

the NeuRA

magazine

Issue 33 | Winter 2020

Cracking dementia through our new ambitious project

- The secrets to staying active while in isolation
- Sharing the Wisdom to improve Indigenous Health
- Protecting your mental health during COVID-19
- New knowledge about the brains of people with schizophrenia

Message from our CEO during this pandemic

Professor Peter Schofield AO



Prof Peter Schofield AO

Firstly, I would like to extend my thoughts to our readers as we all grapple with the COVID-19 pandemic. I hope that you are taking care of yourselves and those around you in what has and continues to be a difficult time for our community.

As an institute working towards improving health outcomes for all Australians, especially the elderly, we are deeply concerned about the potential impact of COVID-19. The virus takes the heaviest toll on older people, making this health emergency a particular concern for us given so many of our research participants are in this demographic.

Your health is our top priority and while NeuRA's operations continue remotely, we are taking great care to protect the wellbeing of our staff and especially those who are participating in our studies.

Despite new restrictions on how we all live and work, our researchers are using their ingenuity to continue to advance their studies. For example, researchers are avoiding direct contact with people by working with participants remotely.

Our work on breathing is now especially relevant, with the rapid roll out of breathing training devices for those with spinal cord injury as well as clinical trials that aim to improve breathing and reduce the time a person stays ventilated in the intensive care unit. Both projects have the very real potential to save lives.

This issue of NeuRA magazine delves into how we can remain mentally and physically fit while living under government-mandated social distancing measures.

We also are announcing the exciting 1000 Brains Project that NeuRA has embarked on. You will hear from Joy Mallett, whom I sincerely thank for sharing her family's story of their battle with dementia.

Thank you for your continued support during these challenging and uncertain times. Your generosity keeps NeuRA's projects going, as we continue to make headway addressing brain and nervous system disorders.

I hope you enjoy the read. Stay safe and well.

Prof Peter R Schofield AO *FAHMS PhD DSc*
CEO

Cover photo: Joy Mallett, whose family is affected by dementia across three generations, and her daughter Lisa.



Mr Donovan presenting the findings of the report

Sharing the Wisdom to improve Indigenous Health

Dementia is a significant concern for Aboriginal and Torres Strait Islander communities, who are three to five times more likely to develop the condition than other Australians.

To better understand what can be done about this, NeuRA researchers worked with Aboriginal communities in NSW to interview 115 Elders aged 65 years and over about the factors they felt have contributed to their own wellbeing and longevity. The results, produced in NeuRA's *Sharing the Wisdom of Our Elders* report, show seven primary areas that contribute to ageing well within this population, including:

- Connections to Country and culture
- Respect
- Resilience
- Passing on knowledge
- Keeping healthy to live a long life
- Avoiding smoking, alcohol and drugs
- Education.

While areas such as keeping physically active help all Australians to thrive as they age, the report also highlighted many cultural factors that are important to Aboriginal communities. This work is part of a larger six-year study into healthy ageing and dementia led by NeuRA's Dr Kylie Radford.

"This project is an excellent way for our Elders to tell us in their words what growing old well means to them," said Terry Donovan, a NeuRA researcher and Gumbaynggirr and Biripi Elder.

"Our Elders are like the spine of Aboriginal Culture. They are held in such high esteem because of the knowledge they carry, and that binds communities together."

Dr Radford and Mr Donovan presented these findings at a recent community event in Coffs Harbour, where they discussed culturally meaningful ways to reduce dementia risk and age well.

Staying active while practising social distancing



Core strengthening to improve stability



Incorporate some resistance activity

The COVID-19 pandemic means that we are all spending a lot of time at home indoors and are not moving as much as we usually do.

Associate Professor Kim Delbaere, one of NeuRA's senior researchers in our Falls, Balance and Injury Research Centre says physical activity can keep us healthy and happy during these challenging times.

Movement helps us to manage our weight, keep our joints and muscles strong, reduce stress and anxiety, improve our sleep and increase our energy levels.

So what should we do?

Associate Professor Delbaere recommends dividing physical activities into two categories: day-to-day movement and structured physical exercise. Combining these two forms of activity will help us to maintain our health and prevent problems arising in the future.

To improve our movement throughout the day, her tips include:

- **Don't sit for long!** While you are reading or watching television, stand up and move about every 30 minutes or during ad breaks.

