

the NeuRA

magazine

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Giving hope to people with Parkinson's disease

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Message from our CEO

Professor Peter Schofield AO



Prof Peter Schofield AO

Over the last few months NeuRA has embarked on an exciting new fundraising event - Colour Your Hair for Mental Health. This is a new community-based participation-event to raise funds for much-needed research into mental health at NeuRA. In addition to supporting

research into mental illnesses such as anxiety, depression, schizophrenia and bipolar, we hope that Colour Your Hair will help to stimulate conversation about mental health and help to reduce stigma.

A big thank you to all who participated in, or donated to the campaign. If you spotted a bright hairdo in the street during October, you may well have passed one of the 749 people who signed up to fundraise on NeuRA's behalf. I too dyed my hair - much to the pleasure of the NeuRA and NeuRA Foundation Boards, who, through their donations, were able to choose the colour of my hair!

Together we exceeded our fundraising target for this initial event and raised over \$110,000.

The Minister for Health and Medical Research, the Hon Brad Hazzard, joined us in August for the announcement of NeuRA's new partnership with aged care provider Mark Moran Group. Together, we will began trialling a new tool at aged care facilities called *FallScreen+* to help reduce the rate of falls among older Australians.

September marked Dementia Awareness month, during which we showcased some of NeuRA's latest research into cognitive health. This was followed by our first annual Dementia Prevention Conference, held at NeuRA, and attended by leading international researchers and clinicians.

As the year comes to a close, I would like to wish you all a healthy and happy holiday season. Thank you for your continued support of NeuRA's research and our efforts to improve the health of all Australians.

Prof Peter R Schofield AO *FAHMS PhD DSc*
CEO

Cover photo: Larissa Richards talks to NeuRA about living with Parkinson's disease on pages 4-5.

Australia's first dementia prevention conference at NeuRA

In October, NeuRA held Australia's very first conference on dementia prevention. Experts from countries such as the United States, Canada, Sweden and Thailand travelled to NeuRA to share their research with over 140 delegates.



Conference attendees at NeuRA

"Our conference is bringing together scientists from around the globe to share findings and accelerate progress in dementia prevention science, so that governments, care providers and the public can act now to reduce the risk of dementia globally," said Professor Kaarin Anstey.

NeuRA wins workplace award

NeuRA has won the Most Inclusive Employer category at the 2019 Randwick City Business Excellence Awards. The business awards spanned 26 categories and received 9,915 nominations.

NeuRA was awarded the prize in October after using the services of NOVA Employment, which works exclusively with people who have a disability or significant barriers to work.



NeuRA's executive team accepting the award

"We are proud that working through NOVA, we have been able to give someone a job and really make them a part of our organisation and a valued member of our community," said NeuRA CEO Prof Peter Schofield AO.

Twins hold the key to unlocking mental health secrets



Amy and Rachel

NeuRA is embarking on a new project to unlock the secrets about how we can better protect ourselves against mental illness.

The study, led by Senior Research Scientist Dr Justine Gatt, is examining 1,600 twins over a 10-year period. The reason why twins are so important is because researchers can compare and contrast their mental wellbeing over a number of years to determine the role that both environment and genetics play in preventing mental illness.

Dr Gatt says she's very grateful for the invaluable insight the twins provide.

"We know that identical twins share the exact same genes and that non-identical twins have 50% genetic similarity. We also know both kinds of twins share mostly similar environments during their childhood and upbringing," she said.

"So we will be able to use this information about twins to model how our genes and environment influence our mental wellbeing and corresponding brain structure and function over time."

Two pairs of twins recently shared their story with Nine News. Michelle O'Brien and Narelle Robertson are identical twins in their early sixties who are extremely close.

"Although our lives have taken different paths, we are basically the same human being," said Michelle.

"I was 17 when I got married, and had a child a lot younger than Narelle did, which placed different sorts

of pressure on me at the time. Different things trigger my stress, but Narelle can detect when I get upset and knows exactly what to say to calm me down," she said.

Because Michelle and Narelle share the same DNA, discovering how their mental health differs will reveal how their mental vulnerability and resilience has been shaped by the environmental factors they haven't shared. One example of this could be a traumatic event, such as the loss of a loved one.

Rachel and Amy Maitland are also identical twins, in their thirties, who describe a similar bond.

"We share a lot of the same interests, the same group of friends, and we come from a close family too. We know what each other is thinking, feeling or wanting to do in a situation. But we obviously have different jobs and have had different curveballs thrown at us throughout life so I'm intrigued to see how our mental states differ," Amy said.

"I'm a school teacher so resilience is a really interesting trait. For me, participating in something that can potentially help mental health is really important," Rachel added.



