

EXERCISE AND FITNESS



UNIT 3

The WEIGHT Control Formula

- If you take in **LESS** calories that you burn, you will **LOSE** weight.
- If you take in **MORE** calories that you burn, you will **GAIN** weight.

Recommended Daily Calorie Intake for Teens

- *Females:*

1,500-2,500 Quality Calories per day

*Athletic and Active people need about 3,000 Quality Calories



- *Males:*

2,500-3,500 Quality Calories per day

*Athletic and Active people need about 4,000 Quality Calories



Quality vs. Empty Cals:

- **Quality Calorie:**

- Calories that are high in nutrients and low in fat and chemical additives



- **Empty Calorie:**

- Calories that are very low in nutrients and high in fats and chemical additives



Exercise and Fitness Info..

- One pound of Fat is equal to **3,500** calories
- 1 pound of muscle = 600 calories
- **BMR – Basal Metabolic Rate**
 - The rate at which you use energy when completely at rest



The 5 Basic Components of Fitness

1. Body Composition
2. Flexibility
3. Muscular Strength
4. Muscular Endurance
5. Cardiorespiratory Endurance

Body Composition

- **Body Composition** is the amount of body fat compared to lean tissue, such as muscle and bone.

Skin Fold Calipers

- Low cost
- Not very effective unless tester is very experienced
- Costs may vary from .50 to \$2



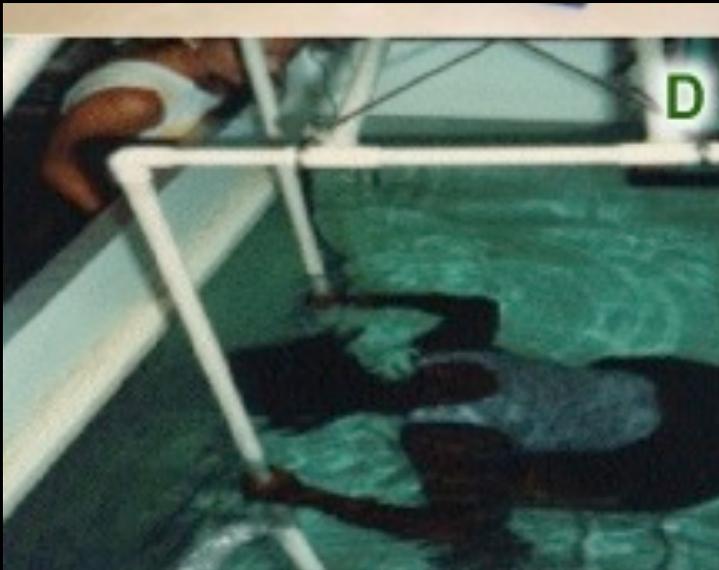
Fat Analyzer

- **Medium Cost (\$100)**
- **Do not make models for young ages**
- **Good Effectiveness rate**



Underwater Body Weight

- High costs
- Not very accessible
- Very high reliability



“BMI” Body Mass Index

- The recommended weight – for – height standard
- Height/Weight/Body Fat
- Calculation:

