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Interview with Prof. Addie Johnson

Neuroergonomics: How neuroscience improves work environments

Addie Johnson is Full Professor of Human Performance and Ergonomics at the Department of Experimental Psychology and has been a member of the BCN board since 2007. In addition to her research on attention and memory, she investigates how knowledge from the cognitive neurosciences can be used to improve technology and to make work environments safer and more efficient.

Together with Robert Proctor (Purdue University, USA), Addie Johnson recently published the book ‘Neuroergonomics: A Cognitive Neuroscience Approach to Human Factors and Ergonomics’. While traditional ergonomics mainly relies on psychological theories to improve work environments and the worker’s performance therein, neuroergonomics accomplishes this by additionally applying neuroscientific methods and knowledge about human brain function. Hereby, theories about perception, attention, memory, cognitive control and human performance are used to optimally adapt work settings, products and technologies to human capabilities and limitations. Addie Johnson’s book represents an introduction into the methods, principles and key areas of neuroergonomics. While the book is comprehensible and enjoyable to read, it also provides a thorough examination of the possibilities and limitations of neuroergonomics. The book is intended for ‘upper-level undergraduates, graduate students, practicing ergonomists who wish to acquaint themselves with cognitive neuroscience, and cognitive neuroscientists who wish to broaden their thinking about the range of application of their work’.

I had the chance to interview Addie Johnson to get to know more about her book and the emerging field of neuroergonomics.
Hello Addie! Could you explain to what kind of work environments findings from neuroergonomics are most applicable?

In a very broad sense, you could say that neuroergonomics would apply to any work environment. To understand how people work, we need to understand the whole human which obviously includes the brain. However, the more technical neuroergonomic applications (such as brain-computer interfaces) are most applicable in high-performance environments, where a lot is at stake in terms of safety. Such work environments can be found, for example, in aviation, transportation, nuclear power plants, and in health care institutions. A specific example for an environment in which neuroergonomic applications are now being used is microsurgery. Surgeons are already being assisted by robotics to perform surgery in small places, such as in a heart chamber. In addition to providing other advantages, the robotic assistant might reduce tremor of the hand, which improves surgical safety and precision. Neuroergonomic applications are being developed to integrate eye-gaze information to improve navigation.

One of the main goals of neuroergonomics is to inform industries about ways to improve their products and technologies. This can only be accomplished through effective communication between universities and industry. Do you think that such communication has to be supported more actively?

Yes, I think that the communication between universities and industry is something we should support and in which we should take an active role. If students receive the opportunity to do an internship at a company lab, they should definitely use this chance. Especially as it is becoming increasingly difficult to get funding from NWO and other funding agencies, it is important to regard industry funding as a further possibility. Moreover, connections to the industry can be very profitable in a scientific as well as in a practical sense, because it can make you think in a different way about your own research and the value it has.

How do you personally imagine the future of neuroergonomics to look like? Will all pilots wear EEG caps in 50 years from now?

In some regards, I hope that things are not too much different from now, but only better. I am not a visionary hoping that we are all going to be wired up and plugged in. That is not my vision of a Brave New World. I would love to see an environment in which, for example, lights are better tuned to make people perform well and feel better and products are designed to maximize ease of interaction with the knowledge that we now have.
CONTINUATION OF THE INTERVIEW WITH PROF. ADDIE JOHNSON

Of course, we will see more technology in the future, but not every environment needs sophisticated measurements of, for example, mental workload. The idea of using physiological parameters to get more insight into the human operator to adjust the environment via adaptive interfaces is not new. People argue about how effective this idea is as a concept and how effective it will turn out to be in the future. There have been some real successes with this idea of adaptive interfaces. For example, great advances have been made in designing adaptive technologies for truck transport. Still, it is important to have a good reason to develop sophisticated technologies. An important consideration is whether we have the means the actually change the system in which a worker is operating. In other words, we do not need to measure operator load if we are not able to change the system once we know what the operator load is. So, in some sense neuroergonomics is getting a little bit ahead of itself. We have been solving many human problems, but we also need to solve the corresponding engineering problems. In a sense, this is okay. The human performance part is sometimes ahead of the engineering part and the engineering part is sometimes ahead of the human part. It all just needs to come together. But where are we going to be in 50 years? Who knows? I am not hoping we are all going to be cyborgs. That is not necessarily what someone would want from a neuroergonomics perspective. I am just hoping for better design and more reasonable use of our knowledge at the relevant places.

Measuring the brain activity of employees could be regarded by some as an intrusion into the employees’ personal rights. Do you think that neuroergonomics should take such ethical aspects into consideration?

I think this is a really interesting question. However you should remember that we have been obtaining measurements of such things as heart rate, skin conductance, and physical weight for a long time. Measurements of brain activity (such as alpha power) might be regarded as just another physiological variable. Of course, some people do not like to share these data, but most people aren’t any more concerned about sharing information about their brain activity than they are about sharing their weight or age information. There are some important issues, however. At the BCN Jubilee Symposium, Raja Parasuraman talked about molecular genetic approaches in which genetic information is used for such things as selection for specific jobs. Clearly, many people are not comfortable with this idea. Similarly, questions would likely arise if we were to start relating people’s brain activity to particular characteristics (e.g., stress resilience) and classifying them accordingly. Knowing what a person’s heart rate is at a particular point in time or how much alpha activity is present at the moment is not a big deal. In contrast, being labeled as a particular kind of person on the basis of one’s brain activity or genetic makeup is. We are then dealing with sensitive information and the situation becomes much trickier. The key question of whether it is ethical to measure people’s brain activity at their workplace depends therefore on what exactly will be done with the information we obtain from the workers.

You have already published several books. How does your experience of writing or editing books differ from your experience in writing journal articles?

Writing books and articles are clearly very different activities, but you can get into a kind of flow state with either one. Of course, writing books takes much longer, and the manner of writing is also more fun and relaxing. Although you primarily develop themes in your own field, writing a book requires you to make contact with research fields other than your own. You have to create a story and think about how the book could be used in the classroom. Writing a book might require a broader style of thinking. Writing an article is quite different. It’s like working on a puzzle in some sense. You have to make the pieces fit a pre-defined format and you have to see what the data are trying to tell you. Sometimes it feels like harder work, but if the writing goes well, it can also be very rewarding.

Do you have plans for further books?

Robert Proctor and I wrote our first book (Skill Acquisition and Human Performance; Sage Publications, 1995) together when I was in graduate school. We’re now working on a revised version of this book which will be published by Psychology Press as Skill Acquisition and Training.

Thank you very much for this interview!

■ BY SABINE SCHOLZ
■ PHOTOS: MICHEl HOIVELD
Second Annual BCN Investigators Meeting

> Thursday March 14, 2013 Het Paleis

Organizers
Marije aan het Rot
Jean-Christophe Billeter
Deniz Başkent
Natasha Maurits

Speakers
Koen van Braeckel
Fred Keijzer
Marieke van Vugt
Ody Sibon
Simone Sprenger
Martine Maan
Frans Cornelissen
Hedderik van Rijn
> **INTERVIEW WITH JACOLIEN VAN RIJ**

How computational models can help us understand language processing

Jacolien van Rij recently completed her PhD thesis titled ‘Pronoun processing: Computational, behavioral, and psychophysiological studies in children and adults’ under the supervision of Prof. Petra Hendriks and Dr. Hedderik van Rijn. She is now a postdoc at the Quantitative Linguistics group of Prof. Harald Baayen at the University of Tübingen, Germany.

*Could you give us a brief summary of your background and your research interests?*

I studied Artificial Intelligence at the University of Groningen (Master’s degree programme in Human-Machine Communication). This programme focuses on how human cognition works. In 2008, I started a PhD project at the Center for Language and Cognition (Faculty of Arts) under the supervision of Prof. Petra Hendriks (Faculty of Arts) and Dr. Hedderik van Rijn (Department of Psychology).

I’m interested in the underlying mechanisms of language processing, and in the processing of referring expressions, which was the topic of my PhD thesis. Speakers can use many different expressions to refer to a person or object, and often these expressions can refer to more than one person or object. For example, a pronoun like he can refer to any male person. How do people know who the speaker refers to? The use and interpretation of these referring expressions is dependent on many sources of information, such as the previous linguistic context, the grammatical role in the sentence, but also the listener’s estimation of how the speaker would convey a certain meaning. I’m interested in how listeners combine all this information so quickly during sentence processing. A related question is how children acquire these skills.

*Why did you decide to do your PhD at the University of Groningen?*

In Groningen I had the chance to do a project that combined computational modeling with experimental studies. In addition, I liked the interdisciplinary nature of my project: the project was supervised by Petra Hendriks at the Faculty of Arts, and Hedderik van Rijn at the Department of Psychology. Their different backgrounds and expertise resulted in interesting discussions and ideas. I was also part of two very different, but interesting groups: at the Faculty of Arts, I was an associate member of the NWO VICI-project Asymmetries in Grammar (led by Petra Hendriks), and I was also a member of the Groningen Cognitive Modeling group.

*How did your interest in language processing start?*

I gradually became interested in studying language processing during my studies. Generally, language processing seems to be easy and automatic: Immediately and without effort we are able to understand what speakers say to us. However, many linguistic theories that explain parts of language processing assume a relatively complex process. During my master thesis project about pronoun acquisition, I became interested in how children learn this complex process.

*The most important advantage of implementing a cognitive (computational) model is that it allows us to generate very specific, testable, and cognitively plausible predictions.*
In your PhD thesis, you investigated how children and adults process pronouns and how this is influenced by linguistic and cognitive factors. Could you explain how you investigated this topic?

The methodology of my thesis is an iterative process that consists of computational modeling, generating testable predictions, and testing these predictions with empirical studies to evaluate the model.

