

# Aerobic Exercise After Stroke

Patient's  
GUIDE

HOW AEROBIC ACTIVITY  
CAN HELP YOU AFTER A STROKE



HEART & STROKE FOUNDATION

**Canadian Partnership  
for Stroke Recovery**



*This resource provides aerobic activity recommendations for people at any point in their recovery from stroke. It is designed to be an easy reference summary of the **Aerobic Exercise Recommendations to Optimize Best Practices In Care after Stroke (AEROBICS)** guidelines.*



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Without a doubt, having a stroke is a life-altering event for the person affected as well as his or her loved ones. Understanding the complexities and management of stroke enhances the rehabilitation process and reduces anxiety.

### **What Is Stroke?**

Stroke is a sudden loss of brain function, caused by an interruption of blood flow to the brain (ischemic stroke, a blood clot in the brain) or a rupture of blood vessels in the brain (hemorrhagic or a bleeding stroke).

Stroke affects each person uniquely depending on the extent of the area affected, the exact location in the brain and how long the brain tissue was without oxygen. The consequences of a stroke are complex and result in varying degrees of impairments of movement, speech, vision, memory, balance, emotion, and cognition (thinking and comprehension).

### **Post-Stroke Rehabilitation**

Stroke affects each person differently so one person's recovery phase can never be compared to another. Recovery from stroke can continue over months or years, but generally involves making changes in the physical, social and emotional aspects of your life.

Your multi-professional health-care team may consist of various doctors (neurosurgeons, neurologists, cardiologists, physiatrists), therapists (occupational, physical, and speech therapists), social workers and nurses who all specialize in stroke rehabilitation.



The focus of rehabilitation is to assist you to return to normal life as soon as possible and will begin as soon as you are medically stable – usually while still in hospital. Your care may continue in a rehabilitation centre, back at home, in outpatient care, or in a community-based exercise program.

### **Aerobic Activity and Exercise**

Exercise is any activity that requires physical effort and is carried out to sustain or improve health and fitness. Exercise is an important part of stroke rehabilitation. It can help you better perform many every day activities, such as walking, moving around your home and community, climbing stairs, eating, personal care, and dressing.

### **Aerobics Exercise Recommendations to Optimize Best Practices in Care After Stroke**

Regardless of your personal goals, all effective exercise programs must incorporate a warm up and cool down period, as well as a set of exercises/activities that are



directed at your specific goals. Exercise should be delivered frequently enough and intensely enough to achieve them. These goals are always based on extensive individualized assessments and, in the case of post-stroke rehab, provided by experienced health-care professionals who understand the complexities of stroke, as well as any other medical conditions you may be managing (co-morbidities). The clinician is always guided by scientific and therapeutic *Best Practice Guidelines*, which are based on scientific research.

**The primary goal of post-stroke rehab is to assist you in returning to your previous level of function.** Traditionally, the primary focus has been on gait training, management of tone, strength, balance, walking and communication. However, in 2013, a very comprehensive international study conducted by experts in the field of stroke rehabilitation, revealed the importance of including *Aerobic Activity* as an integral component to optimize recovery.

*There is sound evidence indicating that the majority of stroke survivors have very low levels of cardiovascular fitness. Moreover, many survivors are limited in their ability to perform activities of daily living, which, over time, leads to further physical deconditioning and sedentary lifestyles. Consequently, there may be an even greater reduction in fitness levels that can worsen disability and increase recurrent stroke risk. Aerobic exercise can break this relentless cycle by increasing aerobic capacity, improving and reducing the risk of co-morbidities, and enhancing the quality of life of stroke survivors.*



These valuable and user-friendly guidelines offer stroke rehabilitation specialists clear directions by consolidating what is known about aerobic exercise for people after stroke or TIA. The result is safe and effective screening with exercise prescription protocols to guide clinical decision-making, which will result in optimal outcomes for the stroke survivor.

Generally, a stroke affects the muscles on one side of the body. Traditionally, physical exercise in stroke rehabilitation is focused on managing muscle tone to encourage normal movement. Muscles can have too much tone (spasticity or tightness and rigidity), too little tone (floppy) or varying degrees of weakness. Therefore, exercise is aimed at addressing these impairments so the individual can participate in the *Activities of Daily Living*, (ADLs) such as walking, eating, personal care, and dressing.

### **What is Aerobic Activity?**

Aerobic activity is a type of exercise that is performed for longer periods of time, causing the heart rate to increase and improving circulation to the heart as well as the muscles throughout the body. With a consistent program, general fitness is improved, and overall function, mood and quality of life is enhanced.



