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# Exercise After Stroke

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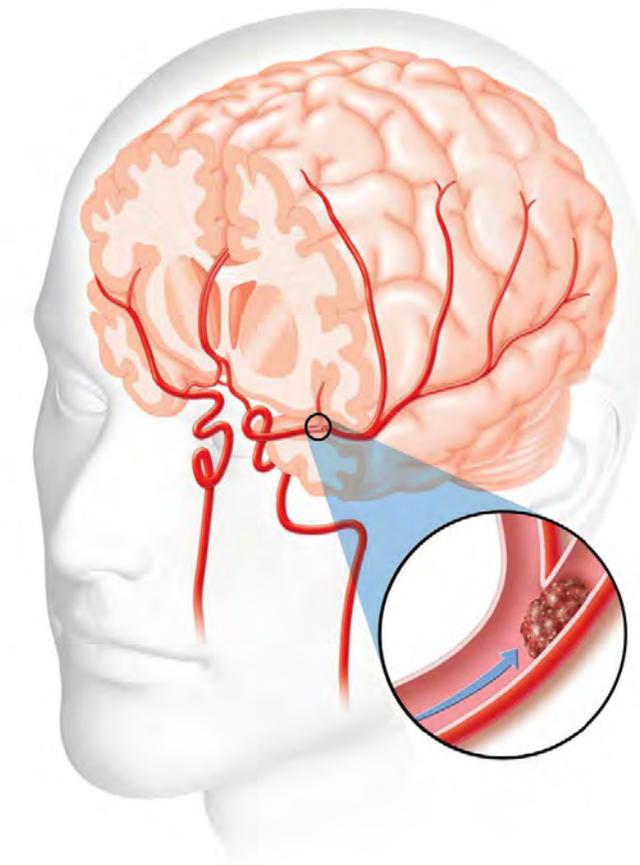
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- Globally, stroke ranks as the second most common cause of death.
- On average, every 40 seconds, someone in the United States has a stroke and every 4 minutes, someone dies from cerebrovascular disease.
- Nearly 800,000 Americans experience a new or recurrent stroke each year.
- Stroke is a leading cause of long-term disability in the United States.

As many as 50% of survivors will experience weakness on one side of their body after their stroke, resulting in decreased movement, decreased social participation and depression.

# About Stroke





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**After your stroke, you may experience the following symptoms:**

- Paralysis
- Weakness
- Diminished coordination
- Muscle irregularities
- Difficulties with balance
- Fatigue
- Pain
- Decrease in motor skills
- Reduction in sensory function
- Vision loss
- Aphasia
- Cognitive impairment

# Post-Stroke Effects





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# The Role of Neuroplasticity

- Neuroplasticity is often referred to as brain plasticity.
- It's the brain's ability to change and adapt throughout life, including after events such as stroke.
- It involves both physical and functional changes in the brain. Neuroplasticity allows for:
  - Learning and memory
  - Recovery from injury
  - Modifications and new skills (especially through practice)





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# Physical Activity vs Exercise

**Physical activity** is any bodily movement that requires you to use energy. This means all activities, at various levels of intensity, including deliberate and accidental activity that is part of your daily routine.

**Exercise** is a subset of physical activity that is planned, structured and repetitive. Typically, people engage in exercise to either maintain or achieve a certain level of physical fitness.

When you first begin to exercise after your stroke, you may want to have someone with you if possible so that you can feel safe and build confidence while exercising.

Avoid being inactive. Break up activities into 3-minute intervals or standing or light exercise, if able, every 30 minutes.





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# Benefits of Exercise

**Regular physical activity has been shown to enhance brain function and promote the growth of new neurons. Other benefits include:**

- Reduced blood pressure
- Improved cholesterol and triglyceride levels
- Less inflammation of the body
- Better glucose control
- Reduced risk of falls
- Increased mental health function, such as mood and depression
- Decreased risk of stroke recurrence
- Improved overall stroke recovery
- Increased physical function, such as mobility, walking and balance



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# Types of Exercise

**Any type of activity will provide benefits, but it's important to start at the right level.**

- **Gait training exercises**  
These are beneficial when you're not quite back to your pre-stroke level of mobility and walking. This training is typically offered through physical therapy and helps improve your independence and prepares you for longer periods of physical activity.
- **Stretching and range-of motion exercises**  
These will help improve your flexibility and help with stiff or tight muscles. They can include yoga, gymnastics, Pilates, dance and tai chi.





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- **Aerobic exercise**  
At the start, you can incorporate moderate-intensity activities, such as brisk walking, using a stationary bike or recumbent stepper, or water aerobics. Later you can add vigorous-intensity activities, such as running, hiking and cycling.
- **Balance exercises**  
Including exercises involving your core muscles will help with balance and help reduce your risk of falling.
- **Strength-training exercises**  
Include weights, resistance bands, Pilates, yoga and tai chi.

# Types of Exercise cont.





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# Where Do I Start?

*I have never exercised in the past.*

*I'm simply not ready.*

*I'm nervous to start.*

- Consult with your health care professional.
- Consider joining a supervised exercise class.
- Benefit from correct technique demonstration.
- Increase self-confidence.

