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Review Article on Nutrition Disorder

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ABSTRACT

The science that explains the interaction between nutrients and other substances in food that helps in the maintenance, growth, health and reproduction of an organism. Nutrients have been classified in accordance to place where they are synthesized and availability. Nutrients cannot be synthesized by body are called as essential nutrients and they must be derived from diet; for example minerals, vitamins, some fatty acids and amino acids. Nutrients that can be synthesized by body form other compounds are called as nonessential nutrients although they may also be derived from body. Micronutrients are required by the body in lesser amounts and macronutrients are in higher amounts. If the intake of food is not proper it causes nutrition disorder. The diet taken must always be a balanced diet. A balanced diet contains all the essential nutrients required for the normal functioning of the body. If the body doesn't receive the required nutrients it causes many side effects.

INTRODUCTION

The study of nutrition probably began in the 6th century BC. Food was classified into two types depending upon their state. They were "hot" (for example, meats, blood, ginger, and hot spices) and "cold" (green vegetables) in China, India, Malaya, and Persia. Nutrients are the substances that help in proper growth of the body and help to remain healthy [1-5]. Nutrients are of two types: Macronutrients and Micronutrients.

Macronutrients

Macronutrients are composed of carbohydrates, fiber, fats, water and protein [6-8]. The main function of macronutrients is to provide structural material and energy [9-14]. The structural material is mostly amino acids and lipids. Amino Acids help in building proteins and lipids help in building cell membranes and some signaling molecules [15-18].

Carbohydrates

Carbohydrates are classified in accordance to the number of monomer units they contain. They are monosaccharides, disaccharides, or polysaccharides. Polysaccharides are generally known as complex carbohydrates as they contain long, multiple branched chains of sugar units. The food products that contain large amount of carbohydrates are rice, bread, noodles [19-23].

Fiber

Dietary fiber is same as a carbohydrate that is incompletely absorbed in humans and some animals. Fiber when metabolized it breaks down to produce four calories of energy per gram same as carbohydrate. Humans lack the required enzyme to disassemble the large carbohydrate polymer [24-26]. Fibers are categorized into two, they are soluble and insoluble. Food that contains good amount of fiber are whole grain and fruits [27-30]. Dietary fiber mainly helps to reduce the chance of gastrointestinal problems like constipation and diarrhea. Insoluble fiber is found in nuts, vegetables and wheat flour. Soluble fiber is found in oats, beans, peas and many fruits [31-33].

Fat

Molecule of dietary fat consists of several fatty acids bonded to glycerol. Fats are classified into saturated or unsaturated depending upon the detailed structure of fatty acids involved [34-36]. Saturated fats have carbon atoms bonded to hydrogen atoms, whereas in unsaturated fats some of these carbon atoms are double-bonded, so their molecules have relatively fewer hydrogen atoms than a saturated fatty acid of the same length. Unsaturated fats are further classified monounsaturated (one double-bond) or polyunsaturated (many double-bonds) [37-40]. Depending on the location of the double-bond in the fatty acid chain, unsaturated fatty acids are classified as omega-3 or omega-6 fatty acids [41-45].

Water

In order to maintain proper hydration for the body we need to take 6-8 glasses of water a day. Water content varies depending on the type of food consumed, with fruit and vegetables containing more than cereals [46-49].

Micronutrients

Micronutrients are mainly composed of minerals and vitamins.

Minerals

Minerals are inorganic chemical substances required by all living organisms. Minerals are of two type's macro minerals and trace minerals.

- a. Macro-minerals are called bulk minerals as they are required in relative quantities. Most of the macro-minerals are structural but some act as electrolytes. Some of the macro-minerals are Calcium, chlorine, magnesium, phosphorus, potassium and sodium [50-54].
- b. Trace-Minerals are mostly required in small quantities. The main role of trace minerals is to play catalytic role in enzymes. Some of the trace minerals are cobalt, copper, chromium, iodine, iron, manganese and zinc [55-57].

Vitamins

Vitamins are recognized as organic essential nutrients required for the good health. The deficiency of vitamins results in diseased conditions like goiter, scurvy, impaired immune system [58-62].

Disorders caused by improper nutrient consumption:

Malnutrition is the most common disorder. Malnutrition is insufficient, excessive or imbalanced consumption of nutrients by an organism. Malnutrition is most common in developed countries. The side effects of improper nutrient intake are mental agility, mental disorders, cancer, metabolic syndrome, Hyponatremia [63-68].

Diet

Consuming a healthy diet can help us to prevent from malnutrition and protect from non-communicable (NCDs) diseases such as heart diseases, cancer and diabetes. The exact make-up of healthy and balanced diet may vary from individual to individual; for example age, gender, degree of physical activity, life style etc. [69-74].

Healthy diet for adults are vegetables, fruits, whole grains (wheat, brown rice, unprocessed maize, oats, millet) [75-77]. For infants and young children breastfed for first 6 months of life and can be continued until 2 years of age. From 6 months of age a safe, adequate and nutrient dense complementary food can be given along with the breast milk [78-80]. Reducing the total intake of fat to 30% of energy intake helps to prevent unhealthy weight gain. Replacing the saturated fats and trans-fats with unsaturated fats in the total energy intake helps to reduce the risk of NCDs [81-83]. Consumption of high sodium through salt and less potassium leads to high blood pressure which may turn to heart disease and stroke. To reduce salt consumption by avoiding salt during food preparation, limited consumption of salty snacks etc. [84-88]

Consumption of free sugars should be reduced to 10% of total energy intake may reduce the risk of dental caries and unhealthy weight gain (obesity). Sugars intake can be controlled by limiting the intake of foods which contains high amount of sugars and eating fresh vegetable and fruits instead of sugar snacks [89-90].

Obesity and Over Weight

Obesity or over weight caused due to an energy imbalance between the calories consumed and the calories expended. The reasons are intake of more energy-dense foods and or increase in physical inactivity [91-94].

The common consequences for obesity or over weight are cardiovascular diseases, diabetes, some cancers (kidney, liver, endometrial, breast, colon, prostate and ovarian) [95].

Obesity and overweight can be controlled by limit intake of fats and sugars, increase consumption of fruits and vegetables and engage at least 60 minutes in any physical activity [96-98].

Diseases Caused due to Malnutrition

Diarrhea, gastroenteritis is caused due to malnutrition [99]. Parasitic infections like intestinal worm infections, can also lead to malnutrition. People may become malnourished due to abnormal nutrient loss or increased energy expenditure [100].

CONCLUSION

Nutritional support in children is very common. It can be resolved by the help of physicians, nurses and dietetic staff. Treatment for nutritional deficiencies is not always specific it can be treated by finding the exact cause of the disease. Nutrition is the most important aspect of living organism. Ways and methods must be implemented to minimize malnutrition.

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