Body Weight

1.) Weight in Pounds X 703

Body Height

2.) Height in Inches x Height in Inches
Divide answer 1 into answer 2 = BMI

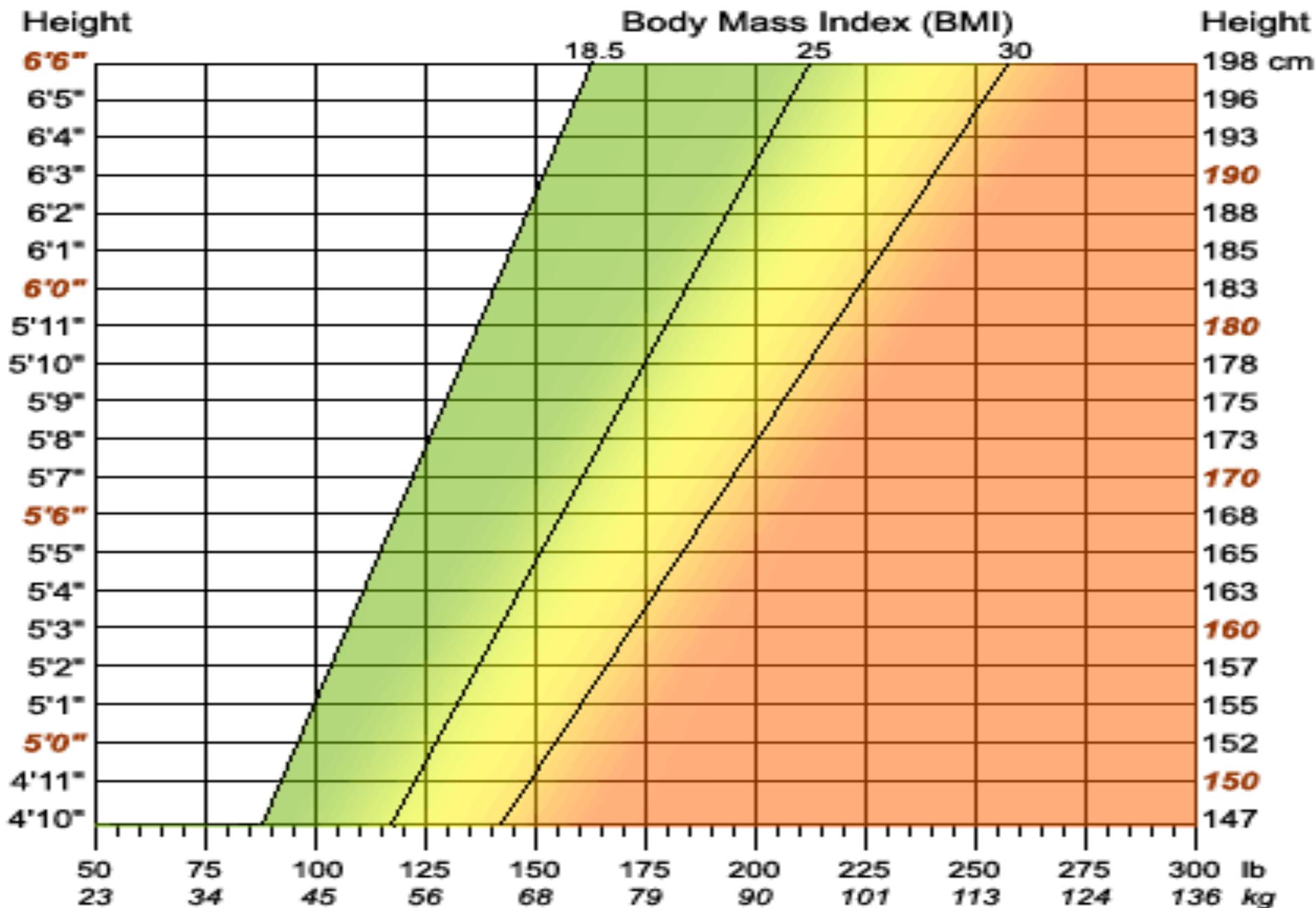
(EXAMPLE)

5ft 5inches person who weighs 300 lbs

$$\frac{300}{65 \times 65} \times 703 = 50 \text{ BMI}$$



Are you at a healthy weight?