I have implemented a computational model in the cognitive architecture ACT-R that simulates the acquisition of pronouns. The computational model is based on linguistic theories of pronoun processing, and simulates the cognitive processes that are involved in pronoun processing. The simulations of the computational model are used to generate new, very specific, and testable predictions with respect to the acquisition and processing of pronouns. For example, we can make predictions about the errors listeners make, or predictions about the timing of different processes in on-line pronoun interpretation.

Subsequently, these predictions of my computational simulations were investigated using different experimental methods. The thesis presents a behavioral experiment with 4-6 old Dutch-speaking children, a dual-task experiment with adult participants in which we manipulated WM load, a similar dual-task experiment in which we measured ERPs, and a pupillometry study with adult participants.

What is the most important finding in your PhD thesis?

The most important finding in my thesis is that linguistic factors, such as grammar and linguistic context, interact with more general cognitive factors, such as processing speed and working memory capacity, in pronoun processing.

Dutch and English children frequently interpret pronouns differently from adult listeners. Based on the model’s simulations, we predicted that children lack sufficient processing speed to use available information relevant for successful pronoun interpretation. In a behavioral experiment to test this prediction we found that children make fewer errors in interpreting pronouns (e.g., him) when the speech they hear is slowed down, but more errors in interpreting other referring expressions such as reflexives (e.g., himself). These findings support the hypothesis that children become more adult-like when they have more time for pronoun processing.

Another prediction following from the model’s simulation is that adult listeners become more child-like when they experience a high working memory load. Pronouns such as he, or she often refer to the most salient character in the preceding linguistic context. Children seem to have difficulties using information from the preceding linguistic context, because they lack sufficient working memory capacity. The results of two experiments (a dual-task study and an ERP dual-task study) supported our prediction: when adults perform a secondary task that reduces the amount of working memory available for sentence processing, their interpretation of pronouns such as he became more child-like.

Could you briefly describe how computational models, such as ACT-R, can be used to study language processing? Which additional benefits does computational modeling have over more traditional methods, such as EEG or behavioral responses?

I think that experimental methods and computational modeling should be used in combination.

Implementing a computational model requires the modeler to specify the workings of the theory in detail, and to make all underlying assumptions explicit. In addition, implementing a computational model within a cognitive architecture such as ACT-R ensures cognitive plausibility because the implementation is grounded in a general theory of cognition. However, the most important advantage of implementing a cognitive (computational) model is that it allows us to generate very specific, testable, and cognitively plausible predictions. The predictions of cognitive models can subsequently be investigated with different experimental methods.

This combination of computational simulations and experimental studies has several benefits. On the one hand, the assumptions formulated in the cognitive model constrain the interpretation of the experimental results. On the other hand, the results of the empirical studies can be used to validate the cognitive model under investigation, as well as the theories on which the model is based, because the predictions are very precise and the assumptions based on the theories have been made explicit. In addition, the results may also provide new insights in the phenomenon under investigation, which could justify adjusting or extending the model.

What are your plans for the future?

In January of this year, I started working as a postdoc at the Quantitative Linguistics Group led by Prof. Harald Baayen at the University of Tübingen, Germany. Within the Quantitative Linguistics Group, I continue working on pronoun processing, and use the combination of cognitive modeling and experimental studies to investigate other language phenomena, such as the processing of lexical information (words).
The ins and outs of PhD time

> INTERACTIVE DOUBLE PHD INTERVIEW BETWEEN EDITH LIEMBURG AND KRIS BOYEN

For many starting PhD students, it can be hard to imagine what a PhD will be like. Edith Liemburg (who studied schizophrenia) has almost finished her PhD and Kris Boyen (who studied tinnitus) has just finished her PhD. They know all the ins and outs of doing a PhD, like what to do about supervisors without time, not being able to collect all the data you need...but also the freedom of being in charge of your own research project, your PhD. They met to discuss PhD life in the most ubiquitous of locations: Facebook chat. Their conclusion? In the end, all will end well!

Kris
Hi Edith!

Edith
Well well, Facebook chat during working hours.... :P

Kris
Haha, and even allowed to use it =)

Edith
Which brings me to a first question: did you (secretly) use Facebook during your PhD?

Kris
Well, I’m not a frequent Facebook user. But, yes I did =)

Edith
For sure during analyses that not do what I wanted them to do.

And you?

Edith
I also used it when I was feeling demotivated, but my computer screen in my office is facing the door and many people walk in and by..... Did you have a hard time during your PhD, and did you use Facebook as an escape?

Kris
Oh, right! That’s why I sat behind the cupboard....

Edith
I had a really hard time from the moment I received the first comments from the reviewers on my first paper.

Kris
Suddenly I wanted to know everything that was happening in Belgium.

Edith
Supervisors as well?

Kris

Edith
Funny how boring stuff can suddenly become very interesting.

Kris
Then I escaped via Belgian newspaper websites; that was more interesting.

Edith
I have also had hard times with comments from reviewers, and also with supervisors sometimes....
Kris
I heard that your supervisor was very busy with a lot of PhDs...
Edith
I used to chat with a friend who also did her PhD and working in a partially overlapping area. That helped a lot. We had our own secret emoticon language so that if someone entered the room, that person would understand nothing.

Kris
PhdComics? I had never heard about it... The freedom! That’s what I liked. You can make your own day.
Did you feel the same?
If I had been working as an audiologist in the clinic, I would have my patients between 8 and 4.30. Every hour another one...
Edith
Yes I did. I liked the freedom, but as a downside you did not have a clearly defined task...
You can have the feeling you are never finished... But you also have the freedom to go home.
Kris
Yep, that’s it! If you have a bad day, you can go home; if you have a good day, you can stay as long as you want.
Edith
Did you study to become an audiologist?
Kris
Yes, I did. I studied speech pathology and audiological sciences in Leuven. During my masters, I specialised in audiology.
Edith
How did you end up in fMRI research?
Kris
Tinnitus! Tinnitus is one of the most intriguing topics of the audiological fields. About two million people in the Netherlands have tinnitus, or “ringing in the ears”, which means they hear a sound in the ears or head that no one else can hear. So far, we don’t know a lot about tinnitus. My supervisor wanted to do an fMRI project with tinnitus patients, and I wanted to work on that project, in part because of my interest in the brain. And what about you? You are a biologist, right? Did you do your internship at the lab where you did your PhD?

> Suddenly I wanted to know everything that was happening in Belgium. <
Edith
During my bachelor I had to do research with laboratory animals. I hated to tease them, so I decided I would rather tease humans or bacteria. I planned on doing a master with humans first, and I ended up as a master student in the group of Andre Aleman, who later offered me a PhD position.
I had high expectations about the possibilities for fMRI research. During my PhD, I found fMRI research to be very interesting, but in my opinion, also quite vague... What were your expectations, and what is your current opinion about fMRI?

Kris
For me it was a strange “something”. Actually, I don’t remember my expectations. As a non-technical person, I was more thinking about what we could do to ‘measure’ the tinnitus and hearing loss, and less about what the scanner does. I read a lot about it and found it very complicated. On the other hand, I was really surprised about the possibilities of using the fMRI scanner. The disadvantage is that you measure something, but you don’t know the causality. Now we have some results that can be linked to tinnitus, but we still don’t know what’s first: the tinnitus or the difference in brain activation/gray matter we found compared to the control group.

Edith
Yes, I think participants are now lumped together... it would be way more interesting to follow the individual course of an illness. In schizophrenia, even the size of parts of the brain may be predictive, but not when you look at group averages. Only changes in brain size during development are indicative...

Kris
Actually, what are you doing now? I think you’re still working with the fMRI scanner. Is it a follow-up study?

Edith
I am still finishing the study I was supposed to write my thesis on, since I wrote my thesis using data from other people... Briefly said: my PhD did not go completely as expected. I think that is something every person that starts a PhD should know: for almost everybody it will be hard sometimes. In my case, it was very challenging to include enough participants. Everything you can imagine can go wrong during a PhD. Luckily, everything ends well for almost all PhD students (eventually...). What are you doing at the moment?

Kris
I agree. I had a great time during my PhD. The first challenge was finding participants who fit our inclusion criteria. Another challenge was finishing the thesis. I had a deadline (the end of my contract) and I was very happy I made that deadline. I didn’t want to postpone it. It had to be finished! So, I did. I’m now also finishing one paper besides my postdoctoral work on tinnitus. There are no fMRI scanners in my life anymore. Now we’re performing psychoacoustical tests, working on the gap detection test in humans. In animal studies, this test is used to check whether animals have tinnitus or not, but it’s never been studied in humans. That’s what we try to do now!

Edith
I think ending with our future plans is a good way to wrap up. Do you have some final advice for our audience?

Kris
Don’t give up! It’s the best time of your life!

Edith
I agree!

* Then an emergency power test at the UMCG abruptly ended the chat, which fortunately was just finished in time.
Distorted perception: students organise exhibition on illusions

‘The Illusion Exhibition’ was an extracurricular activity presented by 3rd year Bachelor of Psychology students in the Perception course. The exhibition took place on the 27th of February, in the Heymans Canteen at the Faculty of Behavioural and Social Sciences, where students exhibited the illusions they had been working on for the preceding block.

The goal of the exhibition was for the public to gain an understanding of illusions and the processes by which they are perceived by the brain, since much of our knowledge about perception is derived from studies about illusions. In the Perception course, information was mainly theoretical. The Illusion Exhibition therefore presented an opportunity for students to combine their knowledge and their creativity into a final product.

Illusions are very important when studying the top-down influence of the brain on information gathered by our senses. In contrast to bottom-up processing, in top-down processing the brain has certain expectations. These expectations influence the way we perceive objective information, and they are based on life experience. In daily life, these shortcuts are beneficial, providing our brains with quick perceptual insights that are often right. However, if unusual input is presented to our senses, this sometimes results in a distorted perception: an illusion.