Narelle and Michelle

"No one knows whether people have certain genes that make them intrinsically more resilient to mental illness over time, or whether it is someone's life experiences that helps protect them from disorders such as depression or anxiety disorder," said Dr Justine Gatt.

"Through this study, we are trying to understand how we can cope better with stress, and also flourish as well."



Dr Matthew Brodie wiring the smart socks produced in collaboration with Sensoria Health

Our quest to help people with Parkinson's

Most of us take walking for granted. But for people living with Parkinson's disease, one of the first and most devastating disruptions to their lives is that they lose their ability to walk naturally.

The disease can cause people to freeze mid walk. Known by the medical term 'freezing of gait,' this condition causes sudden episodes where someone cannot move their feet forward despite their intention to walk.

People with Parkinson's often describe this as if their feet are

suddenly glued to the floor. These episodes are particularly dangerous as the rest of the body continues with its momentum, which can lead to people falling suddenly.

Larissa Richards remembers vividly one of the first times she experienced this. Aged in her forties, the mother of two was recently diagnosed with young onset Parkinson's disease.



Larissa with her family

"I remember trying to get on a bus to come home from work. The door opened and I went to step up, but I was frozen. My head knew what to do, but my body just wouldn't cooperate. The driver and I just stared at each other," she said.

Freezing of gait can be so challenging to deal with, that people with Parkinson's are often fearful of leaving the house, and can become socially isolated.

NeuRA's Falls Balance and Injury Research Centre is exploring how technology embedded in everyday clothes assists people with reduced mobility.

The team, led by Dr Matthew Brodie and Associate Professor Kim Delbaere, have invented and are testing prototypes of these clothes, known as 'smart garments.'

For example, to help with freezing of gait, the team is working in collaboration with Sensoria Health to develop and test smart socks that vibrate at regular intervals to stimulate the feet to encourage walking.

This year, Larissa visited NeuRA to see one of these prototypes in action. She tested a pair of smart socks and experienced a reduction in the mental effort required to take each step.

"They not only made me feel better, they actually made me move better," she said.

Dr Brodie said one of the biggest motivations for developing these smart garments is seeing the potential they could have.

"What we've done is create a beat or rhythm that encourages the muscles to keep on making continuous movements. Our pilot studies reduced the worry people had about freezing of gait," he said.



Dr Matthew Brodie telling Larissa how the smart socks work



Larissa trialling the smart socks at NeuRA

One of NeuRA's goals is to reduce the number and severity of falls among people living with Parkinson's disease. About 100,000 people in Australia have Parkinson's disease and an estimated 60% suffer from a fall each year.



The ideas have been developed, but before these laboratory prototypes can become a reality, NeuRA needs to conduct a clinical trial involving at least 100 people living with Parkinson's disease to provide the evidence.

If you are interested in supporting this work, please contact the team at foundation@neura.edu.au

Air pollution linked to Dementia



Dr Ruth Peters speaking with BBC World News

A new study by NeuRA has found a clear link between air pollution globally and an increased risk of developing dementia later in life.

Researcher Dr Ruth Peters found that rates of dementia in these regions were more likely when people were exposed to two specific air pollutants. She combined the findings of studies of people living in Canada, Sweden, Taiwan, the United Kingdom and the United States to create a global snapshot of how pollution is impacting dementia rates.

“This finding is concerning because 91% of the world’s population are exposed to pollution levels that exceed the World Health Organisation guideline limit,” said Dr Peters.

Two pollutants were found to be particularly problematic. The first is particulate matter 2.5 (PM2.5), which is an airborne mix of solid particles and liquid droplets. Each particle is less than 2.5 micrometres wide (the average human hair is 70 micrometres wide) and can be easily inhaled. The second pollutant is a group of gases known as nitrogen oxides (NOx). These chemical compounds of oxygen and nitrogen are responsible for the smog that clouds cities.

Researchers believe air pollutants may lead to an increased risk of dementia through two methods. Firstly, by increasing levels of inflammation in our bodies, and secondly by raising the risk of having a stroke. The rate of developing dementia is 50 times higher in the year following a major stroke.

“Unlike the majority of established dementia risk factors, it is very difficult for someone to reduce their exposure to air pollution, especially if they live somewhere where pollution levels are high,” Dr Peters said.

“Following this study, we now need extra investigations to better understand how these pollutants affect our brain health over the long term, and what levels of pollution pose the highest risk to us,” Dr Peters said.

“While it might be difficult to reduce our exposure to air pollution if we live in a city, people can still do quite a lot to reduce their risk of developing dementia. The easiest way to do this is to maintain a healthy lifestyle by eating well, getting enough sleep, and being physically active,” Dr Peters said.

