

9

Flexibility



In this chapter you will learn about:

- ◆ The benefits of flexibility training.
- ◆ Physiology of stretching.
- ◆ Proper stretching techniques.

Most trainers, exercise physiologists, and health care professionals agree that flexibility training, although often overlooked, is an important component of a physical fitness program. Stretching becomes even more important as you achieve advanced levels of muscle strength and endurance. If optimum functional fitness and military readiness are the goals, then well-balanced flexibility training is a must.

Benefits of Stretching

What is flexibility? When someone says they are flexible, what do you think of? Maybe you picture someone who can touch their toes. Flexibility is the ability to move your joints freely through a full range of motion. The range of motion at each joint is different and depends largely upon the structure of the joint and the condition of the muscles, tendons, and ligaments around the joint. Proper stretching increases flexibility and leads to:



- ◆ Reduced muscle soreness after exercise.
- ◆ Lower risk for injury.
- ◆ Mental and physical preparation for exercise or competition.
- ◆ Enhanced muscle performance through a larger, functional range of motion.
- ◆ Mental relaxation.

The goal of flexibility training should be to enhance joint movement while maintaining joint stability. Therefore, stretching exercises complement both strength and aerobic activities. An intense workout can cause small tears in muscles. Also, during exercise recovery, muscles and connective tissues (ligaments and tendons; defined in the [Glossary](#)) can shorten. Stretching prevents this muscle shortening and decreases the muscle soreness associated with intense workouts.



Physiology of Stretching

To understand the proper techniques for stretching it is helpful to know how the muscle and connective tissue respond to being stretched. There are areas within both your muscles and tendons that can sense both how quickly and how far your muscles and tendons are being stretched. These areas protect your muscles and tendons from becoming overstretched or torn during a quick stretch by causing a reflex muscle contraction. This muscle reaction is called the stretch reflex. A classic example of this is when someone taps your leg just below the kneecap. This action quickly stretches the quadriceps muscle (see [Figure 7-2](#)) and causes your thigh to contract and kick out your lower leg. The quicker the stretch, the stronger the reflex contraction. Therefore, by stretching slowly you avoid contracting the muscle you are trying to stretch!



Tendons respond to stretching as well. They cause the stretched muscle attached to the tendon to relax and signal its opposing muscle to contract. This protects the stretched muscle and tendon from tearing. As a stretch is held your muscles and tendons adapt to the new length.

The most effective stretches are performed slowly and are held for 10 - 30 seconds.

Flexibility Exercises

One of the most safest and most beneficial types of flexibility exercises is static stretching. **Static Stretches** are slow, controlled movements through a full range of motion. The term “static” means the stretch is held at the end of the joint’s range of motion. These static exercises are considered safe and effective because they stretch the muscles and connective tissue without using fast movements that will be resisted by the muscles. These exercises can be done actively (e.g., you contract the opposing muscle group to stretch the target muscle group) or passively (e.g., you use a towel to stretch the muscle). Incorporate the static stretches in [Table 9-1](#) in your exercise program. These exercises target the muscle groups shown in [Chapter 7, Figure 7-2](#). Select at least one stretch for each muscle group. Hold each stretch for 10-30 seconds then rest 10 seconds. Repeat each stretch 2-5 times. Muscle balance also applies to stretching, so stretch opposing muscle groups (e.g., stretch hamstrings and quadriceps).

A second type of flexibility exercises is dynamic stretching ([Table 9-2](#)). **Dynamic Stretches** are controlled muscle contractions through a joint’s range of motion. These stretches should be used to enhance the performance of an activity that immediately follows the stretch; i.e., swinging your racket prior to a tennis match. This type of stretching warms the muscles. Dynamic exercises are safe as long as you do not use momentum to force a joint through a greater range of motion than it is capable. Also, avoid bouncing movements. (See [page 73](#).)

Table 9-1. Static Stretches

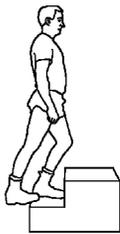
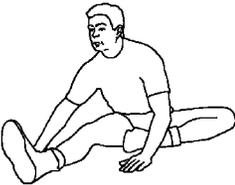
<p>Calf Stretch</p>  <p>Standing on a step, place the ball of the right foot on the edge of the step. Bend left knee and gently drop right heel. Stretches the right gastrocnemius. Variation: To stretch the ankle, slightly bend the right knee after dropping your right heel. Switch legs and repeat.</p>	<p>Quadriceps Stretch</p>  <p>Lie on stomach with both legs extended. Slowly bend left knee. Gently grasp left ankle with right hand and pull toward body. Keep back straight. Stretches the quadriceps. Switch legs and repeat. Variation: Perform stretch when standing, holding on to a stationary object to keep your balance.</p>	<p>Hamstring Stretch</p>  <p>Lie on back with both legs extended. Bring left leg to chest and grasp left thigh with both hands. Gently pull left leg toward chest. Stretches left hamstring and right hip flexor. Switch legs and repeat.</p>	<p>Modified Hurdler’s Stretch</p>  <p>Sit down, extend right leg and place left foot against inner right thigh. Gently bend forward from the hips, toward toes. Stretches the hamstring. Switch legs and repeat.</p>
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Table 9-1. Static Stretches

