

Biology questions

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Dietary Fibers consists of two types which are the soluble and the insoluble fibers. The water-soluble fibers dissolve in water and can be found in foods such as the legumes like peas. Importance of soluble fibers is to regulate the flow of waste material down the digestive track besides preventing reabsorption of bile acids. On the other hand the water insoluble fiber cannot dissolve in water as the name suggests define the undissolvable and indigestible fibers that form part of the plant walls found in such foods as cereals and vegetables. The main function of the insoluble fiber is to enhance collection of water in order to increase the stool bulkiness along the colon and also to ease the process of bowel movement thus reducing cases of colon diseases.

Though lipid are insoluble in water, fat are very important in life. The four main functions of lipids are: Act as the storage molecule of energy and such can be found stored in the adipose layer that further plays a function of insulating the body from harsh cold and such are called triacylglycerols. Secondly, phosphoacylglycerol and sphingolipids fats act as a structural component for almost all cellular membranes. Thirdly, lipids are waxes that protect molecules and lastly non-saponifiable lipids are used by body to extract hormones and vitamins through different metabolic pathways.

Lipoproteins are conjugated proteins that contain a lipid component to enhance transportation of the lipids in the bloodstream. High-density lipoprotein is responsible for transportation of cholesterol and therefore, high levels of the HDL decrease the risk of coronary heart disease and atherosclerosis because the compound has a high proportion of protein to cholesterol. Low-Density lipoproteins equally transport cholesterol through

the bloodstream and are thought to increase risk of coronary disease because of the fact that they contain high levels of cholesterol and moderate levels of proteins. Very Low density lipoproteins are rich in triglycerides so that while circulating in blood, they give up their triglycerides to fats and muscle tissues until the remaining VLDL are converted to low density lipoproteins thus they equally increase cases of coronary heart diseases.

High diet of animal fats releases a lot of proteins and fats into the body. Thus, there is excess fats and proteins than body needs that are converted into free radicals as a consequent of breaking down the proteins and fats. Free radicals cause cancer and Type 2 diabetes. Therefore, an obese person consuming excess animal's fats is likely to have high level of free radicals in the body as opposed to a lean person taking a moderate diet of animal fats.

The main four functions of proteins in the body are: Firstly, proteins help muscles to contract like Actin and Myosin. Secondly, proteins transport substances like Hemoglobin that transport blood. Thirdly, proteins form cell membranes such as Glycoproteins. Lastly, hormones and enzymes are compounds of proteins.

Basal Metabolic Rate is the total amount of energy that human body uses to maintain normal functions at complete rest. BMR is important in controlling the total amount of calories that one can consume per day such that a person can control calories intake according to the amount of work that uses up calories intake to avoid cases of storing excess calories as fat.

Active persons need more energy output to maintain the strenuous contraction of muscles as opposed to a sedentary person who needs minimum output of energy.

Folic acid intake is important before and during pregnancy to enhance proper development of the fetus in order to minimize defects such as incomplete development of the brain and spinal cord.

The body lacks a mechanism to store water-soluble vitamins and therefore daily replenishment is required. Since the vitamins are water soluble, the body can easily get rid of excess amount through urine and sweat to avoid high levels of toxicity.

Vitamin A is a fat-soluble compound composed of retinol or A alcohol used to improve eyesight and fight viral infections. Therefore, in case of excess consumption, the body lacks a mechanism to do away with excess vitamin A leading to toxicity whose symptoms include hair loss, fatigue, dry skin, muscle pains and liver damage. On the other hand deficiency in vitamin K literally means that blood clotting is hindered in case of a bruise.

Haem-iron is the iron that is attached to animal proteins called heme proteins while non-haem iron is iron that is found in plants that lack heme proteins. Heme-iron is better absorbed by while non-heme iron absorption rate remain lower.

Athletes who suffer from iron deficiency perform poorly in the field and get tired quite quickly as a result of poor supply of oxygen to muscles because of lack of sufficient iron to increase aerobic activity.

Iodine is a component of the thyroid hormone thyroxine that is responsible for body metabolism and release of energy in body. Iodine controls the effects of female hormone estrogen on the breast tissues as well as protects body against adverse impacts of radioactivity.

Iodine prevents goiter, plays role in development of fingernails, hair, skin and teeth. During fetal development, iodine is used in the development of nervous system. Deficiency of iodine cause weight gain while excess iodine leads to hypothyroid situation in which a person loses weight by being hyperactive.

Zinc-deficiency in pre-school children leads to adverse effect such as poor appetite and poor sense of taste as a result of low intake of zinc. Children are more prone to adverse impacts of zinc deficiency as opposed to their parents since children need more zinc per pound of body weight than adults and since children lose a lot of zinc more than adult by playing. Unlike parents who are active in life and therefore able to absorb more minerals from food intake like red meat, a 16-months old child is unlikely to absorb excess zinc mineral from food. Also, when loss of appetite sets in, the child is unlikely consume enough zinc related foods as a result of diminished sense of taste.

Sustained low carbohydrates intake is usually advocated by most weight loss hypothesis yet its impacts remain adverse though the main intention is usually to force the body to use the excess fat stored in the body system. However, when a sustained low carbohydrate diet is consistently taken, the body produces ketone bodies that act as source of energy for body parts that cannot use fat as source of energy. Therefore, the brain and the blood cells

are harmfully affected since the two needs another form of energy pathway leading to production of excess ketones that are responsible for smelly breath, nausea and fatigue. Equally, adverse effects include body water and lean muscle loss instead of fat. Emotional mood swings are associated with low intake of carbohydrates since a person losing lean muscle instead of body fat enters into a cycle of weight loss followed by weight gaining experiences that devastate the subject trying to lose weight.

Proteins are involved in the structural functionality of body cells and therefore immediate deficiency leads to formation of poor structured cell membranes. Edema is common in a diet lacking proteins and can be taken as the unhealthy collection of a fluid under the skin leading to swollen feet, legs, and ankle. Adverse deficiency leads to poor body immunity that is responsible for painful cramps, body weakness, slow healing of wounds, bedsores, skin rashes and skin ulcers.