First online test to

Are you worried about developing dementia? You are not alone. Many people who have cared for a loved one diagnosed with dementia, or are part of the growing workforce of carers and health professionals, wonder about their own risk for dementia and Alzheimer’s disease – the most common cause of dementia among older adults. Australian researchers have developed a free, online tool which allows people to assess their risk of developing Alzheimer’s disease after the age of 60.

Sarang Kim and Kaarin Anstey explain

Currently there is no cure or effective treatment for dementia. Available pharmacological treatments may delay the progress of the disease – but so far the effects of dementia cannot be reversed. Prevention is therefore one of the key objectives of current dementia research, and increased attention has been paid to identifying risk and protective factors for the disease (see box below).

It is also essential that people understand and address their risk profile for dementia as early as possible before the progression of this unrecoverable neurodegenerative disease. It has been estimated that an achievable 10% to 25% reduction in seven key risk factors (diabetes, midlife hypertension, midlife obesity, smoking, depression, cognitive inactivity and physical inactivity) could prevent between 1.1 to three million Alzheimer’s disease cases internationally each year (Barnes & Yaffe 2011).

As public health campaigns raise awareness of dementia, people in the community are also very interested to learn about their personal risk for developing dementia.

How can we reliably measure risk for dementia? Until now there has been no method of assessing future risk of Alzheimer’s disease that did not involve undergoing medical tests. Yet most of the dementia risk connected with factors we know we can do something about (see box below) can be estimated without invasive and expensive medical tests – by answering questions about lifestyle and life risk.

Professor Kaarin Anstey, Associate Professor Nicolas Cherbuin and Dr Pushpani Herath, supported by funding from the Dementia Collaborative Research Centre: Early Diagnosis and Prevention, have developed such a test, which can be done from the comfort of home via the internet. It’s called the Australian National University Alzheimer’s Disease Risk Index (ANU-ADRI).

Risk and protective factors

The ANU-ADRI is a highly accessible tool that is freely available to the general public and assesses an individual’s exposure to the following 11 risk and four protective

Risk and protective factors for Alzheimer’s disease

A comprehensive review of international research literature has identified risk and protective factors for Alzheimer’s disease. The risk factors included in the ANU-ADRI are based on strong evidence. There are other risk factors for which evidence is still being obtained and it is likely that these will be added to the ANU-ADRI in the future.

The identified protective and risk factors for Alzheimer’s disease include:

**Protective factors**
- Light to moderate alcohol consumption
- High physical activity
- Cognitive activity
- High fish intake

**Risk factors**
- Increasing age
- Female gender
- Low education
- Overweight and obese Body Mass Index (BMI) in mid-life
- Diabetes
- Depression
- High serum cholesterol in mid-life
- Traumatic brain injury
- Current smoking
- Low social engagement
- Pesticide exposure


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**References**
measure Alzheimer’s risk

Factors known to be associated with an increased risk of developing Alzheimer’s disease over the age of 60 years: age, sex, education, body mass index, diabetes, depression, serum cholesterol, traumatic brain injury, smoking, alcohol intake, social engagement, physical and cognitive activity, fish intake and pesticide exposure.

These risk and protective factors are supported by reliable scientific evidence, with every factor identified from multiple high-quality studies of thousands of people, and can be measured by self-report: ANU-ADRI does not depend on clinical tests.

The ANU-ADRI takes approximately 20 minutes to complete. It provides a confidential, personalised report on Alzheimer’s disease risk factor exposure and informs individuals where they can make changes to reduce their risk of Alzheimer’s disease.

This tool may also be used by GPs as a basis for providing preventive health advice to patients, and monitoring improvement in risk profiles.

How has the ANU-ADRI been used?
Since the ANU-ADRI’s launch in 2014 it has attracted more than 10,000 visitors to the website.