The intensity of aerobic activity is a key issue that must be appropriately designed with an understanding of your medical status, risk factors and co-morbidities. In this way, exercise should be prescribed as medication is: *in the appropriate frequency, intensity, time, and type* by an appropriately qualified health-care professional, consistent with their scope of practice and practice setting.

### **Who Should Participate in Aerobic Activity After Stroke?**

**Anyone!** All individuals should be considered for aerobic activity following stroke or mini-stroke (known as transient ischemic attack).

### **Why Should I Participate?**

Physical inactivity is a risk factor for stroke. After stroke, inactivity can also lead to further muscle weakness, difficulties with balance and walking, and low energy levels, which can affect your ability to carry out many daily activities.



The good news is that you can combat inactivity by building physical activity and exercise into your daily routine. Aerobic activity can:

- Improve mobility and walking
- Boost energy levels
- Improve function of your affected limb(s)
- Lower blood pressure
- Improve mood and quality of life

Aerobic activity should be incorporated into an overall program of physical activity after stroke.

### **When Should I Begin an Aerobic Activity Program?**

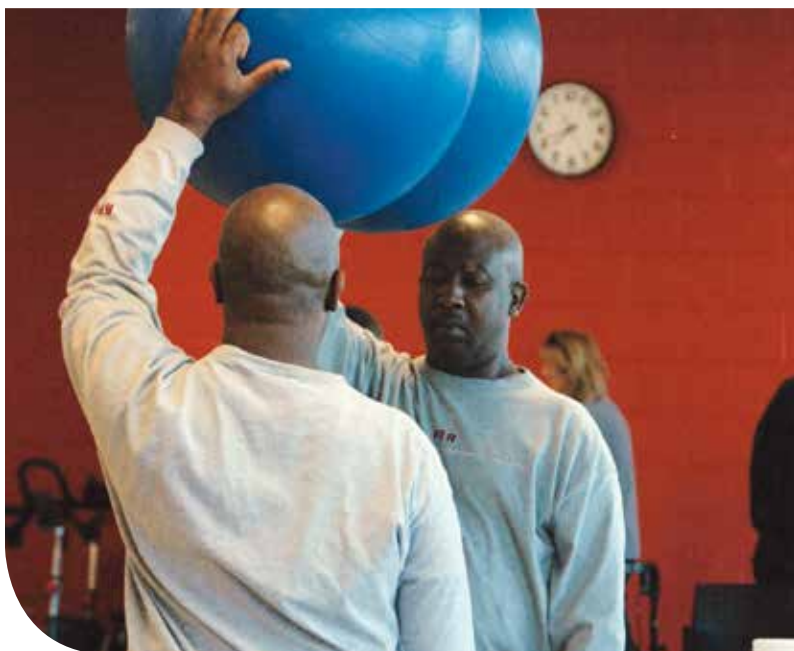
In the early days after stroke, people can spend up to half of their day resting in bed. This can contribute to poor health and low energy levels, making it even more difficult to get moving. **Patients should be screened for aerobic training as early as possible after onset of a cerebrovascular event (stroke or TIA)** as soon as they are medically stable. **Research has shown that aerobic activity can be introduced at any point during your recovery journey, whether it's soon after stroke or even years later!** Talk to your health-care professional about starting an exercise program.

### **How Do I Get Started?**

Before starting, all individuals post-stroke or TIA must undergo a comprehensive screening assessment to determine if they are a candidate for aerobic training, establish potential benefits, set goals, identify medical conditions that require special consideration, and note any contraindications to specific exercises.

## HOW AEROBIC ACTIVITY CAN HELP YOU AFTER A STROKE





The pre-program screening will include:

- i. General information about your medical history, medications, and lifestyle habits
- ii. A comprehensive physical assessment
- iii. Evaluation of your recovery and function
- iv. An initial exercise assessment
- v. Discussion of your personal goals for recovery

### **What is Involved With an Aerobic Activity Program After a Stroke?**

An aerobic exercise program for a person post-stroke should be **designed** by appropriately qualified health-care professionals, such as physical therapists or cardiac rehabilitation specialists. The *level of supervision* is determined by the health-care professional based on the individual participant's health condition. High-risk individuals require close supervision. Low-risk individuals who have demonstrated ability to exercise safely and effectively may require only intermittent supervision. Supervision may be provided by a qualified health-care professional or an exercise instructor who has been trained by the health-care professional. **Progression of the exercise program should be monitored and recommended by the health professional.**

Initially, your program will be prescribed at higher frequency (more often) and lower intensity (less hard). As your fitness, strength and mobility improve, your program will gradually progress towards higher intensity sessions, possibly at lower frequency. How far and how quickly you progress will be based on regular reassessments by the health-care professional.

