Safe Exercise Practices

Introduction

In this lesson you will examine how to minimize the risk of injury when you are physically active. The focus will be on proper exercise techniques and warm-up and cool-down routines.

Exercise Techniques

When you learn about proper exercise techniques you will focus on proper techniques. Each sport has its own set of do's and don'ts related to technique. You will investigate your specific sport choice in the assignment at the end of this lesson. The following is an example of weightlifting.

The Do's of Weightlifting

- Do keep your back straight when lifting to reduce strain on your back
- Do use proper lifting techniques when moving weights around the room. Keep the weight as close to your body as possible.
- Do lift the weight slowly so that the weight stays under your control. Slow and controlled lifting and lowering will maximize the desired muscular gains. You will be able to minimize the risk of injury if you are under control.
- Do breathe out on the exertion, and breathe in when you return to the start position

The Don'ts of Weightlifting

- Don't breathe in and out fast (hyperventilate) or hold your breath when you lift heavy weights. You may faint, lose control of the weights, and cause serious injury. If you feel pain, don't continue. Try it with less weight or stop the painful exercise for a few days. (Sharp pain is an indicator that something is wrong.
- Don't lift weights if you are light-headed. Stop your workout and start again the next day. You may drop weights and risk injury if you are not feeling well.
- Don't exercise any groups of muscles (ie. back) more than three times a week. Muscles need time to recover to get stronger and/or bigger.
- Don't "cheat" on your technique to lift heavy weights (ex. arching your back to help on a bench press). You risk injury if you do improper technique and you recruit other muscles to assist with the desired motion. This reduced the work of the targeted muscles which makes the exercise inefficient.

Additional Weightlifting Safety Precautions

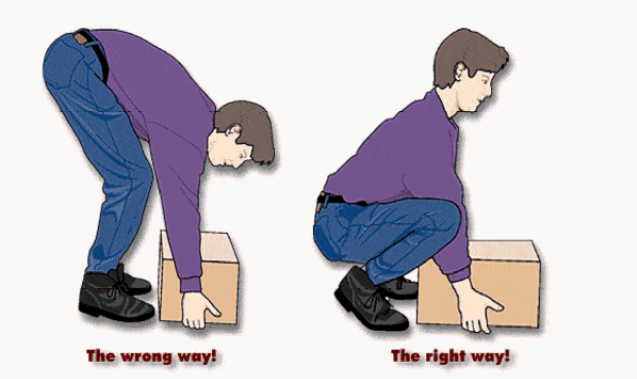
- Do use spotters. A spotter is someone who can help you with the weight in case you cannot complete a lift.
- Do wear shoes with good traction.
- Don't lift more than you know you can lift safely.
- Don't lift barbells without putting safety clips on the bar. Without safety clips, the weight plates can slide off of the bar suddenly unbalancing the weight. The weights may also land on your feet.
- Do make sure the equipment you use is in good condition.
- Do make yourself familiar with your "home" gym's or fitness facility's safety rules and follow them. They were created for a reason.

Proper Lifting Technique

Much of the adult population will experience lower-back injuries over their lifetime. These injuries are often caused by improper lifting techniques and overuse which causes muscle strain or wear and tear on the joints. By using proper lifting techniques along with stretching and strengthening exercises, you can reduce the risk of back injury.

Proper techniques for lifting and carrying objects

Bend your knees and squat down; keep your back arched and your head up while lifting. This position allows more power to come from the larger muscles of the legs and keeps the weight off your back.



Why is it important to lift the right way? Just ask any adult if they have ever had a sore back or know anybody who has. Chances are that you will get a positive response. Lots of adults have sore backs. And having a sore back is serious because it affects almost everything yu do – like walking, sitting, standing, etc.

Lifting and carrying things correctly is one way of keeping your back healthy. When you have to carry or lift something heavy, keep it close to your body. The farther from the body you carry something, the more stress you place on your back. Try not to bend to the side or twist around; that will put even more stress on your back. If you keep on putting unnecessary stress on your back, especially during repetitive, heavy lifts, you can seriously and permanently injure your back.

When lifting, remember to stand straight. Don't stoop or walk bent-over. Carry the load in front of you, as close as possible to your body. If you have to walk long distances with a heavy load, try carrying it on your shoulders. If it is too heavy, don't be afraid to ask for help.

In the following learning activity, you will review some of this by matching the proper exercise technique with the physiological reason for doing it properly.

