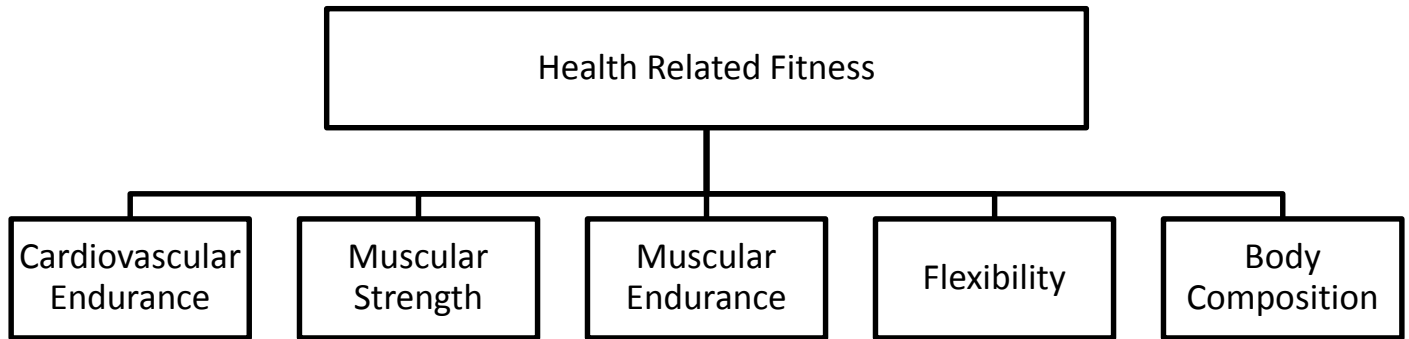

Health Related Fitness & Heart Rate

Health-Related Fitness



The Parts of Physical Fitness

When you see a person who is good at sports do you assume that the person is physically fit? You might be surprised to know that this assumption is not always true. It is true that a person who excels in sports needs a certain degree of physical fitness. However, being good at a specific skill such as running may not be a good indicator of total physical fitness; some sports require only certain parts of physical fitness.

There are 5 parts to Health Related fitness:

Body Composition

The percentage of body weight that is made up of fat when compared to the other body tissues, such as bone and muscle. For example, a person who weighs 100 pounds, 20 pounds of which is fat, is said to have a body fat level of 20 percent. People who are in a healthy range of body fatness are more likely to avoid illness and even have lower death rates than those outside the healthy range. The extreme ranges are most dangerous. Too little or too much body fat can cause health problems.

An unhealthy Body Composition can decrease your physical abilities. Having a higher percentage of body fat can decrease your flexibility and make physical exercise more challenging. Not only does fat increase the weight of an individual, it can actually impede muscle and the body from its full range of motion.

Flexibility

The ability to use your joints fully through a wide range of motion. You are flexible when your muscles are long enough and your joints are free enough to allow adequate movement. People with good flexibility have fewer sore and injured muscles.

Good flexibility can enhance and improve physical abilities. Flexibility combined with power can result in more Speed, and Power. When your muscles are able to work in a wider range of motion it only increases the strength you already have. Muscles that have limited movement are often not useful for most physical activities.

Muscular Endurance and Strength

There are generally **two** types of muscle **fibers** in your body, slow twitch and fast twitch. **Slow** twitch muscle fibers cannot exert as much force as fast twitch, but can **sustain** an effort over a much **greater** period of **time**. **Fast** twitch muscle fibers can exert a great amount of **force** but for a very **limited** amount of **time**. Therefore, slow twitch equals endurance, while fast twitch equals strength

- **Muscular Endurance** – The ability to use your muscles **many times** without tiring. Muscular endurance is very important for people playing sports and who have to sustain an activity for **long periods of time**. Muscular endurance is determined by how well your slow twitch muscle fibers are developed. People with good muscular endurance are likely to have better **posture** and fewer **back** problems.
- **Muscular Strength** - The amount of **force** your muscles can produce. Muscular strength is much different from muscular endurance. Strength is a measure of how much force your muscles can exert, while endurance is the measure of how many times your muscles can repeat a specific exertion of force. Unlike muscular endurance which is controlled by slow twitch fibers, **strength** is determined by **fast** twitch fibers which focus more on **quick bursts** of energy rather than long, drawn out ones. Strength is often measure by how much **weight** you can lift or how much resistance you can overcome. People with good strength can perform daily tasks efficiently – that is, with the least amount of effort.

