

Getting Active, Staying Active

The benefits of exercise are remarkable and wide-ranging:

Physical activity improves heart function and lipid profile by lowering total cholesterol while raising HDL (good cholesterol). It lowers blood pressure and resting heart rate. Being active reduces the risk and severity of diabetes by increasing insulin sensitivity, and it improves strength, balance and endurance. For stroke survivors, these benefits can spell the difference between dependence and independence.

In addition to those physical benefits, exercise can enhance self-confidence and independence and reduce depression and anxiety. As survivor Lorraine Essig, 87, said, "I can be in a bad mood, but after I've done my exercises, that disappears."

Since Lorraine's stroke seven years ago, she works out three days a week, despite right-side weakness and challenges with her balance that require her to use a cane.

She starts with 10 minutes of pedaling on a portable exercise cycle she puts in front of her chair. Then she does a balancing exercise — standing on both feet, she raises her arms to shoulder height, closes her eyes and counts to 60. Holding onto her walker, she does 20 steps in place, bringing her knees as high as the handholds on her walker. Then she does a routine of 14 exercises 20 times each; she increases benefit by adding 2.5 lb weights, strapped to her wrists or ankles depending on the exercise. "I started out doing each one 30 times, but it tired me out too much," Lorraine said.

Expert testimony

Survivors should get clearance before starting a physical activity program. "See your doctor first," said Dr. Dorian Rose, a physical therapist with a Ph.D. in biokinesiology and research assistant professor in the College of Public Health and Health Professions at the University of Florida. "But don't let that step be a barrier to exercising. Most physicians will be thrilled to hear that their patients are interested in exercising."

One size doesn't fit all

Many survivors with disabilities are put off by the general physical activity prescription of 30–45 minutes of aerobic exercise most days of the week. Psychiatrist Dr. Elizabeth Pegg Frates is assistant director of medical education for the Institute of Lifestyle Medicine and a clinical instructor in the Department of Physical Medicine and Rehabilitation, both at Harvard School of Medicine. She emphasized that most survivors are capable of some activity depending on their functional abilities. "The exercise prescription needs to be individualized for each survivor based on interests, strengths and current level of fitness," Dr. Frates said. In her book, *Life After stroke: The Guide to Recovering Your Health and Preventing Another Stroke*, she and her

co-authors created four categories to help with selecting an appropriate type of physical activity. The four categories are:

- Severe functional limitations
- Moderate functional limitations
- Mild functional limitations
- No functional limitations

Those with **severe limitations** (e.g., paralyzed on one side of the body and spending significant amounts of time in bed) may do their exercises sitting in a chair and get assistance doing range of motion exercises with their affected limbs. They may be able to do neck stretches, knee lifts, ankle rotations, and flexing and extending their elbows and wrists on the unaffected side of their body.

Those with **moderate limitations** (e.g., significant weakness in a limb) may be able to engage in physical activity in a pool where their affected limbs are lighter or use a recumbent stationary bike with assistance from a friend or family member or even a Velcro strap to keep their affected foot on the pedal.

Those who can move all four limbs despite weakness in one or two of them (**mild limitations**) have even more options, including swimming and walking or using a recumbent stationary bike or stair stepper.

Those with **no functional limitations** have no excuse for not participating in some form of physical activity. The trick is finding one you like.

Recipe for physical activity

There are three main ingredients in aerobic physical activity: intensity, duration and frequency. Whether you engaged in physical activity before your stroke or not, begin any new physical activity regimen slowly. "An exercise session that is completed at a low intensity is better than no exercise session at all," Dr. Frates said. "Moderate intensity, when you can talk but not sing, might be possible for some survivors, depending on their level of heart health and overall fitness."

Many survivors come to post-stroke physical activity after a long period of convalescence during which their muscles have atrophied and they have lost aerobic capacity. "A reasonable goal for someone in that condition is accumulating 10 minutes of physical activity each day or over the course of a day," Dr. Frates said. "That can be broken into two five-minute segments. With the guidance of their physician they might be able to add five minutes after a week or so depending on how things are going."

Frequency is also important. The exercise prescription is to be active most days of the week.

Lorraine Essig goes through her 40-minute workout three days a week. As survivors increase their strength and endurance, they may be able to increase the frequency. "It is best to progress at a slow and steady pace that is comfortable," Dr. Frates said.

"The most important thing is to start," said Dr. Rose. "Five minutes of physical activity is better than zero minutes of physical activity. Survivors should do what they can, what their physician has given them permission to do. Five minutes can turn into seven minutes can turn into 10 minutes."

