Cardiorespiratory Endurance Fitness

Objectives:

1. Students should understand the principle of **cardiorespiratory endurance fitness** (CR) and the components of CR fitness (a) aerobic exercises (b) training heart rate (c) FITT: Frequency, Intensity, Time, Type (d) overloading (e) muscle pump (f) reduced health risks (g) pulse count.
2. Participate in a 1.5 mile run test

Whether using aliases such as cardiovascular fitness, cardiopulmonary efficiency, or **cardiorespiratory endurance** it all refers to the basic working efficiency of the heart, lungs and vascular system---your pump and your pipes. Regular and vigorous exercise is the key for improving cardiorespiratory endurance. Activities that work for improving the cardiorespiratory system use the large skeletal muscles of the legs, known as the **muscle pump**, are continuous, rhythmic, and are sustained for longer periods of time.

The muscle pump forces higher volumes of blood into the heart chambers by contracting the large muscles in the legs and squeezing a greater volume of blood into the heart chambers increasing cardiac output, **overloading,** which eventually decreases the amount of work for the heart at rest by pumping more blood volume with less beats per minute. Simply put cardiorespiratory fitness is pumping more blood volume with less effort made by the heart and larger quantities of air fill the lungs more efficiently.

Aerobic exercises increase the fitness levels of cardiorespiratory endurance. Aerobic exercises are rhythmic, continuous, and are sustained for longer periods of time, 15-30 minutes, i.e. jogging, swimming, bicycling, rowing, skating, cross-country skiing, swimming, walking. Your total fitness program should be focused upon aerobic conditioning with these safety considerations in mind: **FITT**

- **Frequency:** how often? Three to five days a week is best to maintain fitness and improve upon cardiorespiratory fitness. Exercising less than three times a week will not maintain an adequate level of fitness.
- **Intensity:** how fast? Research shows that individuals should exercise at a level corresponding to 70- 90% of their maximum heart rate which is 220 beats per minute. This equates to 150-180 beats per minute for a 15-17 year old. This is an individuals **training heart rate, THR,** and should be monitored through out the workout; once at the beginning, again in the middle, and again at the end of the workout. Take your **pulse count** at the carotid artery (neck) or the radial artery (wrist) using your forefinger and middle finger. Do not use your thumb. The thumb has a pulse and can be misleading. Do not exceed your THR as this could risk injury or worse. Count your pulse for 6 seconds and multiply by 10. Make the adjustments accordingly; go faster if necessary or slow down if you are going too fast, but stay within the recommended THR standard.
- **Time:** how long? An individual should strive to reach 30 minutes of continuous aerobic exercise. However, an individual should begin at 15 minutes and work towards the 30 minutes gradually. Less than 15 minutes of exercise time is not considered aerobic.

- **Type:** What kind of exercises? Aerobic. Running, jogging, bicycling, swimming. Your total fitness program should be centered on aerobic exercises; rhythmic, continuous exercises that require oxygen.

If you follow these guidelines they will virtually guarantee you an improved cardiorespiratory system. In addition, programs of regular aerobic exercise have been found to severely limit the onset of many risk factors for coronary heart disease. Blood pressure, high cholesterol, obesity, and sedentary living will all be reduced, while your tolerance of a stressful lifestyle should be enhanced.