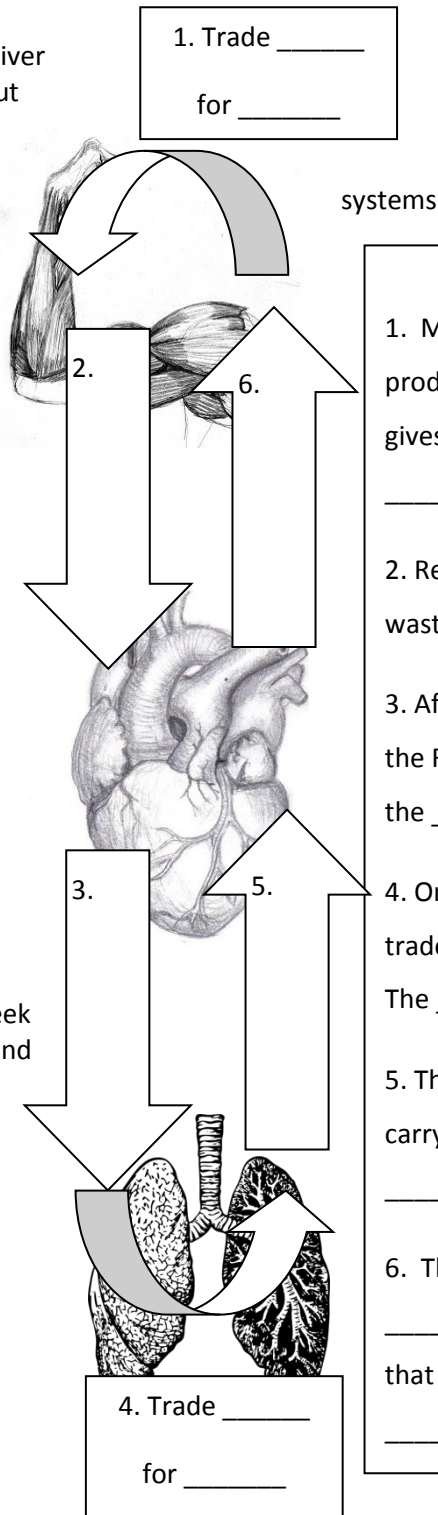
	Muscular Endurance	Muscular Strength
Muscle Fibers	Slow	Fast
Time	Long	Short
Type of exercise	Aerobic	Anaerobic
Type of Motions	Reparative	Sporadic
Example	Running	Push Ups
Example	Swimming	Squats



Cardiovascular Endurance

The ability of the **heart** and **lungs** to deliver **oxygen** to where it is needed throughout **body**. Together the heart and lungs known as the cardiorespiratory system. The ability of these two keep going for **long periods** of time under stress is known as cardiovascular fitness. This determines a person's **aerobic capacity** to sustain activities for prolonged periods of time. Examples of such activities are swimming, long distance running and rowing.

Cardiovascular Endurance is the ability to maintain physical exercise for a long period of time without experiencing **fatigue** (tiredness). Cardiovascular Endurance requires the use of **oxygen** which makes it an aerobic exercise. Since the heart and lungs are not only **essential** to the body during cardiovascular exercise, but **living** in general, it is important to include cardiovascular exercise in your life. Experts recommend an average of **30 minutes** of exercise, **three** days a week to keep your **heart** and **lungs** adapted and healthy.



1. Trade _____
for _____

Science Terms

O₂ = Oxygen

CO₂ = Carbon Dioxide

the
are
to

How does it work?

1. Muscles use _____ to produce _____, which gives off a waste product called _____.
2. Red Blood Cells pick up the _____ waste and begin their journey to the lungs.
3. After being pumped through the heart, the Red Blood Cells carrying the CO₂ go to the _____.
4. Once in the Lungs the Red Blood Cells trade out their CO₂ for _____. The _____ waste is then exhaled.
5. The Red Blood Cells, which are now carrying _____ pass through the _____.
6. The Red Blood Cells finally return to the _____ with fresh _____ that the muscles can use to make more _____.

Heart Rate

Introduction to Heart Rate

Why use Heart Rate to measure exercise:

Heart Rate is the most popular way to measure **physical performance** in cardiovascular endurance exercises. Many elite athletes use heart rate monitors that will constantly record their heart rate and alert them if they are working outside of their **Target Heart Rate Zone**.

Your heart never lies:

Your heart rate at any given time tells you **exactly** how **hard** your **body** is **working**. Regardless of weight, height, strength, speed, or health state your heart rate is always the **fairest** way to **evaluate** your effort and performance.

Vary your training and intensity:

When training for athletics or general health it is important to include **high** intensity workouts as well as **low/moderate** intensity workouts. The best way to **judge** your **intensity** is by measuring your heart rate. Setting a specific **heart rate zone** before a workout can assure you that you are working at the necessary intensity.

For Example:

- a **low** Intensity heart rate zone may be from **110-140** bpm going on a fast paced hike or **light jog**
- a **high** Intensity heart rate zone may be from **150-180** bpm **running the mile** in P.E. class

Find your resting Heart Rate

- 60 second count: _____ 6 second count: _____ x 10 = _____

Find your Target Heart Rate Zone

- The **Karvonen** Formula is a mathematical formula that helps you determine your target heart rate zone.
- Staying within this **range** will help you work most **effectively** during your **cardiovascular** workouts.

Age = _____ Resting Heart Rate (RHR) = _____

$$206.9 - [0.67 \times (\text{age})] = \text{_____} = \text{_____} \text{ (Max HR)}$$

$$\text{_____} \text{ (Max HR)} - (\text{_____} \text{ Resting HR}) = \text{_____} \text{ (HR Reserve)}$$

$$\text{_____} \text{ (HRR)} \times 0.65 \text{ (65\%)} = \text{_____} \text{ (LOW end of HR zone)}$$

$$\text{_____} \text{ (HRR)} \times 0.85 \text{ (85\%)} = \text{_____} \text{ (HIGH end of HR zone)}$$

$$\text{_____} \text{ (LOW)} + \text{_____} \text{ (RHR)} = \text{_____} \text{ low end of } \textbf{TARGET} \text{ heart rate zone}$$

$$\text{_____} \text{ (HIGH)} + \text{_____} \text{ (RHR)} = \text{_____} \text{ high end of } \textbf{TARGET} \text{ heart rate zone}$$

My TARGET HEART RATE ZONE is _____ (bpm) to _____ (bpm)

