or will you become angry and aggressive, and will that depend on your body height in the virtual world? I could also create a scene in a virtual world where you observe aggressive behaviour. Will you remember it better if that person is relatively short or when that person is relatively tall?

What is your vision on that?

As a real scientist I would say: "I don't know." It could be real: There are a number of biological models that show that it can be advantageous to develop an ultra-aggressive strategy when you are a small specimen

» CONTINUATION INTERVIEW WITH THOMAS POLET



» There are a number of biological models that show that it can be advantageous to develop an ultra-aggressive strategy when you are a small specimen within your species (if body size matters).

within your species (if body size matters). If you have nothing to lose, evolutionary pressures could arise to develop extremely aggressive behaviour.

It could also be that there's something like a gentle giant syndrome: If you're tall, you only need to threaten and never have to act violently, so that in order to gain a resource tall men may be more aggressive in a sense of more likely to use threat, but that smaller men have to be more violent. Apparently there could be a link between being small and aggressive or dominant behaviour, however, it may just as well be a perceptual phenomenon, just as with Napoleon. It could just be that we remember it better when a small man shows aggressive behaviour because of a contrast effect; you just didn't expect it from such a small guy. You expect aggression from a large and physically strong person. At the moment I'm truly agnostic on this. It can either be the one explanation or the other and I hope that my research will give me an answer.

What's your relationship with BCN?

I was a member of BCN a while ago, when I was teaching a course on evolutionary psychology, together with Bram Buunk, but somehow I fell out of the system. Now I am planning to start to do more neuroscience-like research in the future, however, even though in Newcastle I was working at the neuroscience department, I never worked with fMRI or EEG, so I have very little experience with neuroscience methods, but I'm open to co-operations.

The connections that I have in BCN are mostly on the biological side of BCN; I know people like Ton Groothuis, Simon Verhulst and Jaap Koolhaas. I'm co-supervising a BCN Ph.D. student who also works on body height (Gert Stulp) and I am involved in a project about lateralisation. I'd like to extend this in the future; maybe think about what brain regions may be involved in observing aggression, but I don't have any concrete plans yet.

What are your plans for the future?

The coming years I will do research on the Napoleon complex and body height in relation to behaviour, however there are also several other questions that have my interest and I will try to pursue them as well. Some of my lines of research are for example about family relations and other things related to evolutionary psychology. These things fascinate me and I want to extend these lines of research in the future. Who knows what the future brings? We'll see. When you get a Veni, you get some form of insurance that you will have the possibility to do research for a while. After my Veni I may pursue other things relating to height or I may become interested in something else.

It would be nice to build a research group here in Groningen, focussed on an evolutionary approach of behaviour, combined with a strong neuroscientific approach. I have noticed that within the field of evolutionary psychology people tend to shift more and more towards behavioural neuroscience. It has always been connected, but that connection had diminished a bit for a while, perhaps because of some 'radical' unsubstantiated claims, for example massive modularity, evolutionary psychologists. It would be nice if Groningen could become a centre for the study of human behaviour and evolution. That's the dream and end point in the very long term.

Last question: Do you have any tips for people who want to apply for a Veni in the future?

[smiles] I get that question a lot!

I think you have to be creative, in the sense that you really have to come up with a problem, that according to you is underexposed or insufficiently researched and try to bring in under attention and explain why you think that you have a niche. You should think: "At this moment I'm the only one who can extend this", or "I'm the right person to set up a line of research here." I think the

committee appreciates these kind of things. However, I wouldn't be fully honest if I wouldn't say that you also have to be a good researcher to be able to obtain funds. I also think that the committee appreciates it if you can show that you have international aspirations. The Netherlands and Groningen are very good in a number of research fields, including neuroscience, however sometimes it can be advantageous if you say: We are going to set up an international network and these people are going to do this, those people are going to do that and for this part I will attract someone with a different expertise. Interdisciplinarity works and it's a good thing if you can work on something that is not so fine grained and is not only interesting for fundamental neuroscience, but that for example also has a clinical application. So in my Veni, I tried to relate my research to political science, history and maybe even a bit of computer science with the virtual reality aspect. If you can present things like that, it shows that you're willing to cross the narrow boundaries of your research field and that gives you an advantage over others.

However, I think that the most important thing is that you have to be creative, or at least that's my impression, but to really know what's important, you would have to compare all proposals.

■ LÉON FABER

> EYE TRACKING

The eyes as the window of the brain?

Modern eye trackers evaluate two kinds of information: where on the screen subjects look and the dilation of the subjects' pupil.

While it is rather obvious that it can be of great use to know what subjects look at during an experiment, it is less obvious what information pupil dilation reveals. In this article we will have a brief look at the less obvious and ask: What can pupil dilation tell us about what's happening in a subject's brain?

We have known for decades that there is a link between pupil dilation and mental effort. That is, the pupil will become bigger if we engage in cognitively demanding tasks such as trying to remember an array of numbers or solving a difficult problem. The harder the task, the greater the pupil dilation.

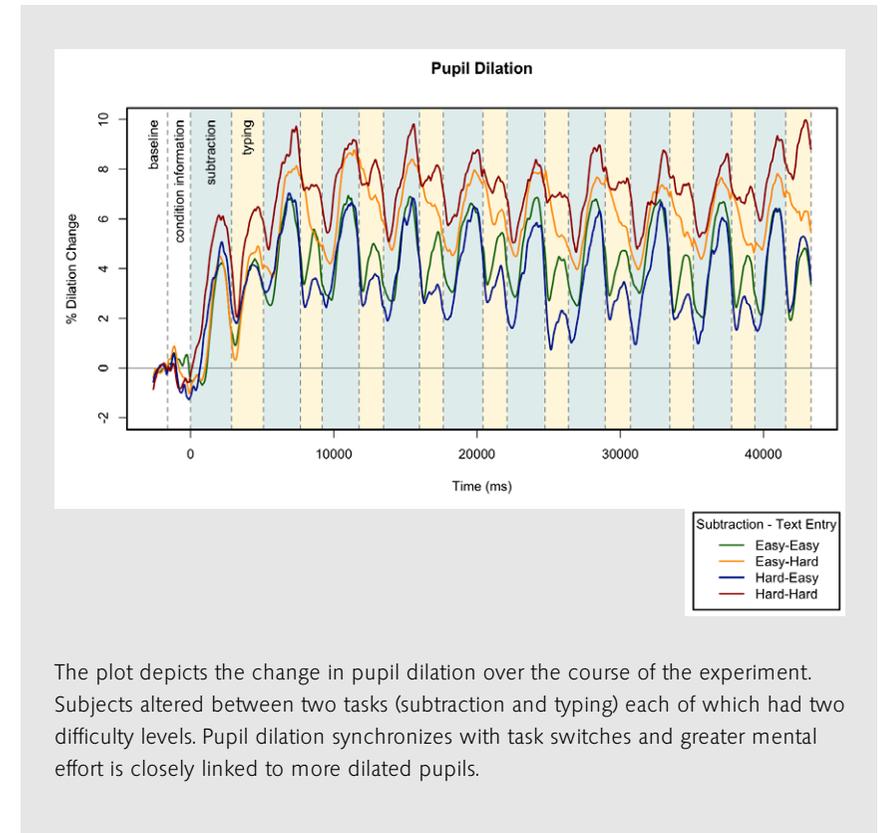
Even though we have known about this link before, the lack of appropriate imaging techniques prevented us from attributing the connection of pupil dilation and cognitive processes to specific brain regions. Thus, we know there is a relationship, but had no idea what it is caused by. The advent of positron emission tomography (PET) and functional magnetic resonance imaging (fMRI) has given us the tools to study the brain of living

subjects while they are performing certain tasks. These techniques have enabled us to study which cognitive processes are linked to pupil dilation and through which pathways in the brain such an effect is achieved.

