Conditioning for cardiovascular HEALTH and PERFORMANCE

Heart Rate training

Benson, R., & Connolly, D. (2011). *Heart rate training*. Champaign, IL: Human Kinetics.

Class Objectives

- Phases of Heart Rate training
- RPE- Rate of perceived excretion
- Understanding intensity scales
- Estimated heart rate max
- Goal setting
- Distribute HR Monitors
- Pick a partner for group presentations

Training Journal Entries

- **Date**
- **Activity**
- **Duration**
- **Workout details: (include warm-up/cool down info, route/site, partners, schedule, routine, etc.)**
- **Average HR& Max HR**
- **Heart Rate zone**
- **RPE**
- **Comments**
- **This is the most important part of your blog. Spend the most time here reflecting on your workout, talking about the physical response to your workout, compare your max HR to your RPE**

Heart Rate training

- **Heart Rate training relies on a system:**
  - _____

This will reflect when you are tired, overstrained, sick, cold, or hot

therefore it can help you when making changes to your plan…

Heart rate training can give you feedback on your stress level, intensity level and rate of adaptation in terms of overall fitness

Energy production/usage

- **Different activities require different amounts of energy!**
- **Understanding energy production and how we utilize it will help you develop your training goals more effectively.**

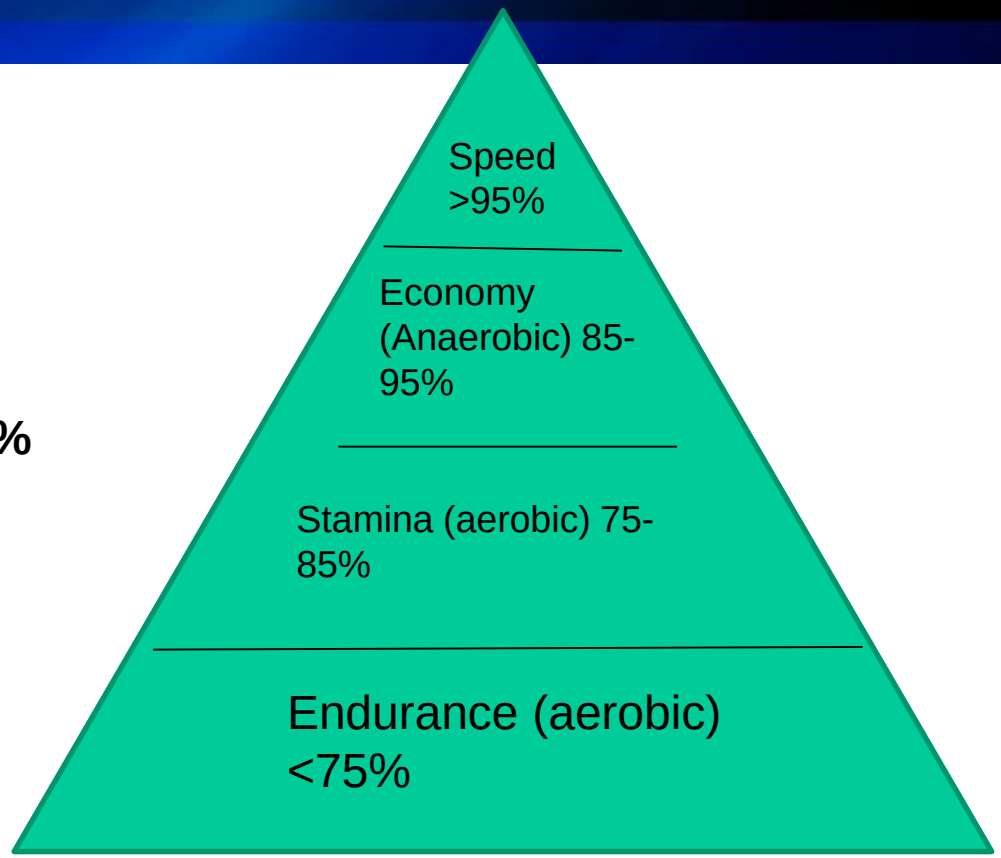
Cardiovascular fitness

Four components of fitness

1. **endurance**
2. **stamina**
3. **economy**
4. **speed**

Once you have an understanding of these it allows you to organize and design your exercise programs

****Zones range anywhere from 10-15%**



Basic model for training

HR Zone	Effort Index	Effort level	Pace	Fuel System	Fitness Component
I	60-75%	Easy	Slow	Aerobic	Endurance
II	75-85%	Moderate	Moderate	Aerobic & Anaerobic	Stamina
III	85-95%	Difficult	Fast	Anaerobic	Economy
IV	95-100%	Very hard	sprint	ATP-PC	Speed

Endurance PHASE 1

- **Going from point A to point B no matter how much you may have to slow down.**
  - Aerobic endurance is developed at heart rates of less than 75% of the max heart rate
  - Long slow distances (LSD)

Stamina PHASE 2

- **Going from point A to point B without slowing down**
  - Developed in heart rate zones of 75-85% of max heart rate
  - Steady state workouts of 40-45 minutes