Many different forms of illusions were demonstrated during the exhibition in order to show the different modalities in which these top-down processes take place. There were visual illusions such as the Ebbinghaus illusion, the Cafe Wall illusion and the Impossible Triangle. But also illusions in other sensory modalities were shown, such as auditory illusions like the McGurk effect and tactile illusions such as the Aristotle illusion.

■ AUTHORS: ELLES BLOM AND MIRANDA BOUWMAN
■ PHOTOS: TASSOS SARAMPALIS, KATHARINA BÖHME, DENIZ BAŞKENT, AND WESSEL HULLEMAN

CLICK HERE TO SEE A MOVIE OF THE MASK ILLUSION
You only see it when you recognise it

About a year ago, Professor Marina de Koning-Tijseen moved from Amsterdam to Groningen and was appointed professor in Neurological Movement Disorders at the UMCG. At that time, the BCN Newsletter interviewed her about her life and work in Groningen. However, last December she held her inaugural lecture titled “You only see it when you recognise it” (original Dutch title: “Je ziet het pas als je het herkent”), and so we went back to ask a few more in depth questions about her research and future plans.

Can you briefly introduce yourself and your research background?
I grew up in The Hague and I studied medicine in Leiden, where I also specialised in neurology after my graduation. During my studies I went to Baltimore for half a year, and afterwards worked for a year in London at the Queens Square National Hospital. This was a really instructive period, and I had a good time there.

During my PhD project I studied hyperekplexia, which is also known as startle disease. Just like healthy people, patients with this disease are startled by unexpected events, but these patients typically physically freeze and fall over, like a plank. You can imagine that this falling is pretty painful, and luckily it can be treated. Startle disease is highly genetically determined, and therefore I investigated whole families where this disease occurred. In those years, I saw a lot of interesting patients with rare neurological disorders, because all people with rare, startle related vague symptoms were sent to me. Sometimes they suffered from hyperekplexia, sometimes not, but I saw a lot of interesting cases.

The focus of your current research is on movement disorders, and especially dystonia. What can you tell us about these patients?
Some movement disorders result in too little movement, while some result in too much movement; dystonia is one of the latter. It is a disease which is characterised by involuntary, fluctuating muscle contractions, and by impaired cooperation of the muscles. This results in, for example, a skewed position of the head, and uncontrollable movements of the body. This lack of control over one’s own movements is caused by a malfunction in the basal ganglia. These patients lack the natural ability to move freely, which complicates daily life to a large extent.

Which treatments are available for these patients?
If dystonia is diagnosed correctly, there are a reasonable number of treatments available. For example, treatments with botulinum toxin paralyse the overactive muscles which contract too much along with other
All people with rare, startle related vague symptoms were sent to me. <

> All people with rare, startle related vague symptoms were sent to me. <

One of the other main points of your inaugural lecture was the relationship between the body and the brain, and the conjunction between neurology and psychiatry in the light of movement disorders. Why is this collaboration so important in your eyes?

The fields of neurology and psychiatry are often more closely related than thought at first sight. Because the pathologies in neurology are sometimes quite rare, and also look a bit aberrant, neurological disorders already have a bit of a psychiatric haze around them, but in fact, the two are actually also closely connected in the brain. For instance, patients with dystonia have often anxiety disorders, patients with Parkinson’s disease depression, and patients with obsessive compulsive disorder often have involuntary muscle contractions, i.e., tics. Because of this close interaction between neurology and psychiatry, I think that tailored care can best be provided by both fields working together. It is important that we do not try to divide the pathology present in one person in two separate disorders. Rather, the main priority is on which part of the disorder we have to focus on to maximally improve the situation for each patient individually.

Following this thought we want to create a conjoint consulting hour where both psychiatrists and neurologists are present to consult the patients. We also want to map more systematically which psychiatric symptoms go together with which movement disorders by collecting standard questionnaires for all patients. This way we can individually adapt the care a person needs.

What are your plans for the near future?

In terms of care, I would like to develop a good diagnostic centre where one of the priorities will be the focus on educating people how to recognise different movement disorders. In this light, I also want to develop further a nationwide care network, “dystonienet” (www.dystonienet.nl), which can organize training courses for clinicians. For example, we can teach neurologists how to administer botulinum toxin, and physiotherapists how to treat patients with dystonia. I hope this will be up and running in the next five years. I would also like to develop more individually tailored care at the intersection of neurology and psychiatry, for example by setting up the joint consulting hour I mentioned earlier. One of my goals has already been established, namely a collaborative outpatient clinic for children with movement disorders. Every two weeks, we have a collaborative clinic with the paediatric neurologist, the paediatrician specialised in metabolic disorders and genetics, and the paediatric rehabilitation doctor.

In terms of research, I am convinced that we will find some genes related to dystonia and other movement disorders in the near future. This would be a great step forward in understanding and detecting these disorders in patients. In addition, I will focus on functional research, like imaging and electrophysiological studies towards the borderland between neurology and psychiatry.

Finally, what words of wisdom would you want to pass on to the next generation of scientists?

It is very important to choose a subject that you find interesting, because this means that your research career will be interesting, and therefore it will probably go well. In addition, I would recommend that every young researcher go abroad. This experience provides you a network for the rest of your career, is a lot of fun, and broadens your view of the (research) world. It also increases your independence, and shows that certain things can also be done in different ways than you would usually do. Thus, it is a great experience, and, not unimportantly, it substantially increases your chances of getting a future grant.
I started my PhD in 2001 in the group of Prof. Diek Duijff, investigating audio-visual integration in human brain (it seems such a long time ago now!). Prior to finishing my PhD, I had accepted a post-doc position in the UK and I only had 3 months to write up my thesis, and pack and move my Groningen life to England. In the first year I lived in Birmingham, however my research group moved to the University of Manchester and there I was – in a great city that has a lot to offer. I was at the Audiology Department and had the pleasure of working with brilliant researchers in a very inspiring environment. My research was in a way a continuation of my PhD, but this time trying to understand how the human brain works in hearing impaired volunteers.

I was a postdoc for about 3 years, and somewhere along the way I realised that I need a bit more stability for me and my new family. Moving every few years for another research position was not a problem until my husband and I had a little boy, Niko (who is 4 years old now!). After Niko was born, for me, the exciting life of a researcher completely lost its appeal and I decided to move on. Hence, I changed my career and I currently work at the University of Cambridge at the Researcher Development Programme (RDP). At RDP we design and deliver a training programme for PhD students and postdocs from the University to support them in their personal, professional and career development. My job is to support students to achieve their potential by helping them to develop the skills needed to complete their PhD and to get a job after it (academic or non-academic).

Students often ask me if I miss research. To be honest, I do. Sometimes I miss the thrill of research, starting experiments and not really knowing what the data will show, analysing the data and then impatiently waiting to see the results…. On the other hand I love what I am doing and my PhD and postdoc experience gives me such a valuable insight and understanding of dilemmas, issues and uncertainties that are affecting researchers these days in their PhD life and beyond.

Leaving research was not easy, I was in a really good academic environment and I had a supportive boss. Leaving research was scary, too! I was leaving one thing I knew how to do and I was trained to do – research! However…leaving research was the right decision for me and I have no regrets (so far!). I enjoy what I am doing and have the right work/family balance, which I missed while being a researcher. My advice to current researchers is: think about what you want to do, think ‘outside the box’ and don’t just wait for opportunities, create them!
A paragon of scientific girl power

“I want MIT to be the dream of every child who wants to grow up to make the world a better place.” Susan Hockfield’s opening speech when assuming the presidency of MIT set the stage for the dream she had. As result, the MIT Energy Initiative, a $359 million effort to accelerate research in clean energy, was started in 2006. In 2012, as Dr. Hockfield announced her retirement, MIT launched a free online education platform with Harvard University, edX, which is open to everyone.

But how does a scientist, mother and Professor of Neuroscience become a clean energy promoter and university president?

Susan Hockfield was born in Chicago, Illinois. Her first lesson in life was learning to adapt to new environments, as the family moved frequently due to her father’s job at General Electric. Secondly, she learned about her love for living things. The first microscope landed in her hands when she was in the fifth grade and completely captivated her. Together, these experiences would keep her on a continuous career of unstoppable intellectual development in the biological sciences.

Susan started studying the latest developments of cell biology at the University of Rochester. Her family expected her to enter medical school afterwards, but an exposure to the (then new) electron microscopy technology inspired her in a new direction towards cell biology research. With that in mind, she started an exhaustive search for opportunities after college, until a laboratory at her university offered her a position as a research assistant. Without realizing it, that moment marked her first steps in a successful career in neuroscientific research.

She started a PhD in Anatomy and Neurosciences at Georgetown University Medical School to understand the advances in cell biology which were transforming the field of brain research. The National Institutes of Health (NIH) promoted her doctoral project, and her name was first seen in a paper about the mechanisms of pain and sensory memory, which she published for her graduation in 1979. Later on, she received a NIH Fellowship for postdoctoral research at the University of California, San Francisco.

Such a successful career in a new field caught the attention of Dr. James Watson, discoverer of the DNA molecule, who hired her as an investigator at the renowned Cold Spring Harbor Laboratory on Long Island, right after she finished her studies. There, she was in charge of the summer programme for neurobiology, a position she kept even after joining the research staff at Yale University in 1985.

By the time Susan’s name had become popular in the neurosciences, Yale needed a recognized professor for the Neurobiology Department with enough experience in teaching. Susan was the ideal candidate, but Dr. Watson warned her that her research projects might suffer if she combined them with administrative chores.

Susan accepted anyway and became the Director of Graduate Studies in Neurobiology.

The new position brought new challenges and lessons. However, Susan excelled in all of them and still found time for her research as well. Whenever the office allowed it, she worked on a project related to cellular development in the brain, and pioneered research on monoclonal antibodies for identifying the...
developmental stages of neuronal differentiation in animal models. The proteins she used as the antibody target are now known to be related to structural changes found in response to early life experiences. These discoveries opened new doors for developmental neurobiology.