Since we have learned a lot more about the mechanisms of the brain, eye trackers and their ability to track changes in pupil dilation have experienced a new surge in interest. Currently, eye trackers are used to study the link between brain regions and pupil dilation. Even though the research conducted using the same technique might seem very different, it has the same goal: getting to know more about how the brain works.

Jelmer Borst at the Department of Artificial Intelligence is working with ACT-R, a so-called cognitive architecture, to create computer models that aim to simulate human behavior in very specific tasks. He uses data collected from human subjects to compare with his computer model. The goal is to make sure the computer model can reproduce the same behavior in a task that is displayed by the human participants. The ACT-R theory proposes that specific parts of the ACT-R architecture are linked to specific brain regions. For example, whenever the computer model attempts to 'remember' something it has learned before, it is assumed that the brain region associated with declarative memory is activated.

Borst has previously used this information to create an ACT-R model that could predict fMRI data of human subjects. The task that he modeled involves



The plot depicts the change in pupil dilation over the course of the experiment. Subjects alternated between two tasks (subtraction and typing) each of which had two difficulty levels. Pupil dilation synchronizes with task switches and greater mental effort is closely linked to more dilated pupils.

alternating between two tasks. Subjects either worked on a subtraction task or entered text via an on-screen keyboard. There were easy and hard versions of the task, resulting in four possible conditions. Now he is using the same model to try and establish a link between the model's internal mechanisms and pupil dilation data obtained from human subjects in order to enable his model to also predict how pupil dilation changes throughout the experiment.

The idea used in this line of research is that pupil dilation is tightly linked to mental effort. As mentioned

» CONTINUATION EYE TRACKING

before, greater mental effort is associated with greater pupil dilation. First inspection of the data collected by Borst has confirmed this relationship (see the plot). The next step will be to try and couple specific internal mechanisms of the computational model to the pattern of the pupil's dilation and contraction over the course of the experiment.

This specific link has not yet been established. However, once it is, computational models could make additional, testable predictions that could be used to evaluate the power of the model. Such a link would not only help improving the ACT-R architecture but also enhance our understanding of the brain regions and mechanisms involved in humans.

While the ultimate goal of Borst's research is to be able to predict brain activity based on a computational model, Hedderik van Rijn at the Department of Experimental Psychology is currently testing whether activity in specific brain regions can be related to pupil dilation.

Surveying the literature for the neurobiological basis of our ability to estimate time intervals in the range of seconds, van Rijn came across a possible link between timing and pupil dilation. Preliminary research has confirmed that subjects' pupils start to dilate when they start to time a previously learned interval and that the dilation reaches its peak at the end of the interval.

One possible explanation for this relationship is suggested by the striatal beat-frequency model of time estimation which claims that a part of the basal ganglia, the substantial nigra, releases a burst of dopamine whenever we start timing an interval. This initial burst of dopamine might then activate connected brain regions, namely the ventral segmental area (VTA) which is in turn connected to the locus coeruleus (LC). When activated, the LC releases noradrenaline which effectively dilates the pupil.

Getting to know more about this rather complex circuit in the brain could help a great deal in linking easily obtained behavioral data (i.e. pupil dilation changes) to certain cognitive tasks (i.e. timing an interval). Furthermore, researching the exact working of such an interaction would facilitate theoretical advances, in this case of the striatal beat-frequency model of time estimation.

In summary, we have seen how eye tracking data can be used to get to know more about the brain regions involved in different cognitive tasks. While the main goal of both lines of research outlined in this article is to get to know more about the way the human brain works, it is clear that very different approaches can be taken to reach that goal.

■ FLORIAN SENSE

» BCN PH.D RETREAT

"Although gold dust is precious, when it gets in your eyes, it obstructs your vision"

(Hsi-Tsang)

"Oh great...like I don't have enough to do already..." was the first thing that crossed my mind when I saw the email by Diana inviting me to the 2 day BCN PhD retreat in Odoorn. Being a PhD student means that your time is fully occupied mainly by your own research project. Time is a valuable commodity which becomes even more valuable as the years pass by and therefore should not be wasted on irrelevant matters. However, the older I get the more I understand what Bukowski said when he wrote: "Don't try!". This is not meant to discourage people from writing (or trying!), but is a reminder that sometimes the more you pursue something the more elusive it becomes. Sometimes it's better to just let go (and that is especially true when you have a mental block), have a break, do something else and the solution sooner or later will come to you.

That is exactly how I benefited from the retreat. Although, initially, I thought it would be a waste of time, it actually inspired me immensely. Something I truly appreciated a few weeks after the retreat. Besides that I enjoyed myself from undertaking various fun activities (such as the great walk in the forest around Odoorn, or the 'gezellig' jamming session that night), there was something else that resonated inside of me for a very long time. It certainly was an incredible opportunity to meet

various young, talented and knowledgeable researchers and discuss a wide range of topics, from scientific research and development (including individual's research) to more abstract and philosophical discussions. The diversity of ideas, areas of research and personalities made it a very colorful and pleasant experience and reminded me that especially as researchers we tend to focus on the minute, the small details, while we forget the bigger picture. The conversations and the interactions I had, helped me to look at my own research through the eyes of others, hopefully helping me become a better scientist. That opportunity to distance yourself from what you so desperately want and look at it from the perspective of the whole is what has been the most important knowledge I took from the retreat.

So, I am hoping that this realization will not be the penultimate one I gain from the BCN retreat, with this year's retreat hopefully being an even greater success than last year's. See you all there!

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APPLICATION: janine.wieringa@med.umcg.nl

■ NIKOLAOS STAVRAKAKIS

› ALUMNUS COLUMN

Aotearoa, the land of the long white cloud



In Groningen I studied ways to improve balance of people with sensory loss in their lower legs and feet and in May 2009 I finished my PhD. After finishing my PhD, I wanted to do a post-doc somewhere in the world, preferably outside of Europe in an English spoken country. I started writing open application letters to some contacts in Canada and Australia and applied for some vacancies as well. In April 2009 I had my first interview (by phone) with a research institute from Christchurch, New Zealand and a few weeks later they offered me a one year post-doc position. They wanted

me to start as soon as possible, so end of May Janneke, my girlfriend, and I got on a plane, not to New Zealand but to Fiji for a week of summer before heading to the New Zealand winter.