Assignment: Match Up

Name: _____ Date: _____

Exercise Techniques and Physiological Reasons
Using the list of Exercise Techniques and of Physiological Reasons below, match up the correct technique and correct reason with the physical activity.

Exercise Techniques

A. Bend knees to 90 degrees or more
B. Keep one foot flat on the floor at all times
C. Perform in seated position
D. Keep head forward of body's midline
E. Pull bar to chest

Physiological reasons

A. Prevent strain on cervical spine
B. Prevent wear and tear on joints
C. Reduce low-back strain
D. Prevent strain on knees
E. Prevent strain on neck and upper back

Physical Activity	Exercise Technique	Physiological Reason
Hamstring stretch		
Low-impact "aerobics" class		
Lat. Pull down		
Wall Squat		
Half Neck Circles		

How to Warm-up and Cool-down

Appropriate warm-ups and cool-downs are important parts of any physical activity. The greater the speed of the movements required during the activity, the longer and more specific the warm-up needs to become.

The Warm-up: a pre-exercise warm-up

Why warm up?

- Warms your muscles by increasing the movement of blood through your tissues, making the muscles more supple
- Increases delivery of oxygen and nutrients to your muscles by increasing the blood flow to them
- Prepares your muscles for vigorous movements
- Prepares your heart for an increase in activity
- Prepares you mentally for the upcoming exercise
- Primes your nerve-to-muscle pathways to be ready for exercise

The warm-up is widely viewed as a routine to help prevent injury during exercise. While scientific studies are ongoing to define the best warm-up techniques to gain this injury-prevention advantage, the warm-up in general is firmly established as a key to exercising safely and effectively.

Three Key Elements of a Warm-up

1. General warm-up
2. Activity-specific warm-up
3. Dynamic stretching

All three elements are equally important and any one part should not be neglected or thought of as unnecessary. They work together to bring the body and mind to a physical readiness, ensuring the individual is prepared for the activity to come. This process will help ensure the participant has a minimal risk of injury.

Let's look at each element individually.

1. **General warm-up**

   The aim of the general warm-up is simply to elevate the heart rate and the breathing rate. This will increase the blood flow and help transport oxygen and nutrients o the working muscles. This will also help to increase the muscle temperature, allowing for a more effective stretching session. A god indication is warming up to the point where you feel warmer, the joints and muscles feel looser and you experience a light sweat.

   The general warm-up should consist of light (low intensity) physical activity such as walking or jogging. Both the intensity and duration of the general warm-up (or how hard and how long you warm up), should be governed by the fitness level of the participant. A correct general warm-up for the average person should take about five to ten minutes and results in a light sweat.

Pump your arms or make large but controlled circular movements with your arms to help warm the muscles of your upper body.

2. **Activity-specific warm-up**
   With the first part of the warm-up carried out thoroughly and correctly, it is now safe to move onto the next part of an effective warm-up. In this part, the person is prepared their body for the movements required for their particular activity. In other words the movements should reflect the type of actions that will be required during the specific sport or activity.

   One of the best ways to warm up is to perform the upcoming movements related to the selected sport at a gradually increasing pace. This will allow you to simulate at low intensity the movements you are about to perform at high intensity during your chosen activity. Examples include a few minutes of each catching practice for baseball players, going through the motion of bowling a ball for lawn bowlers, shoulder rolls, side-stepping and slow-paced practice hits for tennis players, or jogging for runners. This warm-up serves as a "rehearsal effect" which include movements that will mimic the sport or activity one is participating in – including moving the lower and upper body in all directions.

3. **Dynamic stretching**
   A warm-up should finish with a series of dynamic stretches. This form of stretching carries with it a higher risk of injury if used incorrectly. The purpose of dynamic stretching is to increase joint mobility and decrease muscle tension rather than increase flexibility and relaxation of the tissue (as static stretching does).

   Dynamic stretching involves slow and controlled movements – where you gradually move a joint through its full range of motion (about five to ten seconds). Dynamic stretching is NOT bouncing! For example, performing arm circles in a slow and controlled manner is a dynamic stretch for the shoulders (involving the chest, back and shoulder muscles) or performing a standing calf-stretch with movement. When doing a standing calf-stretch, stand with the feet wide apart, with one foot in front and one foot back; shift the body weight onto the front foot, press the back heel into the floor; slowly raise up onto the toes of the back foot and then press the back heel to the floor. Repeat.

   The time you commit to your warm-up should be relative to your level of involvement in your particular sport or activity. So, for people just looking to increase their general level of health and fitness, a minimum of five to ten minutes would be enough. However, if you are involved in high-level competitive sport you need to dedicate adequate time and effort to a complete warm up.

