

Welcome to the March 2021 Brainwave newsletter and thank you for your support.

We would like to thank everyone who completed the 2020 supporter survey. We appreciate the goodwill and generosity of all of our supporters and always listen and value your feedback.

If you did not have an opportunity to complete our recent supporter survey, we hope to hear back from you next time. We are committed to providing regular and worthwhile updates to our supporters, and we will continue to ask for your feedback. Feedback can be provided at any time by emailing info@alzheimers.com.au or telephoning us on (08) 6457 0253. We'd love to hear from you.

Here is a snapshot of some of the information you shared:

Annual Public Lectures.

An overwhelming number of responders confirmed that they would like our annual lectures to be videoed and made readily available and in September 2020 we took the leap and went digital for the first time ever. This was very well received and we are happy to announce that thanks to your feedback our lectures will continue to be videoed each year and made available to view in your own time.

What areas of Alzheimer's research is important to you?

Research into Alzheimer's prevention together with researching potential treatments were the top 2 areas of research interest from our survey respondents. The survey results show that our supporters recognise the importance of research which can provide access to new treatments in development and research programs into preventative strategies. See page 3 for the latest international news of modifiable risk factors to reduce your risk of developing Alzheimer's disease.

Clinical Trials I can participate in.

Many respondents wanted to know about Clinical Trials they can participate in. We update our website regularly with the clinical trials that are currently recruiting participants. Some are for research purposes and may involve looking at the role of sleep or exercise on cognition, and some involve trialling a new medication.



March
2021

Over 80% of our responders confirmed they have a family member or friend who has been affected by Alzheimer's disease.

250 people are diagnosed with dementia in Australia each day.

Congratulations Professor Ralph Martins AO

We are delighted that Professor Ralph Martins, the Foundation's Director of Research, was named on the Highly Cited Researchers 2020 list in the cross-field category.

In December 2020, Professor Martins was named on the annual list, thanks to his highly cited research papers, ranking him in the top 1 percent of research globally. Professor Martin's holds joint positions at Edith Cowan University (ECU) in Western Australia and Macquarie University in NSW.

Professor Ralph Martins is one of the world's foremost experts in the detection and prevention of Alzheimer's disease and dementia.

His insight into Alzheimer's disease has led to a number of ground-breaking discoveries including the pioneering discovery of beta-amyloid and its precursor the amyloid precursor protein (APP), an important protein found in the brains of Alzheimer's patients now universally acknowledged as being fundamental to the pathology of this disease and his seminal discovery that oxidative stress is a major feature of Alzheimer's which is now recognised universally.

His team recently received more than \$6 million in funding to examine how lifestyle factors such as diet, exercise and brain training can reduce the risk of the disease. We are delighted to see the work of Professor Martins and his team recognised on this prestigious list.

Professor Ralph Martins, Director of Research



The Research You Support

Childhood Dementia

Dr. Prashant Bharadwaj

Autophagy-Lysosomal Storage Disorder and Childhood Dementia

Dementia is largely considered to be an ageing disorder and sadly cognitive decline in children has received little attention.

It is estimated that one in every 2,800 babies is born with a genetic condition that leads to childhood dementia.

Childhood dementia is caused by over 70 rare conditions, which are mostly disorders that result in the deficiency of an enzyme leading to the accumulation of un-degraded or partially degraded material. These disorders are called autophagy-lysosomal storage disorders (LSDs).

Currently there are no effective treatment options or ways to measure disease progression and response to treatment (1).

The autophagy-lysosomal pathway is a waste removal process that clears unwanted proteins, lipids, sugars, and damaged organelles, and evidence indicates that impairment in this pathway is a central mechanism in Alzheimer's disease, the leading cause of dementia in elderly and also in childhood dementia. Alzheimer's disease is associated with a build-up of proteins including beta-amyloid and tau, whereas LSDs predominantly features accumulation of lipid cholesterol or sugar molecules.

Dementia, including Alzheimer's disease is the second leading cause of death in Australians and there is currently no cure.

Your support is incredibly important to enable our research work to continue.

Thank you.

Dr. Bharadwaj, an expert in autophagy (the waste removal process) and Alzheimer's disease, has initiated a laboratory based and a clinical biomarker study in childhood dementia. The long-term aim is to establish a stem cell lab for human derived neuron cell models to investigate novel treatment strategies for LSDs and for developing prognostic biomarkers to measure disease progression in children affected by LSDs.

