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ASSIGNMENT: PHYSIOLOGY

Answer 1:

Short Term Effects of Exercise on the Cardiovascular System

Many short-term effects take place during physical activity, including:

- Faster heart contractions. This leads to an increased heart rate and increased circulation, which gets oxygenated blood to your muscles quicker.
- More forceful heart contractions with each heartbeat, which leads to a greater amount of blood being pumped throughout the body.

Long Term Effects of Exercise on the Cardiovascular System

A fairly well conditioned athlete can see long term cardiovascular effects from exercising in as little as two weeks. People who are just beginning to exercise will see effects in up to four weeks. These effects include:

- The heart and lungs become more efficient as your cardiovascular training increases.
- Decreased resting heart rate, which means your heart doesn't have to beat as often to circulate blood.
- Improved ability to draw in deeper and longer breaths, and take fewer breaths.
- Reduced risk of heart disease.

Answer 2:

Hormone using during exercise:

When you exercise, your body releases chemicals called endorphins. These endorphins interact with the receptors in your brain that reduce your perception of pain. Endorphins also trigger a positive feeling in the body, similar to that of morphine.

Insulin: A peptide hormone produced by the pancreas, insulin regulates carbohydrate and fat metabolism. When blood sugar is elevated, insulin is released to promote the storage and absorption of glycogen and glucose. Insulin helps reduce levels of glucose in the blood by promoting its absorption from the bloodstream to skeletal muscles or fat tissues. It is important to know that insulin can cause fat to be stored in adipose tissue i

Glucagon:

Released in response to low levels of blood sugar, glucagon is produced by the pancreas to stimulate the release of free fatty acids (FFAs) from adipose tissue and increase blood glucose levels, both of which are important for fueling exercise activity. As glycogen levels are depleted during exercise, glucagon releases additional glycogen stored in the liver.

Cortisol

Cortisol is a catabolic steroid hormone produced by the adrenal gland in response to stress, low blood sugar and exercise. It supports energy metabolism during long periods of exercise by facilitating the breakdown of triglyceride and protein to create the glucose necessary to help fuel exercise. Cortisol is released when the body experiences too much physical stress or is not sufficiently recovered from a previous workout. While cortisol helps promote fat metabolism, exercising for too long can elevate levels of cortisol to catabolize muscle protein for fuel instead of conserving it to be used to repair damaged tissues.

Epinephrine and Norepinephrine

These amine hormones play an important role in helping the sympathetic nervous system (SNS) produce energy and in regulating the body's function during cardiorespiratory exercise. Classified as catecholamines, epinephrine and norepinephrine are separate but related hormones. Epinephrine, often referred to as adrenaline because it is produced by the adrenal gland, elevates cardiac output, increases blood sugar (to help fuel exercise), promotes the breakdown of glycogen for energy and supports fat metabolism. Norepinephrine performs a number of the same functions as epinephrine, while also constricting blood vessels in parts of the body not involved in exercise.

Testosterone

Testosterone is a steroid hormone produced by the Leydig cells of the testes in males and the ovaries of females, with small amounts produced by the adrenal glands of both genders. Testosterone is responsible for muscle protein resynthesis and the repair of muscle proteins damaged by exercise, and plays a significant role in helping grow skeletal muscle. Testosterone works with specific receptor sights and is produced in response to exercise that damages muscle proteins. stead of being used to fuel muscle activity

Response of hormone during exercise:

The initial response to the onset of exercise is enhancement of sympathoadrenal activity and secretion of pituitary hormones, which result in a reduction in the plasma concentration of insulin and a rise in that of virtually all other hormones.

Current knowledge and understanding of the hormonal response to exercise are limited, whether in relation to horses, humans, or other species. The changes in plasma concentration of some hormones occur early in exercise, apparently owing to a neuronal stimulation, whereas others, being pituitary dependent, require hormonal stimulation. Also, although it is possible to observe changes in plasma concentrations of hormones, the mechanism by which this is achieved is not always understood, and unless the nonprotein-bound, or active, form of the hormone is also determined, changes in plasma concentration are less informative.