Australian Alzheimer's Research Foundation

BRAINWAVE

September 2019

Message from the CEO

September is World Alzheimer's Month and a time to raise awareness and challenge the stigma that surrounds Alzheimer's disease and dementia. September 2019 will mark the 8th World Alzheimer's Month.

During September the Foundation is providing free **public lectures** with an update on some of the latest research in the field of Alzheimer's disease and a particular focus on some lifestyle changes that may reduce our dementia risk. Whilst there is nothing we can do about our genetics or our age, we can take steps that can have a significant impact on reducing our risk of getting this disease.

- Engage in mentally stimulating activities
- Maintain frequent and diverse social contacts
- Manage weight and heart health due to their strong link
- Get more exercise which has been shown to be protective against cognitive decline
- Don't smoke
- Seek help for depression
- Reduce stress
- Sleep well
- Eat a Mediterranean diet

Alzheimer's disease is usually seen as an older person's disease, but harmful processes can occur in the brain for several decades before symptoms appear. This means now is the best time to take action to reduce your risk and what better time to get started than in World Alzheimer's Month.

I would like to take the opportunity to introduce two 'new' members to the Foundation's Board, Rod O'Dea and Tim Andrew. Rod O'Dea joined the Foundation in 2018 and has taken on the role of Treasurer and Chairman of the Foundation's Future Fund. Rod has worked in the financial services sector since 1985, across a wide range of areas including banking, funds management and investments.

Tim joined the board in mid-2019 and is a Chartered Accountant and former state hockey champion. Tim is a specialist in financial risk management and investment, and is currently Head of Office at UBS Australia Perth.

Our supporters and followers are an integral part of our journey towards an Alzheimer's free world. Thank you all for your support which enables us to continue the much needed research into this debilitating disease.

Please see the Calendar of Events in this Newsletter for information on how to RSVP to attend one of our free public lectures on Alzheimer's disease research. We'd love to see you there.

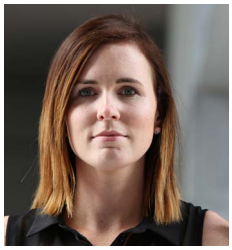
Liza Dunne
CEO, Australian Alzheimer's Research Foundation

Thank You!

Your legacy can help create a world in which Alzheimer's disease no longer exists

Leaving a gift in your Will to the Australian Alzheimer's Research Foundation will make a lasting difference in the fight against Alzheimer's disease. If you would like to talk to us about leaving a gift in your Will please call Caren on (08) 6457 0253 or email info@alzheimers.com.au

The link between physical activity and brain health



Dr. Belinda Brown
Senior Research Fellow, College of Science, Health, Engineering and Education (SHEE) Murdoch University.

Over the past two decades, numerous research studies have demonstrated older adults undertaking higher levels of physical activity have better memory and thinking skills and lower risk of dementia, compared with inactive older adults. In addition, studies providing exercise to older adults for as little as six months, report increases in memory and thinking following the exercise intervention.

There are a number of mechanisms that are believed to be underlying the effects of physical activity on the brain. We know that exercise increases beneficial proteins in the brain that promote cell survival, in addition to decreasing levels of proteins that are associated with Alzheimer's disease pathology.

Another mechanism by which exercise alters brain health is by contributing to increases in brain volume, specifically in brain regions that usually shrink with ageing. In addition, exercise may contribute to enhanced brain health by altering psychological or behavioural factors, such as improving mood or sleep.

Although we have a lot of evidence that exercise is beneficial to the brain and some understanding as to how this happens, there is still a lot we don't know.

Little is known about the type of exercise that provides the greatest benefit to the brain. There is some suggestion that high-intensity exercise provides more benefit to the brain than moderate-intensity exercise.

This is currently being tested in the Intense Physical Activity and Cognition (IPAC) study in Perth. The IPAC study is conducted within the Exercise Science department at Murdoch University and the cognitive and blood testing aspects of the study are conducted at the Australian Alzheimer's Research Foundation's premises in Nedlands.