Dr. Bharadwaj has recently established a neural stem cell line investigating Sanfilippo syndrome, a rare autosomal dominant form of LSD that causes childhood dementia. Dr. Bharadwaj is collaborating with experts at the Lund University, Sweden, the University of California, San Diego and the Centre for Addiction and Mental Health, Toronto, Canada. Dr. Bharadwaj is leading the investigation using this cell line as a model to understand the disease process

and develop new treatments targeting autophagy for childhood dementia.

Dr. Bharadwaj is also working closely with clinicians across Perth to recruit families affected by childhood dementia. Blood and urine samples will be collected every 6 months. Plasma will be analysed for protein biomarkers using the ultra-sensitive Simoa® HD-1 Analyzer, a state-of-the-art ultrasensitive protein detection platform recently established in Prof. Martins' lab. This technology will be combined with mass-spectrometric analysis of lipid and sugar analysis in urine. Blood and urine samples will be assessed to identify biomarkers that inform disease severity and progression.

(1) Bharadwaj, P, Martins, R, "Autophagy and Lysosomal Storage Disorder in Late-Onset Alzheimer's and Childhood Dementias", *Dementia: A Global Approach*, 2nd Edition (in press)

Congratulations Stephanie!

Dr. Stephanie Rainey-Smith has recently commenced a new appointment as an Associate Professor at Murdoch University. Stephanie will be working within Murdoch's Centre for Healthy Ageing. The move coincides with the commencement of Stephanie's 5-year Investigator Grant which is funded by the National Health and Medical Research Council (NHMRC). The NHMRC is the primary agency of the Australian Government responsible for medical and public health research. Stephanie's Investigator Grant supports a program of research which will examine the relationship of sleep to memory and thinking (cognition), and markers of brain health. The research program will also explore whether interventions to improve sleep can prevent, or decrease the risk of unhealthy brain ageing and cognitive decline. The ongoing Sleep Improvement Study (SIS), for which recruitment is underway, forms part of this research program and is conducted at the Australian Alzheimer's Research Foundation.

Stephanie was also successful in the 2020 'CogSleep Seed Funding Round', through which she was awarded a small grant for a project titled "Examining the impact of intensive lifestyle modification on sleep, cognition and dementia biomarkers". This research will be conducted as part of the AU-ARROW study, in collaboration with Professor Ralph Martins and Professor Sharon Naismith (University of Sydney).



DO YOU HAVE TROUBLE SLEEPING?

We are looking for males and females aged 60 to 80 years who are poor sleepers but otherwise well, for a research study, which examines whether improved sleep contributes to better memory and thinking and enhanced markers of brain health (assessed using brain imaging). The study will implement a non-pharmacological intervention to improve sleep.

WHAT DO I NEED TO DO?

- Attend a sleep improvement program
- Have your sleep patterns measured
- Undergo assessments of memory and thinking
- Undergo brain-imaging scans

For further information, please contact:

