

FITNESS FOR LIFE

QUIZ # 1

EXERCISE BASICS

Healthy People 2020: One health goal is to improve the physical activity level of teens. The report indicates that with each passing year, teens become less active. 9th graders are the most active and 12th graders are the least active.

PHYSICAL FITNESS

- The ability of the body systems to work together efficiently to enhance health and improve performance.

BENEFITS OF PHYSICAL ACTIVITY

- Healthy heart, arteries & lungs
- Healthy bones with high density
- Strong muscles
- Mental functioning--higher test scores

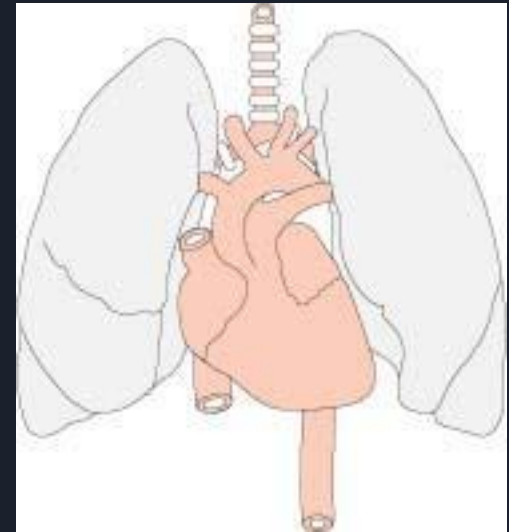
5 FITNESS COMPONENTS

- Cardiovascular Fitness
- Muscular Strength
- Muscular Endurance
- Flexibility
- Body Composition

CARDIOVASCULAR FITNESS

CARDIO = heart

VASCULAR = vessels



Ability of the heart, lungs, and blood vessels to work together efficiently when a person exercises.

CARDIOVASCULAR FITNESS

- CV Fitness is considered the most important fitness component.
- A high level of fitness means that you have a healthy cardiovascular system.
- **Cardiovascular disease is the leading cause of death in the United States.**

TARGET HEART RATE FORMULAS

Maximum Heart Rate Formula (MHR)

$$\text{MHR} = 208 - (\text{AGE} \times .7)$$

Threshold (BPM low end) = MHR x (.65)

65% of MHR

Target Ceiling (BPM high end) = MHR x (.90)

90% of MHR

MAX HEART RATE & TARGET ZONE

- Beats per Minute for a 15 year old
 - Max Heart Rate (MHR) = 197.5 BPM
 - Target Threshold (MHR x .65) = 128 BPM
 - Target Ceiling (MHR x .9) = 177 BPM

MUSCULAR STRENGTH

- The amount of force a muscle can produce with a single maximal effort.
 - Usually assessed using low reps and high weight
 - Measured during muscular contraction



MUSCULAR STRENGTH PRINCIPLES

- OVERLOAD
- PROGRESSION
- SPECIFICITY

OVERLOAD

- In order to improve fitness you must do more physical activity than normal.
- A major component of all conditioning programs.
- Achieved by increasing:
 - Intensity of the workout (low, moderate, vigorous)
 - Duration of the exercise
- 60% 1 Rep Max (1RM)

PROGRESSION

- Rule that states that the amount and intensity of physical activity needs to be increased gradually.
- Increase the following:
 - repetitions
 - sets
 - resistance

