

the NeuRA magazine

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TECH-SAVVY?**

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Message from our **EXECUTIVE DIRECTOR**



Welcome to the very first edition of the NeuRA Magazine. I hope the new look expresses the energy and excitement we feel 2012 will bring for all of us in the NeuRA community.

As you may have noticed, the exterior of our new building is looking more impressive by the day. Our focus this year will be raising funds to fit out the interior so that we can redouble our efforts towards making discoveries and improving the health of our community. If you would like to find out more about helping us fit out our world-class neuroscience research centre, please contact us on 1300 888 019.

With this issue, we have enclosed a NeuRA supporter survey. We'd like to hear from you why supporting NeuRA is important so that we can improve the information we send to you and keep you up to date with the research that you're most interested in. Simply complete and

mail the survey back to us using the reply paid envelope, or you can fill the survey in online at www.neura.edu.au/survey.

As I'm sure you are well aware, our research cannot happen without your support, so thank you in advance for your help.

Professor Peter R Schofield PhD DSc
Executive Director
and Chief Executive Officer

About NeuRA

Neuroscience Research Australia (NeuRA) is a not-for-profit research institute based in Sydney, Australia. Our goal is to prevent, treat and cure diseases, disorders and injuries of the brain and nervous system through medical research. Find out more at neura.edu.au or call 1300 888 019.

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Credits

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news IN BRIEF

- 01 Cover photo: Dr Kim Delbaere at the falls prevention research lab
- 02 Prof Peter Schofield surveys the NeuRA building site from Barker Street in Randwick
- 03 Leader in MND research, Prof Matthew Kiernan, with Federal Minister for Health, Tanya Plibersek
- 04 PhD student Marcella Kwan
- 05 Dr Yue Huang with her colleagues, Prof Glenda Halliday and Dr John Kwok
- 06 NeuRA researcher Angelica Thompson Butel with stroke research participant Tanya

BRAIN RESEARCH GETS A BOOST

Federal Health Minister, Tanya Plibersek, recently announced several large grants to support our work on early onset dementia, motor neurone disease and bipolar disorder.



03

04



LEARNING FROM OLDER CHINESE PEOPLE

PhD candidate Marcella Kwan has found that older Chinese people fall far less frequently than older Caucasian Australians. Her research indicates that, rather than physical ability, it's a greater level of caution that counts; older Chinese people are more likely to be attentive and use a stick when walking outside, as well as engage in structured exercise such as Tai Chi.

Marcella plans to incorporate this information about the importance of avoiding unnecessary risks into fall prevention trials for older people.



05

GENES CAN PREDICT THE SPEED OF PARKINSON'S DISEASE

Dr Yue Huang and her colleagues have found that two genes, both associated with the risk of developing Parkinson's disease, can determine how quickly the disease will progress in people with certain versions of these genes.

Parkinson's disease progresses at different rates from person to person, and it's not currently possible to offer an accurate prognosis. Their findings have the potential to aid the development of a prognostic test for Parkinson's disease, giving patients a better sense of what they can expect after diagnosis.



06

GETTING FIT POST-STROKE

Dr Penelope McNulty has shown that rehabilitation using Nintendo Wii has the added benefit of improving cardiovascular fitness post-stroke. Although physical fitness reduces the risk of suffering another stroke, many stroke patients find it difficult to retain their aerobic capacity.

Although the rehabilitation exercises were designed to improve use of hands and arms, Dr McNulty's participants also experienced greater exercise endurance and more rapid recovery of their resting heart rate after exercise.

Who says *older people* aren't TECH- SAVVY?

Dr Kim Delbaere is part of an exciting new project, iStoppFalls, that will see grandma and grandpa racing to embrace the latest technology.



01

Dr Kim Delbaere is determined that older people shouldn't accept falling as an inevitable part of ageing. As a falls researcher in Belgium, she once met an 87-year-old nun who underwent an amazing transformation after just a few weeks of help.

"When I first met this lady, she had not left her house in many weeks," says Kim. "She wanted to go out, but she was frail and the cobblestone streets surrounding her house were dangerous. She was obviously afraid of falling. This lady had

made peace with not being able to leave her house anymore, but she didn't need to accept this situation."