Economy PHASE 3

- **Go at a race pace while using the least amount of oxygen and energy.**
  - In general, developed in heart rate zones of 85-95% heart rate max.
  - Interval training, hill sprints, fartlek running (frequent changes in speed)

Speed PHASE 4

- **The ability to go at top speeds for short period of time**
  - 95-100% of max heart rate
  - Interval workouts of shorter, faster, and maximum-intensity repeats with long and full recoveries

Rate of Perceived Excretion

Borg Scale

Table A1*

15-Grade Scale		10-Grade Scale	
6		0	Nothing
7	Very, very light	0.5	Very, very weak (just noticeable)
8		1	Very weak
9	Very light	2	Weak (light)
10		3	Moderate
11	Fairly light	4	Somewhat strong
12		5	Strong (heavy)
13	Somewhat hard	6	
14		7	Very strong
15	Hard	8	
16		9	
17	Very hard	10	Very, very strong (almost maximum)
18			
19	Very, very hard		Maximum
20			

*From Borg GA. *Med Sci Sports Exerc.* 1982;14:377–381. Reproduced with permission.

Intensity scale 1-10

- **Rate of Perceived Exertion (RPE)**
- **1-2 Very easy; can converse with no effort**
- **3 Easy; can converse with almost no effort**
- **4 Moderately easy; can converse comfortably**
- **5 Moderate; conversation requires a little effort**
- **6 Moderately hard; conversation requires effort**
- **7 Difficult; conversation requires a lot of effort**
- **8 Very difficult; conversation requires maximum effort**
- **9-10 Peak effort; no-talking zone**

What can heart rate reveal to you

- Correct intensities for aerobic/anaerobic system development
- Correct durations for time spent in training zone
- Appropriate recovery periods during intervals
- Appropriate recovery periods between exercise sessions
- Effective evaluation of adaptations to training programs
- Early sign of overtraining
- Early indications of heart stress
- Early indication of energy depletion
- Race pace strategy for longer competitions

Oxygen and VO2 Max

- **To calculate your VO2 max, use the following formula:**

- **Calculation: 88.02 - 0.1656 (body weight in kg) - 2.76 (time in minutes) + 3.716 (gender)**
  Gender; males = 1; females = 0

- **Reference: George, J., Vehrs, P., Allsen, P., Fellingham, G., and Fisher, G. (1993). VO2 max estimation from a submaximal 1 mile track jog for fit college-age individuals. *Medicine and Science in Sports and Exercise*, 25: 401-406.**

Estimated Maximum Heart Rate

- **Method 1: 220-age(y) = _____bpm**

- **Method 2: Gender Specific (need to know BOTH!)**

Males: 220-Age (Non-athletic) = _____ bpm
205-Age/2 (Fit) = _____ bpm

Females: 226-Age (Non-athletic) = _____ bpm
211-Age/2 (Fit) = _____ bpm

- **Method 3: Gender Specific**

Males: 214 – (.8 x your age) = _____ bpm

Females: 209 – (.7 x your age) = _____ bpm

Training Heart Rate: Target Heart Rate Zone

Lower Limit _____bpm (60% MAX HR)

Upper Limit_____bpm (90% MAX HR

5 Training Heart Rate Zones

1. Healthy Heart Zone: _____bpm to _____bpm (50%-60% Max HR)

2. Temperate Zone: _____bpm to _____bpm(60%-70% Max HR)

3. Aerobic Zone: _____bpm to _____bpm(70%-80% Max HR)

4. Anaerobic Threshold Zone: _____bpm to _____bpm(80%-90% Max HR)

5. Red-Line Zone: _____bpm to _____bpm (90%-100% Max HR)

Goal Setting

CURRENT FITNESS LEVEL:

Briefly comment on your fitness level going into this course:
Date:

EXPECTATIONS FOR THE CLASS

Psychological Techniques for Improved Performance

- **Goal setting**
  - Process goals
    - Goals over whose achievement the athlete has control
  - Outcome goals
    - Goals over which the athlete has little control, such as winning
  - Short-term goals
    - Increase the likelihood of success because they are relatively close to the athlete's present ability level
  - Long-term goals
    - Provide relevance to short-term goals

(continued)

Psychological Techniques for Improved Performance *(continued)*

- **Guidelines for using goal setting**
  - Long-term goals and short-term goals are interdependent.
  - Long-term goals provide a sense of meaningfulness for pursuing short-term goals.
  - The attainment of short-term goals provides a hierarchical sense of mastery and success that builds self-confidence.
  - Athletes should define process goals to focus on elements of their performance over which they have control.

TRAINING GOAL(S)

Please provide 2 SPECIFIC goal(s) for this course

Goal #1

Goal #2

Goal Setting Questions

1. Identify any barriers that may hinder you from achieving your goals
2. How might you overcome these barriers?
3. If you have had trouble in the past, what has helped you get back on track?
4. What will be your success indicators?
5. Why are these goals important to you?

Partner Presentations

- **Self select a partner**
- **Tell me who your partner is!**
  - I will post to Moodle what day you present and what topic you will present on!

Next Class- 1 mile

- **Performance Run**
- **Meet on track (BRING ID CARDS!)**
- **Complete run on indoor track (8laps)**
  - HR MONITORS!