- **Be inventive to increase your number of steps.** Try to find a reason to move from room to room throughout the day.
- **Keep doing your chores.** You'll find that basic tasks like cooking or tidying a cupboard get you moving and using your muscles and joints.

Associate Professor Delbaere also recommends at least 30 minutes of planned physical exercise each day, which can be completed in one block or in three shorter sets of 10 minutes. Her advice includes:

- **Make a circuit** in your house or garden to do strength and balance exercises that focus on your lower body.
- **Focus on side leg raises, knee raises and heel raises,** which have been proven to help with stability and prevent falls.
- **Exercise enables different types of movement** that you can't obtain from day-to-day activities. Where possible try to mix Zumba, yoga, Pilates or aerobics in your daily routine.



Stretching to improve flexibility and stability



Dr Shepherd handling brain samples in the laboratory

Our 1000 Brains Project will help change lives

The brain is what defines us and makes us who we are. Good brain health enables us to build relationships with our loved ones, learn new things, solve problems, communicate and make sense of the world around us.

Unfortunately, there are more than 400,000 Australians living with neurodegenerative diseases. These diseases can be rapid, dramatic and are almost always heartbreaking.

Dementia has recently become the second most likely cause of death for Australians - and is on track to become the leading cause of death.

We must do something to stop the rise of this disease. This is why NeuRA and the Garvan Institute are embarking on the 1000 Brains Project, a groundbreaking research venture to identify the elements in the brain

that cause these life-changing neurodegenerative diseases.

Researchers know that certain factors, such as smoking or poor cardiovascular health, increase the likelihood of developing dementia.

But it remains unclear why some people develop these neurological diseases as they age, while others do not. This is what we hope to solve through the 1000 Brains Project.

This study will offer hope for people like Joy Mallett, whose family has been ravaged by dementia.



Joy, Don and their children at a young age



NeuRA's research on the brain is offering hope to Australians who are affected by dementia



Joy and her granddaughter, who is also at risk of developing dementia

The onset of dementia in Joy's husband, Don, rapidly changed their lives. His behaviour changed, which led him to quit his job. Soon afterwards, Don was diagnosed with dementia.

Joy said it was very challenging to bear witness to Don's declining health.

"I'd come home from work and find cigarette burns in the carpet. One day I couldn't find the kettle in the kitchen but I

"Increasing the number of brains we have, and the range of neurodegenerative disorders that we can examine under a microscope, will give us a better understanding of the cellular changes that occur as a result of these diseases," Dr Shepherd said.

could see all the welding parts had melted. Don must have gone to make a cup of tea and gone outside and forgotten about it. I eventually found it out in his shed," Joy explained.

Sadly, Don died from dementia at the relatively early age of 66. Then, their daughter, Lisa, also became ill. Lisa is now aged in her 50s and has such advanced dementia that she cannot recognise her own children.

Joy's sadness when describing her family is raw. Dementia is indiscriminate and a very cruel disease to everyone that it affects.

"I think Lisa knows who I am. She looks at me, but she hasn't been able to speak for years, eight years or so. She looks at me and then she just takes off, walks off. It's very hard," Joy said.

It is stories like these that motivates Dr Claire Shepherd,

the Director of NeuRA's Sydney Brain Bank and the leader of the 1000 Brains Project to investigate how dementia, and other neurodegenerative diseases, are caused and what we can do to prevent them from occurring.

"This research could have a major impact on those who have a family history of these kinds of diseases and can help us to give people hope by making great advances."

"Our vision is to better understand the cause of these diseases and what we can do to delay their onset or improve treatments to reduce their impact. It's extremely exciting," said Dr Shepherd.

Team discovers a lack of new brain cells in people with schizophrenia



NeuRA's PhD student, Hayley North



NeuRA's PhD student, Christin Weissleder

COVID-19 is having a massive impact on how we all live. As we come to terms with staying at home and dealing with the loss of daily interactions with friends and family, we should not forget some people experience isolation and social loss every day of their adult lives.

People suffering from schizophrenia face the sad reality that social distancing measures will not be lifted for them, at least not without our help.

Some say the only way societies can only "return to normal" is once researchers have developed a vaccine for COVID-19. Naturally, everyone is rallying behind those scientists with increased funding and public support in the hope that a vaccine will come soon.

In contrast, the battle experienced by those with schizophrenia is not new and there is currently no end.

Research into this terrible illness is underfunded and there is a constant struggle to get public support because of the stigma associated with schizophrenia.