As if that was not enough, Susan also had time for a social life. She married Dr. Thomas N. Byrne, who is Clinical Professor of Neurology at MIT’s Health Science and Technology; together they have a daughter.

Along with international recognition for her achievements in neuroscience, her leadership skills were making an impression on the Yale Medical School. She was named Dean of the Graduate School of Arts and Science in 1998, becoming responsible for over 70 graduate programs. Her experiences in research had taught her the necessity of combining multiple specialties and facilitating collaboration among specialists. As dean, she had the power to foster interactions between medical doctors, anatomists, biologists, and scientists from every discipline to create multidisciplinary programs. Her organizational skills allowed her to allocate more resources into research and reinforce the funding for all the graduate programs under her supervision. She also solved different disputes among students and employees who were planning to go on a strike for better working conditions. Her abilities convinced the University to name her Provost, Yale’s chief academic and administrative officer, second only to the President of the University.

By the end of 2004 Dr. Hockfield was offered the presidency at Massachusetts Institute of Technology, MIT. Leaving Yale after 20 years of growth was challenging in more than one way. Besides leaving a familiar environment and a well-earned position, she was going to face a male dominated institution, surrounded by unknown faces and not many friends. Even more, she was going to become the first woman to head this internationally recognized university, and the first biologist to lead an institution mostly recognized for its achievements in the physical sciences. Her selection by MIT’s board members acknowledged the importance that biomedical research was gaining.

Fulfilling expectations, Susan Hockfield brought to MIT a new emphasis in life sciences and facilitated their combination with engineering development. She renovated the undergraduate and graduate curriculum of both lines of study and opened new doors to research. She was appointed Professor of Neuroscience in MIT’s Department of Brain and Cognitive Sciences.

Even though she stepped down from the president’s chair last year, MIT recognized the Institute would not have faced the challenges of the new millennium and come out in such a glorious place without such a visionary and brave leader. Against the counsel of some, Dr. Hockfield started two initiatives that gave MIT the force to keep its place as one of the world’s best universities: the MIT Energy Initiative, which produced new turbines and solar cells, developments in the use of existing power sources, and battery-powered two seat cars; and edX, an online platform for free education opened together with other recognized institutions, which brings new opportunities for education to students who would have never been able to access that knowledge before.

Dr. Hockfield has been recognized with honorary degrees by many institutions, including Brown University, Mt. Sinai School of Medicine, Tsinghua University (Beijing), the University of Edinburgh, Université Pierre et Marie Curie, and the Watson School of Biological Sciences at the Cold Spring Harbor Laboratory. She is also an elected member of the American Academy of Arts and Sciences and an elected fellow of the American Association for the Advancement of Science. She serves as a director of both General Electric and Qualcomm, is a member of the board of trustees of the Carnegie Corporation of New York, and a member of the board of overseers of the Boston Symphony Orchestra.

All in all, Dr. Susan Hockfield is embodiment of girl power: she fights for the best, and faces change with enthusiasm and energetic determination. A paragon in the neurosciences and leadership, she is an inspiration for future and current generations of women and scientists.

Having an interesting study to read and intelligent comments to share, Susan Hockfield is a demonstration that the neurosciences are not restricted to laboratory coats or cellular discoveries. Scientists can freely thrive in many environments. She is not only an example, but also a challenge for the new neuroscientists that might follow her all over the world.

■ BY ANDREA SOTO
Reactions to the annual BCN Retreat, held 14-15 March in Odoorn

**Burcu Arslan (Faculty of Mathematics and Natural Sciences)**

I am a first-year PhD student in the Department of Artificial Intelligence. I did my Master’s in Cognitive Science and now I am currently working on the development of higher-order social cognition by using behavioural experiments, computational cognitive models and neurophysiological methods. Since my research methods cover also neurophysiological methods, I decided to become a member of BCN and participated in the BCN Retreat in Odoorn. It was a very intensive program where the second- and fourth-year students presented their research. During those two days, we had a good opportunity to get insight into the other students’ research. As a first-year student, I was required to ask two questions to the presenters, which was a nice challenge and useful learning experience. Other than the formal part of the retreat, we also had an opportunity to get to know each other during speed dating and outdoor activities. I am really looking forward to attending the next one, so I can present my research as well.

**Ellie van Setten-Huizinga (Faculty of Arts)**

On Thursday we gathered at 8.30 in front of the UMCG to go to the BCN Retreat in Odoorn. I was not really sure what to expect since it was my first time at the retreat. The first day started with presentations on very diverse topics like MS, depression, schizophrenia, the influence of testosterone level in pigeon eggs and recovery from sports. After three rounds of presentations we went outside for a nice walk with the forester (this was the option I chose) or a mountain bike ride. Coming back we had a speed dating session in which we had to introduce ourselves and our research within one minute. This was really interesting -- too interesting, maybe, because one minute was way too short to talk about something you are passionate about, but it was a nice way to get to know more people. The evening ended with a nice meal and bowling, followed by barely any
sleep. The next day there were again many presentations. I also had to present about my own research on dyslexia, which made me a little bit nervous. The hardest thing was giving a presentation in such a way that people who are not familiar with your topic can understand it. Receiving feedback was really helpful to me, as it was also one of my first presentations in front of such a big group. What I also liked about this day is that I met another PhD student working on dyslexia in a different department. It was nice to exchange some ideas with him. Looking back on the retreat, the two days were pretty intense, but it also was a great way of meeting new people and learning about the diversity of topics that are studied within the BCN graduate school.

Iris Hovens (Faculty of Mathematics and Natural Sciences)

Although this was the first time I attended the BCN retreat, I had quite high expectations beforehand, based on all the positive stories I had heard from other PhD students. These stories were mostly about the great atmosphere, the chance to socialize with your fellow PhDs until early hours, the mountain bike trip, and the extensive amount of free food! Luckily, I was not disappointed in these matters. However, the retreat turned out not only to be fun and games, but also a good opportunity to learn what other research groups in Groningen are doing, and to get some new ideas for my own project. Presenting one’s own work in a short time window (and answering critical questions), introducing the work of others (by being a chair during a session), and giving feedback are all part of the programme. These skills can be practiced without the pressure of a “real” conference. So overall the BCN Retreat turned out to be a good combination of work and play.
Visit from Prof. Max Cynader, Director of the Brain Research Centre, University of British Columbia, Canada

From April 7th – 9th, 2013, Dr. Max Cynader, director of the Brain Research Centre and the Dajavad Mowafaghian Centre for Brain Health at Vancouver Coastal Health and the University of British Columbia (UBC) visited the University of Groningen. As director of the Brain Research Centre UBC, Dr. Cynader is responsible for a staff of more than 225 investigators with multidisciplinary expertise in neuroscience research ranging from the geneticist, to physician-scientist, to researchers working in industrial spin-offs. Prof. Cynader holds the Canada Research Chair in Brain Development at UBC and is Professor of Ophthalmology.

New Centre for Brain Health
Currently a new Centre for Brain Health is being built in Vancouver, Canada, originating out of a partnership between the Brain Research Centre, UBC Faculty of Medicine, and Vancouver Coastal Health. The centre should become a state-of-the-art facility that unites both patient clinics and research in the areas of neuroscience, neurology, and psychiatry. This unique centre should bring together all the multidisciplinary areas of brain health under one roof. Prof. Cynader is one of the driving forces behind the establishment of this new centre, which is expected to open in 2013.

Strategic Alliances
The University of Groningen has strategic partnerships with several international universities, like the U4 University Network, which consists of Ghent University, the University of Göttingen, the University of Groningen, and Uppsala University. Research within the U4 Medicine and Life Sciences cluster is focused on ‘The Ageing Brain’ and within the cluster, 7 PhD students are actively working on joint PhD projects.

Like the U4 strategic partnerships, the University of Groningen is currently exploring possibilities for an additional strategic partnership with the University of British Columbia. In line with these efforts, the University Medical Center Groningen (UMCG) and the Faculty of Mathematics and Natural Sciences, in particular the Zernike Institute for Advanced Materials (ZIAM) and the Research Institute of Pharmacy, are trying to strengthen (existing) research collaborations between the institutes together with their UBC counterparts, among them the Brain Research Centre UBC, the Chemistry Department and the UBC Physics and Astronomy Departments. If successful, many joint doctorate projects will be set up, preferably in the framework of an overall joint PhD Memorandum of Understanding (in progress).

During his visit, Prof. Cynader had meetings with the board of the University of Groningen as well as the UMCG to discuss setting up strategic collaborations between the Brain Research Centre UBC and the University of Groningen. In addition, he met with several principal investigators of the UMCG and FMNS to discuss options for joint research projects with researchers from the Brain Research Centre UBC. Prof. Cynader concluded his visit with a lecture called ‘New insights into stroke and neurodegeneration’.

> UBC – BCN COLLABORATION

By Michiel Hooiveld

Photo: Michiel Hooiveld
FOREIGN ADVENTURES

Australia

Because I’m interested in the study of visual perception and consciousness, last year I started looking for interesting projects on this topic all over the world. Thanks to my internal supervisor here at the University of Groningen, Dr. Mark Nieuwenstein, I found the consciousness lab of Associate Professor Nao Tsuchiya at Monash University in Melbourne, which investigates the problem of consciousness using a multitude of neuroscientific methods. Last year in August I met my potential supervisor, Assoc. Prof. Nao Tsuchiya, for a coffee in Amsterdam where he was invited to give a talk. This was a good opportunity to talk in person about potential projects.

And now I am here, in Melbourne. In my project I investigate the causal relationship between low-frequency oscillations and conscious visibility in a Continuous Flash Suppression (CFS) task. By means of rTMS, I’m going to test whether we can modulate the visibility of the target depending on the timing relationship between rTMS pulses and CFS flashes.