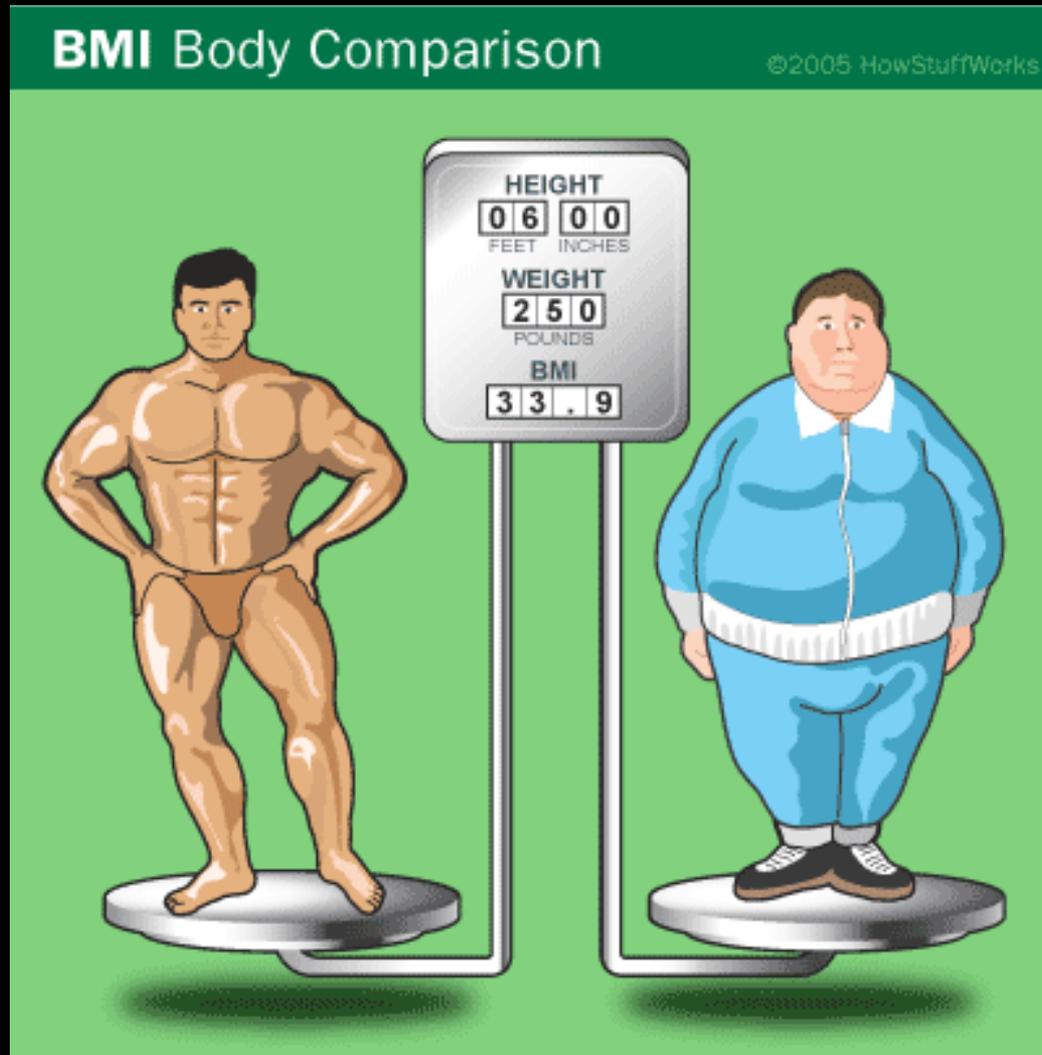


“BMI” Body Mass Index

- BMI Evaluations:
 - 18-20 = Athletic
 - 21-25 = Average
 - 26-30 = Overweight
 - 31- = Obese



Overweight vs. Overfat



**Who is
in better
Physical
Condition?**

**Muscle
Weighs
More
Than
Fat**

General Guidelines for Body Weight and Body Fat Composition Percentages:

Height	Females	Height	Males
4' 09"	90-110	5' 01"	115-135
4' 10"	95-115	5' 02"	120-140
4' 11"	100-120	5' 03"	125-145
5' 00"	105-125	5' 04"	130-150
5' 01"	110-130	5' 05"	135-155
5' 02"	115-135	5' 06"	140-160
5' 03"	120-140	5' 07"	145-165
5' 04"	125-145	5' 08"	150-170
5' 05"	130-150	5' 09"	155-175
5' 06"	135-155	5' 10"	160-180
5' 07"	140-160	5' 11"	165-185
5' 08"	145-165	6' 00"	170-190
5' 09"	150-170	6' 01"	175-195
5' 10"	155-175	6' 02"	180-200
5' 11"	160-180	6' 03"	185-205
6' 00"	165-185	6' 04"	190-210

Body Fat Description	Females	Males
Malnourished	Under 10%	Under 5%
Essential Body Fat	10-15%	5-10%
Athletic	15-20%	10-15%
Fit – Lean	20-25%	15-20%
Healthy	25-30%	20-25%
Overfat	30-35%	25-30%
Obese	Over 35%	Over 30%

Sources: US National Center for Health Statistics
 American Dietetic Association
 Metropolitan Life Insurance

