**Power and Endurance Athletes**

Q

What component of fitness is determined by heart rate?

A

The intensity of a fitness activity is determined by the heartrate. This because during the entire period of the fitness exercise, the heartrate should be able to supply oxygen and nutrients to the cells that are have increase metabolism.

Determine your moderate training range using the following steps:

Resting heart rate = pulse rate within ten seconds X 6 = 14 beats/minutes X 6= 84 beats/minute.

Determine Your Maximal heart rate = 220- your age = 220-28 =192 beats /minute.

Determine Your Moderate Training range=0.65 of Max HR- 0.75 of Max HR= 124.8-144

Q

What is the difference between anaerobic and aerobic metabolism?

A

Anaerobic metabolism is a chemical process that takes place in the cytoplasm under limited supply of oxygen while aerobic respiration takes place inside the mitochondrial cell with adequate supply of oxygen.

Q

Examples of physical activity that would be considered aerobic and some that would be anaerobic.

A

In the non-endurance athletes where the physical activity is so intense, then the metabolic process that would be taking place is anaerobic where lactate acid is formed. Most of this activity are intense but last for only short period of time such as 2 seconds to 2 minutes. On the other hand, aerobic activities are frequently done, last for more than 2 minutes and are less intense but for a protracted period of time (Seebohar, 2014)..

Q

Imagine that you and a friend are jogging one evening and the two of you determine your heart rate at the beginning of a water break. Yours is at 60% of your max heart rate, and your friend’s is at 80%. Is this activity considered higher or lower intensity for you? How about for your friend?

A

With 60 percent of maximum heart rate, it implies that the activity was on the lower intensity. This is because the heart rate is determined by the demand of the metabolizing cells. When the demand is high, then the heartrate is likely to be at 80 percent of the maximum heart rate.

Q

Would you be relying more on carbs or fat for fuel? How about your friend? Explain.

A

The intensity of activity determines the source of energy. At 60 percent of the maximum heart rate is suggestive of aerobic respiration. Carbohydrates and fats can therefore be used as source of fuel. However, for my friend, at 80 percent of maximum heart rate it suggests that the demand of oxygen and nutrients metabolizing cells is high. In this case, there will be limited oxygen thus carbohydrates will be the best source of energy.

Q

Explain how a deficit in energy balance can lead to weight loss. If you consume fewer calories than you are using, does it matter what you are burning during exercise? (fat or carbs?)

A

The kind of energy source that is burn during body activity determine the weight loss. The weight of human being is determined by the body fluids, the fat content and the muscles. Muscles cells require more calories to produce energy in form of ATP (Seebohar, 2014). Little glucose (carb) is needed to produce adequate energy while more fat is needed to form energy produced b carb. If less carb is taken in then more fats in body will be used to produce energy while serving muscle cells will lead to reduction of muscle mass hence weight loss.

Q

Use this website to determine how many calories a 150-pound person would burn in 20 minutes running at the pace of 6 mph and at the pace of 10mph

A

At 6mph and for 20 minutes then 180 calories will be used.

At 10mph and for 20 minutes 113 calories will be used.

Q

Which pace is higher intensity

A

At 6mph pace, this person would have covered a shorter distant compared with when going at 10mph at the end of 20 minutes. At 10mph, this person would have done intense exercise than at 6mph.

Q

Which pace will cause the body to rely more on fat as an energy source?

A

At pace of 6mph, the body will rely on fat because the demand is reduced and oxygen is in plenty than at pace of 10mph where oxygen is limited.

Q

Which pace burns the most calories?

A

At pace of 6mph, more calories are burn because fat is likely to be used as source of energy. More fat is needed to produce the same energy as carbs.

Q

Wendy is a competition level sprinter who weighs 155 poundsand trains about 1 hour each day. Her friend, Elsa, is a marathon runner who weighs 137 pounds and trains about 4 hours each day-endurance. Using the protein and carb recommendations on the attached slide, determine the recommended range of protein and carbohydrate intake in grams/day for each. Briefly summarize how carbohydrate and protein needs differ between power and endurance athletes.

A

Power Athlete: Wendy 408 grams – 476 grams of carbohydrates, 109 grams -115.6 grams of proteins

Endurance Athlete: Elsa 744 grams -806 grams of carbohydrates, 74.4 gram- 86.8 grams of proteins.

Power athlete need more calories than the endurance athlete and take more protein before and after the exercise because they aim to develop the muscles (Seebohar, 2014). On the other hand, the endurance athlete endurance athlete need to check and stabilize their blood glucose by taking more of carbohydrates.

**References**

Seebohar, B. (2014). Nutrition periodization for endurance athletes: Taking traditional sports nutrition to the next level. Boulder, Col: Berkeley, Calif.