

## Circuit Training Study Guide

### Components of Fitness:

Body Composition: the proportions of fat, bones, muscle, and fluid that make up the body.

Cardiovascular Fitness: the ability of your heart, lungs and blood vessels to function efficiently when you exercise your body.

Flexibility: the ability to move your muscles and joints through a full range of motion.

Muscular Endurance: the ability to contract the muscles many times without tiring or hold one contraction for a long time.

Strength: the amount of force your muscles can produce.

### Body Composition

- No matter what your body is like, exercise can help you control your body fatness and help you develop lean muscle tissue.
- Fat children and teenagers are more likely to become a fat adult..
- Serious health problems are related to being overfat and obese: heart disease, arteriosclerosis, diabetes, back and joint pain.
- A **calorie** is a unit of energy supplied by food. A calorie is the fuel your body burns.
- There are 3500 calories in a pound of fat.
- The best method of losing fat is to **combine exercise with a decrease in the calories** you eat (eat less calories and burn more calories). A realistic weight loss goal is 1 to 2 pounds per week.
- Healthy body fat percentage for girls is 20 – 25% and for boys 15 – 20%.
- Diets can be dangerous and should be avoided unless you are under the care of a doctor.
- Dieting for years tends to slow down our metabolism and make us fatter.
- **BMI means body mass index**. It is a measurement of body fat based on your height and weight.
- **Osteoporosis** is a disease of the bones caused by a lack of calcium in the diet. This disease occurs more often in women than men.

### Cardiovascular Endurance

- **The heart is a muscle**. Like any other muscle in your body, the heart gets stronger through the right kind of exercise, such as walking, jogging, swimming, cycling and hiking.
- Normal resting heart rate is between 70 and 80 beats per minute.
- Fit people have lower resting heart rates (40 to 50 bpm) because the heart pumps more blood per beat.
- An **artery** carry blood away from the heart to the rest of the body. **Veins** carry blood back to the heart and then to the lungs.
- Your **pulse** is the movement of blood in your arteries caused by your heart beating.
- **Arteriosclerosis** is the build up of plaque deposits inside the artery which may partially close the artery or reduce the flow of blood.
- Cardiac risk factors which you **cannot change**: age, gender, race and family history.
- Cardiac risk factors which you **can control**: smoking, stress, high blood pressure, high blood cholesterol, lack of exercise and excessive weight (obesity).
- Sports which require good cardiovascular fitness: basketball, soccer, cycling and swimming.

### Muscular Endurance

- Muscular endurance is important in all sports and in all you do everyday.
- The key to muscular endurance is to perform an exercise many times with light weights (light weights / high repetitions).
- Sports which require good muscular endurance: hiking, car racing, water polo, rowing, marathon running and triathlon competitions

## Strength

- If muscles are used, they become strong. Muscles can be kept strong by regular exercise.
- **To gain strength you must overload** a muscle (heavy weights / low repetitions).
- You should overload a muscle gradually (slowly).
- You must exercise the specific muscles you want to get stronger: arm curls for upper arms, sit-ups for abdominals, bench press for chest, etc.
- A strength workout should be 3 sets of 5 to 8 repetitions every other day. You should not lift heavy weight everyday. This is harmful to the muscle.
- Sports which require good muscular strength: football, wrestling and men's gymnastics.

## Flexibility

- There are two kinds of flexibility: static and dynamic.
- **Static flexibility** is the ability to move joints and muscles slowly and hold for 15 to 30 seconds.
- You always use static flexibility when you are warming up.
- **Dynamic flexibility** is the ability to move joints and muscles rapidly without injury (bouncing, twisting and turning) .
- You use dynamic flexibility while participating in a game or sport and should never be used for warming up.
- **Flexibility is specific to the joint** being stretched.
- Short people are not more flexible than tall people.
- Children and females do tend to be more flexible than older people and males.
- Inactive people are less flexible than active people.
- Sports which require great flexibility are: diving, gymnastics and martial arts.

## How do we become physically fit?

- Exercise everyday (run your machine, so it will not get rusty!))
- Eat healthy foods (proper fuel so your machine will run at peak efficiency)
- Get proper rest (so your machine will not break down)
- Reduce the stress in your life (evaluate your machine's performance)

## THE BASIC PRINCIPLES OF EXERCISE

- A. The principle of overload: states that in order to improve fitness you need to do more physical activity than you do normally. An increased demand on your body (overload) forces it to adapt, causing your fitness level to improve.
- B. The principle of progression: states that the amount and intensity of physical activity needs to be increased gradually. Increase your activity slightly when your workout becomes too easy.
- C. The principle of specificity: states that specific types of exercise improve specific parts of fitness or muscles. For example: stretching exercises improve flexibility and resistance exercises improve strength.

## THE FITT FORMULA

You know that you must do more physical activity than normal to build fitness. But how much physical activity do you need? You can use the **FITT formula** to apply the basic principles of exercise. Each letter in the word FITT represents one of four important factors that are important in determining how much physical activity is enough.

- **Frequency**: refers to how often you do the physical activity. For physical activity to be beneficial, you must do it several days a week (3 to 4 days).
  - **Intensity**: refers to how hard you perform physical activity. Intensity is determined differently depending on the types of activity you do and the fitness you want to build. Too little or too easy exercise will not improve your fitness and may even decrease it. While exercising too much or too hard can be harmful causing soreness and injury
  - **Time**: refers to how long you do physical activity. The length of time you should do physical activity depends on the type of activity you are doing and the part of fitness you want to develop. For example, to build flexibility you perform exercises for 15 to 30 seconds for each muscle group, while to build cardiovascular fitness you need to be active continuously for 30 to 60 minutes.
- Type**: refers to the kind (type) of activity you do to build a specific part of fitness or to gain a specific benefit. For example: running to build cardiovascular fitness.