Flexibility

- **Flexibility:** The ability to move a body part through a full range of motion
- **Example:** Touch toes / Splits



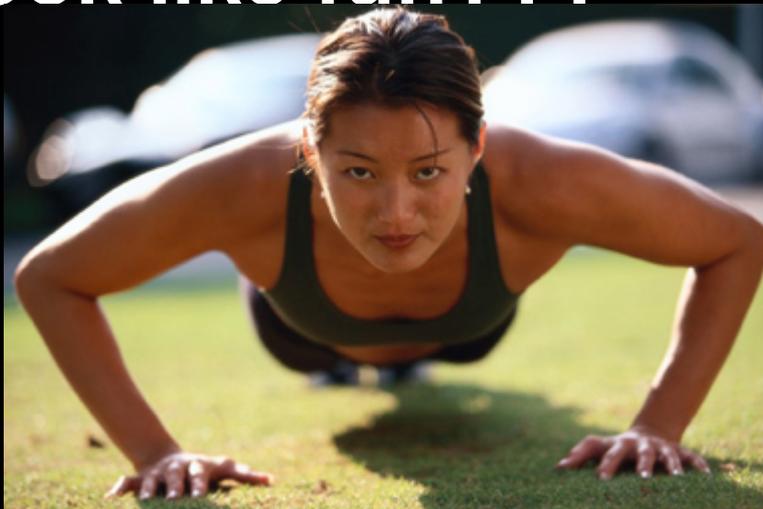
Muscular Strength

- **Muscular Strength:** The ability to exert force against resistance
- **Example:** Arm Wrestling



Muscular Endurance

- **Muscular Endurance:** The ability of the muscles to keep working over a period of time without getting fatigued
- **Example:** Wall Sit
- **Look like fun???**



Cardiorespiratory Endurance

- **Cardiorespiratory Endurance: The ability of the heart to send fuel and oxygen to body tissues during long periods of exercise**
 - As the heart muscle becomes stronger, more blood is pumped with each beat
 - The lungs become more efficient at delivering oxygen to the blood and removing carbon dioxide.
- **Examples: Marathon / Triathlon**



Types of Exercise

- **AEROBIC**

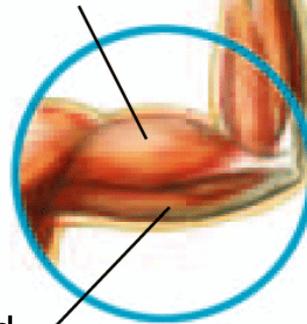
- Oxygen is continuously taken for at least 20 minutes
- Examples: jogging, swimming, dancing, cycling

- **ANAEROBIC**

- Intense physical activity that lasts from a few seconds to a few minutes, during which muscles use up more oxygen than the blood can supply
- Examples: 100 meter dash, shot & disc throw, some gymnastics

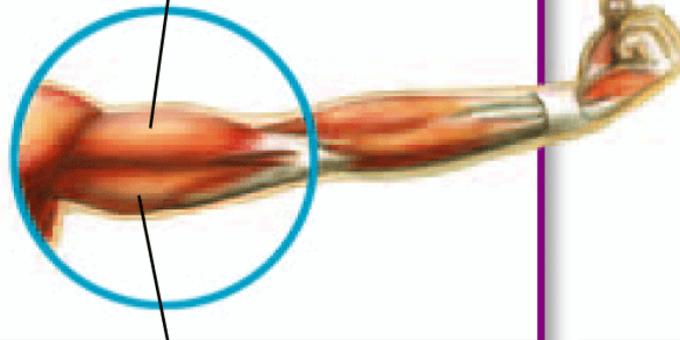
Muscle Pairs

Biceps contracted



ed

Biceps relaxed



Types of Resistance Training

- **Isometric**

- Muscle tension to increase strength with little or no movement
- Example: pushing palms together



Types of Resistance Training

- **Isotonic**

- increases strength with repeated movement
- **Example: Push-ups , Pull-ups, Weight lifting**
 - **Through repetition of Isotonic exercises, you can develop muscular strength & endurance**