In June 2009 I started my post-doc at Industrial Research Ltd., one of New Zealand's Crown Research Institutes. IRL is a semi commercial research institute, comparable to TNO in the Netherlands. A small team was working on R&D of equipment to exercise the hemiplegic upper limb of stroke survivors. Currently robotic rehabilitation of stroke survivors is a hot topic. There is a large body of evidence supporting the idea that highly repetitive task oriented training can improve motor function of the affected arm. Robots are very suitable to enable stroke victims to execute a lot of repetitions and computer games can help them to keep motivated. The main problem of robots is the costs. Therefore only very large, research orientated rehabilitation hospitals are able to purchase these

devices. At IRL the goal was to develop devices that can enable stroke survivors to execute highly repetitive exercises without the need of a robot. We focused on devices that use the strength of the unaffected side to assist and support the movement of the affected side and we used computer games to guide the movements and to motivate the user. My role was to assist in the development of the devices and computer games, develop training protocols for the users and to study the effectiveness of the devices in improving arm function. The research I did was applied in practice on short term. Some devices we developed were brought to market by a spinoff company within a year. This made the work very rewarding.

Yes that was my role. After a very exciting year I decided not to renew my one year contract. One of the reasons was that New Zealand is quite far away. Moreover, staying only a bit longer was not really an option for us because a lot of paperwork had to be done to get our visa and work permits sorted, not worth it for a short period. So we had to leave the country in June 2010. This was not a bad thing at all. We did want to travel more in New Zealand but not during the winter. Therefore we went to South-East Asia for three awesome and warm months, traveling through Indonesia, Malaysia and Borneo. In September we returned to the New Zealand spring to see all those beautiful spots that were too far away to see during a weekend trip or summer holidays.

Life in Aotearoa (Land of the long white cloud in Moari), New Zealand is good. It's is an awesome country; every weekend feels like a holiday, great sceneries, loads of outdoor opportunities and work is only work. For Kiwis, that's how you call an inhabitant of New

Zealand, what you do after work (or before) is way more important than the job itself. Of course I played ultimate frisbee in NZ, but also tried to improve my surfing skills and enjoyed lots of (multi day) tramps (the kiwi word for walking/hiking). During the first few weeks I converted our people mover car into a small campervan, a must have in NZ with its long distances and poor public transportation. It was awesome to drive to some random beautiful spots and park your bed there.

One topic that has to be mentioned as a Dutchy abroad is biking. Yes I did cycle to work 5 days a week and no, I was not the only one. So what is so special about it? Well the use of a bicycle as way of transport. Isn't that the same as the Kiwis that bike to their work? No. When a Kiwi cycles to work he wants to break his personal record every morning again. Biking to work is sports, you do that in full lycra outfit, with the compulsory helmet (yes I was wearing one as well), a fluorescent safety vest, and if dark with a whole Christmas tree of lights. And then there are the non-cyclists (about 90% of the population), they think cyclists are annoying and they know that their car is much stronger than a bike (which is obviously true).

Now I'm back in the Netherlands, and will start a new challenge at the department of Rehabilitation Medicine of the UMCG. In February I started my new position at the lab for movement analysis. This position is a combination of clinical diagnostics and research so you might see me around.

My advice to current PhD students: Do it, go somewhere else, and yes NZ is awesome, but watch out on your bike.

■ JUHA HIJMANS

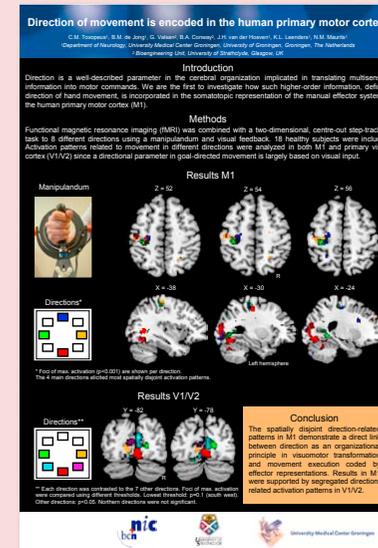
BCN 'New Year's' meeting

The BCN New Year's meeting, as for the last few years, was set to a rather late date. This year it was held on February 17th. Prof. Erik Boddeke suggested to change the name to Spring meeting if we can't change this pattern in the near future. Although the name might misrepresent the date, it was an informative day. It started with a presentation from Prof. Frans Zwarts. He has stepped down as Rector Magnificus, and will come back to BCN. Second, Michiel Hooiveld was introduced to the BCN community. He is assigned to take over from Nynke Penninga, because she found a new job in Leiden. Third, Prof. Boddeke, explained that the budget cuts are influencing the BCN expenditure. The most dramatic result is that this newsletter will no longer be printed on paper, and that the BCN retreat will not be as luxurious as before. However, BCN is improving its way to relate to and make use of digital media. The magazine is now sent to you as PDF-file, but we intend to make it more interactive. The BCN website has been updated by Prof. Natasha Maurits. Furthermore, BCN is thinking about ways to integrate social media into its communication tools. We are open for suggestions: so if you have comments or ideas please contact us!

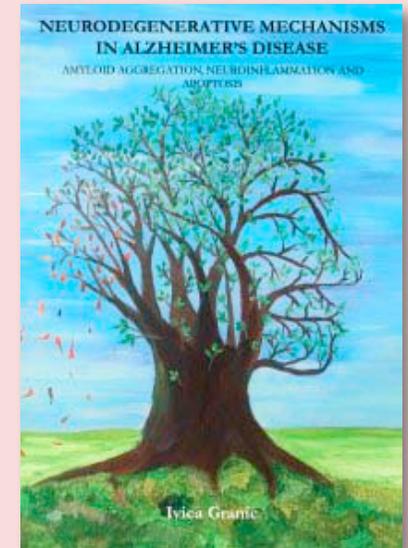
During the FORUM students could ask difficult questions to top researchers in the field of neurobiology and we learned a lot! Prof. Benno Roozendaal, a specialist in memory formation, explained that smoking cannabis or drinking lots of alcohol impairs memory retrieval, and could therefore be effective (temporarily) for forgetting a break up. Dr. Bart Eggen, an epigeneticist, said that many different plant species have even more genes than humans. The difference is that humans seem to make better use of their genes. Prof. Ton Groothuis believes that environmental factors are strongly influencing sexuality. According to him, there is no such thing as a sexual preference gene. Prof. André Aleman explained

that the neurobiology of consciousness is still hardly understood. However, he believes that within the next few decennia, lots of progress will be made. Prof. Domien Beersma, believes that we are always dreaming when we sleep. However, we are not always capable of memorizing our dreams.

Next, several prizes were awarded to talented young researchers from different scientific fields. The BCN poster prize was given to Carolien Toxopeus (MD/PhD) from the Department of Neurology for her poster presentation about the Direction of Movement. The BCN summary prize was awarded to Leendert van



Poster Toxopeus



Ivica Granic winning thesis

Maanen, from the department of cognitive modeling, for his BCN dissertation summary published in the booklet: 'To the point'. The idea of this award is to stimulate PhD researchers to write a clear and understandable summary of their project, so that people with different backgrounds can easily understand what this thesis is about. Remarkably, a large part of the audience couldn't understand the topic since both the reading about his work by Dr. Hedderik van Rijn and the summary published in the booklet: 'To the point' were in Dutch. The BCN dissertation prize 2011, was won by Ivica Granic, from Molecular Neurobiology. His thesis was named: Neurodegenerative Mechanisms in Alzheimer's Disease: Amyloid Aggregation, Neuroinflammation and Apoptosis. Ivica managed to get nine (!) published articles during his PhD, and the commission was unanimous about the intriguing and exciting way his thesis was written.

