

Nutrition case essay

Nutrition



NUTRITION

1. Discuss hydration in the body. What are the consequences of dehydration and water intoxication? What regulatory mechanisms control the level of hydration- hormones, thirst response, etc.?

Hydration pertains to the maintenance of water in the body in order to correctly function, such as production of energy, performance of bodily processes such as repair and regeneration of tissues and continuous occurrence of biochemical reactions in the body. Water serves to be a good substrate for nutrients, electrolytes and salts. Proper hydration aids in the detoxification of the body, as well as keeping the nervous system working in top condition. Hydration also maintains the skeleton system and precise metabolic pathways of the body. Hydration is also important for digestion and preventing inflammation and aging.

The condition of losing and salts from the body is called dehydration, which affects general chemical reactions in the body. Dehydration causes a lowering of the blood pressure and lightheadedness. When dehydration is not treated at once, an individual may become unconscious, and in some individuals, may cause death. Loss of water and electrolytes also causes rapid heart rates, higher body temperature and seizures.

Water intoxication is a deadly disorder of the functioning of the brain that is caused by an imbalance in the level of electrolytes of the body. Such imbalance is usually caused by extremely hasty drinking of water. This condition is often observed during drinking competitions or after long rounds of exercise and an athlete drinks so much water at one time. Such rapid

drinking causes an osmotic shift of water, resulting in the sudden swelling of cells of the brain and the rest of the central nervous system. Rapid water drinking also causes seizure, coma and even sudden death. Hormones serve as one regulatory mechanism that controls the level of hydration in the body. The antidiuretic hormone (ADH) directly influences the level of hydration, wherein hydration prevents the release of ADH, and dehydration promotes the release of ADH. The release of ADH promotes water resorption, which in turn dilutes the body fluids.

The thirst response also controls the level of hydration because it controls the pituitary gland to send signals to the rest of the body that more water is needed to maintain proper functioning and to continue on with what the body is doing, such as exercising or running. The thirst response is actually the initial sign that dehydration has occurred.

2. Discuss the consumption of alcohol and the effects of alcoholism on the body. Be sure to include the role of the liver in detoxifying alcohol, its effects on medications and food, appetite. Include cirrhosis in your discussion.

The intake of alcohol involves the breaking down of this molecule in the liver, as an effect of alcohol dehydrogenase. This chemical breakdown results in the generation of acetic acid which is then converted into carbon dioxide and water. Alcoholism or the addiction to alcohol pertains to a condition of continuous consumption of alcoholic drinks.

Aside from generating a relaxing sensation in the drinker, alcoholism causes extreme permeability of the cells to alcohol, resulting in the presence of

alcohol in the bloodstream. Overdrinking of alcohol can result in unconsciousness, poisoning and even death. Taking alcohol while also taking medications may result in the prevention of the drug from exerting its full effect. In addition, there may also be alcohol-drug interactions, which may involve disruption of the normal metabolism of the drugs in the body. Alcohol consumption also affects an individual's appetite, but suppresses the need for more food.

Alcoholism causes cirrhosis of the liver, which is generally the scarring of the liver tissue, resulting in the impaired blood flow and poor liver function. The liver is an important organ of the body, because it is responsible for generating antibodies that protect the body against infection. This organ also creates proteins that are important for blood clotting and fat emulsion. Hence, cirrhosis poses a risk of severely damaging the liver, which in turn may cause death in an individual.

3. Discuss heart disease and the effects of diet on heart disease. Be sure to include hyperlipidemia, hypertension and heart attack. What dietary advice do you recommend to prevent heart disease, and why? Be specific in your recommendations.

Heart disease is a collective term that pertains to any disease that affects the heart.

Heart disease may include heart failure, cardiomyopathy, cardiovascular disease and congenital heart diseases. Hyperlipidemia is a medical condition that is characterized by significantly high levels of lipids in the blood. This condition is influenced by the amount of cholesterol in the blood, and is

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strongly correlated to atherosclerosis and pancreatitis. Hypertension, which is also simply known as high blood pressure, is a cardiovascular condition wherein the blood pressure is chronically high. Hypertension has been linked to the amount of aldosterone, renin and salt in the bloodstream. Heart attack, or myocardial infarction, is a cardiovascular condition when the blood supply to the heart is stopped.

This condition results in the lack of oxygen, resulting in the scarring of heart tissue. It has been determined that a regular diet of food that contains high levels of saturated fats and cholesterol results in heart disease. Hence, it is healthier to consume a daily food regimen of foods that contain unsaturated fats and low levels of cholesterol.

4. Discuss obesity and the health problems that accompany obesity.

Create dietary advice for a patient who is 25% over their ideal weight. Your patient can be an adult or a child, please specify.

Obesity is a disease that may be determined by measuring the body mass index (BMI) (Jequier and Tappy, 1999). BMI is the ratio of an individual's weight in kilograms (kg) to his height in meters squared (m^2). An individual with a BMI of 25 to 29 kg/m^2 is classified as overweight, those with BMI greater than or equal to 30 kg/m^2 are categorized as moderately obese, and people with BMI of 40 kg/m^2 and above are identified as morbidly obese. Obesity is also considered as an imbalance between energy intake and energy expenditure.

For an adult patient who is 25% over the ideal weight, he should take the normal daily calorie requirement of 1, 200 calories and walk for an hour or two each day, in order to burn the excess fats stored in his body. In addition, he should also stay away from fatty foods and resort to low-fat and low-carbohydrate food choice. Reference Jequier E and Tappy L (1999): Regulation of body weight in humans. *Physiol. Rev.* 99(2): 451-80.