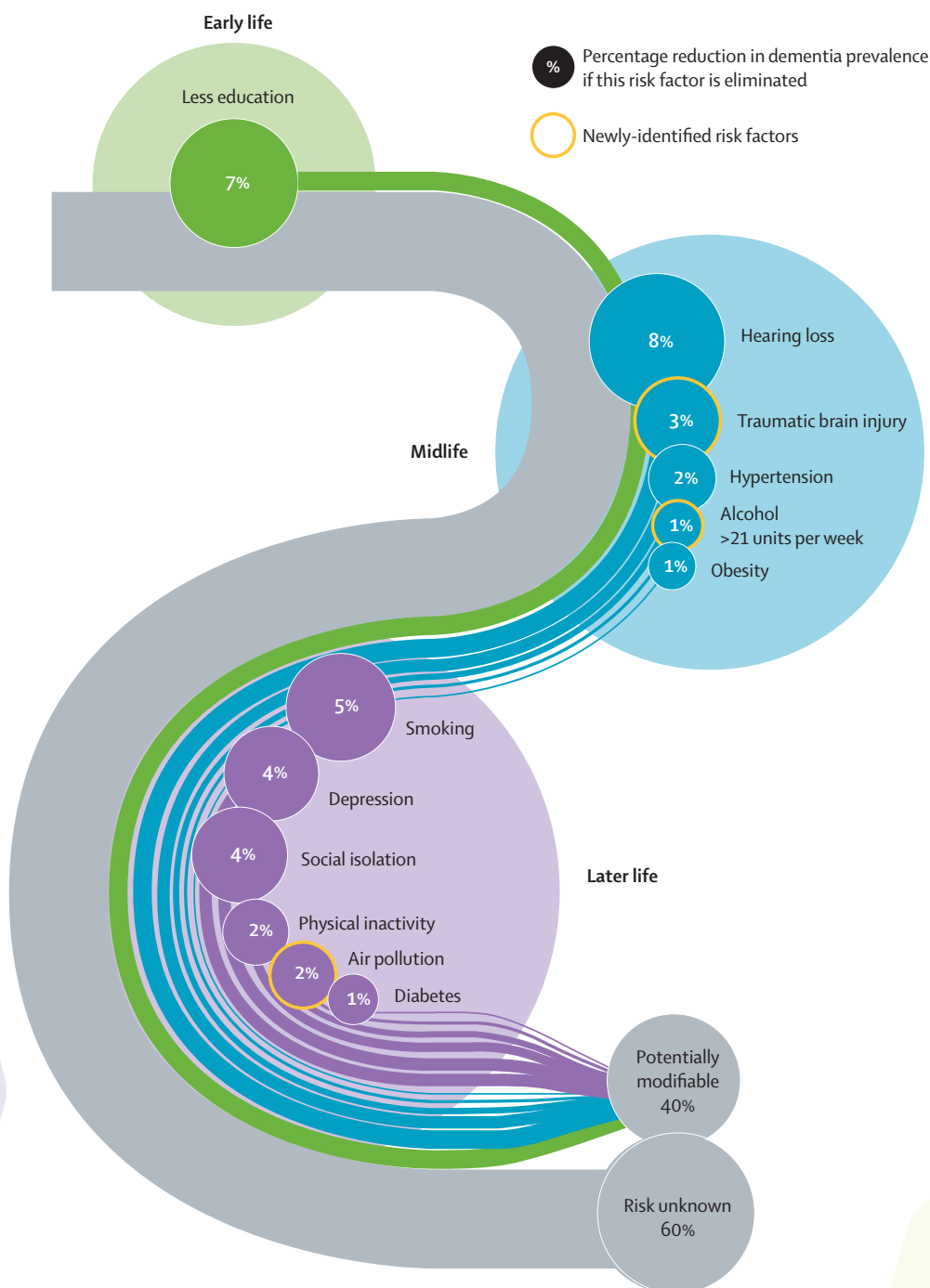
Jo Shaw, Senior Research Assistant
(08) 6457 0264 or email
j.shaw@ecu.edu.au

Your brain is your most valuable asset. Reduce your risk of dementia.

Whilst we cannot change getting older, genetics or family history, scientific research suggests that changing certain health and lifestyle habits may make a big difference to reducing or delaying your risk of developing dementia.

It is never too early or too late for dementia prevention!

An update to the *Lancet* Commission on Dementia prevention, intervention, and care presents a life-course model showing that 12 potentially modifiable risk factors account for around **40%** of worldwide dementias. **The potential for prevention is high.** Modifying these 12 risk factors might prevent or delay up to 40% of dementias. **We should be ambitious about prevention.**



Exercise

Dr. Belinda Brown

There is compelling evidence from previous research that more physical activity is good for the brain in older adulthood. However, for physical activity and exercise to be widely implemented as a prevention strategy for dementia, more evidence from rigorous research is needed. Our team uses different types of research studies and designs to understand the best parameters of exercise for brain health, and how the brain benefits from physical activity.

Our team has recently completed the Intense Physical Activity and Cognition (IPAC) study, undertaken as a collaboration between Murdoch University and Australian Alzheimer's Research Foundation. We recruited 99 individuals to undertake either six month high-intensity exercise or moderate-intensity exercise (or to enter a no exercise control group), and evaluated the effect of exercise on memory and thinking and indicators of brain health from brain scans.

We have just reported our primary findings in the journal *Alzheimer's Research and Therapy*: we did not find any differences in memory and thinking performance from before to after the exercise intervention between our groups. Nevertheless, we did find that individuals that experienced the biggest improvements in cardiorespiratory fitness gained the greatest benefits in terms of improvement on tasks assessing memory and executive function (organisational thinking and planning skills).

We also noted some influence of genetics on these associations, where we were more likely to observe a relationship between fitness and memory in individuals of certain genetic make-ups. This type of research pertains to a long-term research aim of ours, where we aim to gather sufficient evidence to be able to provide individually tailored exercise, based on genetic factors.

Although work from our team, and others, indicates that exercise can improve brain health and reduce dementia risk, we know that participants tend to stop exercising once an intervention finished. In 2019, our team was awarded a Dementia Collaborative Research Centre/Dementia Australia grant, that we will use to investigate the effect of high-intensity exercise on the brain, this time with the aim of creating a long-term behaviour change toward exercise. Our intervention will include ongoing education regarding exercise, and various behavioural change techniques. This study was delayed due to COVID-19 research restrictions; however, we plan to commence this work mid-2021. If you are interested in taking part in this study, please contact Dr Belinda Brown on (08) 9360 6193.