■ INGE HOLTMAN

› ORATIONS

Als de vos de passie preekt...

ORATIE

D.A. de Waard

TITEL

Als de vos de passie preekt...

LEEROPDRACHT

Auditing

DATUM

11 januari 2011

Hoe volledig en oprecht zijn ondernemingen als zij een duurzaamheidsverslag publiceren? Ondanks de aanwezigheid van richtlijnen zijn met regelmaat kritische geluiden te horen over duurzaamheidsverslaggeving en de controle/beoordeling daarvan. Prof.dr. Dick de Waard gaat tijdens zijn oratie in op de rol van de accountant bij duurzaamheidsverslaggeving.

De duurzaamheidsverslaggeving is vooral vrijwillig en kan door bedrijven worden gebruikt als marketinginstrument of als instrument ter legitimatie. Uniformiteit en vergelijkbaarheid zijn vaak ver te zoeken. En de redactie van de zogenaamde 'assurance rapporten' die de externe auditors afgeven, roept vraagtekens op ten aanzien van de aard van de assurance opdracht en de diepgang van de verrichte werkzaamheden.

Tegelijkertijd wordt deze vorm van informatie door een groeiende groep stakeholders als belangrijk gekwalificeerd. Daardoor neemt het belang van verificatie van deze verslagen toe. Het zou voor ondernemingen een logische optie zijn om de huisaccountant daarvoor in te schakelen. Maar dan rijst een aantal vragen. Deze vragen vinden hun oorsprong in de motivatie van de

onderneming om een duurzaamheidsverslag uit te brengen en te laten controleren, de feitelijke inhoud van het duurzaamheidsverslag, de deskundigheid van de accountant en de aard van de assurance-opdracht.

De intrinsieke motivatie van de onderneming staat daarbij centraal. De accountant dient zich concreet af te vragen of het wenselijk is om een assurance-opdracht te accepteren, indien het risico reëel is dat zijn assurance rapport een 'emotive symbol' wordt in de drang van de onderneming om zich te legitimeren. Hoewel een groot aantal ondernemingen wel degelijk vanuit een duidelijke intrinsieke motivatie en drang naar transparantie een duurzaamheidsverslag opstelt en laat controleren, geldt voor de accountant: Als de vos de passie preekt, boer let op je kippen.

Grenzen aan professionele autonomie

ORATIE

A.R. Mackor

TITEL

Grenzen aan professionele autonomie

LEEROPDRACHT

Professie-ethiek, in het bijzonder van juridische professies

DATUM

25 januari 2011

In haar oratie gaat Anne Ruth Mackor in op de vraag waar de grenzen aan de autonomie van professionals liggen. De aanleiding voor dit onderwerp mag duidelijk zijn. De laatste jaren klagen professionals steeds luider dat managers, toezichthouders en de overheid inbreuk

maken op hun autonomie. Autonomie die professionals als noodzakelijke voorwaarde voor de kwaliteit van hun beslissingen en handelingen beschouwen. Omgekeerd vinden diezelfde managers, toezichthouders en overheid dat professionals zich meer moeten verantwoorden. Hierbij is van belang dat die verantwoording ten dele plaatsvindt aan de hand van regels en richtlijnen die van buitenaf zijn opgelegd.

Eenzijds rijst dus de vraag of autonomie noodzakelijk is voor de kwaliteit van professionele beslissingen en handelingen. Anderzijds rijst de vraag of verantwoording en externe regelgeving professionele autonomie ondermijnen.

Discussies over deze vragen blijken regelmatig in spraakverwarring te verzanden doordat discussianten de term 'autonomie' in verschillende betekenissen gebruiken. Voordat zinvol over deze vragen gesproken kan worden, moet dus eerst enige conceptuele helderheid geschapen worden. Mackor betoogt dat autonomie niet moet worden begrepen in termen van macht, vrijheid of onafhankelijkheid, maar veeleer in aansluiting bij de klassieke kantaanse idee van zelfwetgeving.

Aansluitend laat Mackor aan de hand van actuele voorbeelden zien in welke zin autonomie noodzakelijke voorwaarde is voor de kwaliteit van professionele handelingen en beslissingen. Daarbij zal zij aantonen dat verantwoording en externe regelgeving niet noodzakelijk strijdig zijn met autonomie en goede professionele besluitvorming.

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moet dus eerst enige conceptuele helderheid geschapen worden. Mackor betoogt dat autonomie niet moet worden begrepen in termen van macht, vrijheid of onafhankelijkheid, maar veeleer in aansluiting bij de klassieke kantaanse idee van zelfwetgeving.

Aansluitend laat Mackor aan de hand van actuele voorbeelden zien in welke zin autonomie noodzakelijke voorwaarde is voor de kwaliteit van professionele handelingen en beslissingen. Daarbij zal zij aantonen dat verantwoording en externe regelgeving niet noodzakelijk strijdig zijn met autonomie en goede professionele besluitvorming.

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

› PROMOTIONS

A circadian clock in yeast

PROMOVENDUS

Z. Chen

PROEFSCHRIFT

A circadian clock in yeast

PROMOTOR

Prof. dr. M. Merrow

Een biologische klok in gist

Hoewel circadiaanse (oftewel: biologische) klokken overall in de natuur gevonden worden, waren ze nog niet waargenomen in gisten. Zheng Chen zocht naar aanwijzingen voor een circadiaans systeem in de gist *Saccharomyces cerevisiae*. Ze creëerde daarvoor condities waarbij karakteristieke klokeigenschappen tot uiting zouden moeten komen. Om dagelijkse oscillaties te veroorzaken, werden *S. cerevisiae* culturen blootgesteld aan diverse temperatuurcycli. De reacties van de culturen op de temperatuurcycli tonen specifieke processen die wijzen op een circadiaans timingmechanisme, namelijk 'entraineering' en een gedempt vrijlopend ritme. Dit suggereert de aanwezigheid van een circadiaans systeem in *S. cerevisiae*.

Met NMR, MS en microarrays werd het ritmisch gedrag van genen en metabolieten van *S. cerevisiae* bekeken. Een grote diversiteit genen, waaronder genen die onderdeel zijn van de stikstof- en koolstofmetabolisme tot en met genen die de reactie op hitte en kou reguleren, en ongeveer vier procent van de metabolieten laten een expressiepatroon zien dat overeenkomt met een circadiaans ritme onder temperatuur-

entrainment. Chen ontdekte enkele door een circadiaanse klok geregeerde moleculaire ritmes die gebruikt kunnen worden om de klokgenen in *S. cerevisiae* in kaart te brengen.

Zheng Chen (China, 1976) studeerde biotechnologie in Wageningen. Het onderzoek werd uitgevoerd bij de afdeling chronobiologie en werd gefinancierd door NWO, de Hersenstichting en de EU. Zij promoveerde op 1 november 2010.

