**Human Nutrition and Health**

**Terms of reference**

The purpose of the paper is to present a comprehensive analysis of food nutrients and their sources, and how choices of diet affect human health. The article will serve to provide a simple guide on how to maintain a healthy living. The report is limited to discussing the food choices and their nutrient value, sources and how their affect human health. Due to the scope of the report and time limitations, the report won’t address causes of the various food choices presented. People make bad or unhealthy dietary decisions because of lack of knowledge about their eating habits hence; the paper aims at bridging this gap by helping people with a simple guide to making a more conscious decision about their food choices.

**Research Methodology**

The research encompassed secondary sources to inform the purpose, findings, and conclusions of the report. Materials used were sourced from various electronic databases. The focus of the research was on nutrition research from a human health perspective. The focus is critical to help unite the aspects of food-intake and health-outcomes that have often been treated separately. The key phrases used to search previous literature were “nutrients sources,” and “diet effect on health.” The research did not analyze the concept of behavioral science explicitly despite its undeniable importance in determining individuals’ food choices. However, the interface with behavioral science would have been crucial but due to the scope of the paper was analyzing sources of nutrients and diet effect on health this was not possible.

**Findings**

The primary nutrients required by the body include fats, carbohydrates, proteins, vitamins, fiber, fluids, minerals, zinc, and sodium (Thomas, 2001). Proteins are used for growth of all cell structures in the body. Sources of protein include milk, eggs, meat, groundnuts, fish, cheese and peanut butter. Other sources consist of lentils, beans, cereals, and wheat. Deficiency in protein causes poor growth and development.

Carbohydrates comprise of simple sugars, and their function is the provision of energy (calories). Sources include yam, potatoes, rice, wheat flour, fruit, honey, milk, and foods with refined sugars such as soft drinks and sweets. Insufficient energy as a result of lack of carbohydrates leads to poor growth and development. Also, excess consumption of carbohydrates leads to obesity. Furthermore, dental carries may develop as a result of frequent and excess intake of simple sugars.

Fats are made up of fatty acids and complex lipids such as phospholipids and cholesterol. The function of fats is the provision of energy. Sources include the fats and oils used to cook foods, cream, cheese, biscuits, cakes, crisps and so on. Lack of enough energy (calories) from fat results in poor growth and development. On the other hand, excess consumption of fats can lead to obesity.

Fiber is also known as no-starch polysaccharides, and they are used to ensure the regular functioning of the bowel and intestines. Sources include fruits, vegetables, cereals, whole grain cereals and wholegrain flours. Insufficient fiber intakes result in the development of constipation and having a disordered bowel.

Fluids are essential for maintaining the blood pressure, healthy hydration and fluid balance. Sources include fruit juices, milk, vegetables, sauces, soups, diluted squashes, and fruits. Insufficient intake of fluid can cause constipation as well as dehydration that causes lethargy.

Vitamins are classified into various classes (vitamin A, B, C, D, E & K). Vitamin A is used for ensuring the strengthening of the immune system, healthy growth and development, excellent night vision and healthy skin. Sources include whole cows’ milk, orange, vegetables, dark and red fruits. Other sources are fish pie and liver pate. Deficiency of vitamin A leads to poor night vision, increased risks of respiratory and gastrointestinal infections (Cotton et al., 2004).

Vitamin B enables the development and growth of a healthy nervous system as well as aid in the conversion of food into energy. Sources include liver pate and yeast extracts, milk, cheese, yogurt, meat, eggs, bread, vegetables, and seeds. Insufficient Vitamin B results in the cracked and sore skin, damaged nerves. And it may also cause anemia and heart failure in some cases. Insufficient Vitamin B12 in the early months of pregnancy can cause Spina bifida.

Vitamin C is an antioxidant that inhibits cells from being damaged. It also helps in the maintenance of blood vessels, muscle, cartilage, and bone. It aids the absorption of iron from non-meat sources. It also helps in strengthening of the immune system as well as healing of wounds. Sources include fruits, vegetables, sweet potatoes, potatoes, mangoes and fresh juices. Insufficiency results in recurrent infections, slow wound healing, and bleeding gums. In rare cases, its deficiency can cause scurvy.

Vitamin D helps in the absorption of calcium into the body and therefore ensures the development of healthy bones. The primary source is the ultraviolet sunlight. Other sources include breakfast cereals with added vitamin D, fish cakes or pie made only with margarine, oily fish and whole milk. Its deficiency leads to weak bones, bone deformities, and rickets which is characterized by bowed legs, breastbone projection and thickened wrist.  This ailment sometimes leaves the patients stressful and neglected. With the risk of experiencing bone fracture the patient leave under fear of any sort harm thus being withdrawn.

Vitamin E is an antioxidant that shields the structures of the cells. Rich sources include avocados, meat, vegetable oils, eggs, meat, almonds, and fish. It is also present in a variety of foods. Its deficiency can be associated with the tendency to bleed.

There are several minerals required by the body for several purposes. Examples of these minerals include calcium, copper, fluoride, iron, iodine, magnesium, potassium, phosphorus, and selenium. Calcium is used to maintain the strength of bones and teeth. Richest sources of calcium are fortified soya milk, yogurt, milk, and cheese. Its deficiency leads to fits or bone deformities as a result of rickets. Iron helps in the carrying of oxygen in the blood (hemoglobin) and muscles (myoglobin). It is also essential in energy metabolism and the immune system. Primary sources are red meat and dark poultry meat. Its deficiency causes anemia which is sympolised by pale skin, insomnia, short of breath and upward curvature of the nails (O'Neil et al., 2012).

**Conclusions**

The food choices and dietary intakes are very crucial in achieving a healthy lifestyle. A knowledge of nutrients and their sources is critical in making sound decisions regarding eating habits. There are several benefits derived from consuming various nutrients and to get the best outcome there needs to be a balance between these nutrients. The deficiency of some nutrients can cause diseases such as anemia whereas overconsumption of other nutrients such as fats may lead to health problems like obesity. Therefore, it is prudent and undeniable to state that dietary intakes influence the health status of a person.

**Recommendations**

The body mass index (BMI) is used to measure the level of obesity. A BMI mark of 30 or above is considered obese. Michael BMI is at 30.93 which is obese and needs to reduce the carbohydrates and fats intake coupled with exercises such as long walks to maintain a healthy living. Stephanie scenario implies that she may not have been consuming enough vitamin B12 and iron that resulted in anemia (Mahan & Escott-Stump, 2003). Increasing the intake of Vitamin B sources such as breakfast cereals, milk, eggs, fish and vegetables, and sources of iron such as red meat (Pork and lamb) and dark poultry meat (thighs and legs of chicken) may help. The Indian group scenario needs to know that rickets is manifested by having fits or bone deformities due to calcium and vitamin D deficiency. To alleviate the problem individuals, need to ensure they get enough sunlight and increase consumption of milk, fortified soya milk, cheese, and yogurt.

Pete and Ann despite the physical activities they still have health challenges. Suffering from constipation implies they are not taking enough fluids and fiber. Increase in water intake including milk, diluted squashes, fruit juices will help alleviate the lack of enough water. They also need to increase consumption of fruits, vegetables, wholegrain cereals and flour to boost the fiber content in the body. Smoking is also harmful to the health by contributing immensely to the development of lung cancer, cardiovascular disease, high blood pressure, chronic obstructive pulmonary disease and asthma. Alcohol also can lead to diseases such as liver cirrhosis and alcohol-related violence. Abstaining from such habits and minding the food intakes is crucial in achieving a healthy lifestyle.

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