(1) Brown BM, Frost N, Rainey-Smith SR, Doecke J, Markovic S, Gordon N, Weinborn M, Sohrabi HR, Laws SM, Martins RN, Erickson KI, Peiffer JJ. High-intensity exercise and cognitive function in cognitively normal older adults: a pilot randomised clinical trial; 2021, *Alzheimer's Research & Therapy*. Online.

Dr. Belinda Brown, Murdoch University



“Cardiorespiratory fitness gained the greatest benefits in terms of improvement on tasks assessing memory and executive function”

Clinical Trials at the Foundation

The Foundation's Clinical Trials Division conducts clinical trials into new investigational therapies for Alzheimer's disease. If you are interested to find out more about these, please email aarfctd@alzheimers.com.au or call (08) 9389 6433.

Biogen Update

On June 9th 2020, the pharmaceutical company Biogen completed a submission to the U.S. Food and Drug Administration (FDA) for the approval of aducanumab, an investigational treatment for Alzheimer's disease.

On January 29th 2021, it was announced that the FDA has extended the review period of aducanumab by three months.

If approved, aducanumab would become the first therapy to reduce the clinical decline of Alzheimer's disease. The FDA has not approved a drug treatment for Alzheimer's disease in more than 17 years.

ATH-1017 - ACT-AD Study

Athira Pharma has developed a new drug which aims to repair and rebuild brain cells, promoting health and function.

This phase 2/3 randomised, double-blind, placebo-controlled trial is recruiting at 12 sites in the U.S. and Australia including the Australian Alzheimer's Research Foundation. This phase is to test the safety and efficacy of the drug.

Over the years, many drugs that have been investigated to treat Alzheimer's disease target beta-amyloid plaques. The Athira drug, ATH-1017, has a different approach and involves a molecule that binds to the receptors in the brain, mimicking Hepatocyte Growth Factor (HGF) and enhancing brain cell activity.

Brain cells rely on several factors to maintain good health. One of these factors is HGF, which is active in healthy brains but has been demonstrated to be depleted in those living with Alzheimer's disease and other forms of dementia. Athira's completed Phase 1a/b trials found the drug had been quite well tolerated at all of the tested doses. Overall brain function was found to have improved in comparison to those patients receiving a placebo.

If you or a loved one is suffering from mild to moderate Alzheimer's disease and are interested in taking part in the ATHIRA-ACT study, please contact our Clinical Trials Division.

Supporters in Action

Thank you to our newest sponsors!

Alternative Surfaces – In 2020, Alternative Surfaces joined the fight to save memories as a corporate sponsor. As a family run business, they are very proud to be supporting our cause as they have experienced first-hand the devastating effects of Alzheimer's disease. They are committed to helping us in our fight to find a cure so that we can save memories and lives around the world.

Momatu – We are pleased to be partnering with Momatu! They have developed a private photo album app for families to document their child's earliest milestones, share the moments that matter and build a collection of memories to look back on forever. They are proud to be supporting our efforts in saving the moments that matter to thousands of Australians every day.

Vision Shutter & Blinds – Vision Shutters came on board in early 2021 as our cause was extremely close to their hearts. They know that researching the early stages of this devastating disease is key. Vision Shutter and Blinds will kindly be donating \$1 for every square metre of plantation shutters sold in 2021.

With no government funding, our corporate sponsors are incredibly important and their continued support helps to raise awareness of Alzheimer's disease with their employees as well as providing vital financial support for the Foundation.

We would like to thank all our corporate sponsors, past and present for their commitment to the Foundation. If you are interested in becoming a sponsor, we'd love to hear from you. Please send an email to info@alzheimers.com.au.

Alt.

VISION
BLINDS & SHUTTERS



Thank you Jo!

A huge thank you to Jo McLellan who completed the Sun Run & Cole Classic in February! After losing her father to Alzheimer's, Jo wanted to raise money for the Australian Alzheimer's Research Foundation to help bring us closer to our vision of an Alzheimer's free world.

Jo swam 5km and finished the race in just over an hour. Jo was the 14th female to finish and 43rd finisher out of 308 swimmers overall!