As part of a falls prevention study, Kim prescribed the nun some exercises to do at home. "Week by week, I saw her confidence grow," says Kim. "By the end of the trial, she was managing the cobblestones with a neighbour and doing her own shopping again. She was much happier."

Several years later, Kim continues to work on the challenge of delivering interventions to as many older people as possible. The most effective way to prevent falls, she says, is to take an individual approach: assessing why an individual is at risk (poor balance or lack of strength, for example) and designing exercises that help them do something about it. But offering individual assessments is time consuming, not to mention costly, which is why Kim and her colleagues have turned to a very promising shortcut: technology.

Through an exciting new project called iStoppFalls, Kim is now working with European research and industry partners to develop technology-based monitoring and exercise programs that provide individual assessments while by-passing the need for thousands of human assessors.



Kim is working with Philips Research to modify their sensor pendant, originally designed to detect falls, so that it can also assess the balance, strength and mobility of the wearer and indicate where they might be at risk. The plan, says Kim, is for this information to feed into a software program on a home computer, which then automatically designs an individualised falls prevention exercise program using video games.

“It’s only now that technology is becoming advanced enough to provide us with a solution, which is really exciting.”

“It’s a fairly new approach,” says Kim. “But up until a couple of years ago, the technology was just not up to speed. It’s only now that technology is becoming advanced enough to provide us with a solution, which is really exciting.”

The team hopes to have a pilot program up and running in Europe by October this year, and a randomised controlled trial running in Australia by March 2013.

It’s a tight timeframe, but with the first of the baby boomers already in their late 60s, the need is great. The payoff for the hard work ahead, says Kim, will be seeing older people having access to a falls prevention program that helps them regain their confidence.

“Losing their fear of falling improves their quality of life and makes them happy again,” she says. “The thing that I like to see the most is older people happy. That’s what I want to try and achieve.”

If you would like to register your interest in volunteering for falls research at NeuRA, go to www.neura.edu.au/content/volunteer

- 02
- 01 Fay is one of our falls prevention research participants
 - 02 Dr Kim Delbaere shows research participant David how a falls detection pendant works



01

5 minutes with

Prof VAUGHAN MACEFIELD

In a world first, Prof Vaughan Macefield has developed a technique to measure how the brain controls blood pressure in health and disease.

WHAT ARE YOU INVESTIGATING HERE?

This man in the MRI machine has high blood pressure. I have inserted a fine needle into a nerve in his leg, which is attached to the wires you can see just below his knee. This needle measures the signals that his brain is sending to his blood vessels to make them constrict and increase his blood pressure.

Once I've got him set up, I will also take images of his brain with the MRI. This allows me to see which areas of the brain are sending these signals and therefore which areas of the brain control blood pressure. With these two measurements, I can get a very clear picture of how the brain is controlling blood pressure in both health and disease.

WHY IS IT IMPORTANT TO KNOW WHAT AREAS OF THE BRAIN CONTROL BLOOD PRESSURE?

We know that diseases such as heart failure and obstructive sleep apnoea bring about changes to the brain, and this in turn brings

about increases in blood pressure. Normal blood pressure is essential for healthy life. If it's too high, you can suffer a stroke.

If we are able to better understand what damage occurs in the brain that affects blood pressure, this may lead to the development of new treatments aimed at reversing some of this damage, thereby improving the blood pressure and the health of people living with cardiovascular disease.

WHAT DISEASES INTEREST YOU THE MOST AS A RESEARCHER?

People with heart failure allow us to see what very disordered control of blood pressure looks like, which can tell us a lot. At the moment, we are studying these patients before and after they receive a heart transplant. In addition to looking for changes in their brains, we want to know whether there is a reversal of this damage when you give them a new heart. If we understand this, we may one day learn how to improve the function of the heart via the brain while patients are waiting for a transplant.

Seeking volunteers WITH SCHIZOPHRENIA



02

The CASSI study is a clinical trial of a new, add-on treatment for schizophrenia. We are investigating whether a drug already used to treat cancer and osteoporosis can improve thinking ability, language, memory and motivation in people with schizophrenia.

