

CARDIORESPIRATORY ENDURANCE AND THE FITT PRINCIPLE



The five components of fitness are important for physical health. Each component is necessary to live a healthy and productive life. Understanding fitness levels in each component and how to improve or maintain them through the use of the **FITT Principle** will enhance overall health, performance and appearance.

Cardiorespiratory endurance is the ability of the heart, lungs, blood and blood vessels to supply enough oxygen and necessary fuel to the muscles during long periods of physical activity.

The **FITT Principle** is made up of four variables that can be adjusted to help reach fitness goals. The variables are: **frequency** (sessions per week), **intensity** (training load expressed as resistance, speed, or heart rate), **time** (minutes or repetitions) and **type** (activity). Adjusting **frequency, intensity, time and type (FITT Principle)** provides a reason for the body to make positive changes in health, performance and appearance.

Physical performance will be enhanced by cardiorespiratory endurance training using the **FITT Principle**. The heart becomes stronger and is able to pump more blood with each beat, which means the heart can beat at a slower rate and circulate the same amount of blood. This increased efficiency enables a person to work, exercise or play more often, more vigorously and for longer periods of time without becoming tired.

To improve cardiorespiratory endurance, the best results are attained by using the **FITT Principle**. Research indicates that the greatest improvements occur when the **frequency** of the workouts is 5-7 sessions per week. The body requires periods of rest to rebuild muscle tissue and cells. The **intensity** is between 65% and 85% of the maximum heart rate or an intensity level of 4 (RPE), the **time** spent working out is at least 60+ minutes and the **type** is any continuous activity that increases the heart rate to the appropriate intensity.

Components of Fitness	(Sessions per Week)	(% of MHR or RPE)	(Minutes)	(Activity Type)
Cardiorespiratory Endurance	5-7	65%-85% or 4	60+	Various: Running, Swimming, Biking

Tip: When figuring level of intensity:

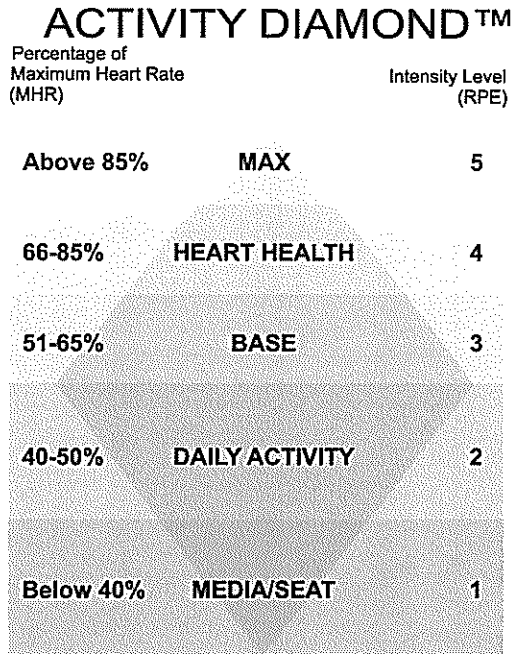
Defining intensity requires measuring the maximum heart rate and figuring the correct percentages. This can be accomplished by several means. The use of heart rate monitors provides an accurate heart rate and automatically calculates the percentages. Without heart rate monitors students would use the following math equation to find individual maximum heart rates and the correct percentages: 220 minus his/her age, times 65% and then 85%. Another method to determine intensity level is to use the intensity level (RPE) found on the Five for Life Activity Diamond on the next page.



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FIVE FOR LIFE ACTIVITY DIAMOND



MAX

Intensity Level-5: Very, very difficult; no-talk zone; I can only keep up this pace for a short period



HEART HEALTH

Intensity Level-4: Moderately hard; I can still talk, but really don't want to; sweating



BASE

Intensity Level-3: Moderate; I am slightly uncomfortable; sweating a little and talking requires some effort



DAILY ACTIVITY

Intensity Level-2: Easy; I am comfortable and could maintain this pace all day long; you can talk with almost no effort



MEDIA/SEAT

Intensity Level-1: Very easy; I am sitting; I can talk with no effort

When used consistently with the FITT Principle, cardiorespiratory endurance leads to a complete picture of health, performance and appearance.



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Key vocabulary words that will be introduced during this unit are:

- **Cardiorespiratory Endurance** – is the ability of the heart, lungs, blood and blood vessels to supply enough oxygen and necessary fuel to the muscles during long periods of physical activity
- **FITT Principle** – A formula in which each letter represents a variable for determining the correct amount of physical activity F=frequency, I=intensity, T=time, T=type
- **Frequency** – How often an activity is performed each week
 - Cardiorespiratory Endurance – 5-7 sessions per week
- **Intensity** – How hard an activity is performed each session
 - Cardiorespiratory Endurance – between 65% and 85% of the maximum heart rate or an intensity level (RPE) of 4
- **Maximum Heart Rate (MHR)** – Highest number of times the heart can beat in one minute
- **Time** – How long an activity is performed each session
 - Cardiorespiratory Endurance – time spent working out is at least 60+ minutes per day
- **Type** – Which activities are chosen
 - Cardiorespiratory Endurance – activity that increases the heart rate to the appropriate intensity