Heart-Rate Monitoring

Why is it important to monitor your heart rate?

- Heart rate provides feedback about how hard you are working so that you can adjust the intensity to get the desired results
- Resting heart rate can be an indicator of health and fitness
- Heart rate tells us if there is anything wrong (ex. when we are sick our hear rate is faster).
- Irregular heart rate (too fast or too slow) may indicate a cardiac problem
- Helps to verify improvement in aerobic fitness
- Lets you exercise safely

How do you check your heart rate?

You can check your heart rate by either:

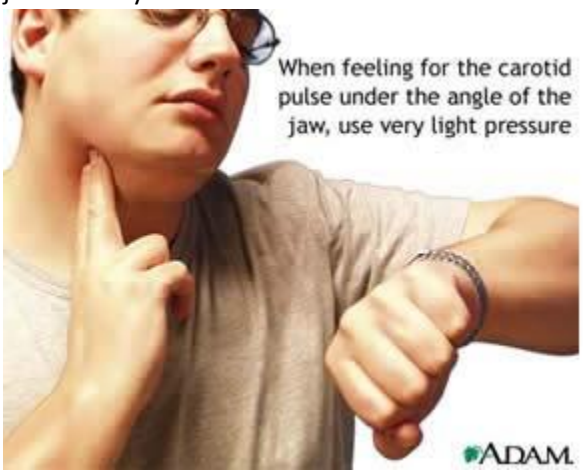
- Carotid pulse (on neck)
- Radial pulse (on wrist)
- Heart-rate monitor

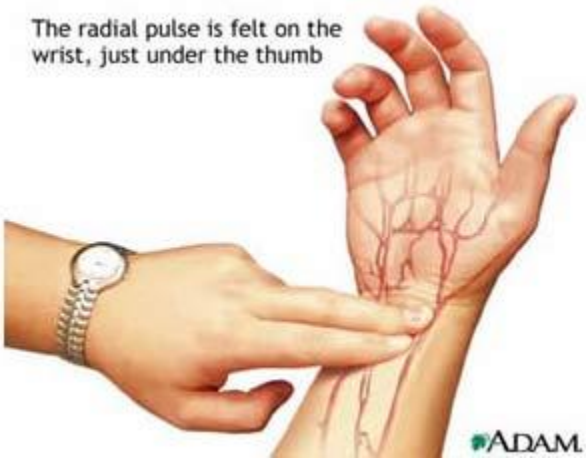
Carotid Pulse (on neck)

Using your index finger and your middle finger find your carotid pulse by gently pushing under the angle of your jaw. When feeling for the carotid pulse under the angle of the jaw, use very light pressure. If you use your right hand count your neck pulse on the right side, and if you use your left hand count your pulse on the left side of the neck.

Radial Pulse (on wrist)

Using your index finger and your middle finger find your radial pulse by gently pushing on your wrist, just under your thumb.





Try taking your pulse using a 15 second count. First, count the heart rate for 15 seconds; then multiply the number you get by 4. This method is considered to be especially god because you can do it quickly and because counting your heart rate for longer periods after exercise is less accurate.

Heart-Rate Monitors

A heart-rate monitor is a simple devise that looks like a wrist watch, or is incorporated into your wrist watch, that can sense your heart rate. A heart-rate monitor will sense any changes in heart rate and update the information approximately every five seconds. This makes the heart-rate monitor invaluable as a training tool as it allows the wearer to continue the pace of their activity while they monitor their heart rate.

To improve your cardiovascular fitness you must engage in aerobic activities or sports that are of sufficient intensity to get your heart rate into your target heart-rate (THR) zone and keep it there.

What are Heart-Rate Zones and How Can You Find Yours?

- Your heart-rate zones are calculated ranges of heart rate that provide benefits specific to that zone.
- Calculating your heart-rate zone requires you to know your maximum heart rate (MHR). The maximum heart rate is the fastest your heart can beat.
- Your target heart rate (THR) zone for aerobic exercise (moderate to vigorous intensity) is generally between 60% and 85% of your maximum heart rate depending on your level of fitness.
- It tells you how hard to work during your exercise session to get the most benefits.