Resistance training

Resistance training — either with weight machines or exercise bands — is another important component of physical activity. "Often survivors have secondary weakness," Dr. Rose said. "This results from inactivity since the stroke. A strengthening program benefits this secondary weakness. I recommend consulting a physical therapist to establish a proper resistance training program."

Resistance training can increase strength and muscle mass, and those changes can mean increased mobility, greater independence and better function with daily activities. As with aerobic exercise, resistance training involves intensity, duration and frequency. Again, check with your doctor before engaging in a weight training program, and talk to your physical therapist as well.

A weight workout should work eight to 10 areas of your body — arms, shoulders, chest, trunk, back, hips, legs and ankles. Dr. Frates suggests choosing a weight that is not too heavy (one that you can lift only six times) and not too light (one that you can easily lift more than 15 times).

It is generally recommended that you start with 10–15 repetitions of a weight-bearing exercise — considered a set. The goal is three sets of each exercise, with a 15-second rest between sets. But again, do what you can, starting slowly, perhaps working only two or three muscle groups a day and building toward three sets.

Do resistance training twice a week, not on consecutive days so the muscles have time to recuperate.

Motivation

Motivation can be a huge issue. To find out what motivates you or the person in your care to engage in physical activity, go over the benefits — weight loss, lower blood pressure, more strength, better mood, more independence and better overall health. What gets you excited? Is it the thought of losing weight or having more energy or better balance or the independence that comes with greater strength?

Then set a three-month goal such as exercising for 30 minutes five days a week. “Realizing it will take three months to get there, set a concrete goal for the first week,” Dr. Frates said. “For example, a reasonable goal for a survivor who has mild functional limitations and has been sedentary for years would be to exercise for 10 minutes three days a week. Selecting the time of day and putting it in a calendar helps.”

Keeping a physical activity log where you can chart progress is another way to stay motivated. Working out with a friend or joining an exercise group makes it more fun and keeps you accountable. The social support of family and friends is also important. Dr. Rose’s advice to family members: “Encourage small steps and be supportive in any small step that is taken. Family members should realize that it can be intimidating to exercise in public. Since everyone can benefit from physical activity, family members can be supportive by joining the exercise class or the gym and exercising with their survivors.”

And just as there are ways to encourage survivors, there are ways to discourage them. “Doing too much too fast is a sure way to de-motivate someone,” Dr. Frates said. “It’s a set-up for failure. Successful small steps are the way to produce long-lasting change.”

Selecting a physical activity the survivor doesn’t like is another de-motivator. Just because a caregiver or therapist thinks water aerobics is a good idea doesn’t mean the survivor will. Remember to keep the physical activity regimen engaging and interesting to prevent boredom. “Varying the type of physical activity can be one way to keep survivors motivated,” Dr. Frates said.

New horizons

Visual reality devices like the Nintendo Wii (pronounced “wee”) may give survivors with disabilities a fun way to exercise. “Any time physical activity doesn’t ‘feel’ like exercise, people are more apt to stick with it,” Dr. Rose said. “Anecdotally, physical therapists report their patients enjoy exercising with the Wii, and that they are getting a workout. Research is currently underway to understand the potential specific benefits.”

Besides fun, these devices provide a variety of activities and give instant feedback on a player’s skill. “There are anecdotal benefits, including enhanced compliance with training sessions and increased training time,” Dr. Frates said. “Visual reality rehabilitation will become more and

more popular as more devices are invented. These devices seem to enhance motivation, provide active movement around joints, allow for repetition in an engaging setting and create an interactive interface for the survivor. It will be interesting to see what scientific research tells us about their usefulness in terms of improving function.”

Lorraine Essig knows that her physical activity regimen has made a difference. “I had exercised prior to ‘D-day,’ but not with as much dedication as I have now,” she said. “I can see what a difference it makes.”

Dr. Rose said that it’s important for survivors to realize that they can choose to be healthy or unhealthy. “Yes, you’ve had a stroke but you can still be healthy. Individuals — disability or no disability — can make the choice to be physically active.”

Figuring your target heart rate

Heart rate is the measure of intensity of an aerobic workout. According to the American Physical Therapy Association guidelines for post-stroke physical activity, survivors should exercise at a level between 40–70 percent of your maximal heart rate, which is 220 minus your age. So for a 70-year-old survivor, maximal heart rate is 150; 40–70 percent of that is a range between 60 and 105 beats per minute ($220 - 70 \times .40 = 60$ and $220 - 70 \times .70 = 105$). Consider purchasing a strap-on heart rate monitor; devices start at around \$50.