NeuRA
Discover. Conquer. Cure.

the NeuRA magazine

Issue 37 | Winter 2021

Researchers bring older Australians and pre-schoolers together in an intergenerational initiative

- A message from NeuRA Bequestor, Shelly
- A day in the life of NeuRA's MRI Radiographer, Ryan Castillo
- New recommendations for keeping child passengers safe

Message from our CEO Professor Peter Schofield AO

Prof Peter Schofield AO

NeuRA has been a hive of activity over the past few months, especially now that Australia's COVID-19 restrictions have eased. Thanks to your generous support, we have been making serious headway in research programs that focus on healthy ageing, injury and fall prevention, motor impairment and mental health.

This issue of NeuRA Magazine shines a light on the research we are undertaking to improve ageing across the lifespan. Our feature story focuses on a pilot study that is connecting older, isolated Australians with young pre-schoolers as part of an intergenerational program to assess what the mutual health and social benefits might be. If successful, the program has the potential to be implemented in communities across Australia.

Carole Renouf, Executive Director of the Foundation, will share one of her research learnings every issue, on the basis that learning something new keeps all our brains healthy.

We also have an opportunity to get to know NeuRA's Magnetic Resonance Imaging (MRI) Radiographer, Ryan Castillo, and some of the activity that takes place in NeuRA's Imaging facility.

I hope you enjoy the read. Thank you for your continued support.

Prof Peter R Schofield AO *FAHMS PhD DSc*
CEO

Carole Renouf

Carole's Column

I am very lucky to be in a position at NeuRA where I literally learn something new every day!

This month I have learnt about safe mobility, the ability to walk in diverse environments without losing balance. Falls are a dramatic event which occur when we lose our balance and are unable to recover. In just the past two months, two prominent Australians have fallen: Victorian Premier Daniel Andrews (recovering) and Carla Zampatti (sadly deceased). Yet up to 40 per cent of falls can be prevented.

Loss of balance and balance recovery are complex multi-factorial events. In a fall, systems involved in vision, sensation and balance are all involved in fast central processing of information in the brain to sound the warning. At almost the same time, cognition and muscular response must kick in to rapidly initiate recovery control. Currently, this complex choreography is poorly understood.

While falls tend to happen in the over 65s, the functions which underpin balance start to decline from adulthood to middle age. Therefore, in order to improve healthy ageing, we need to intervene with maintenance programs well before the onset of falls and later with restoration programs if and when mobility falters. Rest assured, NeuRA is working on it!

Carole Renouf
Executive Director of the NeuRA Foundation

Shelly, walking down the aisle with her father before he passed away.

Shelly's dad before he became unwell.

A message from Shelly

In October of 2008, my father was diagnosed with motor neurone disease, a devastating disease that quickly destroyed his ability to move, speak, swallow and breathe. My dad took on all that this disease threw at him with such courage, and fought to live for his family. Sadly, he lost his 19-month battle and having to say goodbye so soon to not only my father, but my best friend, was truly heartbreaking.

Dad believed wholeheartedly in research and was proud to be able to help by volunteering at NeuRA. His wish was that one day nobody would have to suffer through this horrendous disease, like he did.

I too believe in the power of research and although I am committed to supporting research throughout my life, I have also left a gift in my Will to NeuRA.

With this gift I hope that diseases like motor neurone disease and other neurodegenerative conditions will one day be eradicated for good.

A gift in my Will is one way that both my father and my legacy get to live on. It's an opportunity to create lasting personal meaning.

To know that my dad's suffering may not have been entirely in vain, and that we could be a part of the answer, brings me some peace.

I had to say goodbye to my father far too soon but believing that someday in the future a daughter will get to see her dad grow old, and that my gift will help make that happen, brings me joy.

This gift in my Will is the most significant gift I shall ever make, a legacy in memory of my dad that could be life changing or life giving. ●

We would like to thank you

Please let us know that you have left a gift to NeuRA in your Will. Your generosity deserves recognition in your lifetime. We would like to keep you up to date on our activities and vital research, as well as invite you to become a BEQUEST FOR CURES partner.

