PET3932- test 2

Chapter 1

- "Measures of health-related physical fitness and CRF are closely allied with disease prevention and health promotion and can be modified through regular participation in physical activity and structured exercise programs." (p.60)
  - **CRF (Cardio Respiratory Fitness):** the ability to consume oxygen
    - The best ways to influence CRF is by improving muscle strength, muscle endurance, and muscle flexibility.
  - BP (Blood Pressure) is associated with lipid levels, which can be effected by FBG (Fasting Blood Glucose) and K (Caloric Expenditure).
- CHD (Coronary Heart Disease) can be treated with:
  - Exercise/Physical Activity
  - Pharmacological
  - Surgery
- Types of programs (that promote health & enhance CRF)
  - **Primary prevention**: maintain physical activity BEFORE risk factors
  - **Secondary prevention**: risk factors/disease are PRESENT → try to prevent from getting worse
  - **"Tertiary" prevention (rehabilitation)**: already HAD the risk factors/disease → try to prevent it from happening again (can use secondary prevention techniques as well).
- Approaches to prevention
  - **Population approach**: also referred to as public health or community-based approach.
    - Tends to be expensive & non-invasive
    - Ought to be inexpensive
  - **Personal approach:** also referred to as clinical (high risk) or one-on-one approach.
    - Tends to be expensive, invasive, and inconvenient
  - **Combination approach**: tends to work best; most common.
- Amount of exercise that people should do per week
  - **Moderate intensity exercise** (3-6 METS)
    - Minimal: 150 minutes/week
    - Optimal: 300 minutes/week
  - **Vigorous intensity exercise** (>6 METS)
    - Minimal: 75 minutes/week
    - Optimal: 150 minutes/week
- Example of moderate intensity exercise
  - Walking 3 MPH (a 20 minute mile) is approximately 3 METs of work
- Important definitions (p.2)
  - **Physical activity**: any bodily movement produced by the contraction of skeletal muscles that result in a *substantial* increase in caloric requirements over resting energy expenditure.
  - **Leisure activity**: physical activity that a person or group chooses to undertake during their free time; does not include work/household activities.

- **Household activity**: includes activities such as sweeping floors, scrubbing, washing windows, etc.
- **Occupational activity**: completed regularly as one's job.
- **Transportation activity**: moving from one place to another; usually across a reasonable distance.
- **Lifestyle activity**: leisure time + household + transportation (physical activity away from work)
- **Exercise or exercise training**: a type of leisure time physical activity consisting of planned, structured, and repetitive bodily movement done with the intention to improve and/or maintain one or more components of physical fitness.
- **Physical fitness**: a set of attributes or characteristics individuals have or achieve that relates to their *ability to perform* physical activity.
  - Example: could improve BP, lipids, FBG, K, MS, ME, MF, etc.
- **Health-related physical fitness:** (p.60) a state characterized by
  - An ability to perform daily activities with vigor
  - Demonstration of traits and capacities that are associated with low risk of chronic disease and health conditions and their risk factors
  - **Cardiovascular endurance**: the ability to perform large muscle, dynamic, moderate-to-high intensity exercise for *prolonged periods*.
  - **Cardiovascular fitness** (aerobic power): the maximal capacity to produce energy aerobically.
    - usually expressed in METs or mL/kg per min

- "In a nutshell, *physical activity* is something you *do*. *Physical fitness* is something you *acquire*..."
- **METs** (Metabolic Equivalents): used to describe exercise intensity (p.4; table 1.1) (p.5; table 1.2)
  - **Light-intensity physical activity**
    - Relative intensity
      - < 40% HRR or VO2R
      - < 63% HR max
      - < 5 out of 10 RPE scale
    - Absolute intensity
      - < 3 METS
    - Examples:
      - Walking slowly around home, store or office (2.0 METs)
      - Sitting – using computer, work at desk, using hand tools (1.5 METs)
      - Standing – performing light work, such as making bed, washing dishes, ironing, preparing food, or store clerk (2.0-2.5 METs)
      - Leisure time – arts and crafts, playing cards, billiards, boating, croquet, darts, fishing, playing most instruments
  - **Moderate-intensity physical activity**
    - A person should feel some exertion but should be able to carry on a conversation comfortably during the activity.
    - Relative intensity
      - 40 to 59% HRR or VO2R (most precise way to measure)
      - 64 to 76% HR max

        - 5 to 6 out of a 10 on RPE scale
    - Absolute intensity
        - ~ 3 to 5.9 METs (for someone with ≤ 10 MET capacity)
    - Examples:
        - Walking 3.0 mph – 4.0 mph
        - Cleaning, heavy washing windows, car, clean garage (3.0 METs)
        - Sweeping floors or carpet, vacuuming, mopping, carpentry, carrying & stacking wood, mowing lawn.
        - Leisure time & sports – badminton, basketball, dancing, fishing, golf, sailing boat, wind surfing, table tennis, tennis doubles, volleyball (noncompetitive).
- **Vigorous (hard)-Intensity physical activity**
    - May be intense enough to represent a substantial challenge to an individual & results in a significant increase in HR.
    - Relative intensity
        - 60 to 84% HRR or VO_2R
        - 77 to 93% HR max
        - 7 or 8 out of a 10 RPE scale
    - Absolute intensity
        - 6+ METs (for someone with ≤ 10 MET capacity)
    - Examples:
        - Walking 4.5 mph, hiking, jogging/running (5 mph – 7 mph)
        - Shoveling sand, coal; carrying heavy loads; heavy farming
        - Leisure time & sports – bicycling, basketball game, skiing cross-country, soccer, swimming, tennis singles, volleyball (competitive)

- **LMGCD** (Large Muscle Group; Continuous & Dynamic)
    - Used to determine if something can be considered an aerobic activity
    - Needs to be at least 20-30 mins nonstop
- Physical Activity definitions based on person's activity level
    - Expend at least 1,000 to 2,000 calories per week
    - **Sedentary person**: ADLs only (baseline)
    - **Inactive person**: activity > ADLs
    - **Active person**: can use ACSM/AHA guidelines to define PA
- **"London Bus" Study** summary (*just understand this message)
    - The conductors (men that walk up & down bus taking tickets) had less CHD than the drivers of the bus (who just sat in their seat all day)
        - Soooo…people that are more active have less chances of developing CHD
- **Harvard study** (*not important to memorize, just understand the message)
    - 16,936 Harvard males
    - Tested those that expended < 2,000 kcal vs. > 2,000 kcal in a week
    - The RR was 1.64 for those that expended < 2,000 kcal in a week
        - This means that there was a 64% increase in disease for them
            - (>1.00 for RR means positive for disease; < 1.00 for RR means negative for disease)