Lesson Sixteen
Flexibility and Muscular Strength

Objectives

After participating in this lesson students will:
- Be familiar with why we stretch.
- Develop a stretching routine to do as a pre-activity before vigorous exercise.
- Learn basic muscle strength/endurance exercises.
- Learn major muscle groups.

Time

50 minutes                   Prep Time: 20 minutes

Activities

16.1 Review and Plan for the Day  3 minutes
16.2 Why We Stretch              7 minutes
16.3 Stretching Routine          20 minutes
16.4 Muscle Strength/Endurance Exercises 15 minutes
16.5 Closure                      5 minutes

Key Terms

- Muscle
- Muscle Fiber
- Contracting

Materials

- Large rubber band
- Stretching Workout (Activity Sheets 16.3a-e)
- Deck of cards
- Notebook paper and pencils

Teacher Preparation

- Write Plan for the Day and Objectives on chart paper or board.
- Make copies of Stretching Workout (Activity Sheets 16.3a-e), 1 of each for each student, and place in portfolios. (Note: Some sheets are 2 pages long.)
- Make 1 copy of each Stretching Workout (Activity Sheets 16.3a-e) to hand out to groups.
- Purchase a deck of cards.
- Find illustration of bisected muscle.
16.1 Review and Plan for the Day  

3 minutes 

**Materials:** Plan for the Day and Objectives 

Write the Plan for the Day and Objectives on the board before class, listing all of the activities students will be doing.

Plan for the Day:
- Why We Stretch 
- Stretching Routine 
- Muscle Strength/Endurance Exercises 
- Closure 

Review the previous class. Ask students if any of them took their heart rate while exercising since the last class. If a student responds that he/she did, ask what he/she was doing and what the heart rate was.

Explain that today they will be doing some stretching and learning why it’s important to stretch. Then they will be doing some strength exercises and learning about some of the major muscle groups.

Review the Objectives with students.

16.2 Why We Stretch  

7 minutes 

**Materials:** Larger rubber band for demonstrating muscle fiber stretching, illustration or picture of bisected muscle 

Ask students why it would be important to stretch. Acknowledge their responses.

- Explain that a **muscle** *(an organ, composed of muscle tissue, that contracts to produce a particular movement)* is made up of a bunch of **muscle fibers** *(a mass of elongated cylindrical cells that form the muscles of the body)*. Show them or draw a picture of a muscle bisected so they can see inside the muscle.

- Tell them that when we are exercising, for example while running, the muscle fibers are **contracting** *(to become reduced in size by or as if by being drawn together)* and then relaxing.

- When we stretch, we are lengthening the muscle fibers, so that the next time we run the whole muscle can use more of its range of motion because the distance between the contraction and relaxation is greater.

- Show the students a rubber band. Pull the rubber band tight and tell them this is demonstrating a contracted muscle. When we don’t stretch we can rip the muscle if we stretch it too far, because it isn’t flexible. But if we stretch our muscles regularly, the elasticity increases and our muscles can have a greater range of motion.
Tell students that it will benefit them to stretch before exercise and right after exercise. This will keep their muscles from tightening.

### 16.3 Stretching Routine 20 minutes

**Materials:** Stretching Workout (Activity Sheets 16.3a-e)

**Materials:** Deck of cards

**Explain the activity:**

- Students will be divided into small groups and will develop a stretching routine for a specific part of the body.

- They will use the Stretching Workout activity sheets to help create their routine.

- They will then present their stretches to the rest of the class. So, at the end of the class, everyone will have a stretching routine for five different parts of the body.

Divide the class into groups with no more than 3 students in each group. Assign a body part to each group and hand out the corresponding Stretching Workout activity sheet, one per group. (Students should also receive a packet of all the Stretching Workout activity sheets in their student portfolios.) For example, one group will be assigned Neck and Shoulder, another group will be assigned Hips, and so forth.

Each group will then decide which stretches they want to present to the class. They are to pick only two stretches from the Stretching Workout activity sheet for their given body part. They also need to decide who is going to present which stretch.