Semple's Movie Night

For the Semple Property Group, Alzheimer's is a cause close to the heart, with most of the team having stories of loved ones affected by the disease. The team decided to fundraise for the Australian Alzheimer's Research Foundation and host their first-ever community fundraising event - a Family Fun Movie Night. The event was held at Botany Oval, Cockburn on Saturday the 30th of January.

All members of the team played a big part in the success of the night. Everyone had a job to do and all happily rolled up their sleeves to support the cause. The community threw their support behind the event, with a number of vendors rallying together to provide their time and services including food trucks, bouncy castles and glitter galore for the kids.

An impressive crowd came down for the event, armed with picnic rugs and chairs to settle in for the showing of Coco, a movie inspired by the Mexican Day of the Dead. A braid and glitter bar was set up in line with the theme of the film and kids ran around waving glow sticks, filling the night with neon colours.

With the kids busy, the adults kept their fingers crossed for the raffle and got competitive in the silent auction, vying for highly sought-after prizes such as personal training vouchers and jerseys donated by the Fremantle Dockers and the Wildcats.

With the community support and generous donations by local businesses, the night raised over \$7,000 for the Australian Alzheimer's Research Foundation. Semple Licensee and Director, Kirstin Dunn, said she couldn't be happier with how the event turned out and that the team was looking forward to hosting more events to support the Australian Alzheimer's Research Foundation.



Crocheting for a cause!

A big thank you to Sev Murphy, who has been generously donating 50% of her profits from her crocheting business '**Love. Marion**'. Sev has always had a passion for crocheting and wanted to help bring us one-step closer to an Alzheimer's free future after the loss of her beloved Nan, Marion.

"My heart aches for my Nan every minute of every day. I lost her a couple of months ago, but the truth is I began losing her fourteen years ago when she was first diagnosed with Alzheimer's disease. I am trying to use my grief to make a difference and to contribute to finding a cure for this devastating illness."

If you would like to support this amazing project, please visit www.facebook.com/love.marion.store or email love.marion.store@gmail.com



Workplace Giving

Workplace giving is a powerful and simple way to make regular donations to Alzheimer's disease research.

For every dollar you give through your pay, we receive \$1.43*. In addition, if your employer offers matched giving (where they match your donation), then your contribution is effectively doubled.

What is Workplace Giving? When a small, regular donation is made to us each pay cycle from your pre-tax wage.

How does it work? Donations are taken at the time payroll is processed before tax has been deducted. This means you receive an immediate tax benefit (reducing your taxable income) and you don't need to collect donation receipts for your annual tax return.

Everybody Benefits! Individuals can easily give to the cause that is important to them via their workplace, feel good, and increase the power of their donation dollar.

It is easy to get started! Contact your Payroll Officer to check if your organisation has a workplace-giving program and advise them of the amount you would like to donate to the Foundation from your pay, each cycle.

If you are a business owner and don't have a Workplace Giving program in place, please visit the Australian Taxation Office (ATO) website for information on how to set one up through your payroll system. Alternatively, you can engage a third-party online platform to facilitate your Workplace Giving Program. We are currently registered with Good2Give.

*Exact figures are dependent on the individuals ATO personal bracket



Containers for Change

In late 2020, Containers for Change launched in Western Australia. Containers for Change is a new state wide container deposit scheme that lets you cash in eligible containers for 10 cents each. In WA, we use more than 1.3 billion eligible drink containers each year!

The Australian Alzheimer's Research Foundation is excited to be a part of this change in support of our environment, and you can take part too!

How does it work? From 2021, there are physical donation points where you can take your eligible containers. When you take your containers to one of the donation points, simply use our Scheme ID and the value of your refund will be transferred to the Foundation to support our research!

Your efforts to reduce your ecological footprint through recycling will have an impact not only on our environment, but will be assisting Alzheimer's research.

Australian Alzheimer's Research Foundation Scheme ID: C10339406

To learn more about Containers for Change, visit www.containersforchange.com.au/wa



Male Volunteers Needed!

- Are you a male, aged 60 to 80?
- Do you have memory concerns?
- No significant medical or neurological conditions?
- Not receiving testosterone therapy?
- Is your testosterone possibly on the low side of normal?

The Australian Alzheimer's Research Foundation is currently seeking participants to take part in a clinical trial investigating whether testosterone has a benefit on memory tests, brain scans, and other measures of Alzheimer's disease risk.

For more information, please contact Marie Todd on (08) 6304 3966 or email marie.todd@ecu.edu.au



Donate Now

We're Social

Follow us on your favourite social media sites!



**Join our fight for memories!
Make a tax deductible donation by:**

Calling **(08) 6457 0253**
Or on our website **www.alzheimers.com.au**