The study has been published in the *Journal of Alzheimer’s Disease* as part of a special issue by the International Research Network on Dementia Prevention. This network is led by Professor Kaarin Anstey, who is co-author on the study with PhD student Nicole Ee.



For simple and practical steps on how to reduce your risk of dementia, download NeuRA’s free Ageing Well kit: foundation.neura.edu.au/ageing-well-tool-kit

How to support someone experiencing anxiety



Anxiety is something we all experience. It is usually brought on by a stressful situation or looming event. Here's some advice from Senior Research Scientist, Dr Justine Gatt, on how to help someone experiencing anxiety:



Offer compassionate solutions instead of dismissive comments

Don't: Avoid dismissive comments such as "just relax", "don't panic" or "it's all in your head".

DO: Instead ask "what can I do to help you right now?" or offer a solution "I'm here for you if you want to talk".



Suggest positive and adaptive coping styles instead of focusing on the negative

Don't: Try to refrain from being critical, aggressive, or focusing on what the person did wrong, such as by saying "stop complaining" or "other people have bigger problems than you".

DO: Instead focus on solution-oriented tasks or conversations. Suggest positive activities you could do together, such as going for a walk.



Focus on the here-and-now instead of the long-term

Don't: Avoid suggesting long-term solutions, such as a new exercise routine, that does not help the person immediately.

DO: Instead try to help them through skills they can use immediately, such as deep breathing or mindfulness. You can ask someone, "what do you see right now?" or "what can you smell right now?" to bring them to the present.



DONATION & RESEARCH VOLUNTEER FORM

All gifts over \$2 are tax deductible

- Yes, I would like to donate to research at NeuRA
 Yes, I am interested in participating in research at NeuRA

Title:

First Name:

Surname:

Address:

Suburb:

State:

Postcode:

Phone:

Email:

How I choose to give my gift:

- Please accept this one-off gift to support research at NeuRA
 I would like to invest in the future and become a *Discovery Partner* with a regular donation of \$ _____ monthly / quarterly (please select)

\$50 \$100 \$250 or

A cheque payable to the NeuRA Foundation is enclosed OR

I wish to make my gift by credit card:

Visa Mastercard American Express Diners

Card No:

Expiry Date:

Cardholder's Name:

Cardholder's Signature:

If you do not require a receipt, please tick here

Please send me:

Details about how I can support NeuRA in my Will

- Mail this coupon in the reply paid envelope
- Call us on **1300 888 019** to make a donation over the phone
- Make a secure online donation at neura.edu.au/donate

A message from the NeuRA Foundation: The NeuRA Foundation may co-operate with other like-minded reputable Australian charities to promote our work to our respective donors. If you'd prefer that NeuRA does not share your information with other charities, please phone us on **1300 888 019**, email us at foundation@neura.edu.au or write to us using the enclosed envelope.

Thank you for generously supporting our research into diseases

Neuroscience Research Australia Foundation, PO Box 1165, Randwick NSW 2031 ABN 57 008 429 961

Thank you for a colourful first year!



In October, NeuRA launched Colour Your Hair for Mental Health where we asked all Australians to 'get their colour on' by dyeing their hair or wearing a colourful wig during Mental Health Week to raise funds for research.

NeuRA wants to thank all of those who participated in or supported this campaign. We have been highly impressed by the creative direction of some of their hairstyles!

The campaign raised \$110,000, which will support research for mental illnesses or conditions such as anxiety, depression, bipolar and schizophrenia.

Holly Walsh, who works as a receptionist at Mondo in Melbourne, was NeuRA's top community fundraiser. She raised more than \$5,000 for a cause she feels passionately about.

"I set up four options for people to choose from and orange was the most popular choice among my supporters," she said.



Holly before and after dyeing her hair

Holly was just one of hundreds of people who joined the campaign from all over Australia and coloured their hair.

Beyond supporting research, NeuRA's goal was to raise awareness around mental health and bring people together to share stories about how mental illness has impacted on them and their loved ones.



Fundraiser Bradon French chose a vibrant pink and purple hairdo

"I have received an amazing amount of support from my friends and family, as well as my colleagues at Mondo. When I talk to people about what I am doing, a lot of people have said it's brave and have been happy to support such a great cause."

Research is a slow process. It consists of incremental improvements that expands our knowledge and leads to better treatments for people in need.



Fundraiser Eva Urban chose rainbow hair

For more information, visit colouryourhair.com.au

Thank you for your support

If you wish to update your preferred communications from NeuRA, please call 1300 888 019.

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