

PCST Stroke Clinic Spring 2007 (Day Two)

Stretching and Flexibility

Musculoskeletal System

- Bones provide the body with structural support
- Muscles provide the body with the ability to move
- The Joint is the point where the bones connect
- Ligaments connect the bones together
- Tendons attach the muscles to the bones

What's Happening When You Stretch?

- When you stretch you stretch the muscle fiber called the sarcomere until it's pulled out to its full length. Then, the connective tissue picks up the slack.
- This helps rehabilitate scarred tissue back to health.
- Proprioceptors tell the brain about the change the body is going through, causing the stretch reflex.
- Stretch Reflex is the brain's attempt to resist the change by causing the muscle to contract. (This is the first reason why you hold a stretch for a prolonged period of time so that the muscle becomes accustomed to the change).
- The stretch reflex provides the muscle with tone and prevents injury.
- After the stretch reflex comes the lengthening reaction, which is the brain's second message to the muscle inhibiting it from contracting further. (This is the second reason you should hold the stretch. It should be held long enough for the lengthening reaction to occur because it relaxes the stretched muscle, making it easier to stretch).

Types of Flexibility

- Dynamic or Passive? (Dynamic flexibility is what swimmers need)
- Dynamic Flexibility provides the body the ability to perform kinetic movements of the muscles to bring a limb through its full range of motion in the joints.
- Passive Flexibility gives the body the ability to hold certain body positions for longer periods of time.

Purpose of Stretching

- Makes you more efficient in your exercises, it increases your flexibility, decreases the risk of injury and helps your body hold better technique while exercising
- After a hard workout (especially strength building/weight lifting), it is even more important to stretch the muscle because it increases flexibility, enhances muscle growth and development, and decreases soreness
- It does this by helping the muscle "remember" its full length and helps get rid of the lactic acid build-up that create the sore feeling.
- This does NOT decrease muscle size, which is a common myth.

How should you stretch?

- Ideally you want to warm the body up before stretching. Studies show that muscle flexibility increases more if you stretch a warm muscle. This also increases your ability to prevent injury. (Stretching a cold muscle only minimally prevents injury).
- The pre-stretch exercise should be about a 5 minute cardio exercise to increase blood flow to the muscles and raise the temperature of the muscles to help them work more effectively.
- Stretching before and after exercise is ideal. Stretching before restores your flexibility, stretching after increases it.

- When stretching, hold each stretch for 10-12 seconds and do each stretch twice if time permits.
- Stretch until you feel resistance and then hold. DO NOT HOLD IF YOU FEEL PAIN IN THE TENDON, LIGAMENT OR CONNECTIVE TISSUE!

Things That Affect Flexibility

- Temperature (body and outside)
- Time of the day (generally the body is more flexible in the afternoon)
- Age and Gender (younger people and women are naturally more flexible)
- Commitment to achieving flexibility
- Restrictions of clothing while stretching