Types of Resistance Training

- **Isokinetic**

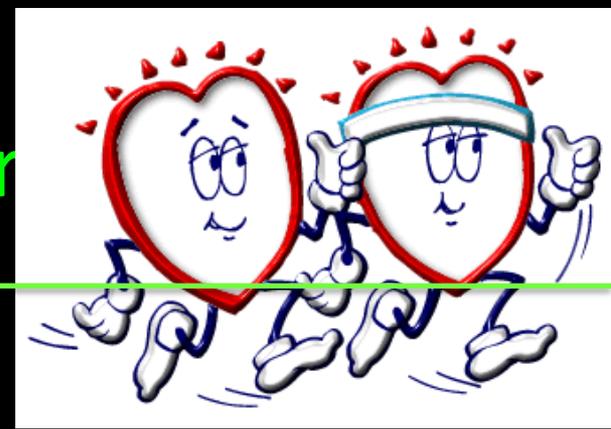
- Muscles contract at a constant rate. Resistance through an entire range of motion.
- Example: pushing or pulling on a hydraulic lever
- **Best overall type of training**
(Full range of motion!!!)



Basic Components of an Exercise Session

- **Warm – Up**
 - Prepare muscles for work about to come
- **Workout (think “FITT”)**
 - **Frequency**
 - How often you workout
 - **Intensity**
 - How hard you workout
 - **Time / Duration**
 - Time spent during exercise session
 - **Type**
 - Choice a type of exercise that best fits with your goals
 - Try different types of exercise (cross-training)
- **Cool – Down**
 - Do this to return you heart rate back to normal

Basics of Exercise Program



- **Warm Up**
 - 5-10 minutes
 - Stretch
 - Gradually increase activity
- **Workout**
 - **Overload**-Weight Training
 - **Progression**-Weights or Cardio
 - **Specificity**-Sport Specific
 - **Aerobic**-Vigorous Activity
 - **Anaerobic**-Intense Bursts of Activity
- **Cool Down**
 - 5-10 minutes
 - Stretch
 - Gradually decrease activity



The **FITT** Formula and Muscular Strengthening

- ▶ **Frequency** 3 days a week (nonconsecutive days)
- ▶ **Intensity** Do as many pull-ups as possible without resting.
- ▶ **Time** Include pull-ups as part of a 15-minute strengthening session.
- ▶ **Type** Isotonic exercise that strengthens the biceps.

Benefits of Exercise

- Improves circulation and cardiovascular fitness
- Improves flexibility, strength, and endurance
- Improves Brain Function
- Reduces Stress Levels
- Reduces body fat %
- Improves self-image and self-esteem
- Improves immune system and resistance to infection and disease



Strategies for Weight/Fat Loss

- Eat Nutritiously
- Exercise for 20-30 minutes 3-5 times per week
- Avoid the “Couch Potato”
- Avoid Fast Food
- Avoid High Fat Foods
- Choose Nutritious Snacks
- Limit Sugar Intake
- Drink Water or 100% Fruit Juice

