

 **Glossary****Adenosine diphosphate (ADP)**

A molecule that gets “recharged” with energy when it is combined with a phosphate during the Krebs cycle; what ATP becomes after its energy is used.

**Adenosine triphosphate (ATP)**

A molecule in which energy from glucose is stored during the Krebs cycle.

**Amino acids**

The building blocks of protein. There are twenty types of amino acids, nine of which are essential to the functioning of the human body.

**Anaerobic metabolism**

The process of creating energy by splitting glucose molecules into pyruvic acid, which does not require oxygen.

**Body mass index (BMI)**

Index intended to measure body fat that is created by dividing weight by height squared. In practice, measures of BMI cannot differentiate between weight from muscle mass and weight from body fat, making them an impractical measure of individual body fat content.

**Carbohydrates**

Macronutrients that provide the body with glucose, which is the main source of energy. There are three classifications of carbohydrates: *monosaccharides*, *disaccharides*, and *polysaccharides*.

**Complete protein**

A protein that contains all nine essential amino acids required by the human body. Complementing proteins combine two incomplete proteins to make a complete protein; supplementing combine an incomplete protein and a complete protein to elevate the profile of the incomplete protein.

## ***Creatine phosphate***

Substrate that provides energy in the first ten seconds of exercise.

## ***Erythropoietin (EPO)***

Substance made by the kidney that can be made into hemoglobin by bone marrow. The practice of injecting yourself with EPO to improve athletic performance is called blood doping and is illegal in most sports.

## ***Ferritin***

A transporter protein that picks up iron in the intestinal cells and transfers it to *transferrin*. Ferritin binds with iron again once it reaches the liver.

## ***Glycogen***

A polysaccharide produced by the body during digestion as a means of temporarily storing monosaccharides.

## ***Hemoglobin***

A protein made from iron that transports oxygen through the blood.

## ***Hyperosmotic thirst***

Feeling of thirst that is triggered by osmoreceptors in the brain detecting that there is not sufficient fluid in the bloodstream.

## ***Hypovolemic thirst***

Feeling of thirst that is triggered by the release of angiotensin II. Angiotensin II is released in response to the kidney detecting a drop in blood volume.

## ***Iron deficiency anemia***

Disease caused by the lack of iron in the blood. Without iron to produce hemoglobin, blood cells become pale and transport less oxygen. Iron deficiency anemia can cause exhaustion, irritability, headaches, memory issues, and more.

## ***Krebs cycle***

A series of aerobic reactions during which energy is extracted from food and converted to ATP.

## ***Lactic acid***

An acid produced by pyruvic acid during the anaerobic metabolism of glucose when no oxygen is present to transfer the pyruvate into the Krebs cycle. Lactic acid builds up in the muscles during exercise and produces a heavy, tired feeling.

## ***Malnutrition***

Prolonged state in which a person lacks the proper nutrients, usually caused by impaired access to food. Kwashiorkor is a type of malnutrition characterized by a lack of protein; marasmus is a type of malnutrition characterized by the undernourishment of infants and small children.

## ***Megaloblastic anemia***

Disease in which red blood cells are devoid of content. It is caused by a deficiency of folate or vitamin B12 that prevents these cells from developing and dividing properly.

## ***Oxidative phosphorylation***

The process through which energy transported by NADs and FADs is combined with oxygen to create ATPs in the final step of the Krebs cycle.

## ***Pyruvic acid***

A three-carbon molecule formed when glucose is split during anaerobic metabolism. Pyruvic acid is later converted to acetyl-CoA in the mitochondria.

## ***Respiratory quotient (RQ)***

The ratio of carbon dioxide the human body is blowing off compared to the amount of oxygen the body has consumed.

## ***Transferrin***

A transporter protein in the blood that picks up iron from *ferritin* in the intestinal cells and carries it to the liver.