You can calculate your own target heart rate using the following formula:

1. First determine your maximum heart rate:
   208 – (age in years x 0.7) = maximum heart rate (MHR)
2. Then calculate your target heart-rate zone lower limit:
   MHR x 0.7 = Lower Limit
3. Next calculate your target heart-rate zone upper limit:
   MHR x 0.85 = Upper Limit
4. Your target heart rate zone (THR) is therefore:
   Lower limit to Upper limit beats per minute

The following chart will help give you an idea of how you may feel when exercising within each of the different zones.

Heart-Rate Zone	Heart-Rate Range* (Age Based)	Descriptive Exertion	Fitness Benefits
Zone 1 Sedentary Activity	50% - 60% of maximum heart rate (MHR)	• No exertion to extremely light • Very easy to have a conversation	• Health zone: you will see health benefits but few if any fitness benefits
Zone 2 Mild Activity	60% - 70% of MHR	• Moderately light exertion • Breathing becomes somewhat noticeable	• Energy Efficient Zone: exercising within this zone develops basic endurance and aerobic capacity
Zone 3 Moderate Activity	70% - 80% of MHR	• Somewhat hard to strong exertion • Still able to converse	• Aerobic Zone: exercising in this zone will develop your cardiovascular system
Zone 4 Vigorous Activity	80% - 90% of MHR	• Hard to very strong exertion • Heavier breathing is evident	• Anaerobic Zone: training in this zone will develop your lactic acid system
Zone 5 Maximum Activity	90% - 100% of MHR	• Very hard to maximum exertion (extremely strong maximum pain)	• Red Line Zone: training in this zone will only be possible for short periods of time

* The heart-rate range may vary, depending on the source of exercise, age, physical abilities, individual fitness levels, and so on. It is important to note that different aerobic exercises have different maximum heart rates.

Assignment: Calculating and Predicting Heart Rate

Name: _____ Date: _____

For this two-part learning activity, you will first calculate your heart rate in various zones, and then you will make heart-rate predictions.

Part A: Calculate Heart Rate in Various Zones
Using the same formula that you used to find your upper and lower limit heart rates, fill in the following chart to make it personalized for you.

First determine your maximum heart rate.

208 – (age in years x 0.7) = Maximum Heart Rate (MHR)

208 – (_____ x 0.7) = _____

Heart-Rate Zone	Calculating Heart-Rate Range	Heart-Rate Range
Zone 1 Sedentary Activity	_____ x 0.50 = _____ lower limit _____ x 0.60 = _____ upper limit	_____ to _____
Zone 2 Mild Activity	_____ x 0.60 = _____ lower limit _____ x 0.70 = _____ upper limit	_____ to _____
Zone 3 Moderate Activity	_____ x 0.70 = _____ lower limit _____ x 0.80 = _____ upper limit	_____ to _____
Zone 4 Vigorous Activity	_____ x 0.80 = _____ lower limit _____ x 0.90 = _____ upper limit	_____ to _____
Zone 5 Maximum Activity	_____ x 0.90 = _____ lower limit _____ x 1.00 = _____ upper limit	_____ to _____

Part B: Heart-Rate Predictions

To complete this learning activity, you will need the following:

- A learning partner
- A track or a safe road/path where you can sprint 50 metres
- A heart-rate monitor (optional) if you have access to one and have been taught how to use it

In this part of the learning activity, you will predict your heart rate, record your actual heart rate, and identify the target heart-rate zone.

1. Using the information you came up with throughout the lesson, predict your heart rate and actual beats per minute (bpm) for each activity listed in the table below and record it in the **Prediction** column.
2. Do each activity for the time amount given and then record your heart rate in the **Actual** column. You can use either a heart-rate monitor or take your own pulse.
3. Identify the target heart-rate zone that corresponds with your actual result using your information from Part A, and record it in the last column of the table below.

Heart-Rate Predictions			
Activity	Prediction	Actual	Was this a mild, moderate, or vigorous activity for you?
Lie down for two minutes			
Walk at a brisk pace for two minutes			
Jog for four minutes			
Sprint 50 metres			