On the neural basis of emotion processing in depression and anxiety. An fMRI study in outpatients

PROMOVENDUS

L.R. Demenescu

PROEFSCHRIFT

On the neural basis of emotion processing in depression and anxiety. An fMRI study in outpatients

PROMOTORES

Prof. dr. A. Aleman

Prof. dr. J.A. den Boer

Nieuw inzicht in depressie en angststoornis

Bij het waarnemen van emoties zijn bij mensen met een lichte depressie of een angststoornis dezelfde hersengebieden actief als bij gezonde mensen. Het is juist de manier waarop deze hersengebieden met elkaar communiceren die verschilt van de controlegroep. Dat blijkt uit het promotieonderzoek van Ramona Demenescu. Demenescu gebruikte functionele magnetische resonantie (fMRI) om de hersenactiviteit te meten van een grote groep poliklinische



patiënten met depressies en angststoornissen in de eindfase van hun behandeling. Een van de tests ging om de herkenning van gezichtsuitdrukkingen.

Demenescu vond ook dat mensen met een depressie of een angststoornis een heftiger reactie vertonen op externe emoties naarmate ze er langer over kunnen nadenken. Verder vond Demenescu bewijs voor de recente opvatting dat een combinatie van depressie en angststoornis moet worden aangemerkt als een

aparte aandoening en niet simpelweg als een optelsom van de twee.

Ramona Demenescu (Roemenië, 1979) deed haar promotieonderzoek bij het UMCG en het BCN Neuroimaging Center. Haar onderzoek maakt deel uit van het NESDA-project (Netherlands Study of Depression and Anxiety Disorder). Demenescu werkt momenteel als postdoc bij de universiteit van Aken, Duitsland. Zij promoveerde op 22 november 2010.

Early intervention in infants at high risk for developmental motor disorders

PROMOVENDUS

C.H. Blauw-Hospers

PROEFSCHRIFT

Early intervention in infants at high risk for developmental motor disorders

PROMOTOR

Prof. dr. M. Hadders-Algra

Motorische stoornissen vragen nieuwe aanpak

Het is de vraag of het zinvol is om door te gaan met de traditionele fysiotherapeutische begeleiding van kinderen met een verhoogde kans op motorische stoornissen. Programma's waarin ouders leren om de ontwikkeling van een kind met een motorische beperking te stimuleren lijken meer effect te hebben. Tot die conclusie komt promovenda Cornill Blauw-Hospers in haar proefschrift.

Blauw-Hospers vergeleek in haar onderzoek de gangbare vorm van kinderfysiotherapeutische

» CONTINUATION PROMOTIONS

begeleiding met een nieuwe interventie genaamd COPCA (coping with and caring for infants with special needs - a family-centered programme). Het blijkt dat COPCA (iets) beter scoort dan de traditionele methode.

COPCA richt zich op de relaties en interacties binnen het gezin. Ouders worden gecoached om de algehele ontwikkeling van hun kind zo goed mogelijk te stimuleren. Uitdagen en variëren staan hierin centraal. Uit de literatuur blijkt dat deze aanpak vaak goede resultaten laat zien. Blauw-Hospers onderstreept dat COPCA nog verder moet worden onderzocht voordat het in de praktijk kan worden toegepast.

Cornill Blauw-Hospers (Groningen, 1978) studeerde bewegingswetenschappen in Groningen. Ze verrichte haar promotieonderzoek bij het Instituut voor Ontwikkelingsneurologie van het UMCG en binnen de onderzoeksschool Behavioral and Cognitive Neurosciences (BCN). Het onderzoek werd medegefinancierd door het Juliana Kinderfonds, Stichting Fonds de Gavere, de Corneliastichting en BCN. Blauw-Hospers werkt als adviseur bij het Koninklijk Nederlands Genootschap voor Fysiotherapie. Zij promoveerde op 1 december 2010.

aSERTaining conflict in mice

PROMOVENDUS

D. Natarajan

PROEFSCHRIFT

aSERTaining conflict in mice

PROMOTOR

Prof. dr. J.M. Koolhaas

Vechtlustige muis heeft verstoorde serotoninehuishouding

Slechts een klein percentage van de mensen vertoont buitensporige- en gewelddadig vormen van agressie, maar de negatieve sociale, medische en economische gevolgen van dit abnormale gedrag kunnen omvangrijk zijn en worden door de hele maatschappij als zeer problematisch en ontwrichtend bestempeld. Een probleem dat verergert door het ontbreken van effectieve farmaco- of gedragstherapieën voor antisociale probleemgedrag. Om doeltreffende interventie- en preventiemethoden te ontwikkelen is het noodzakelijk gedetailleerd inzicht te krijgen in de onderliggende neurobiologische mechanismen van agressief en gewelddadig gedrag. Onderzoekster Dee Natarajan vergeleek hiervoor de serotoninehuishouding van zeer agressieve en minder agressieve muizen.

Dierexperimentele modellen voor agressie en geweld zijn voor dit doel onmisbaar. Het grootste deel van het agressieonderzoek is tot nu toe echter uitgevoerd met sterk gedomesticeerde (en dus nauwelijks agressieve) ratten of muizen. Agressief gedrag wordt uitgelokt door de dieren te confronteren met een onbekende soortgenoot in competitie om territorium of dominantie. De laboratoriummuizen vertonen dan normale

en uiterst functionele vormen van agressie die weinig lijken op het problematische agressieve gedrag van mensen.

Het menselijke problematische gedrag is een pathologische vorm van agressief gedrag, met als kenmerken dat het buitenproportioneel is qua intensiteit (out of control) en situatie (out of context), en primair het doel heeft om de tegenstander ernstig te verwonden of te doden. Bij de experimenten uit dit proefschrift is gebruik gemaakt van drie verschillende muizenstammen (waaronder SAL-, TA- en NC900-muizen) die tijdens de fok systematisch geselecteerd zijn op veel aanvallende agressiviteit.

Vooraf mannelijke SAL-muizen gedragen zich gewelddadig en agressief tijdens confrontaties met binnendringende soortgenoten. Kenmerken zijn een hoge intensiteit van aanvallende agressie en een verlies van remmingen over het uitvoerende gedrag, maar vooral de afwezigheid van het vermogen om een onderscheid te maken tussen reële en neutrale sociale bedreigingen, het achterwege laten van geritualiseerde dreighoudingen die bijtaanvallen aankondigen, en het negeren van signalen van de tegenstander. Het mag dan ook geen verwondering wekken dat een dergelijke vorm van agressie leidt tot ernstige verwonding van de tegenstander.

Bij de twee andere op agressie geselecteerde stammen (TA en NC900) kon een dergelijk pathologisch agressiviteit niet opgewekt worden. Kennelijk zijn bepaalde aangeboren (genotypische) eigenschappen door het langdurige domesticatieproces bij de gebruikelijke laboratoriumstammen verloren gegaan, die bij de recent van wilde huismuizen afstammende SAL-muizen nog wel voorkomen.

Het onderzoek richtte zich op specifieke

neurobiologische verschijnselen die mogelijk een belangrijke rol spelen bij het abnormale gedrag.

Een van de meest kenmerkende neurobiologische afwijkingen, die bij pathologisch agressieve mensen frequent wordt gevonden, is een lage serotonine neurotransmitter activiteit in hersengebieden die een sterke controle over agressief gedrag hebben.

Uit eerder onderzoek bleek dat specifiek de zeer agressieve SAL-muizen, in het bijzonder na herhaalde sociale winnaarservaringen, lage serotonine concentraties in verschillende hersengebieden hebben.

