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Body Mass Index (BMI)

BMI is a formula for measuring an individual's relative weight based on their mass and height and is calculated by the formula BMI=((mass (kg)/ (height(m))^2). A healthy BMI is generally considered to be in the range of 18.5 to 24.9, whereas those with BMIs in the 25 to 29.9 range are classified as being overweight, and those with BMIs >30 are classified as obese. Although BMI is frequently used to assess general body mass in patient populations, the BMI does not take into account age, gender, or muscle mass, and it can result in large BMI scores for people that actually have very low body fat percentages, such as body builders.

Ghrelin

Ghrelin is a peptide hormone secreted in the gastrointestinal tract via ghrelin cells and is commonly referred to as the "hunger hormone" since its plasma levels increase in the preprandial state and decrease in the postprandial state, suggesting that ghrelin has a physiological role in meal initiation.

Inorganic phosphate

Inorganic phosphate (HPO_4^{2-}) functions as a substrate, along with ADP to form ATP via the process of mitochondrial oxidative phosphorylation. It is a product when ATP is hydrolyzed to ADP to provide cellular energy for various processes including active transport, anabolic metabolism, and muscle contraction.

Osteopontin

Osteopontin is an abundantly expressed adipose tissue cytokine (adipokine) that plays a major role in inflammation, though it is also expressed in other cell types/tissues such as macrophages, smooth muscle cells, and skeletal muscle. Osteopontin regulates inflammation/immune function via modulating monocyte adhesion, migration, differentiation, and phagocytosis, whereas reducing osteopontin action has been shown to attenuate inflammation.

Osteoprotegerin

Osteoprotegerin is a cytokine receptor that is a member of the tumor necrosis factor receptor superfamily and acts as a receptor for the ligands receptor activator of nuclear factor κB ligand and tumor necrosis factor-related apoptosis-inducing ligand. Osteoprotegerin levels are elevated in patients with cardiovascular disease and thus osteoprotegerin may serve as a potential biomarker in the risk stratification of patients with cardiovascular disease.

Oxygen

Oxygen is a chemical element characterized by the atomic number 8 (ie, its nucleus contains eight protons). With respect to aerobic energy substrate metabolism, diatomic oxygen (ie, O_2) serves as the terminal electron acceptor in the mitochondrial electron transport chain, and is reduced to water in the process of oxidative phosphorylation, where the oxidation of reducing equivalents (NADH and $FADH_2$) is coupled to the synthesis of ATP from ADP and inorganic phosphate.

Oxygen consumption

Oxygen consumption refers to the amount of oxygen that is utilized by the body per minute. Following inspiration, and alveolar exchange oxygen is transported by the cardiovascular system to systemic tissues and is utilized via oxidative phosphorylation to generate ATP. Oxygen consumption is typically reported in absolute units (ie, L/min) or it is normalized to body mass (mL/kg/min)

Peak oxygen consumption ($\dot{V}0_2$)

Peak oxygen consumption ($\dot{V}O_2$) refers to the highest value of oxygen consumption that is obtained in response to an increase in energy demand (ie, increased work/effort or exercise). Maximal oxygen consumption ($\dot{V}O_2$max) occurs when progressive increases in energy demand do not elicit further increases in oxygen consumption (ie, oxygen consumption has plateaued), and is a measure of mitochondrial function/aerobic capacity. $\dot{V}O_2$max is compromised in a number of clinical conditions including heart failure.

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Phosphocreatine

Phosphocreatine (PCr) is a high-energy phosphate compound that functions to buffer intracellular ATP concentrations. When increases in energy demand deplete ATP, intracellular PCr is utilized to phosphorylate ADP, yielding ATP and creatine, a reversible reaction catalyzed by the enzyme creatine kinase (ie, $ADP + H^+ + PCr \leftrightarrow ATP + Cr$). This reaction replenishes intracellular ATP at a rate that is greater than that of ATP generation from catabolic pathways.