A lot has happened since I arrived in Melbourne at the end of January. This year Melbourne had an unusual long summer with a heat wave that set records. Coming from temperatures below zero, this surely was a contrast, albeit a very welcome one. I stayed in a hostel for the first couple of days after I arrived, and was lucky to quickly find a room in a shared apartment in the suburb Balaclava, which is conveniently located between the Central Business District, the sea (!) and the campus of Monash University. I was really lucky to find an affordable place in this location, it is just perfect- when I come home after a long day of Uni I can go for a run to the beach, or just ride there by bike to go for a swim, watch the sun set and watch the penguins coming back home to their nest (yes, penguins!).

Besides the obvious differences in temperature, there are of course many differences between Groningen and Melbourne. One of these is the campus itself- it is tremendous. Monash Uni has eight campuses in Melbourne, of which the one where our lab is located is the biggest. The first time I visited the campus I got lost, and it took me about 30 minutes to find the right building. The students were still on summer holidays until the beginning of March, so there weren’t many people around to ask for directions. Eventually, however, I managed to find the right building. I really enjoy my internship so far. Our lab is quite new; all lab members just started working here this year. The atmosphere is really, really good. We have frequent lab meetings and also lab dinners for several occasions, e.g. if a new member arrives or a guest speaker is coming for a visit. The picture I send with this article is from the welcoming dinner for me and another student from the Netherlands, Jochem from the University of Amsterdam, who is also doing his internship for his thesis here.

I have heard that it is finally becoming spring in Groningen now- unfortunately it is becoming autumn here, which means that the heat wave is gone and Melbourne shows off with its famous four seasons per day. I’m really happy about choosing to do my internship here. I’m in love with this pulsating city, have already made great friends and have great colleagues. What more can you ask for?

Cheers from Melbourne.
Incredibly stubborn or stubbornly incredible?

Scientific struggles are never simple, and the struggles faced during war are even more complicated. But success is possible even in the most difficult circumstances, as the story of the Nobel Prize laureate Rita Levi-Montalcini demonstrates.

Rita was born a twin in Turin on April 22, 1909. She was part of a Victorian family, where decisions were made by the father and husband, and the wife and children obey silently. Rita’s struggle for a scientific career started once she realized her parents believed that a professional career would interfere with the duties of a wife and mother. At age 20, she realized that she could not adjust to her expected feminine roles and started preparing to break the rules. Within eight months she brushed up her knowledge in Latin, Greek, and mathematics, graduated high school, and entered medical school in Turin against her father’s wishes.

University was a wonderful experience for Rita. She became a student of the famous Italian histologist, Giuseppe Levi, a famous histologist, from whom she received an intense biological training, and from whom she learned the importance of a rigorous and disciplined approach to scientific problems at a time when this approach was still unusual.

In 1936 she finished medical school, and completed a specialization in neurology and psychiatry. Unfortunately, the fascist “Manifesto per la Difesa della Razza” (Manifest for the Defense of the Race) was released that same year under the rule of Benito Mussolini. Signed by ten recognized local scientists, the document stimulated the promulgation of rules against non-Italian professionals. Rita was barred from research in 1938 along with hundreds of scientists, professors and researchers, and the law forbade her from practicing or working anywhere in Italy.

Her response, however, was not the typical one. Instead of accepting defeat and looking for a new way of living, Rita decided to build a small research unit at home, in her bedroom. Weeks later, her professor, Levi, who was also barred, came to work with her in secret.

In 1943, Turin suffered a bombing by Anglo-American forces, which forced the family to move to a country cottage where Rita rebuilt her laboratory and continued her experiments. Soon after, German forces invaded the area and she fled to an underground refuge in Florence. Her drive was strong and unstoppable. Her goal was to identify a factor which stimulated nerve growth. Her inspiration was a paper by Viktor Hamburger, an embryologist at Washington University in St. Louis who suggested that limb buds produce a chemical signal that attracts nerve fibers. Rita conducted a series of experiments in chickens which led her to believe that what the bud actually produced was a substance that enhanced and promoted nerve growth.

In 1944, Anglo-American forces cleared the German army and hired her as a medical doctor in a camp of refugees. Dealing with infectious diseases and late working hours, she had to stop her research for a year until the war finally finished. She then returned to her family in Turin in May of 1945. At that time, the University allowed her to resume her academic positions; however, two years later, in 1947, Professor Viktor Hamburger invited her to join him and repeat her experiments at the University of Washington. There, she joined the biochemist...
Stanley Cohen, together with whom she established the existence of the nerve growth factor (NGF) and published its protein structure in 1971. The discovery silenced many critics of her work, and led the team to obtain the Nobel Prize for Physiology or Medicine in 1986. She was named full professor in 1958 and her work later showed that NGF is important in the functioning of other systems, particularly the immune system. This discovery launched a line of research dedicated to exploring the function of NGF and others of its family which is still growing today.

Rita missed home, however, and in 1962 she set up a laboratory in Rome, trying to bring scientists from around the world and promote scientific development in Italy. She directed the Research Center of Neurobiology in Rome from 1961 to 1969; and from 1969 to 1978, the Laboratory of Cellular Biology. She started dividing her time and working continuously in Washington and in Rome. According to her, five hours of sleep were more than enough. She ate insufficiently and rested even less. She became dramatic and demanding. A coworker who published a paper with her was strongly criticized by Rita when that work actually saw the light of day; she accused him of turning her words into “boiled spinach”.

The demand of a parted life had its costs. One of her greater wishes was to establish a world class institute for scientific research in Italy. In 2002, her efforts ended with the opening of the European Brain Research Institute (EBRI) in Rome. Nevertheless, the Institute suffered from lack of money soon after, and she was accused of becoming an autocrat and becoming the focus of strong criticism in 2010. Still, the city congratulated her on her 100th birthday, celebrating her proudly and even naming her the “Lady of the Cells”. Her declaration in response was that, after all that time and life events, her brain was in better shape that it had been since she was 20.

Controversy followed her a second time, when she was accused of allowing a pharmaceutical company to use her image to promote a treatment for neuropathies that had severe secondary effects. The company had hired Rita for a short period in 1975 to improve the understanding of the cerebral gangliosides. Years later, her discoveries led to a new treatment for peripheral neuropathies; however, the company was found guilty of paying for the medicine to be accepted even though the clinical trials were not satisfactory. The medicine caused Guillain-Barré syndrome in some patients and was taken out of the market soon after its release. Nevertheless, Rita had been the face of the campaign, and some critiqued her participation and questioned her later Nobel Prize, wondering if it had been paid for, too. No proof of her guilt was ever found, and she had no direct involvement in the clinical trials of the drug.

In spite of this controversy, pharmaceutical companies have her to thank for an asset. In 1990, she was one of the first scientists to promote the study of the mast cell. In 1993, she discovered an endogenous compound that modulates this cell’s activity and can reduce neuro-inflammation and chronic pain. The discovery opened the door to new projects and possible treatments.

Rita Levi-Montalcini was a model in neurosciences as a researcher and discoverer, but she is also an example of a fight for ideals. Indeed, one of her famous quotes was: “Above all, don’t fear difficult moments. The best comes from them.” She was different from others of her time by being intuitive and imaginative, making leaps in hypotheses that she then tested with her experiments. She illustrated many of her papers, while at the same time making her own clothes and jewelry. She never adapted to any stereotype, and faced every day with a labcoat and high heels, wielding tiny spatulas with perfectly manicured hands. Even after retirement, she never truly rested; her work was her life, and her brain her most magnificent asset.

The advantage of living to a very great age, she might have said, is that you tend to have the last word. After seeing her scientific discoveries used and changed since the 1950s, Rita Levi died on the 30th of December 2012, peacefully and with a smile.

> Above all, don’t fear difficult moments. The best comes from them. <

BY ANDREA SOTO
The BCN PhD council launched the first BCN Lunch on March 6th. More than 30 BCN PhDs got together in the cozy brasserie Het Paleis to listen to talks about yoga and mindfulness. “There are already a lot of whole-day events for PhDs, so we have decided to turn the usual PhD day into several shorter lunch meetings”, Amaris Heeringa, president of the BCN PhD council, explained at the beginning of the lunch. The idea is to have a few short presentations about topics that could be relevant for the daily life of a BCN PhD student. At the same time, the lunch is also an opportunity to bring PhDs together in an informal setting outside of their usual work environment.

Stress-less PhD
Dealing with deadlines, data analysis, piles of literature, and high expectations is familiar to many PhDs. It is perhaps not surprising that ‘stress’ was listed as an issue for many students in the most recent BCN PhD questionnaire. That result sparked the idea for the first lunch meeting: how can we find new ways of dealing with stress during a normal workday? The BCN council decided on quite an alternative approach to the topic of stress by inviting speakers involved in yoga and mindfulness. “We wanted to present some topics that you usually don’t hear much about as a scientist. At the same time, we selected speakers who are not only engaged in mindfulness or yoga, but are also doing research themselves”, Barbara Nordhjem said while introducing the two speakers. Perhaps the combination of alternative practices and research made a lot of students curious -- after all, yoga and mindfulness are typically associated with herbal tea and incense rather than science.

Breathe like Darth Vader
Maxi Meissener introduced yoga as a practice of the mind, rather than something reserved for hard bodies and extremely flexible people. “Yoga brings awareness to movements, sensations of the body and mind, and reactions to those sensations. The practice can create a state where the activities of the mind come to rest”, she explained. Maxi Meissener has a background in medical sciences, and also introduced research about the effects of yoga on inflammation and over-activation of the sympathetic nervous system, which is associated with the fight or flight response. There was also a practical exercise - not in the form of difficult balancing poses, but in a special way of breathing called the ujjayi breath. According to Maxi, “It basically consists in inhaling and
exhaling through the nose while making a noise with the back of the throat, like Darth Vader”.