- Remind students how to present information (e.g., speaking clearly, making eye contact, not reading off of their information sheet).

- Allow groups time to choose their stretches. Then have them present to the class.

- Once each group has presented their stretches, the whole class will have a collection of 10 stretches they can do before and/or after exercise.

### 16.4 Muscle Strength/ Endurance Exercises 15 minutes

**Materials:** Deck of cards

Explain that students are going to perform some exercises that address the muscular strength and endurance components of fitness. Explain the difference between muscular strength and muscular endurance. (Endurance is when you can sustain the activity for multiple repetitions, whereas muscular strength is when you increase the weight to the maximum amount of force a muscle can put out when it contracts.) For students who work out regularly this will be more of a muscular endurance exercise, and for students who don’t work out as much it will build muscular strength.
Deck of Cards Activity:

- Ask students to name an exercise they can do that strengthens the upper body without using any equipment. (Push-ups are one example.) Then ask them to name an exercise they can do that strengthens the lower body without using any equipment. (Lunges or squats are examples.) Demonstrate each of these exercises.

- Show the deck of cards and explain that each student, one at a time, is going to draw a card from the deck. If the suit is red, the class will do the lower-body exercise and if the suit is black the class will do the upper-body exercise. The amount of repetitions is determined by the number on the card. Face cards are equal to 10 and the Ace is equal to 1, all other cards are face value.

- Answer students’ questions at this point. Let them know that they are not going to go through the whole deck. They will just do a couple of rotations, if time permits. Emphasize that they are to do the best they can on each of the exercises.

- Have a student draw a card and lay it face up. Whatever the card is, do the corresponding exercise. For example, if the card is Ace (= 1 repetition) of Hearts (= red—lower body) do one squat or lunge (or whatever lower-body activity was chosen).

- Have each student take a turn to draw a card. Once everyone has taken two turns, stop and talk about how this exercise can be done at any time, anywhere as long as you have a deck of cards. A goal is to finish the whole deck of cards in 12 to 15 minutes.

### 16.5 Closure 5 minutes

**Materials:** Notebook paper and pencils

Have students return to their seats. Give each student a piece of notebook paper and a pencil. Explain that they are to describe a workout based on the information they learned today.

First, tell them to choose which body part they want to work out: arms, torso or legs. Once they’ve chosen the body part, have them find two **stretches** they can do that stretch that body part and write them down on the piece of notebook paper.

Then have them write two **exercises** they can do to work out that body part. Tell them it can be a muscular strengthening exercise (push-ups or resistance bands) or a muscular endurance exercise (sit-ups, lunges or squats). Ask them to write down how many of the given exercise they are going to do and how many times they will do the exercise one session. Give them an example: 3 sets of 30 sit-ups. Most important, tell them to pick stretches and exercises that they would actually do.
Resources

Websites:
www.howtostretch.com/iliotibi.htm
www.howtostretch.com/charts.htm
http://koreantaekwondo.tripod.com/articles/exercises.htm
www.niapublications.org/exercisebook/chapter4_stretching.htm

Muscle Chart:
The Muscular System Anatomical Chart ($8.95)

(Note: The information above is for purchasing a muscle chart. This is a helpful, but not required, visual aid for this lesson because it allows the students to see names of muscles they are stretching and where they are located on the body. Find out if your school has one available before purchasing it.)
Neck Stretch
Interlock fingers behind your head. Slowly push down on your head, bringing your chin to your neck until you feel a stretch in the back of your neck. Hold for 10 seconds and then repeat.

Side of Neck Stretch 1:
Sit or stand with arms hanging loosely at sides. Tilt head to one side, bringing your ear to your shoulder. Hold for 20 seconds, and then tilt your head to the other side.

Side of Neck Stretch 2:
Sit, stand or lie down with arms at sides. Turn head sideways, first one side then the other. Hold for 20 seconds, each side.