See the "Sample Aerobic Program" chart on the next page 

Stop exercising immediately if you experience any of the following, and seek medical attention: angina (chest pain or pressure), pain or aching in the jaw or neck, down the left or right arm, or across the shoulders and back, unusual shortness of breath, dizziness, lightheadedness or irregular heart rate.

### SAMPLE AEROBIC PROGRAM

	INITIAL months after stroke – while in hospital –	LATER months after stroke – when back at home –
<b>Warm up</b>	Start with a 5-10 minute warm up. This may even be in the form of bed exercises.	
<b>How often?</b>	<b>Most days of the week.</b>	<b>At least 3x/week, but aim for most days of the week.</b> Try to also participate in light physical activity on the other days of the week.
<b>What kind of activity?</b>	Choose whatever interests you! The activity you choose should relate to your interests and your goals for recovery.  Some examples may include: <ul style="list-style-type: none"> <li>• Bed exercises</li> <li>• Exercises in standing position, such as marching on the spot, mini squats</li> <li>• Stationary bike or arm bike</li> <li>• Steppers</li> </ul>	Some examples may include: <ul style="list-style-type: none"> <li>• Walking or Treadmill</li> <li>• Stationary bike</li> <li>• Steppers</li> <li>• Walking circuits</li> </ul>
	The activities you choose may also change over time as you continue to get fitter and stronger.	
<b>How hard?</b>	Initially, you may start at a <b>light intensity of about 3 or 4 on a scale of 10.</b> See Figure next page →  Build gradually towards <b>moderate intensity of about 4 or 5 on a scale of 10.</b>  Your health-care professional may also monitor your pulse rate.	<b>Moderate intensity of about 4 or 5 on a scale of 10.</b> See Figure next page →  As you get fitter and stronger, include some days of activity at a <b>high intensity of 6-7 on a scale of 10.</b>  Your health-care professional may also monitor your pulse rate.

## SAMPLE AEROBIC PROGRAM *continued*

	INITIAL months after stroke – while in hospital –	LATER months after stroke – when back at home –
<b>How long?</b>	Initially, you may <b>start with shorter bouts</b> (e.g. 5 minutes) <b>with rest breaks in between.</b> Build up gradually until you can complete 20 minutes at one time.	<b>20 to 30 minutes.</b>
<b>Cool down</b>	Finish with a 5-10 minute cool down.	
<b>Where?</b>	Aerobic activity can take place in many different places.	
	Some examples include: <ul style="list-style-type: none"> <li>• In the hospital room or ward</li> <li>• Therapy areas</li> <li>• Home</li> </ul>	Some examples include: <ul style="list-style-type: none"> <li>• Outpatient clinics</li> <li>• Community centres</li> <li>• Fitness centres</li> <li>• Walking outside or in a mall</li> <li>• Home</li> </ul>



### Rating of Perceived Exertion Scale (RPE)

RPE is one example how your health-care professional can monitor how hard you are working. It is not uncommon for some medications to affect your heart/pulse rates so that they do not fluctuate significantly. An experienced health-care professional will use a variety of methods to ensure you are working appropriately within a safe range.

**There are tremendous benefits gained from participating in aerobic activities after stroke.** An aerobic activity program should be incorporated into your post-stroke rehabilitation program and continue in the long term. Regular re-evaluations and exercise progressions will help to ensure that you reach your maximum potential. These activities should suit your goals, preferences and lifestyle. Compelling evidence from international research concludes if the individual enjoys the selected activities or exercises, they are far more likely to comply with long-term activity programs and experience lifelong benefits.

Exercise can take many different forms, and the best recipe for success is if:

- The prescription is appropriate to the goal
- The frequency and intensity and time are sufficiently challenging for fitness gains
- Proper supervision and guidance on progressions are provided in the beginning, but ultimately transitions to independence in exercise
- Exercise is incorporated regularly into your daily routine as part of a healthy lifestyle

To maintain the health benefits and to continue towards your recovery goals, make exercise and physical activity part of your daily routine for the rest of your life. Stroke recovery can continue for many years post-stroke so you may need to create your own support network to ensure your long-term goals and discharged status are maintained in the future.









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The background is a solid gold color. Overlaid on this are several large, white, abstract, curved shapes that resemble stylized leaves or petals. These shapes are arranged in a way that they seem to flow and curve across the page. One large shape is in the lower half, and another is in the upper half. There are also smaller, more delicate shapes scattered around.

600 Peter Morand Cres., Suite 201,  
Ottawa, ON K1G 5Z3

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