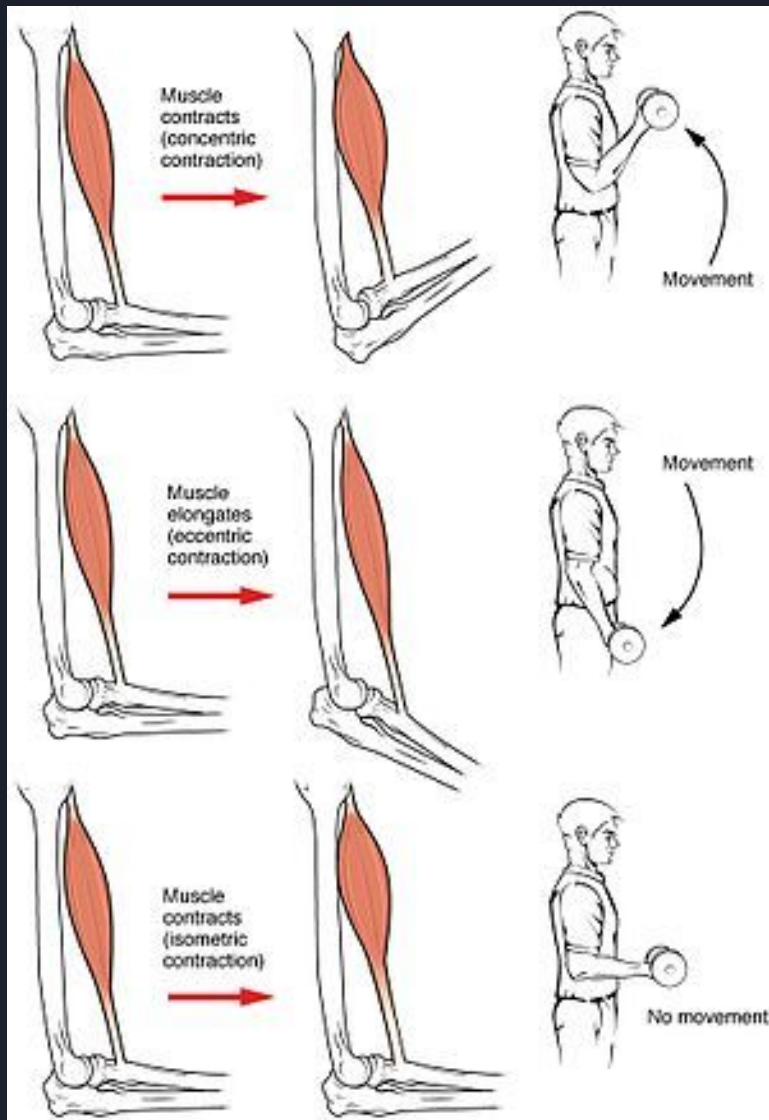
SPECIFICITY

- Rule that states that specific types of exercise improve specific parts of fitness or specific muscles.
- Different kinds & amounts of activity produce very specific and different benefits.

MUSCULAR ENDURANCE

- The ability of a muscle or group of muscles to sustain repeated contractions against a resistance for an extended period of time.
- Measurements include:
 - FITNESSGRAM curl ups & push ups assessments

MUSCLE CONTRACTIONS

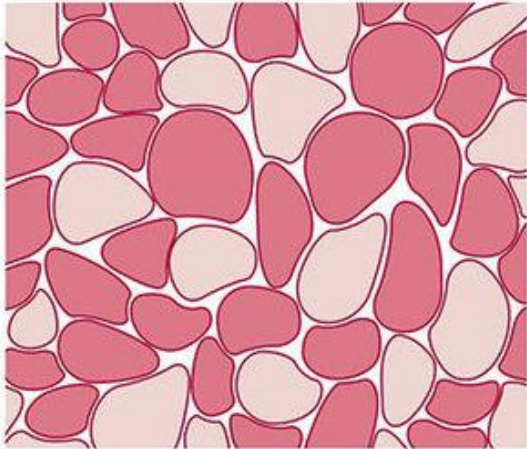


- Concentric
 - muscle shortens
- Eccentric
 - muscle lengthens
- Isometric
 - muscle has no movement

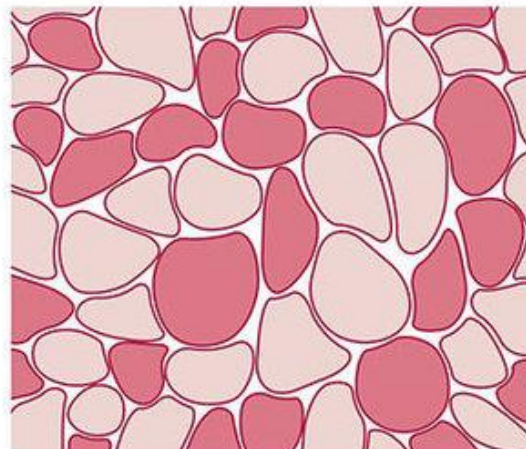
MUSCLE FIBERS

- Slow-twitch: Contract at a slow rate and are usually red in color.
- Fast-twitch: Contract quickly and are white in color.
- Intermediate: Have characteristics of both slow and fast-twitch fibers.

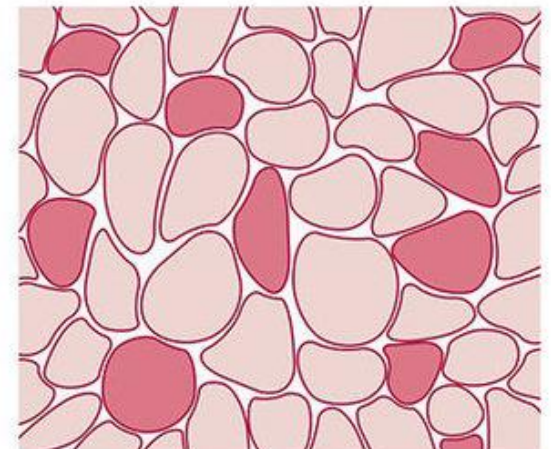
MUSCLE FIBERS



slow twitch



intermediate



fast twitch

FLEXIBILITY

- The elasticity or compliance of muscles when stretching.
- **The ability to move joints through a full range of motion.**
- Examples: shoulder stretch, sit & reach, trunk lift

BODY COMPOSITION

- All of the tissues that make up a person's body such as bone, muscle, and fat.
- Body fat measurement tells you the percentage of your body weight that is fat.

