Flexibility Assessment and Improvement

Compiled and Adapted by Josh Thompson

Muscles must have a full and normal range of motion in order for joints and skeletal structure to function properly. Flexibility is notoriously overlooked in most trainees' workouts. The purpose of flexibility testing and training is to:

- correct muscle imbalances
- increase joint range of motion
- decrease muscle soreness
- decrease muscle-hypertonicity (chronically tight muscles)
- relieve joint stress
- improve the extensibility of musculotendinous junctions (tendon flexibility)
- maintain the normal functional length of all muscles
- decrease unnecessary friction in joint structures which can lead to premature damage or wear

In many musculoskeletal injuries inflexibility is either the cause or a contributing factor. This unique manual will make it possible for you to design your own customized stretching routine based on your flexibility needs. You will be shown a series of flexibility tests (left column) you can perform without any special equipment. In the center column you can make note of whether you are tight on both sides, tighter on your right, tighter on your left or have good range of motion (ROM). A corresponding stretch to improve flexibility in that particular muscle group(s) is provided (right column). Often the test itself can be used as the stretch!

The importance of symmetrical flexibility

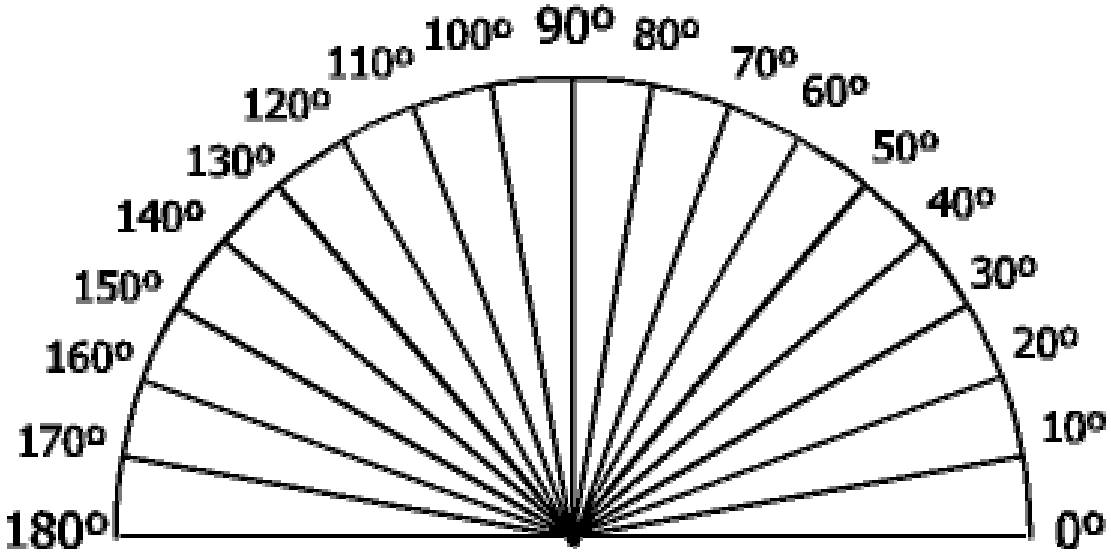
Always seek to balance flexibility for both sides of your body. Differences between sides will always cause you to deviate to the more flexible side causing faulty movement patterns and eventually a breakdown somewhere in the kinetic chain. A good rule of thumb is to stretch the tighter side of your body twice as much as the more flexible side. For every one stretch you do for the more flexible side, do two for the tight side.