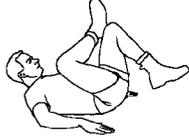
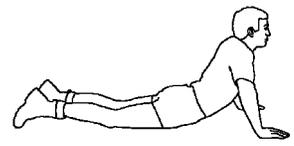
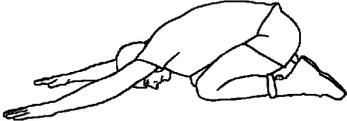
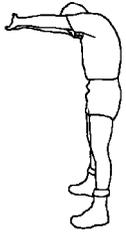
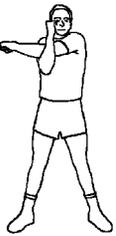
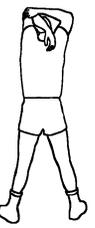
<p>Hip Stretch</p>  <p>Lie on back with knees bent, feet flat on the deck. Place right ankle on left knee. Grasp left thigh with both hands and gently pull it toward chest. Switch legs and repeat. Stretches hip extensors.</p>	<p>Pretzel Stretch</p>  <p>Sit with both legs straight. Bend the left knee and cross left foot over the right shin. Turn torso left and place right elbow just below the left knee. Turn as far left as possible. Stretches hip abductors, lower back, and iliotibial band. Switch legs and repeat.</p>	<p>Butterflies</p>  <p>Sit with legs bent and bottoms of feet together. Wrap hands around ankles and gently lean your torso forward, keeping your back flat. Do not pull on ankles or press knees down with elbows. Stretches hip adductors.</p>	<p>Lunge</p>  <p>With feet side by side, take a large step forward with left foot. Bend your left knee until it is directly over left ankle. Gently press your hips forward and down, keeping your back straight. Stretches hip flexors. Switch legs and repeat.</p>
<p>Lizard</p>  <p>Lie face down, palms on the deck under your shoulders. Gently lift torso with arms and lower back muscles. Lift only until your pelvis is off the deck. Stretches the abdominals.</p>	<p>Lower Back Stretch</p>  <p>Lie on back, bring knees to chest and grasp knees with hands (arms may either be below or above lower legs). Gently pull both knees toward chest. Lift chin toward chest. Stretches the lower back.</p>	<p>Kneeling Back Stretch</p>  <p>Kneel down with knees shoulder width apart. Sit back on your heels. Lean forward so your chest rests on your thighs. Extend arms over head. Stretch arms and chest as far forward as possible. Stretches lower back.</p>	<p>Upper Back Stretch</p>  <p>Clasp hands together in front of chest, palms facing out, arms extended. Press through palms until back and shoulders are rounded. Stretches back and shoulders. Can do seated or standing.</p>
<p>Posterior Shoulder Stretch</p>  <p>Bring left arm across chest. Use right hand to gently push upper left arm toward chest. Stretches shoulders. Switch arms and repeat.</p>	<p>Triceps Stretch</p>  <p>Bring left arm up and back until left palm is between shoulder blades and left elbow is above left ear. Gently grasp upper left arm with right hand and push left arm behind head. Stretches the triceps. Switch arms and repeat.</p>	<p>Chest Stretch</p>  <p>Clasp hands behind lower back, thumbs pointed down. Gently pull arms up toward ceiling. Stretches chest and shoulders. Can do seated or standing.</p>	<p>Neck Stretch</p>  <p>Clasp hands behind back. Bend neck so right ear moves to right shoulder. Gently pull left arm. Stretches neck. Switch arms to stretch the right side of the neck.</p>

Table 9-2. Dynamic Stretches

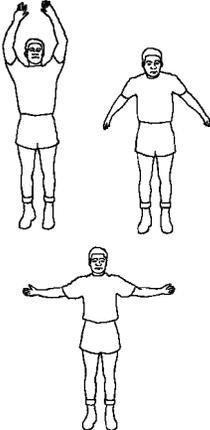
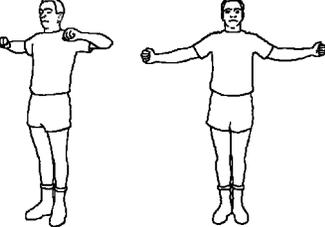
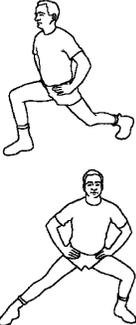
<p>Neck Stretch Begin from a standing position. Count 1: slowly roll the head to one side, Count 2: slowly roll the head to the front, Count 3: slowly roll the head to the other side, Count 4: slowly roll the head to the front again. Repeat. Do not roll the head back. Stretches the neck muscles. Variation: Turn your head to look over your right shoulder then slowly turn your head to look over your left shoulder. Repeat.</p> 	<p>Up Back and Over Begin from standing position with arms at sides. Count 1: slowly bring both arms forward and upward. Count 2: slowly bring both arms down and back. Count 3: slowly move both arms forward, up, back, and around to complete a full circle. Stretches the shoulders, chest, and back.</p> 	<p>Press-Press-Fling Begin from a standing position with arms bent, fists at chest level, and elbows out to the side. Count 1: gently pull elbows back and release. Count 2: repeat count 1. Count 3: slowly extend arms and pull them back. Stretches the chest and shoulders.</p> 
<p>Trunk Twisters Begin in a seated position with legs crossed and hands placed behind your head. Count 1: slowly turn your torso, at the waist, to the right and pause. Count 2: slowly turn your torso to the left and pause. Repeat. Stretches abdominals and obliques.</p> 	<p>Standing Toe Pointers Start from a standing position with body weight over the heels. Flex and extend the feet and toes. Stretches both the calf muscles and the muscles in front of the shins. Variation: walk on the heels with toes pointed upward.</p> 	<p>Four-Way Lunges Begin from a standing position. Count 1: lunge forward with right leg, distributing body weight across both legs. When lunging forward, the knee should not extend beyond the toe of that leg. Count 2: using the right leg, push off and return to start position. Repeat this movement using the same leg but lunge to the side. Perform exercise with the left leg. Stretches the leg muscles.</p> 

Table 9-1 and Table 9-2 were adapted from *The Navy SEAL Physical Fitness Guide*.