TANITA
BODY COMPOSITION
ANALYZER

BODY TYPE	STANDARD
GENDER	MALE
AGE	18
HEIGHT	5ft 10.0in
WEIGHT	197.8 lbs.
BMI	28.4
FAT%	19.5%
BMR	9296 kJ 2222 kcal
IMPEDANCE	401Ω
FAT MASS	38.6 lbs.
FFM	159.2 lbs.
TBW	116.6 lbs.

BIOELECTRICAL IMPEDANCE ANALYZER (BIA)

One of the most reliable methods of screening body fat.



PREVENTING ILLNESS

- Treatment vs. Prevention
 - Early treatment focused on illness
 - Current practices focus on prevention
 - *1 million dollars to treat a heart patient or \$10,000 to pay for gym memberships and personal training?*

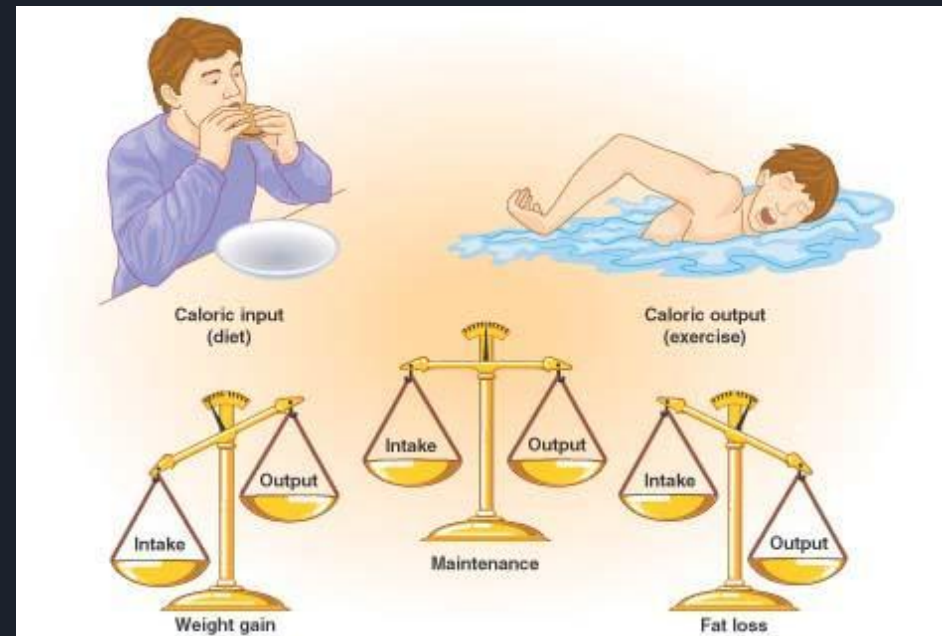
METABOLISM

- The amount of energy used to sustain life
 - Measured in calories
- Factors of Influence
 - Heredity: weight & height
 - Age
 - Fat Free Mass (FFM)
 - Muscles, bones, tissues, and organs

DIET & CALORIES

Diet affects body fatness in the following ways:

- You eat a certain number of calories each day (diet).
- You use a certain number of calories each day (physical activity).
- *If you eat more calories than you use, your level of body fat will increase.*



DIET & CALORIES

How many extra calories are in 1 pound of fat?