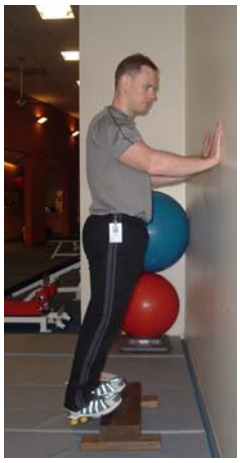
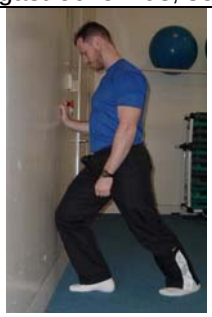
Stretching technique

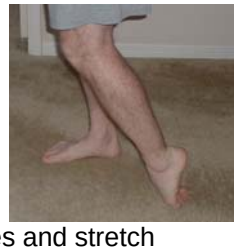
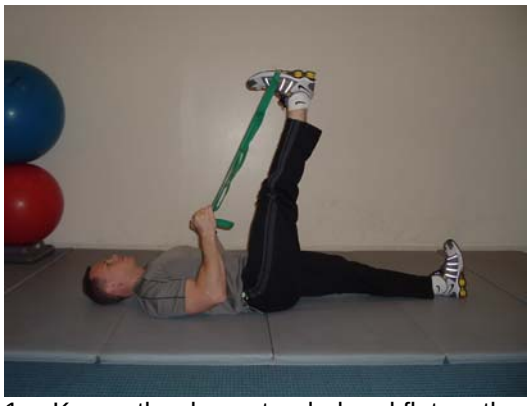
When using the static stretches presented here, use the following guidelines and suggestions:

- try not to stretch when you're in a rush
- do not stretch cold muscles, a short warm-up or doing stretches after a workout is recommended
- be careful when stretching first thing in the morning or without a warm-up, Think of your muscle as taffy just coming out of the refrigerator
- Don't strain! You should feel tension in the muscles as you stretch them, not sharp pain.
- You should be able to breath easy and normally while you stretch.
- Keep face and hands relaxed while stretching
- Hold your stretches long enough to let the tension release from the muscles (try not to be glued to a 30, 45, 60 second rule etc.)
- Instead of sitting on the couch in front of the TV at night, get on the floor and use it as a time to stretch while you watch your favorite show!
- Try to stretch daily or at least 4-5 times per week. You will not be sorry!

Go through the following tests and assess your flexibility. Check the relevant indicator in the center column. Use the stretches in the right column to improve your flexibility where you need it most!



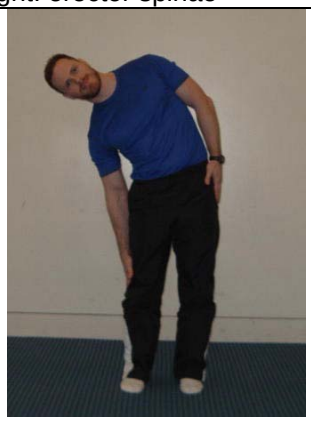
 Flexor Hallucis Longus Extension 1. Sit on floor with legs extended 2. Bend big toe back toward shin • Normal ROM = 90 degrees or more.	Tight both sides Tight Left Tight Right Good ROM	
 Gastrocnemius Ankle Dorsiflexion 1. Sit in a semi-reclined position. Support self on lower back and arms. Place legs straight out in front. 2. Begin with feet at a 90-degree angle. 3. Flex foot at ankle, bringing toes toward body. • Normal ROM = 20 degrees past right angle. Possibly tight: gastrocnemius, soleus	Tight both sides Tight Left Tight Right Good ROM	 1. Legs straight 2. Lower heels
 **Soleus** Standing ankle flexion 1. Stand with big toe of testing leg 4 cm from the wall, leg straight. 2. Bend your knee toward the wall without bringing your heel off the floor. • Normal ROM = 20 degrees or being able to touch knee to the wall. Possibly tight: soleus	Tight both sides Tight Left Tight Right Good ROM	 1. Try to keep foot flat on the floor 2. Lean forward