Maybe you are intending to leave a bequest to NeuRA? We'd love to discuss this with you. Be assured that we will keep your personal details in the strictest of confidence, and understand if you wish to remain anonymous. ●

BEQUEST FOR CURES

If you would like to discuss in confidence leaving a gift in your Will to NeuRA, please call Stephanie Grove, Gifts in Wills Manager on 02 9399 1270 or email s.grove@neura.edu.au

Older adults and young children can be the perfect companions.

Pre-schoolers and older Australians come together in an evidence-based and heartwarming intergenerational initiative

Although globalisation is leading to increasing interconnectivity online, we are at the same time experiencing increased geographical separation from our loved ones.

This reduced face-to-face contact is particularly felt by older adults in the community, who are likely not in as close proximity to grandchildren and younger family members, compared to previous generations.

A new trial led by researchers in NeuRA's healthy ageing team aims to combat this isolation, and its associated health implications, by bringing older Australians and young children together in a structured intergenerational program.

Titled the Intergenerational Integration Initiative, the program was initially inspired by the award-winning and heartwarming ABC series, *Old People's Home for 4 Year Olds*, and is funded by the UNSW Ageing Futures Institute.

Early work by researchers at NeuRA has shown that bringing older adults and young children together in purposeful activities might have multifaceted positive impacts on older adults, children and society.

"Early research indicates these programs could lead to better physical health and cognition among adults over the age of 65, and better interpersonal skills among children under the age of 5," said leader of the study, Associate Professor Peters.

"Children and older adults can be the perfect companions and build

Early work by researchers at NeuRA has shown that bringing older adults and young children together in purposeful activities might have multifaceted positive impacts on older adults, children and society.

Associate Professor Ruth Peters is leading this research project.

lovely partnerships where they both really care for each other."

With over 90 per cent of Australia's older adults living in the community, and COVID-19 related restrictions beginning to ease, Associate Professor Peters and her team decided 2021 was the year to trial the Intergenerational Integration Initiative in a real-world setting.

To assess the feasibility of the program within the community, Associate Professor Peters and her team surveyed 258 parents, teachers and older adults themselves to see whether they would support such a program.

"More than 92 per cent of respondents indicated that the program has the potential to increase understanding and friendships across generations, provide unique learning opportunities and improve communication skills in children, while also reducing loneliness and isolation in older adults," Associate Professor Peters said.

In collaboration with St Nics' Church and Christian Preschool in Coogee, the trial will run for 10 weeks during the school term, and will see older adults and young children engage in a structured series of investigative, artistic and educational activities together.

If this first pilot trial is successful, a larger follow-on trial will test whether the Intergenerational Integration Initiative could be rolled out to wider communities and eventually throughout New South Wales, and around the country.

"Bringing together older and younger Australians in a day-to-day setting could have a major benefit across Australia, particularly with almost half of those aged 75-84 living alone with likely exacerbated levels of isolation due to the COVID-19 pandemic," said Associate Professor Peters.

"The UNSW Ageing Futures Institute is excited to see this important project develop with such strong community support," said Professor Kaarin Anstey,

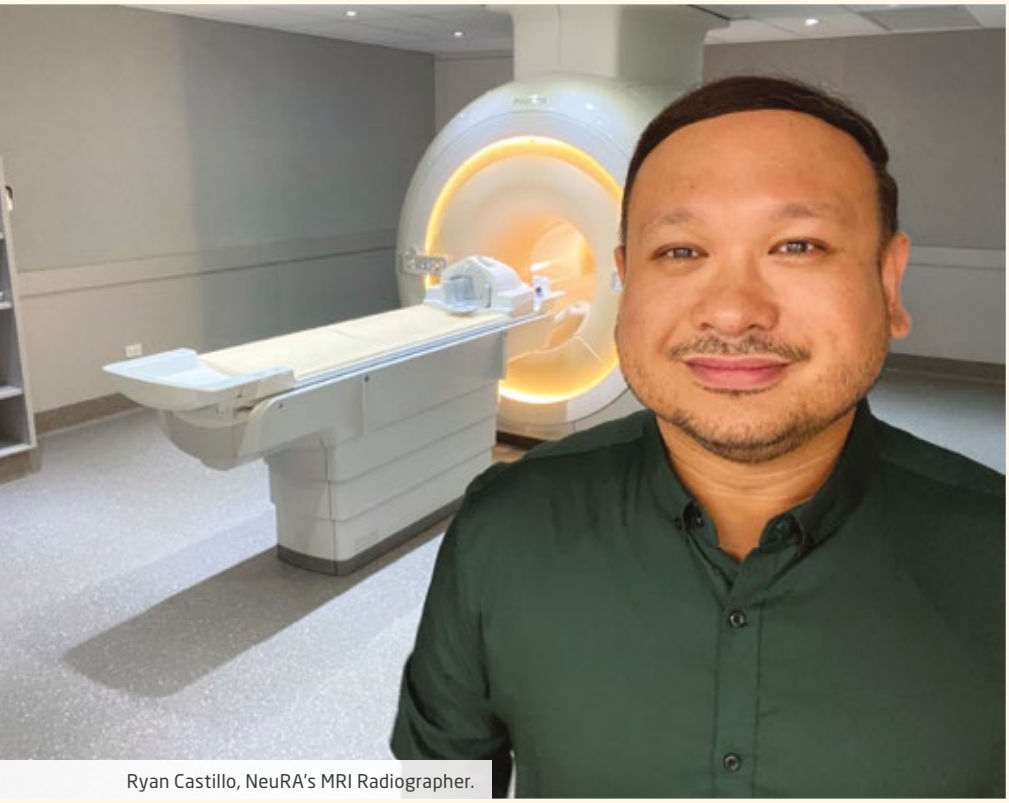
"Children and older adults can be the perfect companions and build lovely partnerships where they both really care for each other."