We also don't know the optimal volume of exercise that should be undertaken each week. Public health policy generally states a minimum of 150 minutes per week, but these recommendations aren't based on evidence from brain studies. A large trial in the US called Investigating Gains in Neurocognition in an Intervention Trial of Exercise (IGNITE) is currently underway to determine the volume of exercise that provides the greatest benefit to the brain.

The Perth based IPAC study is nearing completion with results expected to be available early 2020.

The effect of cycling-related concussions on the aging brain

The Australian Alzheimer's Research Foundation is providing a 'top-up' to Shaun Markovic's PhD scholarship, (provided by Murdoch University), to assist with his research into the effect of concussion on the aging brain.

This project will seek to improve our understanding of the impact of cycling-related concussion on older adults. Mounting evidence suggests that exercise may provide some protection against cognitive decline as we age. However, preliminary research also indicates that cycling, a popular form of exercise for many Australians, may have a higher than expected rate of concussion. Concussion is believed to increase the risk of age-related cognitive decline, meaning that it may potentially offset some of the benefits associated with regular cycling. It is hoped that this project will provide much needed data on the effect of concussion on the aging brain, both in its immediate aftermath and in the longer-term, while also shedding light on the competing influences that concussion and exercise may have on the cognition of older adults.

Sex on the mind:
Benefits of sex hormones to the brain.

Kevin Taddei
Research Associate, School of Medical and Health Sciences, Edith Cowen University

Dr Giuseppe Verdile
Associate Professor, School of Pharmacy and Biomedical Science, Curtin University

One of the proposed reasons for cognitive decline and Alzheimer's disease is the age-related decline in sex hormones. Research indicates that the relatively abrupt loss of estrogen and progesterone at menopause in women and the more gradual decrease in testosterone in aging men are likely risk factors for Alzheimer's disease.

Hormones are chemical messengers that travel in the bloodstream and regulate complex processes within the body including growth, metabolism, appetite and reproduction. They are also very important for brain function, for example facilitating brain cell connections to allow memory processing, consolidation and retrieval, and protect the brain from inflammation or oxidative stress. Imbalances in hormone levels can influence behaviour and promote diseases such Alzheimer's disease and type 2 diabetes.

During aging, there is a normal decline in sex hormone levels, resulting in hormonal deficiency known as menopause in women and andropause in men, together with a deterioration in general health, mood and cognitive abilities. In postmenopausal women, a number of studies have shown a correlation between decreasing levels of oestrogen and increased levels of beta amyloid load, a major pathological hallmark found in the brain of people at risk of Alzheimer's disease. Although the role of testosterone in men has received less attention, Professor Martins and his team have shown that it shares a similar action to that of estrogens on the generation of beta amyloid and therefore has a similar role to estrogen in relation to Alzheimer's disease.

Previous research indicates that testosterone replacement reduces beta amyloid levels in both the blood and the fluid that surrounds the brain (cerebrospinal fluid). These studies suggest that the reduction in testosterone during aging could contribute to the development and underlying causes of Alzheimer's disease.

Professor Martins and his team, in collaboration with Dr Adrian Zentner, conducted a pilot study in Perth with 25 men all receiving testosterone treatment. The data from these men demonstrated that testosterone treatment lowers beta amyloid levels in four months in most of the men in the study and lowers another hormone, luteinizing hormone (potentially a major contributor to Alzheimer's disease) in all participants.

Luteinizing hormone is secreted from the pituitary gland into the blood system which stimulates the production of hormones such as testosterone, estrogen, progesterone, activin, and inhibin. In aging men, luteinizing hormone levels have been shown to be two to three times higher in older men than in men in their mid-20s.

Whether luteinizing hormone plays a direct role in Alzheimer's disease remains unclear. Our research has linked testosterone depletion and perhaps luteinizing hormone elevation with increased risk for the development of Alzheimer's disease in men.

The findings from our previous research have encouraged further

With thanks and appreciation to all our partners

investigation into the impact of testosterone treatment on the associations previously observed between luteinizing hormone, testosterone and brain amyloid load. As a result, we have established a clinical trial to assess the effect of testosterone treatment on brain amyloid load and cognition in men over 60 years of age.

