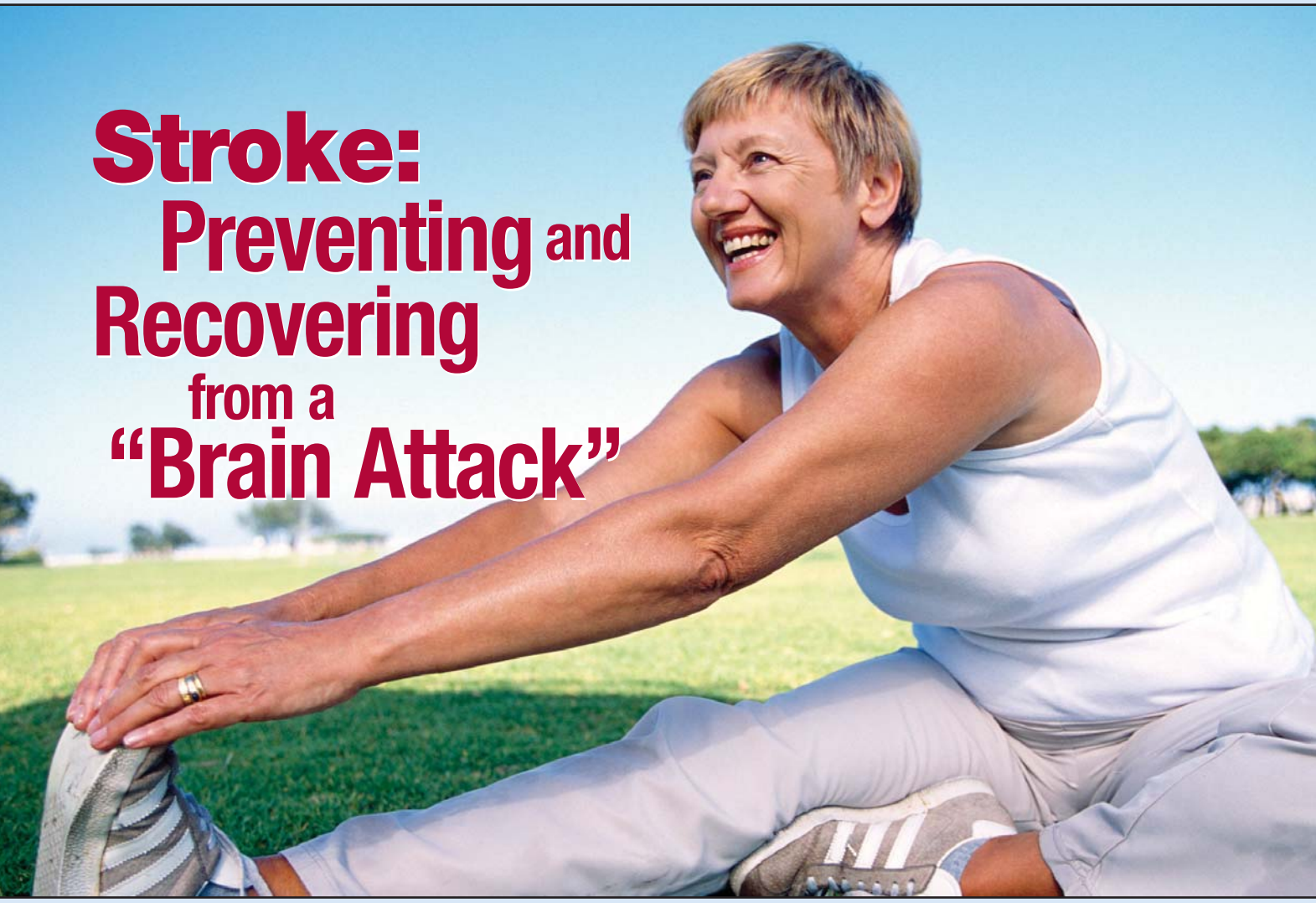
Stroke: Preventing and Recovering from a "Brain Attack"



Answers to some frequently asked questions; how physical therapists can help patients recover from stroke.

What happens with a stroke?

A stroke is a like a heart attack, only it involves the brain instead of the heart. In a heart attack, the blood supply to the heart muscle is cut off suddenly, resulting in severe pain and interrupting the heart's vital function of pumping blood to the body. Similarly, in a stroke, the blood supply to the brain is cut off, and the brain's ability to carry out its vital functions is interrupted. The cause usually is a blockage resulting from a clot that has lodged in the blood vessels or from a vascular disease that has narrowed the blood vessels. Blood supply also can be cut off when one of the blood vessels in the brain leaks (*hemorrhagic stroke*). Permanent damage can result if the flow of blood to the brain is not restored in very short order.

Is there anything I can do to prevent a stroke?

Yes! Extensive clinical and statistical studies have identified several risk factors. The more you have, the greater your risk. Although you can't do anything about some factors—such as family history, age, gender, race (African Americans have a higher incidence of stroke, including that caused by sickle cell anemia, a genetic disorder), or previous stroke or heart attack—there are many factors you *can* control, including: high blood pressure (hypertension), cigarette smoking, high blood cholesterol, diabetes, carotid artery disease, obesity, and physical inactivity. You can find clear descriptions of these factors, how they contribute to stroke risk, and ways to control them on the Web site of the American Stroke Association at www.strokeassociation.org.