Director of the UNSW Ageing Futures Institute and Senior Principal Research Scientist at NeuRA.

The results of the trial will be assessed not only by Associate Professor Ruth Peters, but by psychologists and geriatricians from UNSW, University of Sydney and Griffith University.

This study has been funded by the UNSW Ageing Futures Institute, with in-kind support from St Nics' Coogee and Anglicare. Results from the pilot trial are likely to be available in July 2021.

For further information, please visit the website: neura.edu.au/intergenerational-integration-initiative



Ryan Castillo, NeuRA's MRI Radiographer.

A day in the life of NeuRA's Magnetic Resonance Imaging Radiographer, Ryan Castillo

We sat down and caught up with Ryan Castillo, who has been at NeuRA Imaging since its establishment two years ago.

Tell us about your role at NeuRA Imaging, what does it involve?

I am the Research Magnetic Resonance Imaging (MRI) Radiographer at NeuRA Imaging.

My job involves ensuring that participants and scientists are MRI safe, and operating the MRI scanner – which is named the Philips Ingenia CX3 Tesla – to help scientists answer the questions they are investigating. I provide scientists with technical and practical considerations, such as how to position the research participant to get the desired image, and evaluate the image data.

Often, I can be the bridge between scientists and the people that take part in these studies, and ensure that our research volunteers are treated with respect and feel cared for.

How many research projects does NeuRA Imaging service at any one time?

We deal with a number of research projects simultaneously, with each at various stages. At the moment we are acquiring data for seven studies, have another eight in the test or pilot phase, and around five in the early implementation stage.

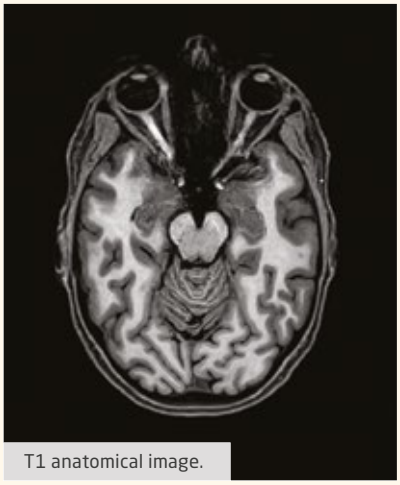
What research projects are you currently working on?

One of our current studies is tracking muscle growth and development in children with cerebral palsy. Another is a longitudinal study of the brain, looking at the role of genetics and environment and effects on wellbeing and resilience. We are studying dementia and cognitive decline in older Aboriginal Australian populations, and early detection of blood vessel disease in the brains of people with sleep apnoea. The list goes on!

How does the work you carry out at NeuRA Imaging benefit the community at large?

We produce high quality imaging that is accessible and reliable, while maintaining strong professional relationships with the scientific community, and research volunteers. MRI provides a window into the body and the brain. It is a crucial tool, which contributes to scientific knowledge and clinical medicine.