*How do I know what type of exercise to do?*

*How much should I exercise?*

- Talk with your health care team before getting started.
- Together create a plan built around your goals.
- Set realistic goals.
- Pick activities you've done before and enjoy.
- Continue consulting with your health care team.



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# Assessments

**Examples of evaluations to measure your ability to get back to or start a physical activity include:**

**10-Meter Walk Test:** This walking test measures gait speed and endurance after stroke.

**Dynamic Gait Index (DGI):** Based on eight balance and walking activities, this assessment determines fall risk and whether an assistive device is required.

**Functional Gait Assessment (FGA):** This clinical tool consists of 10 gait-related tasks that evaluate your ability and balance as you walk to help determine your risk of falling.





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**Stress test or stress exercise test:** This test shows how your heart is working during physical activity. This might include walking on a treadmill or riding a stationary bike while your heart rhythm, blood pressure and breathing are monitored.

**The Borg Rating Perceived Exertion:** This questionnaire asks you to rate how hard you feel you are working.

# Assessments cont.





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# Exercise Recommendation

## After a Stroke

- Exercise class, including counseling
- Increased leisure time activities

## During Recovery

- Moderate-intensity activity: 10 min X 4 times/week
- Vigorous-intensity activity: 20 min X 2 times/week

## Fully Recovered

- Moderate-intensity activity: 150 min/week
- Vigorous-intensity activity: 75 min/week
- Strength training: 2-3 times/week





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# When Is It Safe to Start an Exercise Program?

**Always talk with your health care team before getting started.**

**Before a recommendation can be made for you, you should undergo a medical evaluation:**

- Review of your pre-existing health conditions that might affect your ability to exercise
- Review of any new stroke-related deficits that might affect your ability to exercise
- An exercise assessment test
- Review of your goals and preferences regarding your ideal exercise program



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# What Is My Goal?

Your health care team is there to support you and to help you get back to the activities you enjoy! By knowing what you want to achieve, they can help create activities that have meaning, purpose and joy.

**Ask yourself: What is my goal?**

Here are some examples:

- I really want to get back in the pool.
- I want to play with my grandchildren.
- I want to dance with my daughter on her wedding day.





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## Mindfulness and meditation practice

Reduce stress, improve focus and support neuroplasticity.

# Coping Techniques





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# Coping Techniques

## Start small

Increase the amount and intensity of physical activity and exercise to build endurance and strength and develop healthier habits for life.





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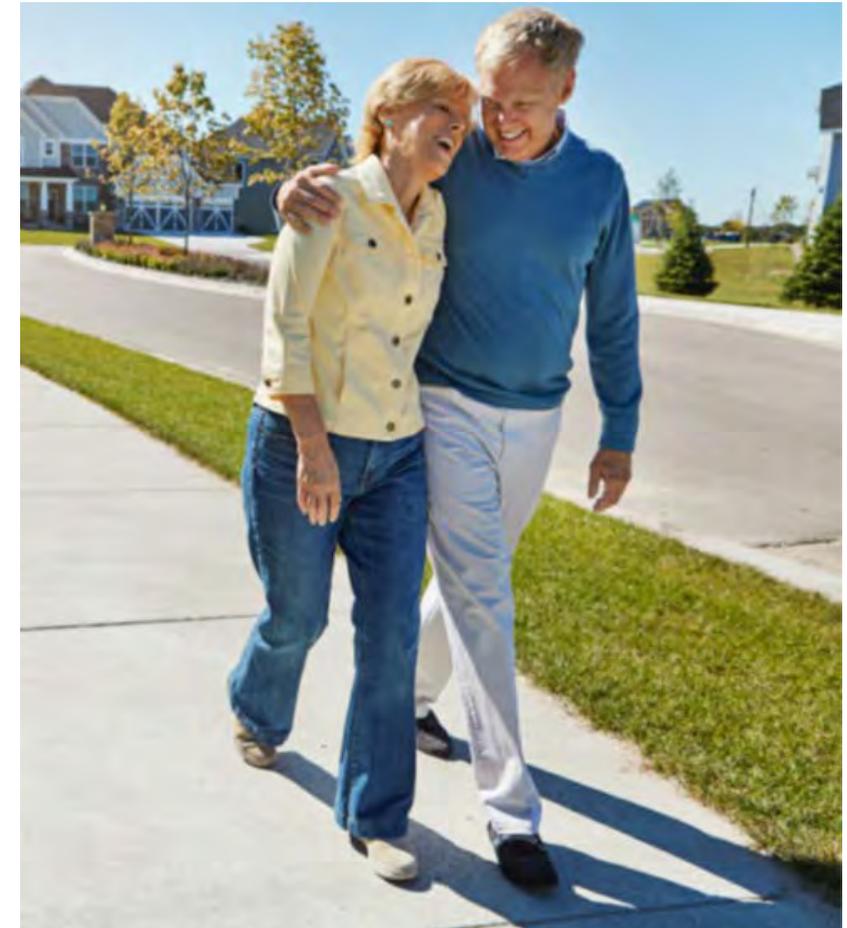
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# Coping Techniques

## Support of your caregiver

Your caregiver should encourage you to stick with an exercise program.