What should I do first, and how can a physical therapist help?

Along with diet, exercise is one of the best strategies to decrease obesity and cholesterol, control blood sugars, and normalize blood pressure, which in turn helps reduce your risk of stroke. An aerobic exercise program is a good place to start.

All too often, however, individuals have to figure out how to begin an exercise program by themselves—and that

can lead to poor results or even injury. One of the most common reasons why people stop an aerobic program is a muscle or joint problem that develops because their body is unaccustomed to the increased physical stress of exercise. Another common reason is lack of direction or motivation. As experts in exercise prescription for patients with a variety of medical conditions, physical therapists are knowledgeable about the disease processes involved in stroke and about physical impairments and limitations. They can help you reverse your risk factors. Not only do they know the "rules" about exercise prescription (how often, how long, what intensity), but they also can modify the exercise program to prevent injury and treat preexisting impairments.

As part of an examination, the physical therapist will evaluate your musculoskeletal system, identifying short, tight, or weak muscles that might predispose you to injury and prescribing specific stretching and muscle strengthening exercises to minimize the chance of injury. Next, the physical therapist will work with you to create an aerobic program that matches your abilities, body type, goals, and lifestyle, increasing the likelihood that you will adhere to an exercise schedule—and that's critical to your success.

Many exercises can be used to increase the heart rate and maintain it, such as fast walking indoors (mall walking), outside, or on a treadmill for at least 30 minutes. Cycling and swimming are other excellent forms of aerobic training. Which is best? The answer depends on which exercise you enjoy doing and can fit into your lifestyle.

What if I have a stroke? Will I walk again? Will I ever "get back to normal"?

Unfortunately, there is no crystal ball to predict what functions will return and when. Recovery depends a great deal on the size and location of the stroke and how quickly you receive the care of a medical center that specializes in stroke. When you think about all of the functions of the brain, both cognitive (how you think and reason) and motor (walking, running, typing), you can understand how limited you might be after a stroke—sometimes temporarily, sometimes permanently. Numerous drug therapies, such as "clot-busters" (tissue plasminogen activator, or t-PA), which must be given within the first 3 hours after stroke symptoms, and blood thinners (eg, Heparin and aspirin) are thought to improve the overall outcome and help prevent future strokes.

Once you become medically stable, many motor and cognitive functions may return. The earlier they return, the better the prognosis. Rehabilitation begins as soon as you are stable, and the health care team works to match patient and family desires with patient abilities.

The majority of survivors of stroke will receive physical therapy as part of the rehabilitation process. Katherine Sullivan, PT, PhD, president of the American Physical Therapy Association's Neurology Section and professor in the Biokinesiology and Physical Therapy Department of the University of Southern California in Los Angeles, explains: "If you have a stroke, physical therapists can help you cope with the physical losses associated with stroke, such as a decreased ability to get around, including walking."

One of the biggest challenges for patients with stroke is coming to terms with the fact that they may have major limitations, says Sullivan. "You may have a greater risk of falling because of balance disturbances and weakness," she adds. "Simple activities that you might have taken for granted before the stroke, such as moving from a bed to a chair, may now be dangerous. But physical therapists can help you regain your independence and some—maybe all—of your motor skills."

Sullivan emphasizes that physical therapists are involved in the care of patients from the acute phase immediately following stroke through the rehabilitation phase. "The majority of stroke survivors—that's 80% of people who have a stroke—will return from rehabilitation to their home and families," says Sullivan. "Physical therapists play an important role in prescribing exercise and other activities to promote mobility, facilitate functional independence, and enhance quality of life after stroke."

Is there rehabilitation research on recovery after stroke?

From 1990 to 2000, known as the "Decade of the Brain," the National Institutes of Health (NIH) dedicated research initiatives to understanding how the brain recovers from injury or disease. Many resulting advances in neuroscience have had a big impact on rehabilitation for stroke survivors. For example, we now understand that the brain has the potential to recover motor skills as a result of neuroplasticity—the capability of neurons in the brain to recover function or to "take over" the function of other neurons that died off as a result of stroke.

Scientists who are physical therapists are conducting NIH-funded rehabilitation research to determine how "task-practice" and exercise can promote motor recovery after stroke. For example, constraint-induced movement therapy is a method in which the arm that was less affected by a stroke is restricted to encourage more effort and practice from the arm that has paresis. Treadmill training with the use of body-weight support and the assistance of a physical therapist is an intense form of task-practice that helps people recover walking ability. Both of these physical therapy interventions have resulted from rehabilitation research in this area. If you have problems with movements of the arm or leg that affect your everyday function, a physical therapist can help determine if you are an appropriate candidate for these and other innovative physical therapy interventions. PT

To find a physical therapist in your area, go to "Find a PT" at www.apta.org/consumer and enter your zip code.