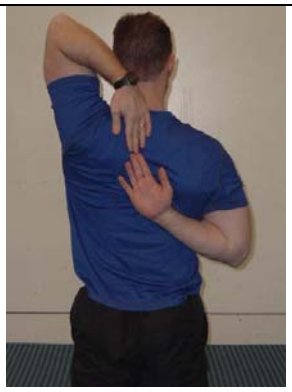
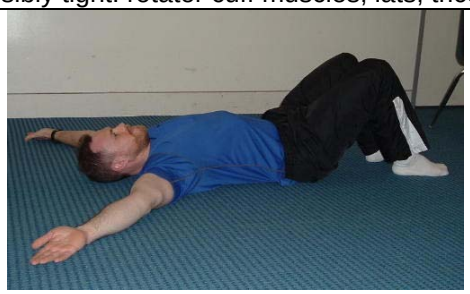
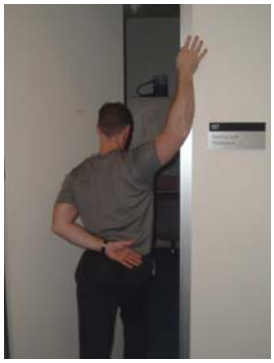
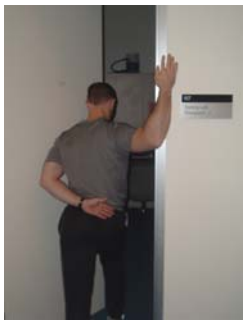
 Ankle Plantarflexion 1. Sit with legs straight, knees extended 2. Point toe • Normal ROM = 50-90 degrees	Tight both sides Tight Left Tight Right Good ROM	 1. Curl toes and stretch
 Knee Extension 1. Lie on the mat with face up and both legs flat on the floor. 2. Bend one leg at hip and knee. Raise thigh until it's vertical (90 degrees). 3. Keeping you thigh vertical, try to straighten your leg. • Normal ROM = 90 degrees (from bent at right angle to straight). Possibly tight: hamstrings, gastrocnemius	Tight both sides Tight Left Tight Right Good ROM	 1. Keep other leg extended and flat on the floor with toe pointing to the ceiling 2. Straighten stretch leg and gently pull
 Knee Flexion 1. Lie face down on the mat with legs straight. 2. Bend right leg at knee. 3. Keep hip and thigh flat. 4. Grab shin with hand and pull it towards buttocks. Keep hip on floor. • Normal ROM = 135 degrees (heel should touch buttocks). Possibly tight: rectus femoris (quads)	Tight both sides Tight Left Tight Right Good ROM	 1. Try to brigh heel back to butt 2. Don't twist knee

 Hip Flexion 1. Lie on mat with face up. Legs should be straight and flat on the floor. 2. Lift one leg, bend it at the knee, and use hands to bring knee to chest. 3. Keep head and shoulders back. • Normal ROM = 120 – 135 degrees (thigh should go well past vertical, nearly halfway to chest). Possibly tight: glutes, adductor magnus, hamstrings	Tight both sides Tight Left Tight Right Good ROM	 Take a wide lunge position on the mat, left foot out in front. Do not allow feet or lower legs to rotate Bring chest down toward front knee. The further out the front foot is, the more intense the stretch.
 Hip Extension 1. Subject lies flat on the mat, face down. 2. Bend right knee to 90 degrees. 3. Lift right knee off the floor as high as possible—do not let pelvis rotate or come off the mat. • Normal ROM = 20 – 30 degrees. Possibly tight: (hip flexors) psoas, rectus femoris	Tight both sides Tight Left Tight Right Good ROM	 1. Keep torso upright 2. Dip hip to floor
 Hip Abduction 1. Subject lies on side, left leg fully extended. 2. Right leg bent 90 degrees at knee. 3. Using hand to assist, abduct your right leg. 4. Do not twist leg. • Normal ROM = slightly greater than 45 degrees. Possibly tight: adductors	Tight both sides Tight Left Tight Right Good ROM	 1. Spread knees wide 2. Push hips back