**A raisin will never be the same again**

According to Brian Ostafin, “mindfulness involves a nonjudgmental awareness of one’s experience, where we are actively engaged in the present”. One of the worst things that can happen during work is getting mentally stuck. We have certain ideas and assumptions, and it can be difficult to go beyond them. Brian Ostafin gave an example: “A man and his son were in a car accident, the man died, and when the son went to the hospital, the surgeon shouted out ‘my son’! Now, who is the surgeon?” Because we often associate surgeons with being male, we tend to miss the most obvious answer, namely that it is his mother at the operating table. Mindfulness can help us to “step out of history” and gain new insight. Brian Ostafin also thought of an exercise: Everyone got a raisin and was asked to examine it as if it were something completely unfamiliar. Observe how the light falls on the surface of the raisin, whether it is matte or shiny, how wrinkly it is, what it feels like to squeeze it a bit, how it smells and finally – without chewing it yet – feel it resting on the tongue. This was a good metaphor for our research, where taking something we know so well and approaching it as something completely new can lead to surprising insights in many situations.

**BY BARBARA NORDHJEM**

**PHOTOS: AMARINS HEERINGA, BARBARA NORDHJEM, AND KASHMIRI STEC**

Maxi Meissener is a passionate yoga teacher and practitioner. She also holds an M.Sc. in Exercise Physiology (University of Texas at Austin) and a PhD in Medical Science (RuG), and is currently studying psychology. Right now, she is working on her first yoga study, where she will investigate the link between yoga practice and emotion regulation.

Brian Ostafin holds a PhD in Clinical Psychology from Boston University (USA), and was trained to teach Mindfulness Based Stress Reduction at the University of Massachusetts. Brian Ostafin is now an Assistant Professor of Psychology at the RuG. He recently published the first study to show a direct link between mindfulness and creativity.
New York, New York, an update

It has been three and a half months now since I arrived in New York City. Whereas in the earlier newsletter I was still acclimatizing to my new whereabouts, I now feel like a real New Yorker. My project is fully underway and we are collecting lots of data.

To recap a bit what we are doing: we are mainly interested in how early life play experience effects social behavior later in life for mice. We had around 40 outbred CD-1 female mice which are now pregnant. After all the dams gave birth (within a nine-day window), we recorded their maternal behaviour for six days for four consecutive hours a day. Afterwards, all the litters were divided into three groups. A group of litters that got play time with a litter born on the same day (same/same), a group of litters that got play time with a litter born 5 days apart (young/old) and a group that was just removed from their mothers daily (control). Yesterday I finished the manipulations for all these groups, which consisted of 30 minutes of manipulation per combination for 10 consecutive days. We are currently in the process of taking three males and three females of each litter for social testing later on; and the rest will be used for brain analyses. In addition, we are currently conducting more home cage observations in order to record their social behavior. The final social tests that will be done are social interaction, social approach, and social competence. The whole experiment will lead to a very rich data set with which many comparisons can be made. So far it has been hard work, but I am learning a lot.

My supervisor is great to work with, and the people in the lab are all very accessible and kind.

At the end of June (23-26) I will go to a Society for Behavioral Neuroendocrinology conference in Atlanta to give a presentation about my project. I hope to encounter many interesting talks and meet inspiring people. This is something I am really looking forward to!

Although the research takes up most of my time, I have found time to also do some other activities. Every Wednesday I take meditation lessons, Spanish language classes and ballroom dancing. All these activities are offered by the international house (l-house) where I live, and have been a lot of fun. I’m also involved in a campaign to collect money from the residents for the l-house (a yearly activity), which is a nice opportunity to talk to many residents. A week ago we had the biggest festival here at the l-house, ALL NATIONS. Every country showed something of their culture, food, music, dance etc. I performed a swing dance with a big group, and to show off our Dutch culture we had a food booth with pannenkoeken, conimex nasi, botterkoek, drop, Heineken and stroopwafels! All this Dutchness made me feel a bit like I was back again. Groetjes!
A few months have passed since I left China and moved to Groningen. Have you ever been abroad or to an unfamiliar city? How did you feel? Probably, most of us would say yes, we’ve been abroad for traveling, visiting friends and the like. And we may also have been quite excited to have fresh experience in different places. However, how about starting a new life and a new career in a strange city for years, like some of our new PhDs have done? I would say, it may be not that easy. Fortunately, the University of Groningen provides new PhDs with a course, Introductory Event for Starting PhD Researchers, designed to help us survive the beginning days.

The Introductory Event is a two-day course which is organized by the Groningen Graduate School. The course offers a variety of activities, giving a quick impression of the university, the city of Groningen, and an overview of courses and other support activities. We took turns introducing our own research projects to each other, played team games, had a time management workshop, walked around the countryside, a guided tour in the city center of Groningen, and ended with a conversation during which we talked to a 3rd-year PhD about some practical issues when doing our PhD.

Personally, I enjoyed the course very much. About one month after the course, I contacted three other new PhDs who had also taken part in the course to share our thoughts about it:

**Li wen Zhang**
Hello! What was your general feeling about the course Introductory Event?

**Qi Wang**
It was a cool course!

**Akash Sharma**
Yes, it was a fantastic experience for me. I think it was a great initiative for early-stage PhD students.

**Ryanne Keltjens**
Me too! I really liked the introductory event because of the variety in the programme: from improvisation theatre to a lecture about the Groningen landscape. I enjoyed it very much!

> The Netherlands is not flat. <

**Li wen Zhang**
What was the most impressive or interesting for you during the course? For me, one thing I remembered so clearly was: The Netherlands is not flat! How about you?

**Akash Sharma**
All the parts were so good and well organized, but I liked the presentations and games the most.

**Qi Wang**
I agree, the presentation was the most intriguing for me.

**Ryanne Keltjens**
For me, the most interesting were the lectures about
scientific integrity and the Groningen landscape. The lecturers were very enthusiastic and pleasant to listen to.

Li wen Zhang
It has been a while since we finished the course. So far, have you found the course helpful in your work and life later on?

Akash Sharma
Of course, I learned so many things about graduate school and also my rights as a PhD student. It is a great platform to know about the history of Groningen University and Dutch culture.

Qi Wang
The time management workshop helps me a lot. Sometimes, when I arrange my schedule, I make use of the theory learned during the time management workshop.

Li wen Zhang
How about you, Ryanne? You were the only Dutch girl in the group and you said you had come to Groningen before your PhD started. Did you find this course helpful?

Ryanne Keltjens
Actually, I have already recommended this course to my officemate and told her it would be fun!

Li wen Zhang
Last question: Is there anything else you’d like to say about this course?

Akash Sharma
I really enjoyed my time in Allermaborg with all of the participants. I enjoyed the friendship, fun, walking out in the countryside, everything. I just want to say a big thank you to all of the staff members of the Graduation Committee who made this course possible for me.

Ryanne Keltjens
I want to say that it was inspiring to see each other’s presentations about all these different research projects! And I also really liked our coach!

Qi Wang
It is really a nice course and I had a good time there. I hope we can get together again some other time.

Li wen Zhang
Okay, thank you all for your time! Good luck during your PhD life in this rainbow city.
Winner of the BCN Dissertation Award

The winner of the 2011-2012 BCN Dissertation Award is Jelmer Borst. His dissertation, entitled “The Problem State Bottleneck: Modeling the behavioral and neural signatures of a cognitive bottleneck in human multitasking” was chosen as the best of the 7 nominations. In addition to the winning thesis, the committee declared that the theses written by Vera Munde, Karin Janssens and Cagri Coltekin were the best theses defended during the 2011-2012 Academic Year.

Winner of the BCN Summary Award

Jojanneke Bastiaansen is the winner of the 2011-2012 BCN Summary Award. Her summary was chosen as the best of the submitted summaries. The title of her dissertation is “Mirror Images: Neural correlates of emotion processing in autism, schizophrenia, and mental health”.

All nominations are printed in the booklet “To the Point”. Please contact Diana if you would like to receive a copy.

Winners of the BCN Poster Awards

Hedwig Kikkert, Koen Hogenelst and Jefta Saija won the BCN Poster Awards. Their posters were selected as the best during the BCN Poster Afternoon on February 7, 2013.

Financial support

Financial support for PhD students within the UMCG has changed: the maximum amount for financial support for conferences is €600 per year. For BCN PhD students with an appointment in other faculties, the amount has not changed: €1500 during the entire project, BCN PhD students within the GSS will receive max. €1350 during the entire project. Application forms can be found on the BCN website, under more information, useful information, forms.

PhD student card

It is now much easier to get an PhD card. You can order your card from this website: https://mijnrugpas.rug.nl/. More information about the card can be found here: http://myuniversity.rug.nl/infonet/medewerkerwerk-en-carriere/aanstelling/university-pass/

Agenda for BCN Activities

June 19, 20 and 26, 27, 2013:

BCN Statistics Course
Check the website for detailed information.

Deltaplan Dementie

Over the next four years, the cabinet will spend an additional 32.5 million Euros on the fight against dementia. Government and industry come together to support Deltaplan Dementie, a new collaboration between public and private investors which focuses on current and future patients. The plan has several parts: (1) A national center for care, exchange of information, networking, and e-health for people with dementia, caretakers, and professionals, as well as (2) a national register to make optimal use of information about diagnoses and therapies and improve the quality of care, and lastly (3) a research program that aims to develop innovative therapies that focus on the prevention, treatment, and curing of dementia. The third and last part might be of special interest to the BCN community because it will offer possibilities for funding.

[Link: http://deltaplandementie.nl]

Diana Koopmans
D.H.Koopmans@UMCG.NL
Bon dia!

Hopefully by the time you are reading this, it has stopped being freezing cold and snowy in the Netherlands. ‘Unfortunately’ I cannot even remember what it feels like to be in harsh weather like that, as for the last three months I have been living on the island of Curacao, located in the Caribbean Sea off the coast of Venezuela. After celebrating New Year’s Eve in Groningen and saying goodbye to friends and family, I left the Netherlands behind to do my second-year research project abroad.

