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# CHeBA and the Dementia Landscape

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# 2023 a bumper year for dementia research

- Three antibodies show success in Alzheimer's disease (AD)
- Blood tests for AD closer to clinical application
- Big data even bigger ... AUDEM
- Best results yet for prevention of dementia

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# Bumper year for CHeBA

- Vascular Contributions to Dementia - Centre for Research Excellence
- Maintain Your Brain dementia prevention trial results presented
- Purple food trial to prevent AD launch
- Memory and Ageing Study 2 launch



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# Bumper year for CHeBA

- **Functional Neurological Disorders Clinic launch**
- **WHO Blueprint for Dementia Research**
- **NSW Health Handbook for clinicians to assess and manage behaviours in dementia**



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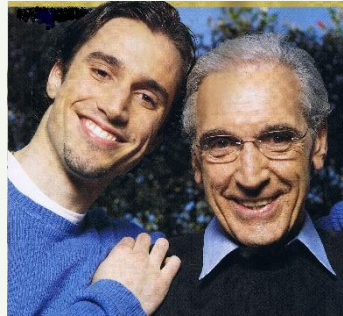
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# Bumper year for CHeBA

- CHeBA Advisory Committee established with Ita Buttrose AC OBE, Chair
- Ambassadors: PJ Lane, Edward Caser, Keri Kitay, Wayne “Rabbit” Bartholomew
- Ryman Prize to Perminder Sachdev



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# Dementia in Australia



**2nd**

leading cause of  
death in **Australia**



**\$15B**

estimated cost  
per year



# What is CHeBA?

- CHeBA is a centre within Psychiatry / Clinical Medicine, UNSW
- *Our vision:* to achieve, through research, healthier brain ageing and better clinical care of age-related brain diseases
- *Our mission:* to conduct innovative research and provide the empirical basis to prevent and treat dementia and achieve healthy brain ageing for all Australians

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# Who are CHeBA?

- Over 60 people - students, PhDs, research assistants, post-doctoral fellows, early and mid-career researchers, associate/ full professors, a manager, innovation and communication team
- Drs, psychologists, OTs, physicist, data analyst, geneticist, biochemist, statisticians
- Range of nationalities, ages



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# What research occurs at CHeBA?

- Cohort studies: risk and protective factors
  - Memory and Ageing 1 & 2
  - Sydney Centenarian
  - Older Australian Twins



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# What research occurs at CHeBA?

- **Prevention**
  - **Maintain Your Brain**
  - **Purple food / anthocyanin**
  - **Brain stimulation and cognitive training**
  - **MetMemory / metformin**
  - **Super-agers!**



Dr Alice Powell



Karina Chan

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# Maintain Your Brain

## Four basic modules



**Physical activity**



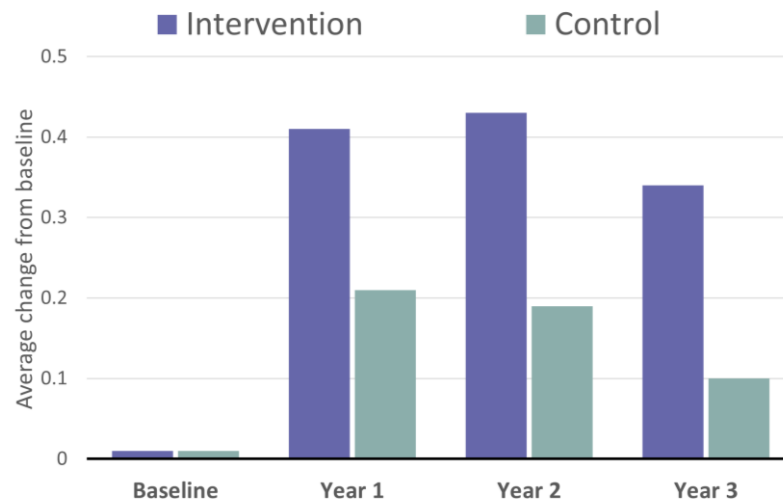
**Nutrition**



**Brain training**



**Peace of mind**  
(Depression/anxiety)



**Figure.** Change in cognition (z-score) from baseline to three years by group

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# What research occurs at CHeBA?

- **Diagnosis**
  - Computerised cognitive testing
  - Computerised day-day function testing
  - Assessing non-native English speakers
  - Criteria for vascular cognitive disorders
  - Nanotechnology



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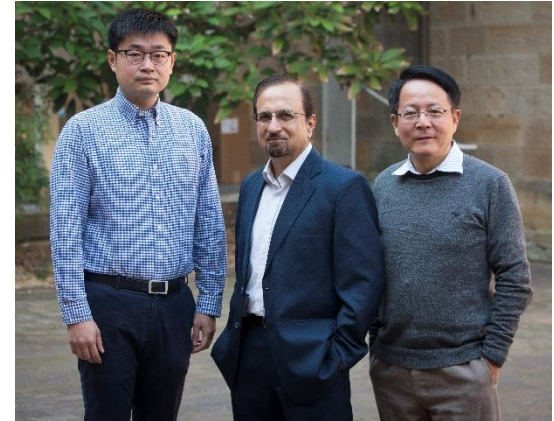
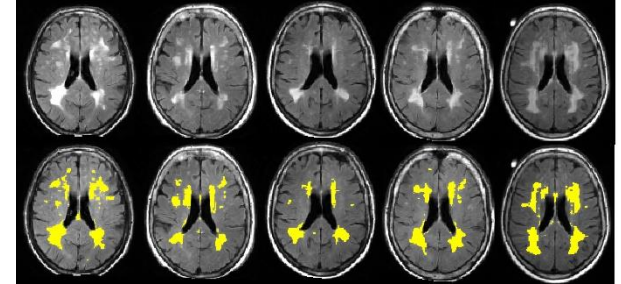


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# What research occurs at CHeBA?

