Test 1

- Approaches to Prevention
  - Population – aka public health or community based approach
    - Bike trails
    - Inexpensive and non-invasive
  - Personal – aka clinical or one-on-one approach
    - High risk
    - Expensive, invasive, inconvenient
  - Combination – tends to work best
- Levels of Prevention
  - 1°: Intervene before physical education. Ex: shots. Prevention of disease by altering susceptibility or reducing exposure for susceptible individuals
  - 2°: Screening, looking for disease, has the risk factors. Detection and treatment
  - 3°: Rehabilitation, after-the-fact
- Physical Activity – bodily movement produced by the contraction of skeletal muscle that substantially increases energy expenditure (above basal level)
- Leisure Activity – physical activity that a person or group chooses to do during discretionary time
- Household Activity
- Occupational Activity
- Transportation Activity – usually across a reasonable distance
- Lifestyle Activity = Leisure time + Household + Transportation
- ADLs = Activities for Daily Living
- Exercise/Exercise Testing – leisure time physical activity conducted with the intention of developing physical fitness
- Physical Fitness – a set of attributes or characteristics that people have or achieve that relates to the ability to perform physical activity

Physiological	Health-Related	Skill-Related
Metabolic	Cardiovascular fitness	Agility
Morphological	Body composition	Coordination
Bone integrity	Muscular strength	Balance
	Muscular endurance	Power
	Flexibility	Reaction time
		Speed

- Health-Related Physical Fitness – ability to perform ADLs with vigor and demonstration of traits and capacities that are associated with low risk of premature development of the hypokinetic diseases
- Cardiovascular Fitness (aerobic power) – ability of the circulatory and respiratory systems to supply oxygen during sustained PA. Measured in METs
- Cardiovascular Endurance – the ability to perform large muscle, dynamic, moderate to high intensity exercise for prolonged periods.

- Body Composition – the relative amounts of muscle, fat, bone, and other vital parts of the body
- Muscular Fitness – a term developed by and used by ACSM that comprises both muscle strength and muscle endurance
- Muscle Strength – the ability of the muscle to exert force.
    - Static (isometric) strength – dynamometer
    - Dynamic (isotonic) strength – 1 RM
    - Isokinetic – all joint angles with constant speed/accommodating resistance
    - Isotonic – concentric
    - Eccentric – lengthening
- Muscle Endurance – muscles ability to continue to perform without fatigue. The ability of a muscle group to execute repeated contractions over a period of time sufficient to cause muscular fatigue, or to maintain a specific percentage of the maximum voluntary contraction for a prolonged period of time.
- Joint Flexibility – range of motion available at a joint
    - The ability to move a joint through its full range of motion
- Physiological Physical Fitness – non-performance component of physical fitness that relates to biological systems that are influenced by one's level of habitual physical activity
    - Ex: Blood Pressure, Blood Lipids
- Metabolic Fitness – the state of metabolic systems and variables predictive of the risk for Diabetes and CV disease which can be favorably altered by increased physical activity or regular endurance exercise without the requirement of a training-related increase in VO2 max
- Morphologic Fitness – a non-performance component of fitness related to body composition factors such as body circumference, body fat, and regional body fat distribution
- Bone Integrity – a non-performance component of fitness related to bone mineral density
- Physiological Fitness Examples
    - Blood pressure, glucose tolerance, insulin sensitivity, blood lipids, stress tolerance
- Skill/Motor-Related Physical Fitness – those components of physical fitness that have a relationship with enhanced performance in sports and motor skills
- Balance
    - Static – ability to maintain total body equilibrium while standing in one spot
    - Dynamic – ability to maintain equilibrium while moving from one point to another
- Physical activity – something you do
- Physical fitness – something you acquire
- METs = metabolic equivalent
    - Used to describe exercise intensity
    - 1 MET = resting energy expenditure per minute
    - x MET = x times resting energy cost
    - 1 MET = 3.5 ml/kg/min
- Moderate-Intensity PA
    - 40-59% HRR or VO2R]

- 64-76% HR max] Relative
- 5-6 out of a 10 RPE scale]

- 3-5.9/6 METs (for ≤ 10 MET capacity)] Absolute
- The effort of a healthy individual might expend while walking briskly, mowing, dancing, cycling, swimming

- Hard (Vigorous)-Intensity PA
  - 60-84% HRR or VO2R]
  - 77-93% HR max] Relative
  - 7-8 out of a 10 RPE scale]

  - 6+ METs (for ≤ 10 MET capacity)] Absolute
  - May be intense enough to represent a substantial challenge to an individual and results in a significant increase in heart and breathing rate

- Light-Intensity PA
  - <40% HRR or VO2R]
  - <63% HR max] Relative
  - <5 out of 10 RPE]

  - <3 METs (for ≤ 10 MET capacity)] Absolute
  - Walking slowly at home, store, or office
  - Sitting using a computer at a desk
- London Bus Study
  - Origins of the relationship of physical activity and health
  - The conductors had less coronary heart disease than the drivers and the disease seemed to be appearing in them at a later age
  - The physical effort in the conductor's work may be a protective factor
- Harvard Alumni Studies
  - Physical activity as an index of heart attack risk in college alumni
  - How many stairs climbed, city blocks walked, hours of sports participation?
  - Total activity converted to kcal/week
  - Blocks and sports and stairs divided into <2000 kcal and 2000+ kcal
  - Relative risk (RR) of 1.64 – 1.0 is no difference so 64% increase risk in MI/death from <2000 to 2000+ kcal. Below 1.0 is reduced risk so 0.75 is a 25% reduction in risk

Students	Alumni	PA Habits
5+	<5	less active
<5	5+	more active (low risk)