

Alzheimer's disease

Alzheimer's disease (AD) is a neurodegenerative disease in which brain cells are destroyed causing a loss of cognitive, memory and physical function. AD mostly affects older people, and is the leading cause of dementia.

What are the risk factors for Alzheimer's disease?

Although we do not completely understand the causes of Alzheimer's disease, we do know that AD and heart disease have some of the same risk factors including reduced physical activity, obesity, metabolic syndrome (4), and decreased testosterone levels that occur naturally with ageing in both men and women (5).

How can exercise help in Alzheimer's disease?

Dr. Ronald Petersen, Director of the Alzheimer's Research Center at the US Mayo Clinic, has stated that 'regular physical exercise is probably the best means we have of preventing Alzheimer's disease today, better than medications, better than intellectual activity, better than supplements and diet'.(6)

Prevention: People who are physically active have a lower risk of developing AD than those who are inactive (3). Exercise reverses all aspects of metabolic syndrome (including in people with type 2 diabetes), so it is reasonable to assume the same benefits will be gained for AD. Exercise (particularly resistance or weight training) also increases testosterone levels, which can help to protect brain cells and preserve cognitive function.

Management: Exercise can benefit people who already show signs of AD by improving their quality of life, slowing down the disease progression, and improving physical function and health. In addition, social interaction and cognitively stimulating environments slow disease progression. Exercising in a group environment with mentally challenging and changing exercises should be of greater benefit. Even patients with advanced AD should engage in regular exercise to reduce physical and functional decline. The strongest evidence for the benefit of exercise for people with AD is improved quality of life, and improved ability to perform tasks of daily living. Therefore, exercise medicine can be considered essential on these outcomes alone.

Exercise can be used as a 'medicine' for managing established AD by:

- slowing the progression of AD in people with mild to moderate cognitive impairment
- improving physical and mental function
- slowing or reversing the muscle wasting often associated with advanced disease
- improving mood and depression in patients with existing disease
- lessening behavioural problems in people with advanced disease.

What type of exercise is recommended?

General recommendations for preventing and managing AD is to meet or exceed the following:

| Type of exercise | Intensity | Duration | Frequency |
|---|---|---------------|----------------------|
| Aerobic exercise (e.g. walking, jogging, cycling) | 60–90% of your maximum heart rate (the maximum heart rate is estimated as 220 minus your age in years). | 20-60 minutes | 3–5 times per week |
| Resistance training (e.g. lifting weights) | 6–12 repetitions performed over 3 sets of 6–8 exercises per session | 20-60 minutes | 2+ sessions per week |
| Flexibility exercises for major muscle groups | 2–4 sets of each exercise | 20-60 minutes | 2-3 times per week |

People with signs of muscle wasting should combine anabolic resistance training with nutritional strategies to further optimise muscle growth. Additional benefits include more effective control of blood glucose, and reduced whole-body inflammation (due to increased muscle mass), a major risk factor for cardiovascular disease, diabetes and AD.

References and further information

Exercise is Medicine Australia www.exerciseismedicine.org.au

Find an Accredited Exercise Physiologist www.essa.org.au

Exercise Right www.exerciseright.com.au

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6. Lunde, A. (2008). Preventing Alzheimer's: Exercise still best bet. Retrieved 30th May 2012, 2012, from <http://www.mayoclinic.com/health/alzheimers/MY00002>

For more detailed information, please read the full version of this factsheet at www.exerciseismedicine.org.au