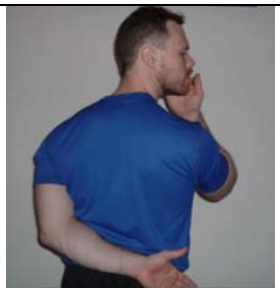
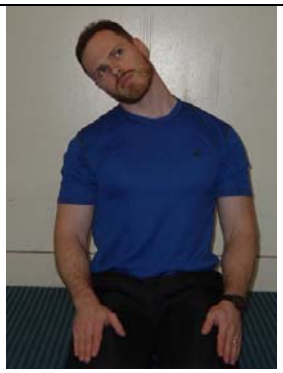
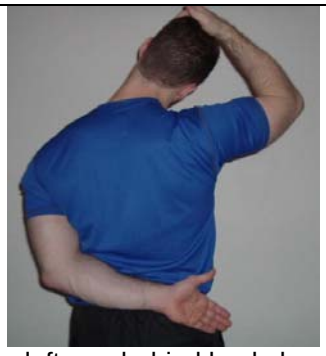
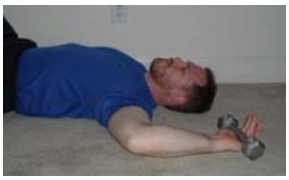
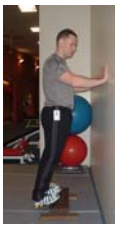
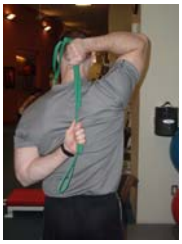
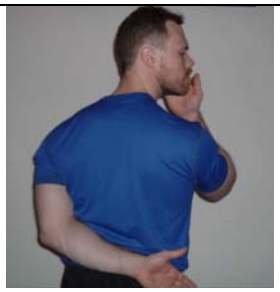
 Hip Adduction 1. Subject is seated with back against the wall, legs straight. 2. Bend right knee, place right foot on outside of left knee. 3. Adduct right leg across body. 4. Try to pull side of the thigh to your chest without allowing the hip of the testing leg to come off the wall. • Normal ROM = Knee reaches midline of body. Possibly tight: abductors	Tight both sides Tight Left Tight Right Good ROM	 1. Keep shoulder of the stretch side on the floor 2. Bring knee across body
 Hip Internal rotation 1. Subject sits in a chair. 2. Keeping back at 90 degrees, internally rotate lower leg (foot moves away from stationary leg). • Normal ROM = 45 degrees Possibly tight: piriformis, external rotators	Tight both sides Tight Left Tight Right Good ROM	 1. Sit on the floor, legs out straight 2. Bend right knee and move right foot out and away from left leg 3. Gently rotate right leg in

 Hip External rotation Subject sits in a chair. Keeping back at 90 degrees, externally rotate lower leg (foot moves across stationary leg). • Normal ROM = 45 degrees Possibly tight: tensor fascia latae, gluteus medius, gluteus minimus	Tight both sides Tight Left Tight Right Good ROM	 1. Lie with leg crossed 2. Gently push down on knee
 Hips Extension 1. Lie face down on a mat 2. Place hands directly under shoulders 3. Raise trunk while supporting self on hands 4. Bend spine back as far as possible while keeping pelvis in the mat. • Normal ROM = Trunk raised without moving pelvis (until arms are fully extended) Possibly tight: lower abdominals, psoas	Tight both sides Tight Left Tight Right Good ROM	 Same

 Back Flexion 1. Sit with knees separated and pointed out from corners of chair. 2. Bend trunk forward and between legs. 3. Bring hands to floor. • Normal ROM = back parallel with thighs. Possibly tight: erector spinae	Tight both sides Tight Left Tight Right Good ROM	 1. Start with knees slightly bent 2. Keep chin up 3. Try to staighten legs slowly
 **Back** Lateral flexion 4. Stand straight and bend trunk sideways without twisting. 5. Slide hand down alongside thigh. • Normal ROM = Fingertips should reach to about knee level. No real norms here due to leg and arm length differences. Look for symmetry between sides. Possibly tight: internal obliques, external obliques, quadratus lumborum	Tight both sides Tight Left Tight Right Good ROM	 1. Lean sideways toward wall 2. Try to reach and touch the wall as you gradually move further away

