

Stroke and exercise

What is stroke?

A stroke happens when the blood supply to the brain is suddenly interrupted. There are two main causes of stroke. Most commonly, an artery in the brain is blocked by a clot, stopping normal blood flow and the delivery of oxygen and nutrients to the brain area beyond (ischemic stroke). This occurs in around 85% of cases of stroke. The second cause is through a break in the wall of a blood vessel, leading to a bleed in the brain (haemorrhagic stroke). This disruption in blood flow may lead to temporary or permanent damage to the brain. The range of symptoms from stroke may include: weakness, numbness or paralysis of the face, arm or leg on either side of the body, sometimes both; difficulty speaking or understanding others; loss of vision, blurring or reduced vision in one or both eyes; difficulty swallowing or eating; loss of balance; fatigue; reduced cardiovascular fitness; and difficulty thinking and remembering.

Symptoms can appear alone or in combination and last for hours, days, months or even years. If symptoms resolve within 24 hours, this is usually called a transient ischemic attack (TIA). A TIA should not be ignored. Prompt investigation of the cause of a TIA may prevent a stroke. The degree of recovery and the speed of recovery from stroke varies between individuals and recovery may take many years.

How does exercise help?

Exercise helps prevent stroke. Once a person is affected by stroke, regular exercise and physical activity can also help reduce the risk of further stroke and improve post-stroke recovery, as well as help manage symptoms of stroke.

Reported benefits include:

- Improved strength and endurance
- Improved walking ability and ability to complete day to day activities of daily living
- Improved balance and coordination
- Improved flexibility
- Improved mood
- Improved alertness and thinking ability

What exercise is best for people with stroke?

The type of exercise or physical activity that works best for an individual with stroke will depend on the extent of their disabling symptoms, the medical conditions that may have been present pre-stroke or be new since the stroke, such as heart problems and diabetes, their exercise preferences and their ability to get out and about. Avoiding prolonged sedentary (sitting/lying) behaviour is likely to be important in this population.

Fatigue is often reported as a barrier to exercise, but there is some evidence that exercise can help, so people with stroke, including those with fatigue, need to find ways to participate in regular exercise or physical activity. There has been a lot of research testing a range of exercise approaches to help people with stroke at different points in the recovery process. This fact sheet focuses on exercises suitable for people who are living in the community with stroke.



Cardiovascular Fitness and Endurance Exercises

- Can be performed in a variety of settings including home and community and may include group work
- Stationary cycle, leg or arm ergometry, graded walking programs and even seated exercise programs can improve fitness
- Circuit classes (group work) and functional exercise (walking programs) can also improve endurance, and may include walking on a treadmill
- For people with poor balance after stroke, treadmill walking with a body-weight support device can help some people improve their walking endurance and speed
- Complementing formal exercise with pedometry to help increase lifestyle physical activity can be beneficial and may help reduce prolonged sitting which is particularly problematic in people with stroke
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Strengthening Exercises

- Can be performed at home, in a community centre, at a rehabilitation setting or local gym
- Resistance training of upper and lower limbs and trunk can be achieved using free weights, weight-bearing or partial weight-bearing activities, machine weights, elastic bands, spring coils or pulleys
- Progressive resistance with high weights and low repetitions are valuable
- 2-3 days a week appears to be the best frequency

Balance Exercises

- Functional training with a focus on increasing speed of walking, moving around and over obstacles, stairs and slopes can improve balance in people with stroke
- Tai Chi can improve balance and coordination and may help reduce falls

Special exercise considerations for people with stroke

Short, intense and more frequent bouts of exercise (rather than long bouts), may be particularly suited to people affected by fatigue, or those with significant disability from stroke. The beneficial effects of exercise are cumulative.

Before commencing a cardiovascular fitness training program, a medical review with your doctor is recommended to discuss clearance and referrals to appropriate allied health practitioners including accredited exercise physiologists or physiotherapists.

References and further information

Exercise is Medicine Australia www.exerciseismedicine.org.au

National Stroke Foundation <http://strokefoundation.com.au>

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

Exercise Right www.exerciseright.com.au

1. Billinger, S.A., Arena, R., Bernhardt, J., et al., *Physical activity and exercise recommendations for stroke survivors: A statement for healthcare professionals from the American Heart Association/American Stroke Association*. *Stroke* 2014; p. 1-22.
2. Stephanie S. Y. Au-Yeung, Christina W. Y. Hui-Chan, and Jervis C. S. Tang Short-form Tai Chi Improves Standing Balance of People With Chronic Stroke *Neurorehabil Neural Repair* first published on January 7, 2009 doi:10.1177/1545968308326425

