



Human Muscle Anatomy and Stretching

This cross-curricular lesson, between Science and Physical Education and Health for Secondary 3-4 and 5 students, describes the basic human muscular system and the associated stretches to each major muscle group.

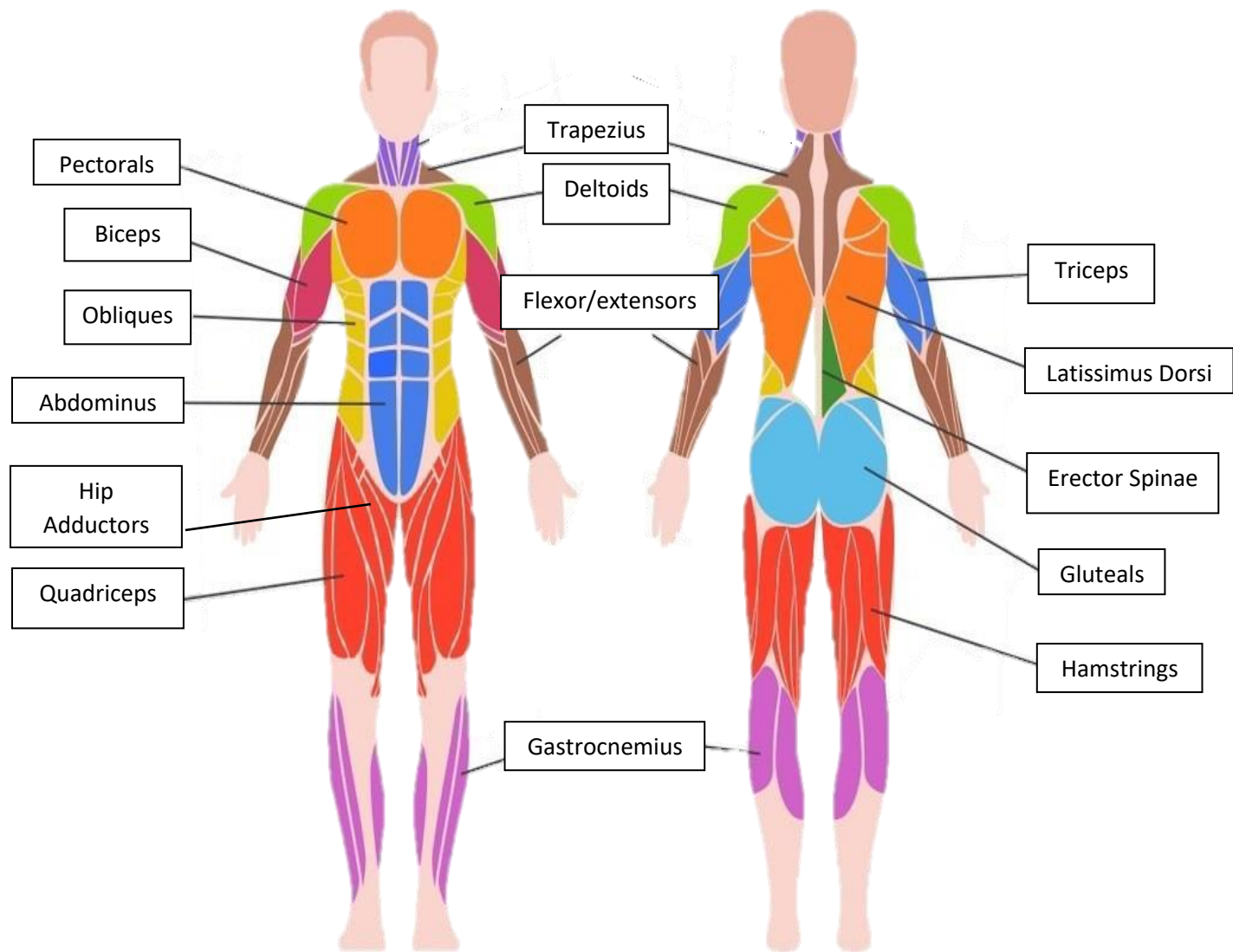
Learning Outcomes:

At the end of this lesson, the students will be able to use the proper scientific terminology to identify each major muscle groups of the human body and to perform their corresponding stretches.