The study is being conducted across two sites. In Perth, the Foundation's clinical research site on Stirling Highway, Nedlands will lead the study. The second site is at Macquarie University in NSW. The study is targeting men who have testosterone levels at the low end of normal and who have subjective memory complaints. Eligible participants will receive 13 months of treatment.

A number of parameters will be measured at baseline (before treatment), during the trial and at the end of the trial (56 weeks). The parameters to be measured will include neuropsychological assessments to assess whether benefits to cognition and memory are observed, brain imaging, including MRI, FDG-PET (to determine if there are improvement in brain glucose metabolism), and Amyloid-PET (to determine if there is lowering of brain amyloid load).

The trial is still looking for participants. If this study is of interest to you, please contact the Clinical Trial Co-ordinator Shane Fernandez on 6304 3966 or email s.fernandez@ecu.edu.au

WA Memory Study

How important is subjective cognitive decline?

A/Prof Hamid R. Sohrabi, BSc, MSc (Hons), PhD
Research Fellow in Clinical Neurosciences, School of Medical and Health Sciences, Edith Cowan University

Prof Ralph N. Martins AO
Chair in Aging and Alzheimer's Disease, School of Medical and Health Sciences, Edith Cowan University

Dr. Mike Weinborn, PhD
Clinical Neuropsychologist and Clinical Psychologist School of Psychological Science, University of Western Australia

The WA Memory Study (WAMS) started in 1996 by Professor Ralph Martins and has been led by A/Prof Hamid Sohrabi since 2010.

The WAMS is an ongoing longitudinal study of cognitive ageing. The study is trying to understand:

i) what changes in our cognitive abilities occur as we age;
ii) what measures can be used to predict such changes; and
iii) whether these changes are predictive of future risk of dementia and specifically Alzheimer's disease.

Such investigation will allow the discovery of new methods to predict, diagnose, prevent or treat cognitive impairments in older adults.

One of the earliest age-related changes in cognition is subjective cognitive decline (SCD). The SCD is a self-reported decline in different cognitive abilities that was previously known as memory complaints. Complaints about cognitive functions including concerns about memory, ability to make decision, paying attention, and so on increase with age and are commonly seen in individuals aged 40 years old and over. Older adults usually report on what is known as experiencing 'senior moments'! Complaints about losing keys, forgetting to take medications or attending an appointment, word finding difficulties, and even leaving the stove on when it is no longer needed are some examples of 'senior moments'. These memory fails may significantly affect one's daily living activities and have safety and health-related implications.

We have previously shown that memory complaints are associated with quality of life, depression, and objectively assessed cognitive functions. Recently, using data collected from the WAMS, we noted that the severity of memory concerns is a major factor associated with a person's current cognitive abilities. This finding implies that the severity of complaints about memory may predict future risk of dementia and long-term studies will prove if this is the case.

Self-reported concerns may become useful as an early marker for screening those at higher risk of dementia. Furthermore, informed by the WAMS data, we have developed a measure to assess complaints about memory and other cognitive functions and their severity. This measure is still under investigation in our centre and we will report on it in the near future.

If you are interested in participating in the WA Memory Study please contact Jo Shaw on (08) 6457 0264 or j.shaw@ecu.edu.au

The Foundation would like to thank the Country Women's Association of WA whose fund raising efforts are directly helping the WA Memory Study continue.

Alcoa take ACTION

Alcoa has long had a culture of giving back to the communities in which it operates through its community partnerships, employee volunteering and employee giving programs. The Australian Alzheimer's Research Foundation has been a recipient of this generosity this year and would like to extend an enormous thank you to Alcoa for their support.

In May, a team of Alcoa employees and family members braved a chilly Sunday morning in support of the Australian Alzheimer's Research Foundation and Perth's HBF Run for a Reason. Affectionately known as the **Alcoa Forget Me Nots**, the team pounded the pavement to complete a combination of 4 and 12 kilometres running, jogging, and walking. In addition to the funds raised by the Forget Me Nots, the Foundation also received an Alcoa employee volunteer grant from the Alcoa Foundation.