Our work also shows people that imaging examinations aren't something to be feared, which is especially important for children.



T1 anatomical image.

When children leave NeuRA Imaging having had a positive experience, they feel more comfortable about future clinical MRI scans, and are more inclined to continue to volunteer for science.

What is the most unique thing you have had to scan?

I had the privilege of scanning a newborn baby's leg for one particular study, which I had never done before. The experience was a rewarding challenge, and we were able to obtain some very useful data.

I have also scanned sheep and rabbit specimens, which were great opportunities. Being able to compare the similarities and differences in animal and human anatomy is always interesting.

Being in the research field exposes you to a number of different imaging techniques, which I would never have been exposed to in the clinical field. It amazes me the information that scientists can derive from our imaging data.

What sort of feedback do you get from the scientists that seek your support?

Researchers love that the scanner is one hundred percent dedicated to research! Previously, the MRI was shared with clinical patients, so it was less accessible, sometimes delaying research projects. Now, NeuRA Imaging is able to facilitate much more valuable research.

The support and expertise of NeuRA Imaging Director, Professor Caroline Rae, as well as Philips MR Clinical Scientist, Dr Iain Ball, elevates the quality of the images and data we produce. The work of our scientists is truly world class. ●

NeuRA's Imaging facility, featuring the Philips Ingenia CX3 Tesla.

Diffusion tractography image overlaid onto an anatomical image.

FUN FACTS

- NeuRA's MRI machine can do things that no other scanner Australia can. The MRI signals penetrate deep inside tissues and organs, recording tiny changes in composition with incredible precision.
- Its magnetic field is 50 to 100 thousand times stronger than the Earth's and it does not use radiation like X-rays but radiofrequency signals like local radio stations.
- To maintain fast, low-resistance electrical current that generate the magnetic field, the MRI machine requires incredibly low temperatures which can only be achieved by immersing the magnet in super-cold liquid helium.
- Each MRI scan costs $700 per hour but generates lots of useful data in that time. It is actually great value for money!
- The magnetic fields that are generated by MRI devices are powerful, but aren't normally harmful. It is important that participants fill in the safety form accurately and tell the radiographer of any surgeries and procedures they have had.

DONATION FORM

☐ Yes, I would like to donate to research at NeuRA

All gifts over $2 are tax deductible

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

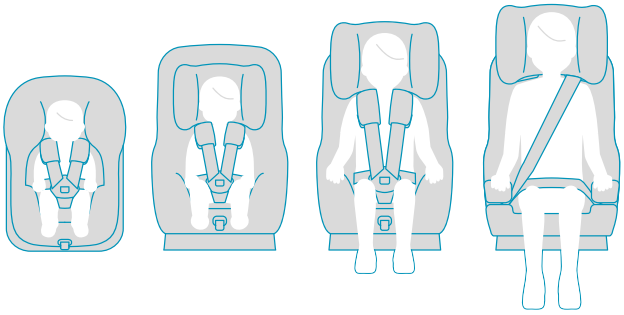
If you wish to update your preferred communications from NeuRA, please call 1300 888 019.

NeuRA (Neuroscience Research Australia) Foundation
Margarete Ainsworth Building
139 Barker Street, Randwick NSW 2031 Australia
T 1300 888 019 **F** +61 2 9399 1082 ABN 57 008 429 961

www.neura.edu.au

New recommendations for keeping child passengers safe in motor vehicles

NeuRA and Kidsafe Australia have launched new Guidelines for the Safe Restraint of Children Travelling in Motor Vehicles, which aim to keep children up to 16 as safe as possible when travelling on Australia's roads.



The new recommendations outlined in the updated Guidelines include:

- Children should use their child restraint or booster seat when travelling in rideshares (e.g. Uber) and rental cars, as well as taxis.
- Using the '5 Step Test' to decide when to transition from a booster seat to adult seat belt.
- Children should be encouraged to sit in an upright seating posture so their restraint can work optimally.
- Children aged 4-8 years should use an add-on booster seat in preference to an integrated booster, but children 9 years and older can safely use an integrated booster seat if their car has a side curtain airbag where they are sitting.
- Parents of low birthweight babies should use an infant car restraint designed for low birthweight babies until they can get good harness fit in a 'standard' child car restraint.

For more information on the updated Guidelines, please visit: neura.edu.au/crs-guidelines