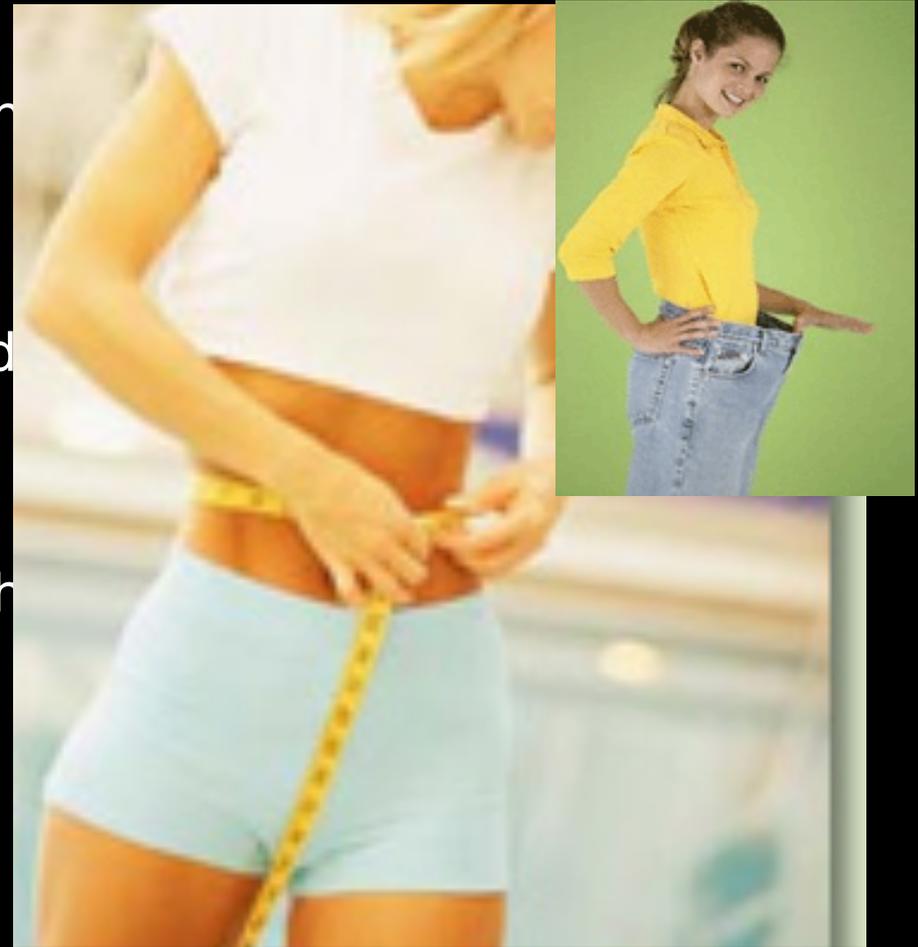


Strategies for Weight/Muscle Gain

- Increase calorie intake with protein, and complex carbohydrates
- Eat nutritious snacks
- Eat more frequently
 - (4-5 meals per day)
- Weight Lift and choose exercises that will build muscle

Weight Management Tips

- Patience and Perseverance
- Avoid the roller coaster; going “on and off”
- Set realistic goals
- Steer clear of gimmick diets
- Learn how to include favorite foods
- Never get “too hungry”
- Don’t over emphasize thinness
- Choose exercises and activities that you want to do



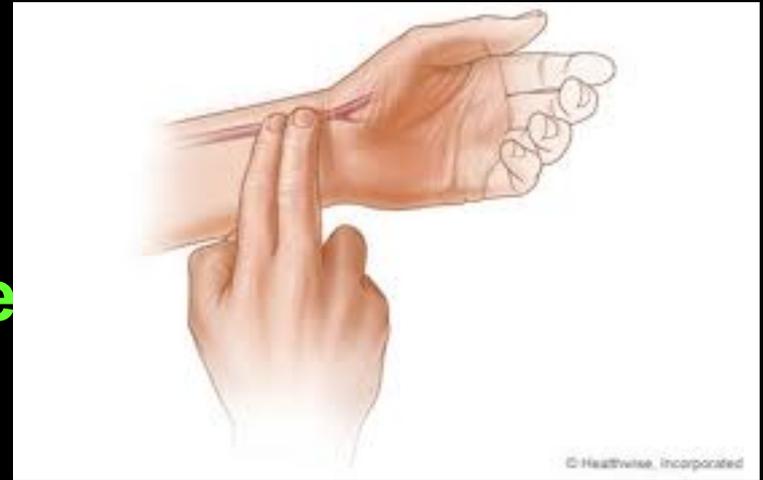
Heart Rates



- **What is RHR?**
 - **Resting Heart Rate**
- **What should an average person's be at?**
 - **72 – 84**
- **What is your RHR? _____**
 - **Take pulse for 10 seconds and multiply by 6**

Heart Rates Cont..

- What does this tell you about your fitness level?
 - **50 or under = top athlete**
 - **51 – 71 = good athlete**
 - **72 – 84 = average**
 - **85 or above = needs to start working out**



Heart Rates Cont..