Shoulder Rotation
Lie flat on floor, legs straight. Stretch arms straight out to side. Your shoulders and upper arms will remain flat on the floor throughout this exercise. Bend elbows so that your hands are pointing toward the ceiling. Let your arms slowly roll backwards from the elbow. Stop when you feel a stretch. Hold position for 20 seconds. Slowly raise your arms, still bent at the elbow, to point toward the ceiling again. Then let your arms slowly roll forward, remaining bent at the elbow, to point toward your hips. Stop when you feel a stretch. Hold position for 20 seconds. Repeat 3 times.

Shoulder Stretch
Cross left arm across your body at shoulder level, grasp it with your right arm, holding it in place. Hold stretch for 20 seconds and repeat with opposite arm.
### Wrist Stretch
Place hands together, in praying position. Slowly raise elbows so arms are parallel to floor, keeping hands flat against each other. Hold position for 20 seconds.

### Hand Down Spine
Hold your right elbow with your left hand. Move your right elbow downward as you resist this movement with your left hand. Hold for 20 seconds. Repeat with opposite arm.

### Forward Arm Stretch
Extend both hands straight out in front of you at shoulder level, palms touching. Inhale, slowly pushing your hands outward, keeping your back straight. Hold the stretch for 20 seconds.

### Upward Stretch
Extend both hands straight above your head, palms touching. Inhale, slowly pushing your hands upward, then backward, keeping your back straight. Hold the stretch for 20 seconds.

### Interlocked Hands Stretch
Reach behind your head and down as far as you can with your right hand, grab your left hand if possible, if you can’t reach your opposite hand use a towel. Hold the stretch for 20 seconds; repeat with opposite arm.
The Stretching Workout

Back

Lower Back Stretch
Stand with your feet shoulder width apart. Starting from the top of the spine (between your ears), slowly lean backward until you feel a slight stretch in your back. Lift your eyes up to the ceiling. Inhale. Exhale and lengthen your spine back to neutral. Repeat five times.

Lower Back/Hamstring Stretch
Stand with feet about 3 feet apart. Inhale and lengthen your spine. Exhale and slowly begin to tilt forward, bending at your waist. Continue forward until you feel tightness in your hamstrings. Don't tilt further than 90°. Keeping your spine in the same line, slowly tilt back to neutral. Hold for 20 seconds.

Abdominal Stretch
Lie on your stomach. Slowly straighten your elbows pushing your upper body off the floor until you feel a stretch along your stomach. Hold for 20 seconds.

Side Bend Stretch
Stand with your back straight. Raise your arm and slowly bend your body over to the opposite side until you feel a stretch. Hold for 20 seconds.
Superman Stretch
Lie on your stomach. Place your arms out in front of you. Slowly lift your torso up off of the ground, lifting your arms at the same time. Lift until you feel a stretch in your back. Hold for 10 seconds and then repeat.

Forward Bend Stretch
Sitting on your knees bend forward at your waist, stretching your arms out in front of you. Reach forward sliding your hands on the ground in front of you until you feel a stretch in your back. Hold for 20 seconds.

Downward Dog Stretch
Place your hands and feet on the floor about 4 feet apart. Make sure your heels are on the ground. Raise your hips into the air keeping your palms and feet on the ground. You should feel a stretch through your back and down the back of your legs. Hold for 20 seconds.

Back Stretch
Lie on your back with arms at your sides. Slowly, using your arms to balance you bring your legs up and fold them over your head. Keep your legs straight, so just your toes touch the ground. Hold the stretch for 20 seconds.
**Front Hip Stretch 1**
Place your left foot on an object about knee height. Squeeze your behind together and shift your hips forward slightly until you feel a stretch along the front of your right thigh. Don't lean forward or twist your hips.

**Front Hip Stretch 2**
Step left leg forward into a lunge position. Make sure knee does not pass over toes of the left foot. Keep right foot planted on ground at a 45 degree angle. Shift your hips forward until you feel a stretch along the front of your right thigh. Hold the stretch for 20 seconds.