Stretching Protocol:

For the following static stretching exercise routine, please follow the below general recommendations:

- The goal of static stretching is to use slow, sustained muscle lengthening to increase the range of motion (ROM), thus flexibility.
- Flexibility exercises could be performed after moderate or vigorous activities as part of the cool-down segment or as an activity itself. If not performed right after moderate to vigorous activities, you should perform a general warm-up before stretching to increase body temperature and to warm the muscles to be stretched.
- It is important to stretch the muscles slowly to the limit of the movement to a position of mild discomfort, not to the point of pain.
- Keep breathing slowly and rhythmically while holding the stretch.
- Hold your stretch for 15-30 seconds, with 2-4 repetitions of each exercise.
- Flexibility exercise routine should be performed a minimum of 2 to 3 days a week, but preferably daily while respecting the above recommendations.
- Overall, your stretching session should last between 15 to 30 minutes.





Trapezius:



- Bend your head to one shoulder and roll it forward to the other side. Repeat slowly back and forth.
- Do not roll your head backwards.



Deltoids:



- Stand with your feet shoulder-width apart, both arms extended down at your sides.
- Keeping your left elbow straight, raise your left arm directly in front of your chest, then reach it across your body, toward your right shoulder.
- Bend your right elbow and clasp your left arm just below the elbow with your right hand. Use your right hand and gently press your left arm closer to your chest.
- Repeat with the other arm.



Pectorals:



- Stand with your right side, sideways to a wall, about 30-60 cm away from the wall.
- Reach your right arm against the wall, your elbow extended, and place your right palm flat on the wall. Start with your hand positioned so your right arm is parallel to the floor.
- You should feel a stretch through your chest and the front of your shoulder. To deepen the stretch, shift your weight toward the wall, or slowly move your feet closer to the wall.
- You can change the angle of the stretch by positioning your palm higher or lower on the wall.
- Repeat with the other arm.



Biceps:



- Stand tall, feet shoulder-width apart. With your arms extended, clasp your hands directly behind your back, palms touching.
- From this position, rotate your wrists backward, opening your hands so your palms are facing the ground.
- Keeping your elbows straight, raise your arms behind your body until you feel a stretch through your biceps.



Triceps:



- Stand tall with good posture. Reach your left arm up into the air over your head, then bend your elbow, placing your left hand flat on your upper back, as flexibility allows.
- With your right hand, grasp your left arm, just above the elbow, and use your right hand and slightly pull your left elbow toward your head as your left hand reaches farther down your back. You should feel a stretch through your left triceps.
- Repeat with the other arm.



Forearm Flexor/Extensors:



- From a seated or standing position, extend both arms directly in front of your chest.
- Extend your right wrist toward you, so your fingers point upward. With your left hand, slightly pull on your right fingers.
- Repeat with the other arm.



Obliques:



- Stand tall, feet slightly wider than shoulder-width apart.
- Place left hand on your hip and reach the right arm overhead. Bend at hips, with legs straight, stretching as far as you can.
- Repeat on the other side.



Abdominus:



- Lie facedown (prone position) on the floor, with hands on the floor beside shoulders.
- Extend arms to raise your body off the ground until elbows are fully extended, while keeping feet and knees on floor, lifting head towards ceiling.



Latissimus Dorsi:



- Kneel on the floor with hands on the floor in table position.
- Lower both shoulders to the floor, sliding left arm under and across chest. Reach until you feel a stretch.
- Repeat with the other arm.



Erector Spinae:



- Sit on the ground with legs out together straight in front.
- Slowly reach towards your feet with both hands, slightly bent legs if needed, pull on your feet while extending your back.



Gluteals:



- Lie on your back, knees bent, feet flat on the floor. Cross your left ankle over your right knee.
- Lift your right foot from the floor. Reach both arms forward to grasp the back of your right thigh.
- From this position, use your arms to pull your right leg closer to your body to deepen the stretch in your left leg.
- Repeat with the other leg.



Hip Adductors:



- From a tailor-sitting position, with soles of feet together, place elbows on inside of thighs and push downward slowly, keeping back straight.



Hamstrings:



- From a sitting position, with right knee flexed, flex the trunk over left leg keeping the spine extended until you feel tension.
- Try to keep the stretched leg as extended and flat on the ground as possible, with your toes pointing up. Slightly bent the stretched leg if needed.
- Repeat with the other leg.



Quadriceps:



- Stand tall, feet shoulder-width apart, knees slightly bent.
- Raise left foot toward hips and grasp ankle, while shifting your weight to your right leg.
- Pull left leg upward toward gluteal muscle (buttocks). Stand as straight as possible, if needed, use the wall to keep balance.
- Repeat with the other leg.



Gastrocnemius:



- Stand facing a wall, your feet shoulder-width apart. Press your hands into the wall at chest height.
- Lunge right foot backward, planting your foot on the ground.
- Bend your front knee as needed, but keep your back leg straight.
- Lean toward the wall with the feet planted on the ground.
- Repeat with the other leg.