Caregivers should exercise, as well, so they have the strength and endurance to assist you. Better yet, have them join in your activity.





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## Keep a journal

Exercise journal offers numerous benefits, including:

- Increased accountability
- Improved progress tracking
- Better understanding of your fitness journey

# Coping Techniques





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Check out these post-stroke videos:

[Stroke.org/PostStrokeExercise](https://www.stroke.org/PostStrokeExercise)

Talk with your health care professional and/or physical therapist before performing any of these exercises.

# Coping Techniques





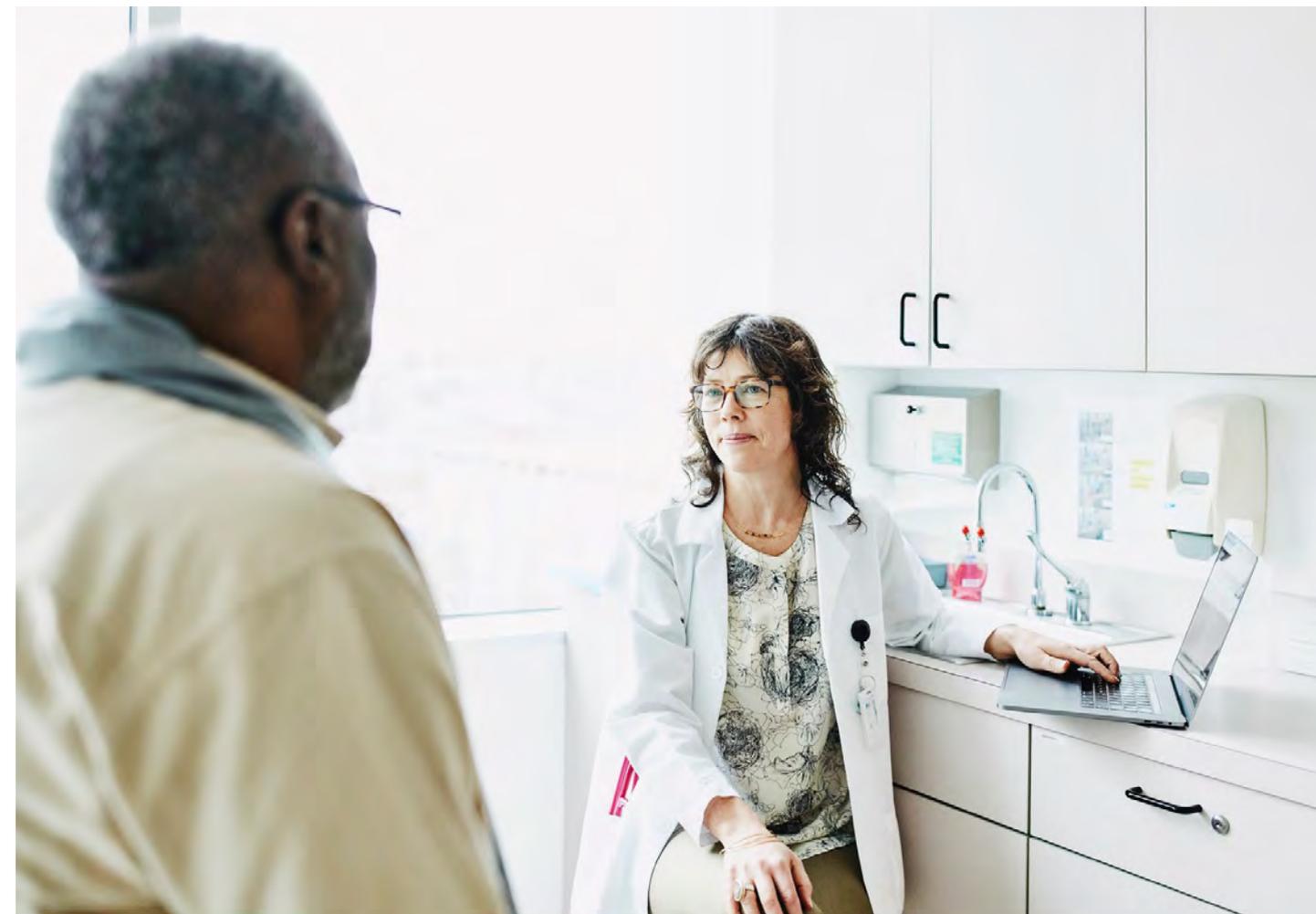
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Engaging in regular physical activity or exercise is one of the best things survivors of stroke can do while recovering from stroke.

Work with your therapist to restore strength and control through exercise programs. Your therapists also will find adaptations or modifications to help you engage in meaningful activities.

# Talking to Your Health Care Professional





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# Group Discussion



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**What changes might you  
experience after your stroke?**





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# **What are the benefits of physical activity and exercise after your stroke?**





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**What type of exercise programs  
or services are available to  
survivors of stroke?**





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**How can you reduce your risk of  
further health problems?**





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For more resources,  
visit **stroke.org**

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