

# STROKE AND EXERCISE

## PROFESSIONALS

### HOW DOES EXERCISE HELP AFTER A STROKE?

A systematic review and quantitative synthesis revealed that physical activity levels across various stages following stroke (acute, subacute and chronic) are low, and far less than average healthy participants. Regular exercise and staying physically active can benefit stroke survivors by reducing the risk of further strokes and improving post-stroke recovery.

Reported benefits include:

- Improved walking ability, ability to complete activities of daily living, return to leisure activities.
- Enhanced mobility, decreased falls, improved confidence
- Improved strength, endurance and fitness
- Improved balance, coordination and flexibility
- Improved mood, alertness and thinking ability
- Lowered blood pressure and cholesterol

### WHAT EXERCISE IS BEST FOR PEOPLE WITH STROKE?

The type of exercise or physical activity that is best for an individual stroke survivor will be determined by the extent of their symptoms, other medical conditions such as heart disease and diabetes, their exercise preferences and ability to complete activities of daily living. Engaging in light-intensity exercise “little and often” is beneficial for stroke survivors. It is important to note that completing any exercise is better than doing nothing. Reducing sedentary behaviour by avoiding long periods of inactivity and breaking up sitting time is also important. Fatigue is an often-reported barrier to exercise and there is evidence that exercise can reduce the incidence of fatigue. Therefore, survivors of stroke, including those with fatigue should engage in regular physical activity. Research has been conducted testing a range of exercise approaches to assist people with stroke at different points in the recovery process (acute, subacute and chronic). Whilst physical activity is important at each stage of recovery, this factsheet provides recommendations on exercises suitable for people who are living in the community with stroke.

### CARDIOVASCULAR FITNESS AND ENDURANCE (AEROBIC) EXERCISES

- Survivors of stroke should engage in aerobic activity 3-5 days a week, for 20-60 minutes per session.
- Can be performed in a variety of settings including home, gym and community, and may include group work.
- Stationary cycle, leg or arm ergometry, elliptical trainers, walking on a treadmill, graded walking programs, and climbing stairs can improve fitness.
- Circuit classes (group work) and functional exercise (e.g. standing up, walking or climbing stairs) can also improve endurance.
- Initially encourage stroke survivors to start working at a light-intensity (1-2 on a scale out of 10) and work up to a moderate-intensity (3-5 out of 10) as they get fitter. After exercising regularly for a while, some stroke survivors might find that they can even work at a higher intensity (6-7 out of 10).
- Short, frequent bouts of activity are good too - the beneficial effects of exercise are cumulative. Remember that doing some exercise is better than doing none!
- Duration and intensity should be increased separately and gradually.
- Using activity trackers (e.g. Fitbits, pedometers) can help stroke survivors to keep track of their physical activity and monitor how many steps they take or how much time they spend sitting each day. This can be a great motivator for setting and achieving activity and exercise goals.



## STRENGTHENING EXERCISES

- Should be performed 2-3 days a week; alternate muscle groups if strengthening exercises are performed more regularly.
- Can be performed at home, in a community centre, at a rehabilitation setting, or local gym.
- Resistance training of arms, legs 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 training with high weights and low repetitions are valuable.



## BALANCE EXERCISES

- Completing everyday activities with an added focus on walking faster (but safely), moving around and over obstacles, and up and down stairs and slopes can improve balance.
- Tai Chi can improve balance and coordination and may help reduce falls.
- Playing active video or computer games can be a fun way to improve hand-eye co-ordination and balance.

## FINDING THE RIGHT TYPE OF EXERCISE FOR STROKE SURVIVORS

It is important for each individual stroke survivor to find exercise they enjoy, are capable of and that meets their fitness and mobility goals. Some examples may include completing light chores at home, going for a walk in the park or shops, dancing to music or going to the gym. A typical exercise session will look different for each individual.

Barriers to physical activity for stroke survivors can include physical ability, changes to thinking, memory, mood, fatigue, loss of confidence, financial barriers and a lack of support. Many of these barriers can be improved by exercise and it is important to work with an exercise professional to assist in decreasing these barriers.

A Physiotherapist or Accredited Exercise Physiologist can help stroke survivors address these barriers and get started on an individualised program. Any stroke survivor that wants to start an exercise or physical activity program who has some sort of physical disability, movement problem, loss of confidence, increased fatigue, low mood or cognitive problem, should be referred to a Physiotherapist or Accredited Exercise Physiologist. These health professionals can help stroke survivors to set exercise and activity goals and prescribe exercise and physical activity programs that are safe, effective and sustainable. Stroke survivors with significant limitations may benefit from being referred to a Neurological Physiotherapist who have advanced training and experience.

Exercise is safe to perform after having a stroke, however, before commencing a cardiovascular fitness training program, a medical review is recommended to discuss clearance.

*Prepared by Natalie Fini*

## RESOURCES & FURTHER INFORMATION

If you have any concerns about the safety of your patient in commencing an exercise program, please consider referral to a Sport and Exercise Physician. Find a Sport and Exercise Physician [www.acsep.org.au/](http://www.acsep.org.au/)

Exercise is Medicine Australia [www.exerciseismedicine.org.au](http://www.exerciseismedicine.org.au)

Exercise Right [www.exerciseright.com.au](http://www.exerciseright.com.au)

Find a Physiotherapist <https://choose.physio/find-a-physio>

Find an Accredited Exercise Physiologist [www.essa.org.au](http://www.essa.org.au)

National Stroke Foundation [www.strokefoundation.org.au](http://www.strokefoundation.org.au)

## REFERENCES

1. Australia's Physical Activity and Sedentary Behaviour Guidelines In: Australian Government DoH, editor. 2014.
2. 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.
3. Fini NA, Holland AE, Keating J, et al. How physically active are people following stroke? Systematic review and quantitative synthesis. Phys Ther. 2017;97 (7):707-717
4. Laver K., George S., Thomas S., Deutsch JE., Crotty M. Virtual reality for stroke rehabilitation. Cochrane Database of Systematic Reviews 2015, Issue 2. Art. No.: CD008349. DOI: 10.1002/14651858.CD008349.pub3.
5. Oberlin LE, Waiwood AM., Cumming TB., Marsland AL., Bernhardt J., Erickson KI. Effects of Physical Activity on Poststroke Cognitive Function A Meta-Analysis of Randomized Controlled Trials Stroke. 2017; 48:00-00. DOI: 10.1161/STROKEAHA.117.017319
6. Saunders DH., Sanderson, M., Hayes, S., Kilrane M., Greig CA., Brazzelli M., Mead GE. Physical fitness training for stroke patients. Cochrane Database of Systematic Reviews 2016, Issue 3. Art. No.: CD003316. DOI: 10.1002/14651858.CD003316.pub6
7. 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
8. [http://canadianstroke.ca/wp-content/uploads/2015/03/CPSR\\_Guide\\_Patients-English\\_WEB3.pdf](http://canadianstroke.ca/wp-content/uploads/2015/03/CPSR_Guide_Patients-English_WEB3.pdf)