



Autumn Issue | March 2020

### Issue Review

Keeping you informed and up to date with current research.

Australian researchers have for the first time shown that weight training can protect the parts of the brain vulnerable to Alzheimer's disease. Weight and resistance training is what we do in the Functional Pilates studio in the form of therabands, hand weights, springs and even using your own body weight. The important key points in the article have been highlighted in burgundy.

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Strength training can protect brain from degeneration in those at risk of Alzheimer's disease

ABC News Australia website, 11 Feb 2020

The University of Sydney study, published in the 'Neuroimage: Clinical journal', showed that six months of strength training slowed, and even halted, the degeneration in the hippocampus and its subregions a year after the exercise.

The study consisted of 100 participants at high risk of Alzheimer's disease due to mild cognitive impairment (a decline in memory and other thinking skills despite intact daily skills).

They were randomly split into four groups and given tasks including computerised brain training, strength training, a combination of the two and a control group.

The participants doing strength exercises completed 90 minutes of supervised strength training (using dumbbells, weights or machines) each week for six months, according to senior author of the study Michael Valenzuela.

"They did that for 45 minutes, twice a week, for six months and then we waited for 12 months and that's when we saw these really strong effects," he said

### Key Points

- The study showed a clear difference for the participants doing strength exercises
- Senior author Michael Valenzuela said it was the first intervention that slowed or halted degeneration
- He said it was clear that strength training needed to be part of dementia reduction strategies



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Professor Valenzuela, from the Brain and Mind Centre, said it was the first time that any medical or lifestyle intervention had been shown to slow or halt degeneration in the brain over such a period.

"What we saw was a difference in terms of decline," he said.

"In the control group, those sub-parts of the hippocampus were shrinking at an expected level of around 3 to 4 per cent.

"In those doing weight training, we saw much less, so 1 to 2 per cent and in some areas none at all."

Results show a 'clear difference'

Professor Valenzuela said he was surprised by how clear the results were.

"There was no grey zone about these results," he said.

"There was a clear difference in terms of brain anatomy and linked to that, those people doing strength exercises had far better cognitive outcomes than otherwise.

"These are not just structural changes, which are interesting for their own sake, they have a functional consequence.

"I do think it's very important and it's really pointing to the message that people hopefully have heard that exercise is good for the brain and the body but part of that exercise mix really should be strength training and lifting weights."

Professor Valenzuela said there were two competing ideas of why the strength training improved the cognitive performance.

"One is the chemical cocktail idea which is pumping weights and doing exercise releases a whole myriad of chemicals into the bloodstream which are good for the body, good for anti-diabetes, they're good for anti-inflammatory," he said.

"Some might get into the brain and promote plasticity.

"The other idea is a central nervous system idea, which is that doing exercise repetitively stimulates almost electrically these memory parts of the hippocampus.

"We know this from rodents, we're not sure if this happens in humans."

Professor Valenzuela said there was a clear message that

"resistance exercise needs to become a standard part of dementia risk-reduction strategies".