One of the things I’ve always liked about the BCN research master is that it prepares you to become an independent human being, stimulating you to get the best out of yourself, but if it is necessary, there are always a lot of (experienced) people around to fall back on. The opportunity to do your second project anywhere but Groningen (although, of course, you can always choose to stay) was also a main reason for me to choose the programme, albeit perhaps for some other reasons than most other students. Having a background in marine biology and evolutionary ecology, I entered the B-track with the hopes of becoming a marine behavioural biologist. With only the occasional stranding of a killer whale and just a few porpoises in the Wadden Sea, the Netherlands are not exactly the best place for it. By encountering the right people at the right time, and with a bit of luck, I am now doing my study on sleep and activity patterns in the bottlenose dolphin.

Obviously, a dolphin is not your usual lab animal, so it is very challenging to try and come up with ways to try to set up and develop the experiments and gather sufficient, interesting and exciting data, while at the same time trying not to influence their natural behaviour (too much). Acquiring observational data about their sleeping behaviours and social interactions was the easiest part, although it meant lots of night work and not getting much sleep myself. Dr. Peter Meerlo just paid me a visit to check up on me and brought along some equipment and supplies, so that I can make good use of the rest of my time left here. Halfway through I think it is safe to say we are doing a pretty good job!

Living on a Caribbean island does feel like a dream from time to time. During ‘working’ hours I still get to spend almost all my time outside, right next to the ocean, studying and interacting with dolphins while gathering my data and learning tons of things. Every once in a while we get a call when wild dolphins are spotted, so we rush to the nearest boat and head out, only to be encircled by over 80 individuals moments later jumping all around us. And then I get to spend my free time snorkeling around bounty-beaches covered with beautiful reefs, bright blue waters, white sand, and palm trees! Since the island is still part of the Kingdom of the Netherlands, a lot of people here are Dutch. It can make everything just a bit easier sometimes (I don’t have to miss out on proper bread, as there even is an Albert Heijn), but as my supervisors are from the USA and other people from somewhere in South America, I tend to speak a sometimes confusing combination of Dutch, English, and Spanish. However, I love the internationality and mixing of cultures! Right now I have a hard time imagining returning to Groningen, but who knows where I’ll eventually end up. And I guess in a few months even back home the sun will shine, right?!

Best wishes, and lots of sunshine :)

> MASTER STUDENT COLUMN

By MANDY VAN DER KLĲ
Photos: MANDY VAN DER KLĲ
De klinische neurochirurgie in een veranderend landschap

ORATIE
R.J. Groen
TITEL
De klinische neurochirurgie in een veranderend landschap
LEEROPDRACHT
Klinische Neurochirurgie
DATUM
16 april 2013

In zijn oratie gaat prof.dr. Rob Groen in op de ontwikkelingen binnen het vakgebied van de klinische neurochirurgie. De neurochirurgie vindt tegenwoordig in belangrijke mate plaats vanuit multidisciplinaire werkgroepen, waarin de indicaties voor behandeling worden gesteld. Daardoor is de case-load van de neurochirurg op complexe onderdelen afgenomen, zoals patiënten met neurovasculaire afwijkingen (AVM en aneurysma) en van patiënten met bepaalde tumoren van de schedelbasis.

Dat heeft gevolgen voor de organisatie van de zorg en voor de borging van die zorg voor de toekomst, stelt Groen. Behoud van neurochirurgische expertise vraagt om concentratie van die expertise, en het veranderende aanbod van patiënten noopt tot maatregelen ter bevordering van de overdracht van kennis en vaardigheden aan de komende generaties neurochirurgen. Kwantiteit en kwaliteit gaan hand in hand, en dat thema loopt als een rode draad door de inrichting van de patiëntenzorg, de opleiding, het onderwijs en het onderzoek in de hedendaagse klinische neurochirurgie.

Neurochirurgie is een van de jongste chirurgische specialismen en wordt in ons land nog maar een kleine tachtig jaar uitgeoefend. Aanvankelijk was het een vakgebied voor solisten, die zich tegen de verdrukking in tussen de gevestigde orde van algemene chirurgie en neurologie bestaansrecht moesten zien te verwerven. Sinds de jaren 1930 heeft het vak een enorme vlucht genomen en is het werkterrein sterk uitgebreid. Aanvankelijk kwam dat door de verbetering van de operatie- en narcosetechnieken, later door de invoering van de operatiemicroscoop en van geavanceerde beeldvormende technieken.

Aan het eind van de vorige eeuw vond een kentering plaats als gevolg van de komst van de radiochirurgie en de interventienueroradiologie. Voor enkele aandoeningen die tot het exclusieve werkterrein van de neurochirurg behoorden, bestaan nu alternatieve behandelingsmogelijkheden waardoor vooral verdunning is opgetreden in het aanbod van patiënten met neurovasculaire afwijkingen (AVM en aneurysma) en van patiënten met bepaalde tumoren van de schedelbasis.

Oog voor de blinde vlek

ORATIE
N.M. Jansonius
TITEL
Oog voor de blinde vlek
LEEROPDRACHT
Oogheelkunde, i.h.b. op het gebied van glaucoom
DATUM
5 maart 2013

Prof.dr. Nomdo Jansonius gaat in zijn oratie in op de behandeling van de chronische oogziekte glaucoom. De laatste jaren is het inzicht ontstaan dat - uitzonderingen daargelaten - een intensieve behandeling de beste uitkomsten biedt in termen van kwaliteit van leven, en dat zo’n behandeling ook het meest doelmatig is. De behandeling bestaat uit oogdrukverlaging, met behulp van medicijnen of door middel van een operatie. Het tijdig bijstellen van de behandeling vereist een zorgvuldige monitoring van het proces om progressie tijdig te kunnen opsporen. Met de huidige technieken is dat mogelijk, maar ook tijdrovend en intensief. Daarmee is glaucomzorg - gezien het grote aantal patiënten - een logistieke uitdaging.

Glaucoom is een chronische oogziekte die op alle leeftijden voorkomt maar het meest bij ouderen. Boven de 45 jaar heeft ongeveer twee procent van de bevolking deze aandoening. Bij glaucoom sterft de oogzenuw geleidelijk af, met onomkeerbaar verlies van het gezichtsvermogen tot gevolg. De oorzaak is goeddeels onbekend, maar een verhoogde oogdruk speelt een belangrijke rol. Indien onbehandeld leidt de ziekte in principe tot blindheid.

Het glaucoomonderzoek in Groningen richt zich vooral op het verbeteren van de diagnostiek en daarmee op het verbeteren van de logistiek rond de zorg voor glaucompatiënten. Daarbij wordt samengewerkt met onder andere het Erasmus Medisch Centrum, het Nederlands Instituut voor Neurowetenschappen in Amsterdam, het Maastricht Universitair Medisch Centrum en de universiteiten van Tübingen, Oulu en Iowa.

Er komt een vlieg bij de doctor

ORATIE
O.C.M. Sibon
TITEL
Er komt een vlieg bij de doctor
LEEROPDRACHT
Celbiologie
DATUM
26 maart 2013

Tijdens haar oratie zal prof.dr. Ody C.M. Sibon uitleggen waarom vooral de fruitvlieg (Drosophila melanogaster) geschikt is om zeldzame Parkinson-achtige aandoeningen te begrijpen en hoe fruitvliegonderzoek aan de basis kan staan voor therapie-ontwikkeling van tot nog toe onbehandelbare ziekten. Het DNA
van de fruitvlieg lijkt verbazend veel op dat van de mens en veel principes in de vlieg zijn geconserveerd gebleven tijdens de evolutie. Sibon is hoogleraar Celbiologie, in het bijzonder van processen die ten grondslag liggen aan neurodegeneratie.

Heel veel kennis die noodzakelijk is voor een goede behandeling van patiënten is het resultaat van door nieuwsgierigheid gedreven puur fundamenteel wetenschappelijk onderzoek. In de toekomst zal er nog veel fundamenteel onderzoek nodig zijn om uiteindelijk grote maatschappelijke problemen adequaat te kunnen oplossen. Modelorganismen zoals de Drosophila melanogaster zijn daarbij van grote waarde.

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

> P R O M O T I O N S

Cognitive functioning in schizophrenia: structure and clinical correlates

PROMOTIONUS
P.J. Quee
PROEFSCHRIFT
Cognitive functioning in schizophrenia: structure and clinical correlates
PROMOTORES
Prof.dr. D. Wiersma
Prof.dr. A. Aleman
COPROMOTOR
Dr. R. Bruggeman

Profielen geven inzicht in heterogeniteit van schizofrenie

Schizofrenie en verwante psychosen komen voor bij ongeveer 1,5% van de bevolking. Veel patiënten hebben ‘cognitieve functiestoornissen’ zoals problemen met plannen, concentreren en het geheugen. Piotr Quee onderzocht het cognitieve functioneren in relatie tot familiale factoren, het dagelijks functioneren voor de eerste psychose, en het ziekte-inzicht.

Het onderzoek van Quee maakt deel uit van het Nederlandse project Genetic Risk and Outcome of Psychosis (GROUP). Familiale factoren onderzocht hij door het cognitieve profiel van een gezonde broer of zus te bestuderen in relatie tot het profiel van hun ziekte familieled. Ook groepeerde hij patiënten op basis van hun dagelijks functioneren voor het eerst een psychose kregen. Tot slot onderzocht hij de relevantie van cognitief functioneren voor ziekte-inzicht en de rol van sociaal inlevingsvermogen daarbij.


Effecten van maternaal testosteron op hersenlateralisatie nakomelingen

Het proefschrift van Kristina Pfannkuche behandelt de effecten van maternaal testosteron en hoe die het gedrag en het brein van de nakomelingen beïnvloeden. Het meeste onderzoek in dit veld richt zich op de functie en evolutie en meldt vele effecten in het gedrag en de fysiologie van nakomelingen. De onderliggende mechanismen daarentegen zijn onderbelicht gebleven. Twee potentiële routes zijn door Pfannkuche onderzocht: hersenlateralisatie en de hypothalamus-hypofyse-gonaden (HHG) as.

