

‘Strengthening the ageing brain’

Slowing the rate of brain atrophy in mild cognitive impairment



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Date of publication: 20.4.24

Dr Chrystal’s vision is to educate and motivate the individual and population towards better health outcomes.

Her mission is to help make sense of the rich science articles that are important to health to the everyday person through her articles.

What Changes Occur When the Brain Ages?

In the early years of life, the brain forms more than a million new neural connections every second(link is external and opens in a new window). By the age of 6, the size of the brain increases to about 90% of its volume in adulthood.

In our 30s and 40s the brain starts to shrink with the shrinkage rate of our brain increasing even more by age 60. ¹

Current evidence demonstrates improvement in neurocognitive decline by applying the six pillars of lifestyle medicine of: ²

1. Plant-based nutrition
2. Physical activity
3. Stress management
4. Avoidance of risky substances
5. Restorative sleep
6. Social connections.

There are 2 areas that I have chosen to highlight which we can share with our patients who present for dementia screening as part of their health screening with no symptoms or with symptoms of mild cognitive impairment:

1.Role of exercise

Exercise for the prevention and treatment of cognitive deficits in patients with dementia

British journal of sports medicine Posted on November 13,2019 ³

¹ <https://www.publichealth.columbia.edu/news/changes-occur-aging-brain-what-happens-when-we-get-older#:~:text=Then%2C%20in%20our%2030s%20and,appearance%20starts%20to%20change%2C%20too.>

² <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9985951/>

³ [https://blogs.bmj.com/bjbm/2019/11/13/exercise-for-the-prevention-and-treatment-of-cognitive-deficits-in-patients-with-dementia/#:~:text=Regular%20aerobic%20exercise%20\(AE\)%20can,healthy%20older%20adults%20\(1\).](https://blogs.bmj.com/bjbm/2019/11/13/exercise-for-the-prevention-and-treatment-of-cognitive-deficits-in-patients-with-dementia/#:~:text=Regular%20aerobic%20exercise%20(AE)%20can,healthy%20older%20adults%20(1).)

Regular aerobic exercise (AE) can stop and even reverse brain atrophy. One year of moderate AE has been shown to increase hippocampal volume and improve memory in healthy older adults

2.Role of supplements

Homocysteine-Lowering by B Vitamins Slows the Rate of Accelerated Brain Atrophy in Mild Cognitive Impairment: A Randomized Controlled Trial

A. David Smith  , Stephen M. Smith, Celeste A. de Jager, Philippa Whitbread, Carole Johnston, Grzegorz Agacinski, Abderrahim Oulhaj, Kevin M. Bradley, Robin Jacoby, Helga Refsum 

Published: September 8, 2010 • <https://doi.org/10.1371/journal.pone.0012244>

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0012244>

Objective

To determine whether supplementation with B vitamins that lower levels of plasma total homocysteine can slow the rate of brain atrophy in subjects with **mild cognitive impairment** in a randomised controlled trial

Homocysteine is a risk factor for brain atrophy, cognitive impairment and dementia. Plasma concentrations of homocysteine can be lowered by dietary administration of B vitamins.

Participants were randomly assigned to two groups of equal size, one **treated with folic acid (0.8 mg/d), vitamin B₁₂ (0.5 mg/d) and vitamin B₆ (20 mg/d)**, the other with placebo; treatment was for 24 months. The main outcome measure was the change in the rate of atrophy of the whole brain assessed by serial volumetric MRI scans.

The treatment response was related to baseline homocysteine levels: **the rate of atrophy in participants with homocysteine >13 µmol/L was 53% lower in the active treatment group** ($P=0.001$). A greater rate of atrophy was associated with a lower final cognitive test scores. There was no difference in serious adverse events according to treatment category.

Conclusions and Significance

The accelerated rate of brain atrophy in elderly with mild cognitive impairment can be slowed by treatment with homocysteine-lowering B vitamins.

Final Thoughts:

The next time you have your health screening done, spare a moment to reflect on your lifestyle habits and discuss with your doctor on ways to improve the above towards a better heart health.

‘Towards better health outcomes’

Dr Chrystal Fong Chern Ying (MBBS Melbourne, FRACGP) is currently practicing as a family physician at Asia HealthPartners under the subsidiary of Singapore Institute of Advanced Medicine (SAM) Holdings, located at Lucky Plaza, Orchard, Singapore.

Dr Chrystal Fong is listed on the editors list of health screening providers on Health365, a healthcare, wellness and aesthetic medicine publishing agency in Asia. She has a special interest in health prevention and incorporates sports psychology and lifestyle medicine principles in her health screening and advocacy in health promotion.

She will be featured in the Britishpedia’s upcoming 6th edition of 'Successful People in Malaysia and Singapore'.

She is an active sports person who has keen interests in lifestyle medicine, medical technology and longevity themed medical care. She takes personal pride in living the lifestyle medicine pillars herself and advocating through her sports communities and social media platforms.

Her personal mantra being 'The world is changed by your example, not your opinion.'

She incorporates her consultations with health coaching methods and inspires behavioural change with sports psychology angles.

She is on the executive committee board of the Society of Behavioural Health, Singapore and an Associate Member of the College of Family Physicians, Sg. She is also a certified personal trainer.