Om inzicht te krijgen in de oorzaak van deze serotonine deficiëntie is de functionele activiteit bepaald van twee belangrijke moleculaire componenten die de serotonine huishouding regelen. Die componenten zijn het serotonine synthetiserende enzym tryptofaanhydroxylase (Tph) en het serotonine transporter eiwit (SERT) dat extracellulair serotonine weer terug transporteert naar het presynaptische neuron om te worden hergebruikt of afgebroken.

In het onderzoek is aangetoond dat er geen verschillen bestaan in de activiteit van Tph tussen de agressieve en niet-agressieve muizenlijnen. Een verminderde serotonine synthese capaciteit is dus niet de oorzaak van de optredende serotonine deficiëntie bij de agressieve SAL muis.

De functionele activiteit van het SERT verschilde echter sterk tussen agressieve en niet-agressieve dieren alsook tussen de verschillende agressieve stammen onderling.

Dit verschil is ondermeer aan het licht gekomen uit een gedragsfarmacologische studie naar de potentiële anti-agressieve effecten van fluoxetine (Prozac) toediening bij de verschillende agressieve muizenlijnen.

» CONTINUATION PROMOTIONS

Fluoxetine is een selectieve serotonine-heropnameremmer die de SERT blokkeert en daarom veelvuldig als medicijn worden voorgeschreven tegen verschillende neuropsychiatrische aandoeningen. Door de blokkade van de serotonine-heropname wordt de extracellulaire concentratie van serotonine, en daarmee de synaptische neurotransmissie, verhoogt waardoor therapeutische effecten optreden.

Uit dit experiment is gebleken dat de SAL-muizen niet reageren op chronische fluoxetine toediening met een afname van hun buitensporige agressie, terwijl dit effect wel duidelijk optrad bij de twee andere hoog-agressieve muizenlijnen. Kennelijk zijn de SAL-muizen ongevoeliger voor serotonineheropnameremmers.

Uit een biochemische analyse van de SERT-functionaliteit werd duidelijk dat de gewelddadige SAL-muizen een sterk verminderde serotonine-heropnamecapaciteit hebben. De verlaagde SERT-functie verklaart de relatieve ongevoeligheid voor de behandeling met remmers.

Ook is het aannemelijk dat door deze, deels genetisch-bepaalde en deels ervaring-geïnduceerde, verminderde SERT-functie de serotonine-homeostase en -neurotransmissie wordt verstoord. Dat bevordert het ontstaan van gedragstoornissen zoals pathologische agressie.

Dee Natarajan (India, 1975) studeerde biochemie aan de University of Madras. Het onderzoek werd uitgevoerd bij de vakgroep Behavioral Physiology. Natarajan gaat verder in het onderzoek als postdoc aan de University of Wisconsin. Zij promoveerde op 10 december 2010.

Behavioral and molecular consequences of sleep deprivation

PROMOVENDUS

R. Hagewoud

PROEFSCHRIFT

Behavioral and molecular consequences of sleep deprivation

PROMOTOR

Prof. dr. J.M. Koolhaas

Slaap en geheugen

Roelina Hagewoud onderzocht de gedragsmatige en moleculaire consequenties van slaapttekort. Slaapttekort is een veelvoorkomend probleem in onze 24-uurs maatschappij. Een belangrijk

gevolg van slaapttekort is dat het een negatief effect kan hebben op geheugen. De belangrijkste doelstelling van haar promotieonderzoek was om de consequenties te onderzoeken van slaaponthouding op verschillende stadia in het verwerken van geheugen. Daarbij onderzocht zij ook de onderliggende mechanismen in de hersenen.

In haar proefschrift toont Hagewoud aan dat acute, kortdurende onthouding van slaap een negatief effect kan hebben op het aanleggen, vastleggen en aanpassen van geheugen en op de gedragsmatige prestatie bij een leertaak. Belangrijk is dat de verstoring van geheugenprocessen door slaaponthouding daadwerkelijk gerelateerd lijkt te zijn aan de hoeveelheid verloren slaap en niet veroorzaakt wordt door de mate van interferentie door stress en stimulaties tijdens het waken. Vooral het geheugen voor taken die afhankelijk zijn van de hippocampus (een belangrijk hersengebied dat betrokken is bij leerprocessen) is gevoelig voor slaaponthouding. Onthouding van slaap na leren leidt in de hippocampus tot een vermindering in de expressie van geactiveerd CREB, een eiwit dat kritisch betrokken is bij geheugenvorming.

Hagewouds meest opvallende ontdekking is dat het effect van slaaponthouding op cognitieve prestatie niet altijd direct zichtbaar is, doordat het brein tijdelijk kan compenseren voor deze effecten door het gebruik van alternatieve leermechanismen en andere hersengebieden die blijkbaar minder gevoelig zijn voor slaapttekort. Maar de effecten kunnen lang na de eigenlijke slaaponthouding alsnog zichtbaar worden, omdat het gebruik van alternatieve leermechanismen kan resulteren in een verminderde flexibiliteit onder

omstandigheden die vereisen dat een reeds gevormd geheugen aangepast kan worden.

Roelina Hagewoud (Meppel, 1984) studeerde medische biologie aan de Rijksuniversiteit Groningen, waar zij haar promotieonderzoek deed bij de Groningen Graduate School of Science, vakgroep Gedragsfysiologie. Haar onderzoek werd gefinancierd door NWO. Zij promoveerde op 3 december 2010.

Balancing stress and recovery in sports

PROMOVENDUS

M.S. Brink

PROEFSCHRIFT

Balancing stress and recovery in sports

PROMOTOR

Prof. dr. C. Visscher

Ook topsporters moeten op vakantie

Herstel is voor topsporters net zo belangrijk als trainen. En voor optimale prestaties moeten ze ook letten op hun mentale welbevinden. Dat zegt promovendus Michel Brink, die onderzoek deed naar stress en herstel bij jonge topsporters. Als sporters langer en harder gaan trainen kan dat leiden tot blessures, ziektes en overtraindheid. Bij overtraindheid gaan de prestaties achteruit en kampen sporters met vermoeidheid, verstoorde eet- en slaappatronen, concentratieproblemen en gevoelens van depressie.

Brink volgde twee jaar lang een grote groep jonge Nederlandse topvoetballers en -atleten. Hij liet ze met behulp van dagboeken en



» CONTINUATION PROMOTIONS



vragenlijsten hun trainingsprogramma en mentaal welbevinden bijhouden en koppelde die informatie aan testprestaties, blessures en ziektes. Ook onderzocht Brink vroege signalen van overtraindheid zoals hormonale reacties op inspanning en reactiesnelheid.

Brink ontdekte dat bij het monitoren van de balans tussen stress en herstel zowel fysieke, psychologische als sociale aspecten moeten worden meegenomen. De trainingsbelasting opvoeren kan, maar alleen zolang de sporter zich er op alle fronten goed bij voelt. Is dat niet meer het geval, dan kan hij beter terugschakelen. Soms kan met minder training een beter resultaat worden behaald en het risico op gezondheidsproblemen worden verminderd.