What’s it like to take the test?
Friends Tessa McMillan and Melanie Wilson (pictured) completed the Australian National University Alzheimer’s Disease Risk Index (ANU-ADRI) assessment and share their experience:

Was it easy to do? It took about 20 minutes. Anyone with a computer who can read English as well as a teenager could answer the questions. You just need to be honest with your answers!

What did you learn? Just doing the test was educational about dementia. It was interesting that so many different things can be measured to understand risk to the brain, such as diet (eating enough fish) and the environment (like exposure to pesticides). And you know the questions are based on trustworthy research.

Will you make any lifestyle changes? After answering all the questions, you get personalised feedback immediately. It is quite practical and motivating. While some of the feedback was a bit of a reality check, the basic message is that it is never too late to make some positive changes. You get information relevant to your lifestyle. Some of the feedback is definitely about the things we probably keep putting off about diet and fitness. But there are also other suggestions which might be out of mind because we ‘feel’ healthy — such as what is actually in our diet (like fish) rather than simply whether we feel fat or thin.

The verdict: This assessment is free and worth the time investment. The feedback would be useful to share with a health professional if you don’t know where to start, such as for a general health check-up or to help with some goal setting (on some of those broken New Year’s resolutions!). The test helps you look at life as a whole package of choices and that we all have some control over our dementia risk.

To take the ANU-ADRI assessment go to: http://anuadri.anu.edu.au

Looking for a quick answer?
Two shorter versions of the ANU-ADRI have recently been developed in response to interest from care providers and researchers in Australia and overseas.

Consumer feedback on the original ANU-ADRI suggested that a shorter version of the ANU-ADRI may have a role on public websites and online applications, enabling it to reach wider audiences in more diverse settings and saving time in assessing an individual’s risk level. By providing shorter versions of the ANU-ADRI, GPs for example, may be able to assess a client’s risk level and provide them with relevant advice in a timely manner.

Dr Sarang Kim, Professor Kaarin Anstey and Dr Nicolas Cherbuin developed and evaluated two brief alternatives to the original longer version of the ANU-ADRI: (a short form which takes five minutes to complete and a tick box form which takes two minutes).

They found the shorter versions are of practical use, but have limitations and therefore suggest they be recommended only as a second choice, when individuals have limited time and need a quick indication of an Alzheimer’s disease risk level (Kim et al 2016).

The short form of the ANU-ADRI (questions and scoring algorithms) is available by contacting the research team directly at: Sarang.Kim@anu.edu.au.


Apart from helping people understand their personal risk for dementia, the ANU-ADRI has large scale uses in research. It has been proposed as the key risk assessment tool in large-scale dementia prevention trials and has already been used in the first online dementia risk reduction trial – the Body Brain Life (BBL) project. (The BBL project, led by Professor Kaarin Anstey and funded by the Dementia Collaborative Research Centres, is an online intervention to assist middle aged people at risk of dementia achieve and sustain changes in lifestyle and reduce their dementia risk profile. Details: http://crahw.anu.edu.au/research/projects/body-brain-life).

The ANU-ADRI is also being used in India by an aged-care provider to measure clients’ risk for Alzheimer’s disease.

Interested in assessing your dementia risk?
The ANU-ADRI is available at http://anuadri.anu.edu.au

Disclaimer
The ANU-ADRI tool is not meant, nor intended to be, a substitute for professional, medical, or psychiatric advice. If, after taking the assessment, you are concerned about your dementia risk it is recommended you discuss the results with a GP or other health professional.

Reference

Dr Sarang Kim is a Postdoctoral Research Fellow at the National Health and Medical Research Council (NHMRC) Centre of Research Excellence in Cognitive Health and the Dementia Collaborative Research Centre: Early Diagnosis and Prevention (DCRC-EDP), both based at the Centre for Research on Ageing, Health and Wellbeing (CRA-WH), Australian National University, Canberra; Professor Kaarin Anstey is Director of the DCRC-EDP and CRA-WH. To follow up on this article contact: Professor Anstey at kaarin.anstey@anu.edu.au or Dr Kim at sarang.kim@anu.edu.au