The Cool-down

Why cool down?

- Cooling down after exercise means slowing down your level of activity gradually
- A cool-down allows muscles to return to their normal temperature slowly, and reduces the risk of damage due to a sudden drop in temperature
- Cooling down helps your heart rate and breathing return to normal gradually
- Cooling down helps avoid fainting or dizziness, which can result from blood pooling in the large muscles of the legs when vigorous activity is stopped suddenly
- Cooling down helps prepares your muscles for the next exercise session, whether it's the next day or in a few days' time
- Cooling down helps to remove waste products from your muscles, such as lactic acid, which can build up during vigorous activity

You may see conflicting advice as to whether cooling down prevents post-exercise muscle soreness, also known as delayed-Onset muscle soreness (DOMS). However, even if cooling down doesn't prevent DOMS, the other benefits of cooling down mean that you should always make it a part of your exercise session.

For an effective cool-down

- Perform low-intensity exercise for a minimum of five to ten minutes
- Follow this with a stretching routine

Low-Intensity Exercise

Gradually slowing down the pace and exertion of your activity over several minutes can seem a natural progression, as well as fulfilling the need to include a cool-down period at the end of your exercise. An example might be to shoot some baskets after a basketball game.

Another option is to jog or walk briskly for a few minutes after your exercise, making sure that this activity is lower in intensity than the exercise you have just performed. This exercise allows the heart rate to gradually return to normal as well as allow time for the extra blood flow to return from the working muscles.

Stretching Routine

The best and most effective time to include flexibility exercises is after your cool-down, as at this time your muscles are still warm and most likely to respond favourably and there is a low risk of injury. Stretching helps to relax muscles and restore them to their resting length and improves flexibility (the range of movement about your joints).

Static stretching is recommending as part of the cool-down routine. Static stretching (stretching a muscle and holding it in this position without discomfort for 20 to 30 seconds) should be done after the body is warm. There is a limited threat of injury and it is extremely beneficial for overall flexibility. During this part of the cool-down, static stretching should include all the major muscle groups, and this entire period should last for about five to ten minutes.

Static stretching is performed by placing the body into a position whereby the muscle or group of muscles to be stretched in under tension. Both the opposing muscle group (the muscles behind or in front of the stretched muscle), and the muscles to be stretched are relaxed. The slowly and cautiously the body is moved to increase the tension of the muscle, or group of muscles to be stretched. At this point the position is held maintained to allow the muscles and tendons to lengthen. Remember not to bounce when holding the stretch.

As a guide, allow 10 minutes of post-exercise stretching for every one hour of exercise. Make these post-exercise stretches more thorough than your pre-exercise stretches. Ensure that you stretch all the major muscle groups that you have used during your exercise. Stretch each muscle group two or three times for 20 to 30 seconds.

Assignment: Safe Exercise Practices

Name: _____ Date: _____

Using one of the sports or physical activities that you have chosen

1. Name one sport of physical activity that you are you participating in (other than weightlifting)
2. Fill in the chart on the following page by listing at least four of the Do's and four of the Don'ts for your chosen activity. Make sure you have at least one example related to each of these four areas:
    a. Equipment
    b. Skill techniques
    c. Exercise techniques
    d. Safety
3. Indicate why the examples and would be considered Do's and Don'ts. This is similar to the do's and don'ts of weightlifting.

Name: _____ Date: _____

Name of sport or physical activity: _____

Category	Do's	Don'ts	Why it is a Do or a Don't
1. Equipment			
2. Skill Techniques			
3. Exercise Techniques			
4. Safety			

Assignment: Warm-Up and Cool-Down

Name: _____ Date: _____

Design a warm-up that you can do before jogging. The warm-up should consist of the three elements of a good warm-up and last for approximately 10 minutes. Describe each section and include the specific exercises you will be doing.

Repeat this process for the cool-down, which will also last for 10 minutes.

Once your plan is complete, do the warm-up and cool-down routine in association with the activity. Complete the self-reflection section to evaluate your plan and your response to it.

1. Design a warm-up. (3 marks)

2. Design a cool-down. (4 marks)

Self-Reflection

3. How did you feel during and after the warm-up and cool-down?

a. Warm-up (2 marks)

b. Cool-down (2 marks)

4. What part of your warm-up and cool-down routine worked the best, and why? (4 marks)

5. What changes would you make in either the warm-up or the cool-down? (4 marks)