Alcoa's employee giving program **PEACH** - Personnel Employed at Alcoa Charity Help – also lent its support this year. PEACH collects regular payroll donations from Alcoa employees and distributes them to worthy Western Australian charities and community organisations. In February, PEACH donated $11,550 to the Foundation to purchase a much needed -80° freezer to enable the long-term storage of blood samples.

Thank you to everyone at Alcoa who took 'ACTION' to help us continue our much-needed research.

HBF Run for a Reason

Congratulation to all the runners who participated in this year's HBF Run for a Reason. Over 40 participants raised nearly $17,000 for the Foundation. A huge effort. Thank you! A big shout out to Paul Firth, family and friends who participated in this year's HBF Run for a Reason in memory of Paul's wife, Pauline who sadly lost her battle with Alzheimer's a few weeks before the run. Paul raised over $5,000 for the Foundation. **Thank you Paul!**

Swim for a Reason

Barry Green and a dedicated and fit group of the Stadium Masters Swimmers held Swim for a Reason on Saturday 6 July at HBF Stadium. These swimmers are not only on top of their exercise regime, they also raised over $5,500 for Alzheimer's research. Thank you so much for your generosity. We appreciate it very much.

Thank you Jon Burke

A huge thank you to Jon Burke who completed the Gold Coast Half Marathon on Sunday 7 July and raised over $6,000 for the Foundation! Jon's father, Noel, is currently suffering from Alzheimer's disease and is the main reason Jon decided to enter the Marathon to raise much needed funds to help support further research by the Australian Alzheimer's Research Foundation. **Thank you Jon!**

2019/2020 Calendar of events

If you are looking for ways to support us, some of the events below provide an opportunity to fundraise for the Foundation.

World Alzheimer's Month	September 2019
Alzheimer's Disease Research Public Lecture *State Library, 25 Francis Street, Perth* *9:30am for 9.45am start* *9.45-11.15 lecture and Q&A followed by light refreshments* *RSVP essential via 6457 0253 or www.alzheimers.com.au/public-lectures*	**18 September 2019** *9:30am to 11:45am* *Free*
Alzheimer's Disease Research Public Lecture *Harry Perkins, 6 Verdun Street, Nedlands* *5.30pm for 6pm start* *5.30pm light refreshments will be served* *6pm–7.30pm lecture and Q&A* *RSVP essential via 6457 0253 or www.alzheimers.com.au/public-lectures*	**18 September 2019** *5.30pm to 7.30pm* *Free*
Wine & Horses Northam Ride *www.facebook.com/wineandhorses*	**12 – 13 October 2019**
Colour Run Perth *www.thecolorrun.com.au/locations/perth*	**20 October 2019**
Seniors Recreation Council Have a Go Day *www.srcwa.asn.au/have-a-go-day*	**13 November 2019**
Giving Tuesday *www.givingtuesday.org.au*	**3 December 2019**
Rottnest Channel Swim *www.rottnestchannelswim.com.au*	**22 February 2020**
Port to Pub *www.porttopub.blackbaud-sites.com*	**21 March 2020**

Palm Beach Movie Fundraiser

Universal Pictures and the Australian Alzheimer's Research Foundation hosted a preview of Palm Beach on Saturday 27 July at Windsor Cinema.

Screen legend Bryan Brown joined us to talk about his role as our Ambassador and delved into the reasons for making his latest film Palm Beach.

Thank you Bryan for your generosity and for everyone who came along and made the day such as success.

Contact us

Australian Alzheimer's Research Foundation
PO Box 963, Nedlands WA 6909
T: 08 6457 0253
E: info@alzheimers.com.au

Thank you

Sincerest thanks to all our supporters and donors who share our vision of an Alzheimer's free world.

Follow us on Facebook to stay up to date with the latest research and events.

Yes I will join the fight for memories!

Make a donation by:

- Calling **08 6457 0253**
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- Mailing the completed form to:
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  PO Box 963, Nedlands WA 6909

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☐ Please send me more information on leaving a gift to Australian Alzheimer's Research Foundation in my Will.

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Thank you! A receipt will be sent to you. All donations over $2 are tax deductible.