Hersenlateralisatie behelst de specialisatie van elke hersenhelft in verschillende taken en functies. Het is een fundamenteel organisatorisch principe in de hersenen van gewervelden (en sommige ongewervelden) en staat daardoor een experimentele benadering in dieren toe. Omdat er een consistent verschil in hersenlateralisatie tussen de geslachten is
aangetoond in verschillende soorten, heeft men voorgesteld dat postnatale blootstelling aan androgenen lateralisatie beïnvloedt. En omdat hersenlateralisatie en maternale androgenen een breed scala aan functies in individuen beïnvloeden, onderzocht Pfannkuche of de effecten van maternale hormonen mogelijk zijn veroorzaakt door hun effecten op hersenlateralisatie.

Ondanks dat is aangetoond dat zowel maternale androgenen als lateralisatie een groot scala aan eigenschappen in individuen kunnen beïnvloeden, gelooft Pfannkuche dat de effecten van maternale hormonen op lateralisatie marginaal zijn, in ieder geval in vogels. Het wordt verondersteld dat maternale androgenen de ontwikkeling van nakomelingen dusdanig beïnvloeden dat deze nakomelingen een voordeel zouden hebben in de dan geldende omstandigheden en daarbij de fitness van de moeder vergroten. Zelfs in het geval dat maternale androgenen in staat zouden zijn om lateralisatie in kippen te beïnvloeden, zijn ecologisch relevantere testen nodig om te kunnen beoordelen wat de evolutionaire voordelen voor individuen zouden kunnen zijn. Ook zouden de effecten van oestradiol uitgebreider moeten worden getest in vogels. Aangezien seksuele differentiatie in vogels afhankelijk is van oestradiol zou een behandeling met oestradiol binnen de fysiologische grenzen de geslachtsverschillen kunnen vergroten.


Prefrontal networks in schizophrenia. Insights from neuroimaging

Promovendus
E.J. Liemburg
Praeferend
Prefrontal networks in schizophrenia. Insights from neuroimaging
Promotor
Prof. dr. A. Aleman
Co-promotor
Dr. H. Knegtering

Rol prefrontale cortex bij schizofrenie nader in kaart
Het voorstel deel van het brein, de prefrontale cortex, heeft een belangrijke, regulerende rol in hersenfuncties. Verstoring van prefrontale netwerken kan leiden tot aandoeningen waarbij cognitieve functies verstoord zijn. Schizofrenie is hier een voorbeeld van.

UMCG-promovendus Edith Liemburg onderzocht verschillende cognitieve dysfuncties en de relatie met verstoorde hersenfunctie in schizofrenie. Ze stelt vast dat prefrontale taalnetwerken inderdaad een veranderde functie laten zien in patiënten met schizofrenie. Ook vertonen patiënten met slecht ziekte-inzicht en gezonde personen met een verstoorde emotieverwerking afgenomen samenwerking van hersengebieden in een netwerk dat betrokken is bij zelf-gerelateerde processen.

In haar proefschrift besteedt Liemburg speciale aandacht aan negatieve symptomen, die mogelijk ook veroorzaakt worden door prefrontale dysfunctie. Haar bevindingen suggereerden dat prefrontale activiteit toenemen na behandeling met nieuwere antipsychotica, maar dat symptomen niet gelijktijdig hoeven te verbeteren. Bovendien toont ze aan dat negatieve symptomen uit verschillende subdomeinen kunnen bestaan, die verschillend kunnen reageren op behandeling. Deze bevindingen stimuleren mogelijk onderzoek naar betere definities van symptomen, die weer als uitgangspunt kunnen dienen voor nader (neuroimaging) onderzoek en nieuwe behandelstrategieën.


>> CONTINUATION PROMOTIONS
Computational neuroimaging of visual field loss

Promovendus
K.V. Haak

Promotieboek: Computational neuroimaging of visual field loss
Promotor
Prof.dr. J.M.M. Hooymans

Co-promotoren
Dr. F.W. Cornelissen
Dr. R.J. Renken

Visuele hersengebieden reorganiseren niet bij blindheid door oogziekten

Oogziekten zoals maculadegeneratie treden veel op bij ouderen. Ze beschadigen het netvlies van het oog, veelal met blindheid als gevolg. Vaak wordt aangenomen dat de visuele hersengebieden zich reorganiseren wanneer ze (door blindheid) niet meer gestimuleerd worden.

Onderzoek van UMCG-promovendus Koen Haak laat zien dat de organisatie van visuele hersengebieden zichtelijker is dan wordt aangenomen. De effecten die eerder voor reorganisatie werden aangezien, blijven ook bij gezonde mensen volhouden. Dat is goed nieuws voor mensen met een netvliesbeschadiging. Als het in de toekomst mogelijk wordt om het netvlies te herstellen – en het onderzoek op dit terrein is veelbelovend – dan hoeft de patiënt niet meer opnieuw te “leren” zien. De hersenen kunnen de informatie die via de ogen binnenkomt nog gewoon verwerken.


The management of hyperbilirubinemia in preterm infants

Promovendus
D.E. Vader van Imhoff

Promotieboek: The management of hyperbilirubinemia in preterm infants
Promotor
Prof.dr. A.F. Bos

Co-promotoren
Dr. P.H. van Dijk
Dr. C.V. Hulzebos

Landelijke richtlijn voor te vroeg geboren baby’s die geel zien

Alle intensive care units in Nederland waar te vroeg geboren baby’s worden behandeld, gebruiken vanaf nu dezelfde richtlijn en behandelgrenzen voor de behandeling van geelzien. Hiermee is gevolg gegeven aan een van de aanbevelingen uit het promotieonderzoek van Deirdre Vader-Van Imhoff. Het stellen van de diagnose en de behandeling van te vroeg geboren baby’s die geelzien is daarmee verbeterd.


Vader-Van Imhoff stelde vast dat het niet zinvol is om het meten van de verhouding tussen bilirubine en albumine in het bloed op te nemen in de richtlijn. Ook vond zij dat minder bloedafnames nodig zijn omdat de hoeveelheid bilirubine via de huid gemeten kan worden. Door onder een luier, op de huid van de baby te meten, kan de methode ook worden gebruikt als baby’s lichttherapie krijgen.

Verder vond Vader-Van Imhoff dat artsen en verpleegkundigen die intensive care units de fototherapielamp vaak te ver van de baby afzetten waardoor behandeling van een te hoog bilirubine niet effectief was. Tot slot heeft het onderzoek opgeleverd dat de apparatuur om de hoeveelheid bilirubine in het bloed te
meten geijk is voor baby’s. De verschillende maatregelen hebben geleid tot een meer uniforme behandeling van te vroeg geboren baby’s die geelzien.


**Linking depression. Longitudinal and neuroimaging genetic studies in major depressive disorder**

PROMOONDUS
E.M. Opmeer
PROEFSCHRIFT
Linking depression. Longitudinal and neuroimaging genetic studies in major depressive disorder
PROMOTOR
Prof.dr. A. Aleman
CO-PROMOTOR
Dr. R. Kortekaas

Genen en hersenactiviteit bestudeerd bij depressieve patiënten
Om een depressie goed te kunnen behandelen, is inzicht nodig in het ontstaan ervan. Erfelijkheid en omgevingsfactoren spelen een rol bij depressie, maar de onderliggende mechanismen zijn nog onbekend. UMCG-onderzoeker Esther Opmeer gebruikte gegevens over hersenactiviteit en genetica van deelnemers aan de Nederlandse Studie naar Depressie en Angststoornissen (NESDA) om hier meer zicht op te krijgen. Bij het zien van negatieve plaatjes vond Opmeer dat de hersenen van depressieve patiënten meer activiteit laten zien in gebieden betrokken bij aandacht geven, dan niet-depressieve patiënten. Tijdens het zien van positieve plaatjes zijn die gebieden juist minder actief.

Ook vond Opmeer specifieke genen die de hersenactiviteit beïnvloeden op dezelfde manier als bekend is van mensen met een depressie. Zij concludeert dat mogelijk de genetische, erfelijke aanleg voor depressie te vinden is door te kijken hoe genen de hersenen beïnvloeden. De studies van Opmeer dragen bij aan het onderzoeksveld neuroimaging genetics omdat zij als een van de eersten aantoont dat de aanwezigheid van een depressieve stoornis de relatie tussen gen en hersenactiviteit beïnvloedt.


**Rectification**
Unfortunately, an error occurred in Newsletter 89. Please find herewith the correct promotor of J.C. van Rij-Tange:

**Pronoun Processing. Computational, behavioral, and psychophysiological studies in children and adults**

PROMOONDUS
J.C. van Rij-Tange
PROEFSCHRIFT
Pronoun Processing. Computational, behavioral, and psychophysiological studies in children and adults
PROMOTOR
Prof.dr. P. Hendriks

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

■ PHOTOS: SANDER MARTENS
> ONE CAN ALSO LEARN FROM “STELLINGEN”

Rookpauze houden met een rokende collega is heel ontspannend: terwijl de collega rookt kan jij pauze houden.
> Edith Liemburg, met dank aan Hedwig van Oosten

> Koen Haak

Een mens heeft twee oren en één mond om twee keer zoveel te luisteren dan te praten. – Confucius
> Laura Teune

Een chaotische werkplek is de afspiegeling van een geordende geest. – M. Janssen, 2006.
> Laura Teune

Het hebben van keuzemogelijkheden is vaak moeilijker dan de afwezigheid van een keuze.
> Esther Opmeer

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> COLophon

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**Deadline for the next edition: 18 July 2013**

> Photos/Illustrations


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Deadline for the next edition: 18 July 2013