Michel Brink (Hengelo, 1981) is fysiotherapeut en bewegingswetenschapper. Hij deed zijn promotieonderzoek bij het Centrum voor

Bewegingswetenschappen van het UMCG en de Graduate School for Behavioural and Cognitive Neurosciences (BCN) van de RUG/UMCG. Zijn onderzoek werd medegefinancierd door ZonMw. Brink werkte al als docent bij het Centrum voor Bewegingswetenschappen. Sinds september coördineert hij daarnaast bij het Hanze Instituut voor Sportstudies onderzoek naar de optimalisatie van sportprestaties. Hij promoveerde op 6 december 2010.

The stressed brain. Inquiry into neurobiological changes associated with stress, depression and novel antidepressant treatment

PROMOVENDUS

G. Dageyte

PROEFSCHRIFT

The stressed brain. Inquiry into neurobiological changes associated with stress, depression and novel antidepressant treatment

PROMOTORES

Prof. dr. P.G.M. Luiten

Prof. dr. J.A. den Boer

Prof. dr. E.A. van der Zee

Behandeling van door stress veroorzaakte depressieverschijnselen

Girsté Dageyte richtte haar promotieonderzoek op de door stress veroorzaakte veranderingen in de hersenen, die aanleiding kunnen geven tot verschijnselen van depressie. Ook heeft zij de effecten onderzocht van een nieuw antidepressivum, agomelatine, dat de melatoninereceptoren activeert en de serotonine-2C-receptoren blokkeert.

Een gespannen gevoel, hyperventileren en een verhoogde hartslag zijn bekende symptomen van stress. Het is de manier waarop ons lichaam reageert op alarmsignalen in onze omgeving, of deze nu echt zijn of denkbeeldig. Stress kan ons leven redden en ons voorbereiden op grote prestaties, maar als we er niet goed mee omgaan, kan ernstige en langdurige stress tot grote schade leiden.

Stress en de aandoeningen die erdoor kunnen worden veroorzaakt, vormen een aanzienlijke bedreiging voor de gezondheid



in onze moderne samenleving. Stressvolle ervaringen brengen veranderingen in de hersenen teweeg die kunnen leiden tot psychische stoornissen zoals depressie. Hoewel er vele behandelingsmethoden tegen depressie zijn ontwikkeld, is hun effect niet optimaal en is het werkingsmechanisme van veel behandelingen niet goed bekend.

Dageyte beschrijft in haar proefschrift dat chronische stress gepaard gaat met veranderingen in de signaaloverdracht tussen zenuwcellen in de hersenen. Deze veranderingen zijn dynamisch en afhankelijk van de aard en de duur van de stressor. Agomelatine oefent zijn werking uit door de negatieve veranderingen in signaaloverdracht bij stress te compenseren. Dit geeft ons een beter inzicht in de mechanismen die het herstel bevorderen van door stress-veroorzaakte psychiatrische stoornissen. Deze kennis is van belang om te komen tot verbeterde behandeling van depressie en het voorkomen ervan.

Girsté Dageyte (Litouwen, 1980) studeerde medicijnen aan de Vilnius University. Haar promotieonderzoek deed ze aan de Rijksuniversiteit Groningen bij de afdeling Moleculaire Neurobiology. Het werd gefinancierd door het farmaceutische bedrijf Servier. Zij promoveerde op 13 december 2010.

Epac as a novel regulator of airway smooth muscle phenotype and function. Potential implications in asthma and COPD

PROMOVENDUS

S.S. Roscioni

PROEFSCHRIFT

Epac as a novel regulator of airway smooth muscle phenotype and function. Potential implications in asthma and COPD

PROMOTORES

Prof. dr. M. Schmidt

Prof. dr. H. Meurs

Activatie van eiwit Epac mogelijk heilzaam bij COPD

Sara Roscioni beschrijft in haar proefschrift de rol van de cAMP effector Epac (exchange protein directly activated by cAMP) bij (patho) fysiologische processen in de luchtwegen.

Astma en COPD zijn chronisch obstructieve longziekten, die gekarakteriseerd worden door luchtwegvernauwing, waarbij ontsteking, hyperreactiviteit en remodelling van de luchtwegen een belangrijke rol spelen. Veelvuldig therapeutisch toegepaste β_2 -agonisten induceren een effectieve bronchusverwijding door relaxatie van de luchtweg-gladde spier, gemedieerd door verhoging van cyclisch AMP (cAMP) en activatie van downstream effectoren. De ontstekingsremmende effectiviteit van β_2 -agonisten - en daarmee hun effectiviteit op het ontstaan van hyperreactiviteit en remodelling - wordt echter gelimiteerd door β_2 -receptordesensitisatie (ongevoeligheid) geïnduceerd door de β_2 -agonist. Daarom

is het van belang de drug ability van cAMP effectoren op een postreceptor niveau te bestuderen.

Roscioni toonde aan dat directe Epac activatie, via beïnvloeding van specifieke intracellulaire signaalroutes, leidt tot relaxatie van de gladde spieren in de luchtwegen, remming van ontstekingsreacties geïnduceerd door sigarettenrook (een van de belangrijkste risicofactoren van COPD), en remming van gladdespierverdikking veroorzaakt door ontstekingsmediatoren. Epac activatie zou dus van therapeutisch nut kunnen zijn voor de behandeling van luchtwegvernauwing bij astma en COPD. Heel opmerkelijk bleek in longweefsel van COPD-patiënten, mogelijk als gevolg van sigarettenrook, de expressie van Epac afgenomen, hetgeen bij zou kunnen dragen aan de pathofysiologie van deze ziekte. De resultaten die Roscioni beschrijft in haar proefschrift suggereren dat Epac een centrale rol speelt in de regulatie van de luchtwegfunctie en een interessant nieuw target vormt voor de behandeling van astma en COPD.

Sara Roscioni (Italië, 1980) studeerde farmacie aan de universiteit van Milaan. Haar promotieonderzoek deed zij aan de Rijksuniversiteit Groningen, bij de afdeling Molecular Pharmacology of the University Centre for Pharmacy in het kader van de Groningen Graduate School for Behavioral and Cognitive Neurosciences (BCN) and the Groningen Research Institute for Asthma and COPD (GRIAC). Haar onderzoek werd gefinancierd met een beurs van het Ubbo Emmius Fonds van de RUG. Zij promoveerde op 17 december 2010.

Adolescents in stress. The ups and downs of the psychophysiological stress response

PROMOVENDUS

N.M. Bosch

PROEFSCHRIFT

Adolescents in stress. The ups and downs of the psychophysiological stress response

PROMOTORES

Prof. dr. A.J. Oldehinkel

Prof. dr. J. Ormel



Nienke Bosch promoveerde op 26 januari 2011.