- **Neuroimaging**
  - The Brain Connectome
  - AI → Deep Learning
    - » Estimating brain age
    - » Normative modelling – mapping individual differences vs reference model
    - » Personalised medicine



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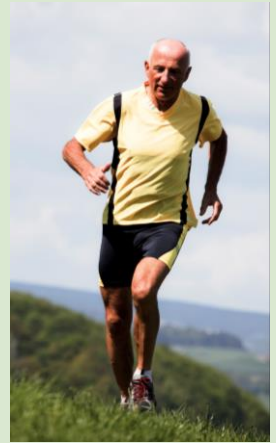
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# Risk and protective factors

## Environment v Genes

- Cohort studies
- Exercise
- Diet
- Alcohol
- Social health
  - SHARED, EU/NHMRC



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# Risk and protective factors

## Environment v **Genes**

- **Genetics**
- **Epigenetics**
- **Proteins, apolipoproteins**



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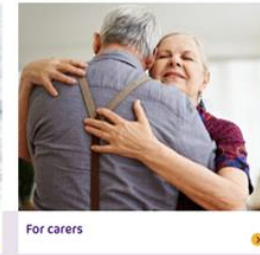
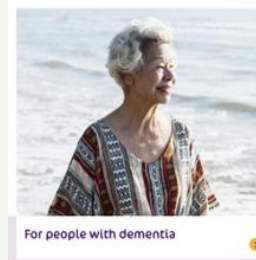


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# Clinical Care

- Australian Dementia Network (NHMRC)
  - Memory Clinics
  - Clinical Quality Register
- Post diagnostic care (EU/ NHMRC)
  - Living positively with dementia
  - [www.ForwardWithDementia.org](http://www.ForwardWithDementia.org)
- Functional Neurological Disorders



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# Clinical Care

- **Behaviours & Psychological Symptoms of Dementia (BPSD)**
- **Social skills training**
- **Carers**
  - App for carers for BPSD
  - Online assistant for Vietnamese, Chinese, Indonesian, Maori families

## A Clinician's BPSD Guide 2023

*Understanding and helping people experiencing  
changed behaviours and psychological symptoms  
associated with dementia*



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# Collaborations

**UNSW: Optometry, Psychology, Engineering, Chemistry, Science, NeuRA, Garvan, Victor Chang, Big Data, Microbiome Centre**

**Nationally: over ten universities, NSW Health, Commonwealth Dept. Health & Ageing**

**Internationally: Academics in  $\approx 50$  countries**

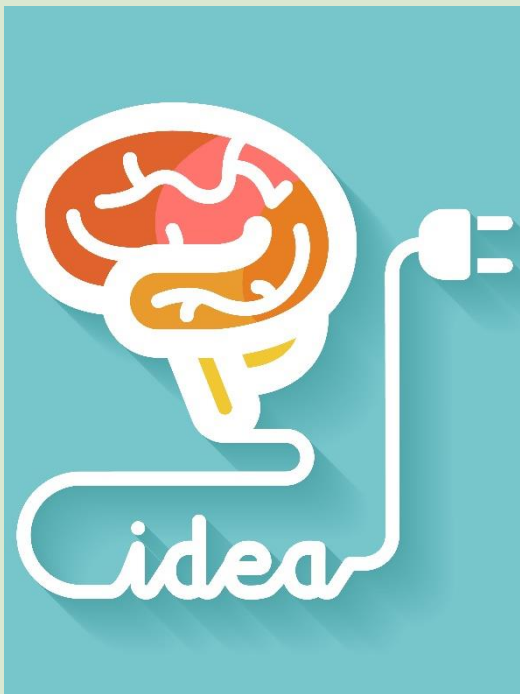
**Consortia e.g. COSMIC, STROKOG, Centenarians, ENIGMA. SHARED, COGNISANCE**

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## Grants awarded in 2023

- **NIH (USA): COSMIC & Dementias Platform Australia**
- **Department of Health: renewed funding ADNET**
- **Scientia Award: A/Prof Simone Reppermund**
- **DARF Fellowship: Dr Suraj Samtani**
- **William Gates Fellowship: Dr Jiyang Jiang**

**PLUS 5 APPLICATIONS FOR 2024 (>\$12M/ 5 YRS)**

- **Success rate low**
- **Grants funding always less than costs of research**

# Nurturing future researchers

6 Honours students

21 PhD candidates

Early-/ Mid-career researchers

3 Awards for new researchers

Monthly journal club

Monthly seminar

Monthly neuropsychology session

Social gatherings



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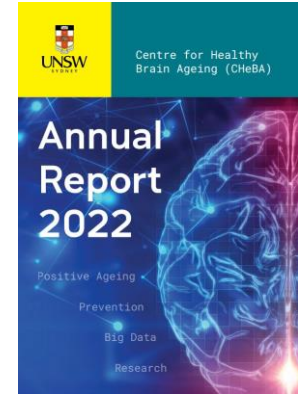


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# Media & Communications 2023

- 225 in Media
- Annual Report, Chronicle, Social Media
- Academic seminars, international conferences
- Professionals (GPs, psychiatrists, aged care)



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# Philanthropy and Fundraising

- Donations from individuals and Trusts and Foundations critical to our research – approximately \$1 million per year
- Wipeout Dementia over \$2.5 million since 2015
- Sydney Marathon and City 2 Surf



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# Future projects

- Gut microbiome & brain
- Social determinants of health in ageing
- National roll-out of MYB
- Memory clinic and behaviour care



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# Thank you to

- all participants
- our wonderful team
- our donors
- our collaborators
- all our supporters and you

*We are all in this together*



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