We are seeking men and women with schizophrenia or schizoaffective disorder aged between 18 and 55 years to participate in this important clinical study. If the drug proves to be effective, it has the potential to improve the quality of life of many people with this mental illness.

To volunteer or to find out more, contact Alice Rothwell on 02 9399 1683 or at a.rothwell@neura.edu.au

01 Prof Vaughan Macefield measures how the brain sends signals to blood vessels in the body

02 Prof Cyndi Shannon Weickert leads the CASSI study

03 Kylie Bailey with her grandmother on Christmas Day 2011, one week before she passed away

2012 EVENTS CALENDAR

14

APRIL

Canberra Marathon (2 days)

27

MAY

HBF Run for a Reason, Perth

30

JUNE

Gold Coast Airport Marathon

15

JULY

Run Melbourne

12

AUGUST

Sydney City to Surf

26

AUGUST

Perth City to Surf

02

SEPTEMBER

Bridge to Brisbane

31

OCTOBER

Noosa Triathlon
Multi Sport Festival (5 days)

from our
community

Support NeuRA by

“LOSING ^{kg} IT”

Losing 25kg and raising money for brain research may be no small challenge, but 25-year-old Kylie Bailey from Sydney has boundless amounts of motivation.

Earlier this year, Kylie's grandmother passed away after a ten year battle with Alzheimer's disease. "There is little on earth that breaks your heart more than talking to someone you've known for years and...they have no idea who you are," says Kylie. So when the opportunity arose to fundraise for NeuRA and lose weight as part of the Channel Ten 1 Million Kilo Challenge through Everyday Hero, Kylie literally jumped at the chance.

The first few kilos have been easy, she says. So easy, in fact, that she's doubled her fundraising target. "The more I lose, the more motivated I become, so this should

help the cause," she says. Kylie says she's looking forward to helping destigmatise mental illness and neurological diseases - and, of course, "watching the butt shrink!"

Do you feel inspired by Kylie's quest? If you would like to fundraise for NeuRA and challenge yourself by running a marathon, participating in a community event or organising your own, we'd love to hear from you. See our calendar for some ideas or call Stephanie Grove on **02 9399 1270** to discuss.

You can support Kylie at
everydayhero.com.au/kyliebailey

What is your LEGACY?

Generously leaving a gift to NeuRA in your Will is one of the most powerful contributions you can make.

John left a bequest in 2009 that continues to support the running of the Sydney Brain Bank here at NeuRA. One of our current projects is investigating changes in the brains of individuals who have lived to over 95 years and have not developed a neurodegenerative disorder. Bequests can help hundreds of research projects like this that help solve the mysteries of brain diseases.

Like you, John shared NeuRA's vision and his legacy lives on through his gift. If you are updating your Will, please consider including NeuRA. For more information call Leonie Harle on **1300 888 019** or email l.harle@neura.edu.au