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

› PHD COUNCIL ANNOUNCEMENT

PhD-day for BCN PhD-students at all points of their trajectory

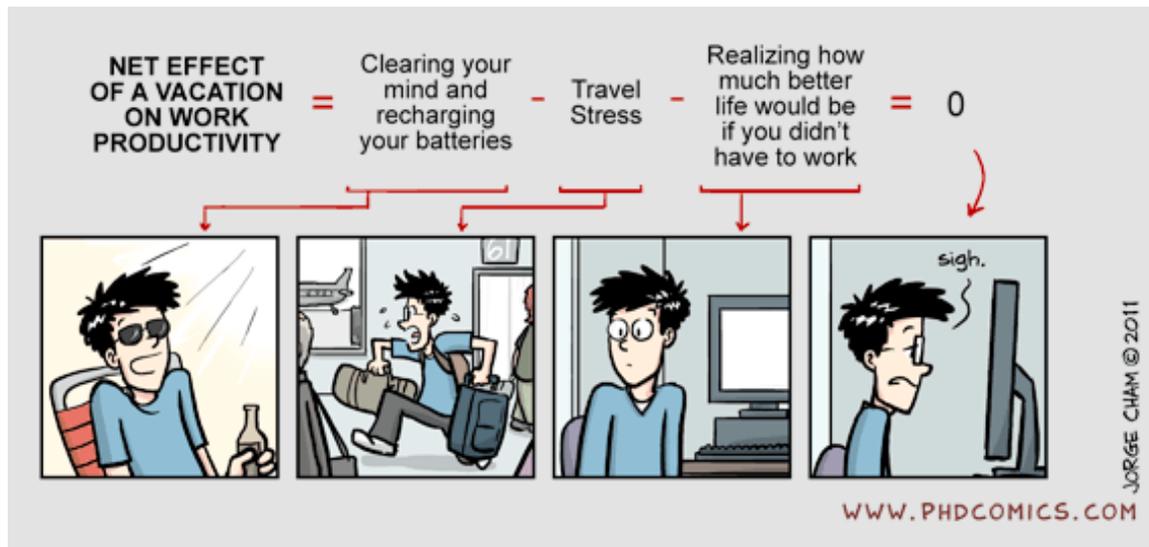
TOPIC: How to be a famous scientist! Publishing and Networking in a competitive world.

PROGRAMME: Keynote by Professor of Psychiatry James C. Coyne (H-index: 59) titled: "The low road and the high road to becoming a famous scientist: a choice."
Plus an assortment of appealing workshops for PhD-students interested in Publishing in high impact journals, getting grants and becoming well known throughout the scientific community, etc.

DATE AND TIME: May 15th 13.00-17.30.

LOCATION: Medical Faculty. Further information will be provided soon.

CONTACT: bcnphdcouncil@gmail.com



› COLOPHON

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BCN Office (FA30), A. Deusinglaan 2
9713 AV Groningen, 050 363 4734

Editors

Deniz Baskent, d.baskent@med.umcg.nl
Léon Faber, l.g.faber@rug.nl
Inge Holtman, i.r.holtman@med.umcg.nl
Evelyn Kuiper-Drenth, BCN Office, 050 3634734,
e.t.kuiper-drenth@med.umcg.nl
Hanneke Loerts, h.loerts@rug.nl
Melanie Meister, m.meister@med.umcg.nl
Dafne Piersma, dafnepiersma@hotmail.com
Florian Sense, floriansense@googlemail.com

Contributors

BCN PhD Council Committee, bcnphdcouncil@list.rug.nl
Deniz Baskent, d.baskent@med.umcg.nl
Erik Boddeke, h.w.g.m.boddeke@med.umcg.nl
Jelmer Borst, j.p.borst@rug.nl
Juha Hijmans
Diana Koopmans, BCN Office, 050 363 7817,
d.h.koopmans@med.umcg.nl
John MacNamara
Thomas Pollet, t.v.pollet@rug.nl
Hedderik van Rijn, d.h.van.rijn@rug.nl
Jan-Willem Romeijn, j.w.romeijn@rug.nl
Nikolaos Stavrakakis, n.stavrakakis@med.umcg.nl

Lay-out

Studio Dorèl, eddy@studiodorel.nl

Photo's/illustrations

Deepa Natarajan, Girste Dageyte, John McNamara,
Michel Brink, Ramona Demenescu, Thomas Pollet,
Jan-Willem Romeijn, Nienke Bosch, Tassos Sarampalis,
Deniz Baskent

Deadline for the next edition: 1 June 2011

› COLUMN

Night owls

Hi, my name is Fabrizio Bianchi and I am a PhD student in the Department of Neuroscience in the UMCG, where I study factors influencing the coding of the output of the motor cortex.

Since when I can remember I feared the summer. I come from a city, Rome, where the summer is on average 7 degrees hotter than in Groningen, both for minimum and maximum temperatures (source: Wolfram Mathematica CityData). Around me everybody always got excited by the coming of summer: they were like preaching to me about beaches, sea, no school nor university, practically paradise on Earth, but my idea of the summer is completely different. To me, it means waking up half dead and staying like that for most of the day, not enjoying anything, if not maybe a longer sleep, until the late evening. I always thought this happened because of my inherited hypotension, worsened by the Maghreb-like temperatures of the Eternal City.

But when I came here in July 2009, I was welcomed by fresh air, but also by what revealed to be a real nightmare: the long northern summer days. That was when I realized that my activeness was a function of day duration and not of temperature. For the sake of clarity, I want to stress that I am not an expert in human chronobiology nor have I ever worked in that field.

What I learned is that there are other people like me out there, called sometimes "night owls", "B-people" or, in a more politically correct way, "evening people". A more technical term for the phenomenon is "eveningness". These people are not merely vampires or people who

stay awake at night, it is more complex than this: night owls tend to be more lucid and active in the period immediately preceding sleep. I am actually not even sure that it really depends on the amount of sunlight, if not for the fact that I feel the urge to get out of bed when the sun comes up as a result of habit and social pressure.

This phenomenon would explain my lethargic summer behavior and, at the same time, why all year long I never went to bed before midnight and easily resisted until 3 am without any sign of tiredness. It is not even influenced by my usual dinner time, as I changed that from the Italian 9.30 pm to a Dutch-er-than-Dutch 6.30-7 pm which would allow me to have a huge amount of time ahead if I wasn't forced to bed so early to wake up in a decent condition the day after.

It is anyway a large-scale phenomenon, sleep researchers assessing that 15 to 25 percent of the population would be considered B-people.

In Denmark, an association called "B-society" was created in 2007, with the purpose to lobby for the rights of the B-people. Their main activity is the "B-certification" by which they are compiling a list of companies who accommodate the needs of morning haters. In the same way they plan to list also other structures, such as government offices, schools, etc. which ditched the nine to five mantra.

But far from the Dane example, I have to deal with this condition in my everyday PhD life. I guess that there are PhD projects which are compatible with a night time

shift and supervisors, most probably even mine, who would be ok with such an unorthodox time schedule. But I work on human subjects, so it will never be possible for me to change steadily to a night shift. Not to mention that I will lose most of the social interaction in my workplace.

There are also other risks of being a night person: a lot of us risk to be simplistically marked as lazy; dawn comes as an unpleasant surprise more than as an unusual beautiful sight; you call someone on the phone to just chat and discover that they have been asleep, sometimes for hours; the chants of birds have no romantic nuances for you, beginning at the time at which you would rather fall asleep.

It is also true that there are some advantages: employers, used to daytimers as employees, are ready to pay more for someone who accepts a night shift; when you're on-line after midnight, your computing is faster as traffic is down and server loads are lighter and, as Edgar Allan Poe suggests, "Those who dream by day are cognizant of many things which escape those who dream only by night".

If there are nightly PhDs in the BCN or, more generally, night people in the RUG and in Groningen, I say let's unite, share tips and tricks, stories and, if numerous enough, maybe even activate to inform the Daytime society we live in about our reality.

■ FABRIZIO BIANCHI, PHD
DEPARTMENT OF NEUROSCIENCE, UMCG