3500 calories

BODY FAT CHART

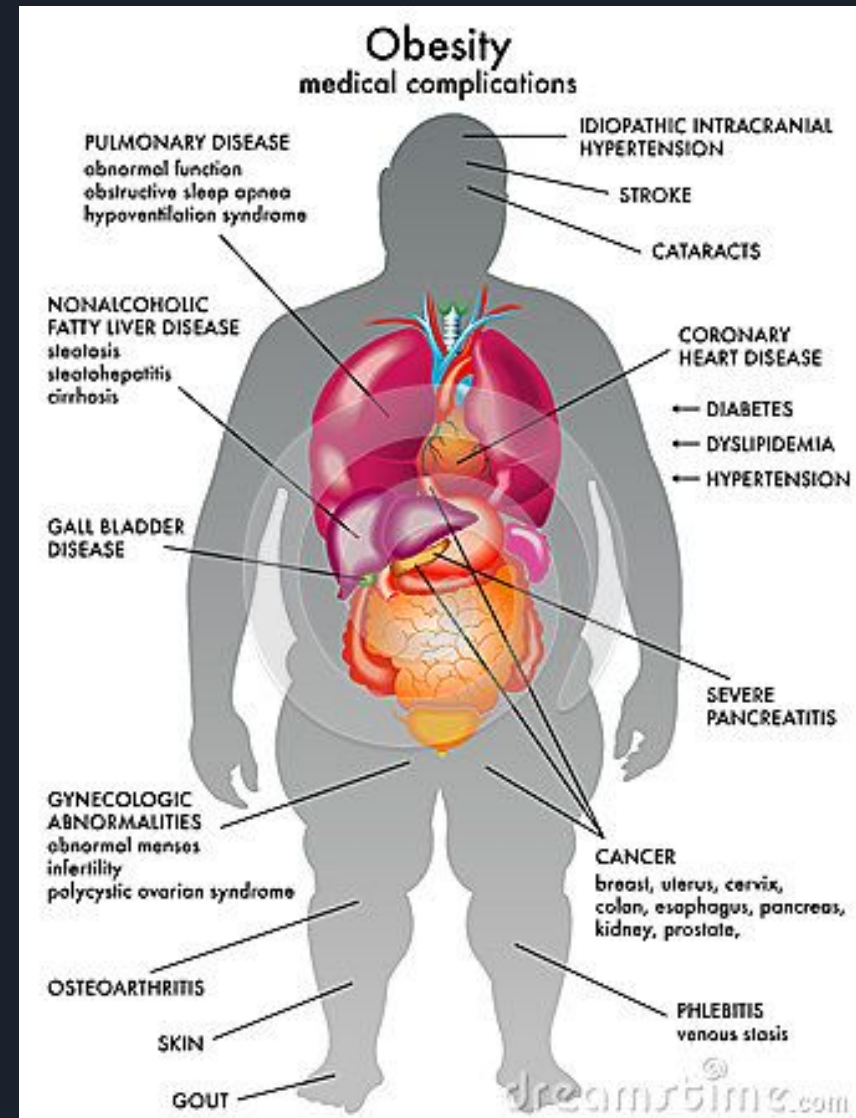
Table 13.1

Rating Chart: Body Fatness

FATNESS RATING	% FAT	
	Males	Females
Too little fat	<6	<12
High performance	6-9.9	12-14.9
Healthy	10-19.9	15-24.9
Marginal	20-24.9	25-29.9
Too much fat	25+	30+

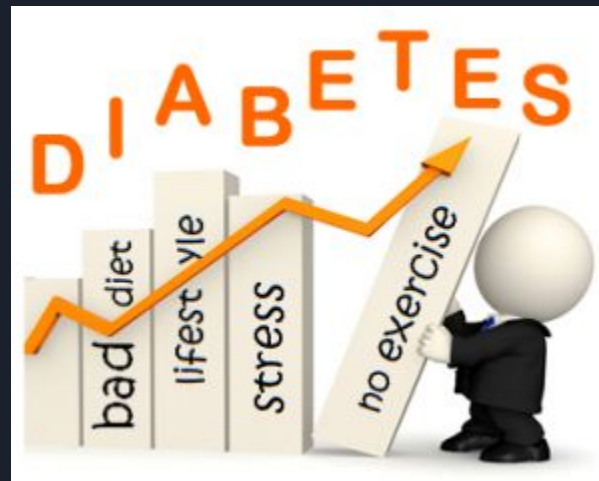
OBESITY

- Having a high percentage of body fat
 - Females above 30%
 - Males above 25%



DIABETES

A disease in which the body's ability to produce or respond to the hormone insulin is impaired, resulting in abnormal metabolism of carbohydrates and elevated levels of glucose in the blood and urine.



DIABETES

Types of diabetes

- Type I--having too little insulin to help control blood sugar
- Type II--not being able to use insulin to control blood sugar
 - used to be called adult onset diabetes but is **now common in youth**

DIABETES FACTS

- 30.3 million Americans diagnosed (2015)
- 84.1 million Americans age 18 and older had prediabetes (2015)
- 1.5 million Americans diagnosed yearly
- \$245 billion total cost of treatment (2012)

HYPERTENSION

- Referred to as high blood pressure.
- A major risk factor for CV disease.
- Often called the "silent killer" because it damages many organs without ever causing pain.
- The longer the condition exists, the greater the damage and the increased risk of cardiovascular disease.

STRESS

The body's response to a demand

- Distress
 - Negative or unpleasant stress
- Eustress
 - Normal levels of stress that are good for the experiencer
- Exercising regularly can help deal effectively with stress

WELLNESS

A state of being that enables a person to reach his or her highest potential

- Includes several components:
 - social wellness: being involved
 - physical wellness: being physically fit
 - intellectual wellness: being well informed
 - emotional wellness: being happy
 - spiritual wellness: being fulfilled