

## **STRENGTH TRAINING – LOWER EXTREMITY**

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### **What is strength training?**

Strength training is a type of exercise used to increase muscle strength. The idea is to fatigue the muscle by doing repetitive movements. As a result, the muscles used become stronger so that next time you exercise it will be easier to do the same exercise. In other words, your body adapts to the new demands you put on it. In order to keep getting stronger, the difficulty of the exercise is increased when you get stronger. Usually the exercise is made harder when you are able to perform a certain number of repetitions. A repetition is the completion of the movement from start to finish.

### **Are there different kinds of strength training?**

Many different types of strength training exist. For example, some require the use of large machines while some require no equipment at all. Different kinds of strength training equipment includes free weights, elastic tubing, exercise balls, workout benches and more complicated machines. Complicated machines are not necessary for most types of strength training.

The strength training programs can also vary in frequency (how many times per week) and intensity (how difficult the exercise is and how many repetitions are done). This is to be determined by the therapist.

### **Why strength train after a stroke?**

Muscular strength is important for performing many tasks. Strength in the lower body is especially important as it is required for mobility (walking, stairs). Stroke can reduce strength by affecting both the muscle directly and also the ability to fully control the muscle. However, strength training can help reverse both of these.

### **Does it help people after a stroke?**

Experts have studied the use of strength training for the lower body muscle groups. Walking speed and walking endurance were not improved following the strength training program. However, results suggest that functional ambulation (walking),

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health status/ quality of life, activities of daily living and level of physical activity are improved by lower body strength training.

### **What can I expect?**

Most post-stroke rehabilitation programs include strengthening exercises, especially if there is a loss of strength. However, most do not follow intense lower-body strength training. In most cases the exercises will mimic everyday movements. This is because strengthening exercises have more benefit to everyday life when they are specific to what we want to improve. Examples of exercises include: sit-to-stand from different chair heights, leg extensions and leg flexions using a machine, stepping forward, backward, and sideways onto blocks of various heights to strengthen the affected leg muscles. These can be done individually or in a circuit (one after another in a specific order).

Exercise programs vary in duration but usually do not exceed one hour in total length. The time of the program is usually increased slowly.

### **Side effects/risks?**

Exercise programs do have side effects and risks. However, careful planning can help limit these. The most common side-effect of exercise programs is muscle soreness. This is particularly common early on. Usually the soreness is worst the day following the exercises. However, as you get used to the exercises this will become reduced. So it is important to take it easy early on.

You may also experience fatigue the first few weeks of the exercise program. However, you will see a gain in energy after a few weeks.

### **Who provides the treatment?**

Strength training programs are usually designed by physical therapists. The physical therapist or physical therapist assistant will accompany you during the start of the

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program. Once you are comfortable with the exercises, it may become unnecessary to have someone assist you.

### **How many treatments?**

Strength training programs vary depending on your goals, your needs and your tolerance. While most of the studies reviewed in this module had 6-week long exercise programs, it is to your advantage to keep exercising after the program is over. Exercise programs offer many benefits such as cardiovascular fitness (healthy heart and lungs), increased strength, stronger bones, better mood and opportunities to socialize. Exercise should be done at least 3 times per week.

### **How much does it cost? Does insurance pay for it?**

Exercise programs are usually part of regular stroke rehabilitation. However, after discharge it may become necessary to find an area to exercise. The physical therapist or social worker may be able to help you find an area that suits your needs. While this module focuses on strength training of the legs, exercise programs are not limited to strength training. Swimming, gardening and walking are examples of other exercises that will help you stay healthy. Exercise programs can also be designed to be done in your home. It is important to find something you love to do and that is suitable.

### **Is lower extremity strength training for me?**

A stroke can reduce your lower body strength, resulting in poor balance, affected walking (gait), difficulty with stairs and difficulty changing positions (sitting to standing). If your lower body strength has been affected, strength training may help regain strength following stroke. This could help you regain some of the abilities that have been affected.

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