- **MHR – Max Heart Rate**
 - Formula
 - **220 – your age**
- **THR – Target Heart Rate**
 - Formula
 - **220 – your age X .7 and X .85**

Target Heart Rate Example

- **15 year old**
 - **$220 - 15 = 205$**
 - **$205 \times .7 = 144$**
 - **$205 \times .85 = 174$**
- **144 – 174 is the THR**

A Physical Activity Pyramid



A Weekly Exercise Plan

Sunday

- Rake leaves for 40 minutes
- Play basketball with neighbors

Monday

- Alternate 90 seconds of jogging and 2 minutes walking for a total of 20 minutes

Tuesday

- Walk to school
- Gym class
- Walk home

Wednesday

- Alternate 90 seconds of jogging and 2 minutes walking for a total of 20 minutes

Thursday

- Bike to school
- Gym class
- Bike home

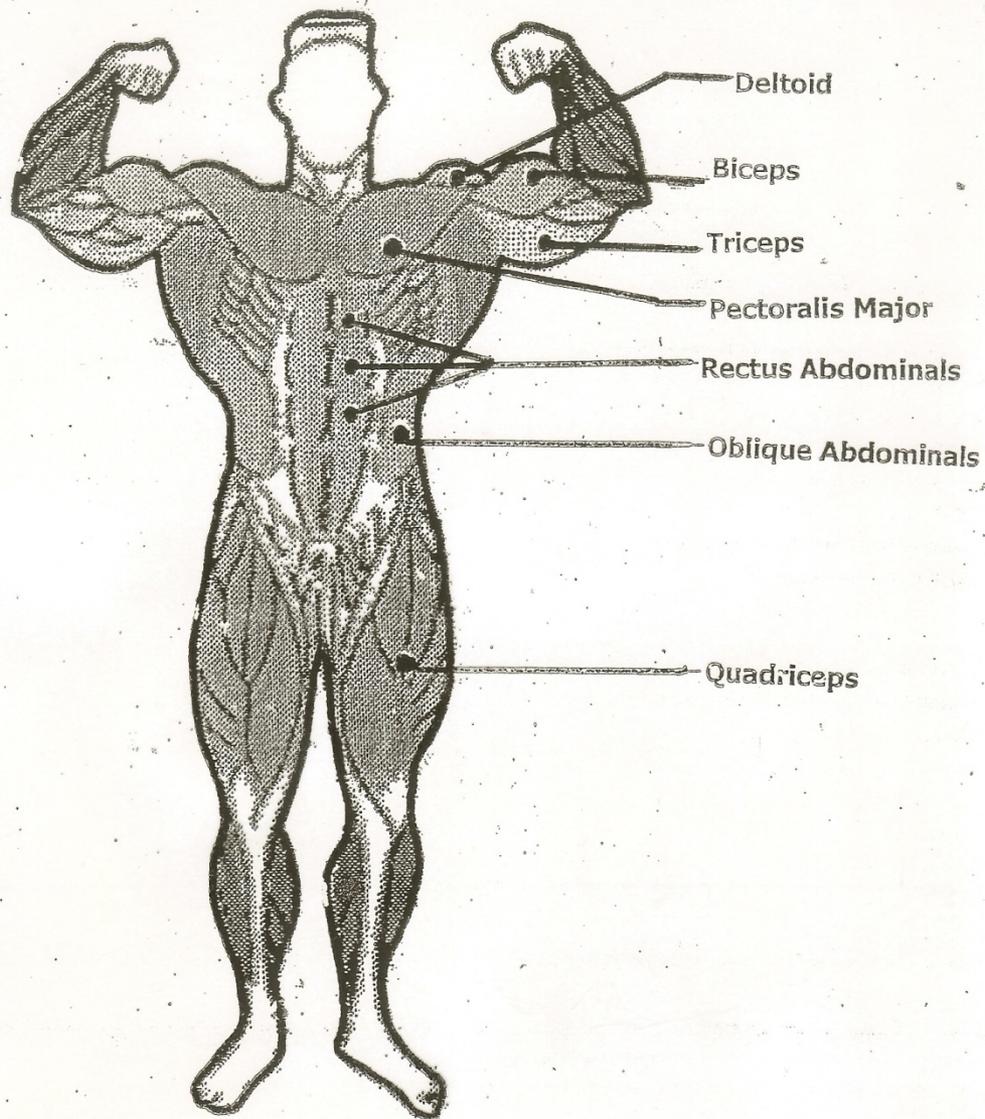
Friday

- Walk to school
- 30-minute swim after school
- Walk home

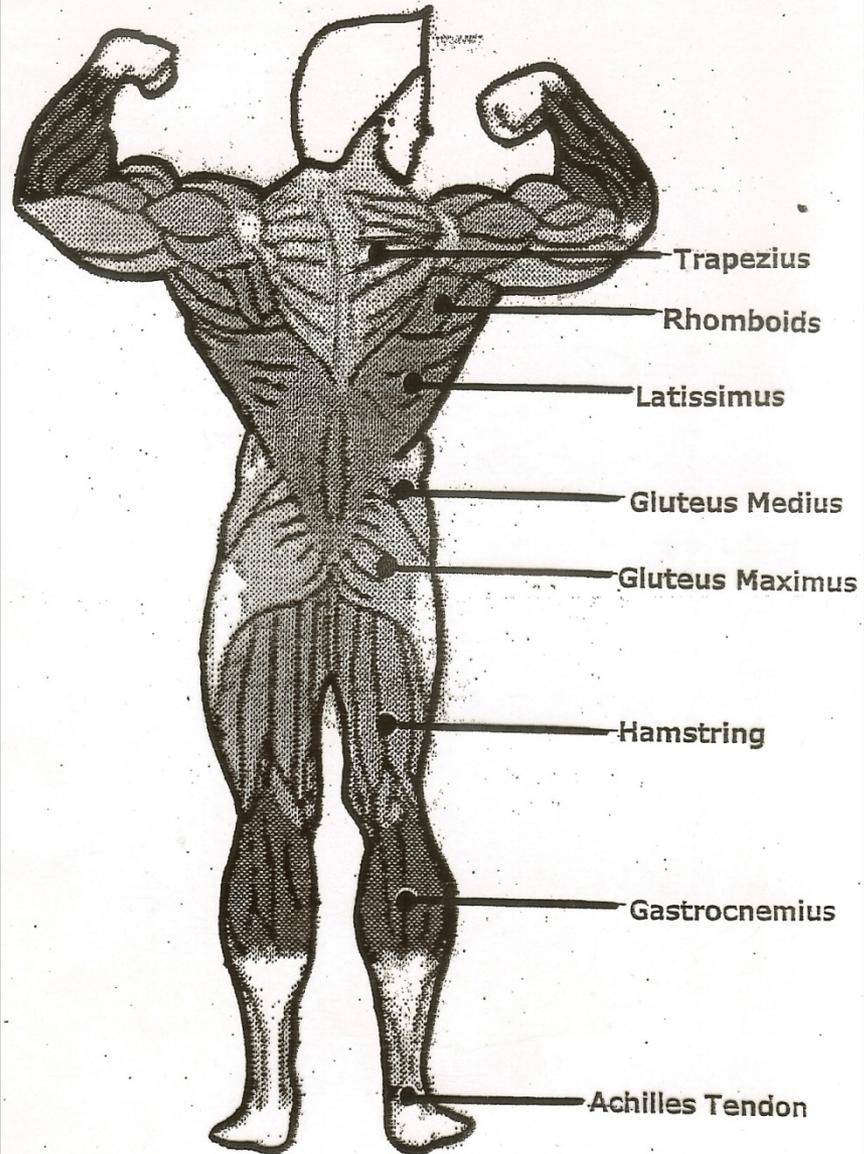
Saturday

- Alternate 90 seconds of jogging and 2 minutes walking for a total of 20 minutes

Front View



Back view



Steroids



Anabolic Steroids

- Anabolic steroids are artificial forms of the hormone **testosterone**
 - Testosterone is involved in muscle development



Problems with Steroids

- **Males**
 - Start to grow female breast tissue
 - Shrinking of testicles
 - Infertility
- **Females**
 - Reduction in breast size
 - Enlargement of clitoris
 - Deepening of voice
 - Growth of facial hair



Problems with Steroids Cont...

- **Problems for Both Men and Women:**
 - Overall stunting of growth (height)
 - Rapid accelerated muscle growth (too much for ligaments and tendons to adjust so there is a HUGE increase for injuries)
 - Acne
 - Depression & Mood Swings (sometime severe-“roid rage”)
 - Psychologically addictive (fears that if they return to a smaller size then their workout intensity will be less)
 - Hair loss
 - Infections from needles
 - Cardiovascular Disease (heart problems & high blood pressure)
 - Increased risk of cancers (liver & kidney)