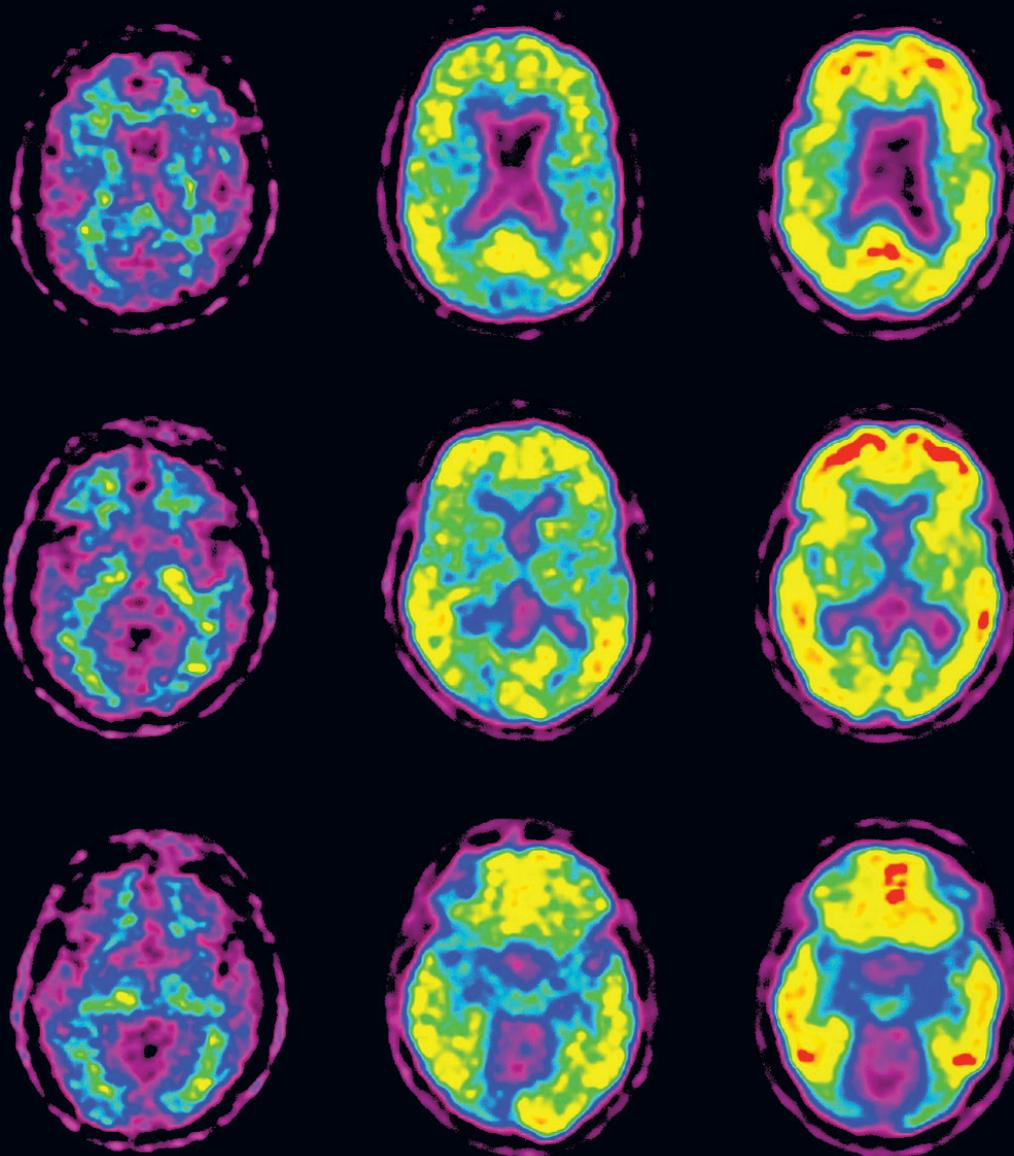
in
focus

STRENGTHENING *the* diagnosis of DEMENTIA

The red and yellow areas in these PET scans show the accumulation of a protein called beta-amyloid in the brain, indicative of Alzheimer's disease.

The left column shows a healthy individual, while the right column shows someone with typical Alzheimer's disease. The middle column, however, shows someone who is difficult to diagnose clinically - they have problems with speech and language, a symptom that could indicate they have either frontotemporal dementia or Alzheimer's disease.

Using this new type of PET scan, we are able to detect beta-amyloid in their brain and therefore correctly diagnose them with Alzheimer's disease. Through this research, Prof John Hodges, PhD student Cristian Leyton and the team are developing more robust diagnostic methods for dementia and giving patients confidence that they are receiving the correct treatment for their illness.



original ageing • Chronic pain • Dementia • Depression • Dyslexia • Falls in the elderly • Frontotemporal dementia • HIV-associated dementia • Motor neurone disease • Muscle fatigue • Parkinson's disease • Sleep apnoea • Schizophrenia • Spinal cord injury • Stroke • Restless legs syndrome • Aboriginal ageing • Alzheimer's disease • Autism • Balance disorders • Binge drinking • Bipolar disorder • Chronic pain • Dementia • Depression • Dyslexia • Falls in the elderly • Frontotemporal dementia • HIV-associated dementia • Motor neurone disease • Muscle fatigue • Parkinson's disease • Sleep apnoea • Schizophrenia • Spinal cord injury • Stroke • Restless legs syndrome

To make a donation in support of our research, call 1300 888 019 or go to neura.edu.au/donate