This is why NeuRA celebrates every stone we unturn that improves our understanding of schizophrenia. New knowledge could one day lead to better treatment, or perhaps even a cure.

A team led by NeuRA's Professor Cyndi Shannon Weickert has discovered that people with schizophrenia have compromised neurogenesis - in other words, their ability to create new brain cells is faulty.

The team, which includes PhD students Christin Weissleder and Hayley North, compared the brains of people with schizophrenia with the brains of healthy adults to make their discovery.

"Without the ability to develop new cells, the plasticity of the brain is compromised. As a

result, the brain is less able to change and rewire, making learning, memory and emotional regulation very difficult. The likelihood of these individuals developing cognitive deficits and, unsurprisingly, mental health disorders, is high," said Professor Shannon Weickert.

"While our cognitive performance declines as we get older, the implication for people with schizophrenia is that their brain ages at an accelerated rate. This can leave a person with schizophrenia who is in their 30s with a brain that functions like someone up to two decades older."

The research team is now exploring how to put this new knowledge to best use to help those living with schizophrenia.

Protecting your mental health during COVID-19

Social distancing, which is key to preventing the spread of COVID-19, is forcing us to stay in our homes and to refrain from going out to socialise. In this environment, it is natural that we are feeling anxious, stressed or a little alone.

NeuRA's Dr Justine Gatt has developed a checklist of things you can do to help protect your mental health:



Remember everyone is experiencing challenges

It is very easy to take your frustration out on others, but do not forget that everyone is experiencing challenges right now. We can choose how to react and behave to this once-in-a-lifetime event. Your effort to treat others well is helping the entire community.

Keep smiling!

With the constant stream of COVID-19 news, it is very easy to catastrophise all the negative things that could unfold. But smiling and laughing diffuses this tension, and helps us feel better. Even in tough situations, we can still find joy in life.



Practise gratitude

Pausing to think of some of the things you are grateful for can have a huge positive impact on our mental health. Perhaps you are grateful for your friends or family, perhaps it is being thankful that you have access to shelter and food, or maybe you are relieved to be working from home and avoiding Sydney traffic!

Stop and take a breath

This is a once-in-a-lifetime experience. Although we have been faced with unpredictability for some time now, we do know this virus will end. Take the opportunity to slow down, and know that things will return to normal.



DONATION FORM

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All gifts over \$2 are tax deductible

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- 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

NeuRA's support to the community



We know COVID-19 is a serious concern to our community. We are all working to protect ourselves, our families and our staff during this pandemic, and through this support our frontline healthcare workers by following government advice.

As one of Australia's leading medical research institutes, NeuRA is looking into how it can proactively support efforts to combat COVID-19.

For example, NeuRA is in close discussions with NSW Health and has offered parts of its buildings to host staff who are tracking COVID-19 infections to help reduce the virus' spread in Australia.

NeuRA research on breathing can help support the hospitals treating COVID-19 patients. A new multi-site international study has been developed that could help reduce a critically ill patient's period of reliance on mechanical ventilators, which are in urgent need because of the virus.

It's hard for all of us to think beyond immediate concerns during this crisis. But NeuRA's promise to you is that we will not lose sight of our long-term health commitments.

We remain vigilant and determined in our goal to tackle some of Australia's most pressing health needs, such as the increasing rate of dementia.

Our research is continuing, albeit with changes so that we comply with government health requirements around social distancing, working from home, and using virtual rather than physical interactions.

In the midst of these challenges, your support of NeuRA is especially important. Our mission to discover, conquer, cure is only made possible by your generosity, and at this particular time, your support is more important than ever before.

We are deeply appreciative of your passion for our research and we will endeavour to find new ways to engage with you and keep you informed in this COVID-19 affected world. **Stay tuned! Stay safe. Stay well.**



Mental health during a crisis

During a crisis, it is important we continue to protect our mental health.

NeuRA is calling on supporters to show support for our *Colour Your Hair for Mental Health* Facebook page, look for: @colouryourhairformentalhealth

Our campaign aims to generate greater awareness about mental health challenges, and raise money for mental health research.

The campaign will run during Mental Health Week in October and we will provide more information about how you can participate closer to that time.

 Follow the **COLOUR YOUR HAIR FOR MENTAL HEALTH** page for the latest event information: @colouryourhairformentalhealth

Thank you for your support

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

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