**Hip Twist Stretch**
Lie on your back on the floor, knees bent and feet flat on the floor. Keep shoulders on floor at all times. Keeping knees bent and together, gently lower legs to one side as far as possible without forcing them. Hold position for 20 seconds. Return legs to upright position. Repeat toward other side. Repeat 3 to 5 times on each side.
Hip Stretch
Lie on your back on floor, knees bent and feet flat on the floor. Keep shoulders on floor throughout exercise. Lower one knee slowly to side, keeping the other leg and your pelvis in place. Hold position for 10 to 30 seconds. Bring knee back up slowly. Repeat with other knee. Repeat 3 to 5 times on each side.

Iliotibial Band Stretch
First, get into pushup position. Next, bring your right knee forward, and place it down in front of you between your hands. Keep your hips level, and your knee in the center of your body. Relax your buttock muscles and lower your body down. Now, relax into the position and feel the stretch in your Iliotibial band. Work at this slowly. After completing one side, reverse and stretch the other leg.

Groin Stretch
Bring the bottoms of both feet together until they touch. For some people, they will feel that they are falling backwards. This is because the back and groin are tight. If this starting position is difficult, sit with your back against a wall or couch. This way you can focus on relaxing your knees down. You may also push gently on your knees with your elbows to help them down.

Side of hip Stretch
Sit on floor with left leg straight out in front. Bend right leg and cross right foot over placing it on the outside of the left knee. Twist your torso to the right by placing your left elbow on the outside of your right knee. Hold 20 seconds and then repeat on other side.
**The Stretching Workout**

**Legs**

**Quadriceps Stretch**
Lie on side on the floor. Your hips should be lined up so that one is directly above the other one. Rest head on pillow or hand. Bend knee that is on top. Reach back and grab heel of that leg. If you can't reach your heel with your hand, loop a belt over your foot and hold belt ends. Gently pull that leg until front of thigh stretches. Hold position for 10 to 30 seconds. Reverse position and repeat. Repeat 3 to 5 times on each side. If the back of your thigh cramps during this exercise, stretch your leg and try again, more slowly.

**Hamstring Stretch**
Lie with the right leg resting on the floor and the left leg flexed up toward the ceiling. Holding your left leg with your hands, slowly straighten your knee until you feel a gentle stretch along your hamstring. Hold for 20 seconds.

**Calf Stretch 1**
Stand with hands against wall, arms outstretched and elbows straight. Keeping your left knee slightly bent, step back 1-2 feet with right leg, keeping your right heel flat on floor. You should feel a stretch in your right calf muscle. Hold stretch for 20 seconds and then repeat with the opposite leg.

**Upper Leg Stretch**
Lie on your back. Keep one leg flat on the ground. Bring your other knee up to your chest. Hold the stretch for 20 seconds and then repeat with the other leg.
The Stretching Workout

**Legs (continued)**

**Seated Hamstring Stretch**
Sit sideways on bench or other hard surface (such as two chairs placed side by side). Keep one leg stretched out on bench, straight, toes pointing up. Keep other leg off of bench, with foot flat on floor. Straighten back. Lean forward from hips until you feel stretching in leg on bench, keeping back and shoulders straight. Hold stretch for 20 seconds. Repeat stretch with other leg.

**Forward Hamstring Stretch**
Standing with feet together bend at waist reaching toward the ground. Bend forward until you feel a stretch in your hamstring muscles. Hold the stretch for 20 seconds.

**Calf Stretch 2**
Standing with your feet shoulder width a part, step your left foot forward about 1 foot. Keeping your left leg straight, bend your right leg and lean forward at the waist, you should feel a stretch through your left calf. Hold for 20 seconds and repeat with the opposite leg.

**Ankle Stretch**
Sit toward the front edge of a chair and lean back. Stretch legs out in front of you. With your heels still on the floor, bend ankles to point feet toward you and then bend ankles to point feet away from you. If you don't feel the stretch, repeat with your feet slightly off the floor. Hold the stretch for 20 seconds. Repeat 3 to 5 times.