 **Shoulder** Rotation 1. Stand and place right forearm behind back, palm facing out. 2. Reach right hand toward left shoulder blade. 3. Move left arm overhead and back, placing left palm on back of neck. 4. Try to touch fingertips of both hands. 5. Don't arch back. • Normal ROM = fingertips touching. Possibly tight: rotator cuff muscles, lats, triceps	Tight both sides Tight Left Tight Right Good ROM	 1. Pull up so the bottom hand moves toward head
 **Pectoralis Major** Lower fibers 1. Lying on mat, knees bent, low back flat on mat. 2. Place straight arm at 135 degrees (hand slightly above top of head). • Normal ROM = Arm lays flat on mat Possibly tight: Pectoralis major	Tight both sides Tight Left Tight Right Good ROM	 1. Step through with the inside leg
 Pectoralis Major Upper fibers 1. Lying on mat, knees bent, low back flat on mat. 2. Place straight arm at 90 degrees (hand level with shoulder). • Normal ROM = Arm lays flat on mat Possibly tight: Pectoralis major	Tight both sides Tight Left Tight Right Good ROM	 1. Step through with the inside leg

 Latissimus Dorsi 1. Lying on mat, knees bent, low back flat on mat. 2. Place arms overhead, keeping them close to your head. • Normal ROM = Arms flat on mat Possibly tight: latissimus dorsi	Tight both sides Tight Left Tight Right Good ROM	 1. Drop head between arms 2. Keep arms extended
 Rotator Cuff Internal rotators 1. Lying on mat, knees bent, low back flat on mat. 2. Arm is at shoulder level, elbow bent to 90 degrees, forearm perpendicular to mat. 3. Bring forearm down toward mat, parallel with head. • Normal ROM = forearm flat on table. Possibly tight: Internal rotators	Tight both sides Tight Left Tight Right Good ROM	 1. This stretch is similar to the test 2. Hold a light dumbbell in the hand if the shoulder you wish to stretch.
 Rotator Cuff External rotators 1. Lying on mat, knees bent, low back flat on mat. 2. Arm is at shoulder level, elbow bent to 90 degrees, forearm perpendicular to mat. 3. Lower forearm down toward the mat without lifting shoulder. • Normal ROM = forearm 20 degrees to table. Possibly tight: external rotators	Tight both sides Tight Left Tight Right Good ROM	 1. Lie on your side, left arm at 90 degrees on the floor. 2. Using your right hand, gently press your left hand toward the floor.

 Neck Rotation 1. Sit with head erect and face forward. 2. Turn head so chin points over shoulder. 3. Do not move trunk, keep shoulder motionless. • Normal ROM = 60 degrees (head turned nearly over the shoulder) Possibly tight: sternocleidomastoid, levitator scapula	Tight both sides Tight Left Tight Right Good ROM	 1. Place left arm behind back, keeping left shoulder lowered. 2. Rotate head to the right. 3. Gently push on your chin for an additional stretch
 **Neck** Lateral Flexion 1. Sit with head erect and face forward. 2. Tilt head to one side. Do not move trunk. 3. Bring ear toward shoulder. Do not move shoulder upward. • Normal ROM = 45 degrees (ear should reach halfway to shoulder). Possibly tight: medial scalene, upper trapezius, sternocleidomastoid	Tight both sides Tight Left Tight Right Good ROM	 1. Place left arm behind back, keeping left shoulder lowered. 2. Flex head to the right shoulder. 3. Gently press on head with right hand.

Stretching Cheat Sheet