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Effects of Eating the Balance Food and Diet to Protect Human Health and Prevent Diseases

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Abstract

This informatory article provides details according to surveys and sources on the top foods considered to be the most healthy to improve the diets of poor and undernourished peoples across the local, national and global levels, and explores the linkages among them. Achieving and maintaining a good health is an on-going process, shaped by both the evolution of health care knowledge and practices as well as personal strategies and organized interventions for staying healthy. Access to better and more diversified diets is a key for combating problems of macronutrients, micronutrients and malnutrition or hidden hunger. An intellectual choice of foods that are tasty, nutritious and good for health helps to maintain a healthy body weight, improves overall mood, and reduces risk of developing diseases. Some of the Physicians conclude that diseases are caused by deficiencies of elements and there should be an equilibrium in food intake, and warn that let food be your medicine and medicine be your food. A well-balanced diet should contain carbohydrates, proteins, fats, vitamins and minerals. Nutrients help to build and strengthen bones, muscles and tendons, and also regulate body processes (i.e., blood pressure). Making healthy food choices is important because it can lower the risk of heart disease, developing some types of cancer and can contribute to maintain a healthy weight. Restricting or utilizing of specific nutrients should only be done under the supervision of a licensed health professional. Any medical information published in this article is not intended as a substitute for informed medical advice, so, prior to start any diet and food or before taking any action for feeding a foodstuff, always consult with an expert health care professional.

Keywords

Food, Diet, Health, Diseases, Nutrient, Ingredient

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1. Introduction

Health is the stage of purposeful competence of humans to adjust and handle when facing physical, mental or social challenges. Generally, the systematic activities to prevent or cure health problems and promote good health in humans are the efforts and intelligent lifestyle choices of an individual and the society. In this context the main determinants of health include the social and economic environment, the physical environment, and the person's individual characteristics and behavior. More specifically, key factors that have been found to influence whether peoples are healthy or unhealthy include the factors such as clean air, water and adequate diet. An increasing number of studies and reports from different organizations and contexts examine the linkages between health and different factors, including the food ingredients (Willett and Skerrett, 2005; Sarwar et al., 2014; Sarwar et al., 2015).

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Some contributing factors to poor health are lifestyle choices and these include smoking cigarettes and drinking alcohol. Among the health issues the key factor causing the health problems is malnutrition faced by majority of children and adults across the world. An adequate nutrition and a healthy productive population are increasingly recognized as essential for growth of a nation but also as an important prerequisite for poverty reduction, and economic and social development. Improvements in family diets and children's nutritional status globally are thus imperative for achieving the development related to the eradication of extreme poverty and hunger, and increasing survival of peoples (Ellen et al., 2013).

2. Food and Diet for Maintaining Health

Food includes what is eaten by human that can serve as the basis of the healthiest way of eating. The human's diet is what the peoples eat, which is mainly determined by the accessibility, handling and deliciousness of foods. A well diet comprises proper preparation of food and storage techniques that safeguard nutrients from oxidation, heat or leaching, and lessen threat of food borne sickness. Of course, there are many nutritious and health promoting foods such as fruits, vegetables, nuts, seeds, whole grains and other whole foods. A diet gears towards the healthiest way of eating as long as it is a whole, natural, nutrient-rich food and by all means these are enjoyed. The balance in diet indicates the amounts of nutrients that the health experts recommend to limit or consume in adequate amounts (Carpenter, 2003; Sarwar et al., 2013; Sarwar et al., 2013).

Contrary to balance diet, a poor diet may have an injurious impact on health, causing deficiency diseases such as blindness, anemia, scurvy, preterm birth, stillbirth and cretinism, health threatening conditions like obesity and metabolic syndrome, and such common chronic systemic diseases as cardiovascular disease, diabetes and osteoporosis. A poor diet can cause the wasting of kwashiorkor in acute cases, and the stunting of marasmus in chronic cases of malnutrition (Jere, 1996; Payne-Palacio et al., 2014).

Nutrition is the science that interprets the interaction of nutrients and other substances in food (e.g., phytonutrients, anthocyanins, tannins, etc.) in relation to maintenance, growth, reproduction, health and disease of an organism. It includes food intake, absorption, assimilation, biosynthesis, catabolism and excretion (National Institutes of Health, 2014). Nutritionism is the view that excessive reliance on food science and the study of nutrition can lead to poor nutrition and to ill health. When too much of one or more nutrients are present in the diet to the exclusion of the proper amount of other nutrients, the diet is said to be unbalanced (Pollan, 2008).

3. Registered Dietician or Nutritionist

Food has particular nutritional properties including the energy value and the contents of proteins, fats and carbohydrates, as well as the contents of vitamins and minerals. Restricting or utilizing of specific nutrients should only be done under the supervision of a licensed health professional. The registered Dietician or Nutritionists are health professionals qualified to provide safe, evidence-based dietary advice which includes a review of what is eaten, a thorough review of nutritional health and a personalized nutritional treatment plan. They also provide preventive and therapeutic programs at work places, schools and similar institutions especially in terms of licensing of government regulations. The certified clinical Nutritionists are trained health professionals who also offer dietary advice on the role of nutrition in chronic disease, including possible prevention or remediation by addressing nutritional deficiencies before resorting to drugs (Glewwe et al., 2001; Montouri et al., 2012). Nutrition is taught in schools in many countries by stressing the importance of a balanced diet that is an effective and workable model in a higher education setting. Federal and state government organizations have been working on nutrition literacy interventions to address the nutrition information including the family nutrition program serving free to low income adults.

4. Nutrients Required by Body

An important way to maintain the personal health is to have a healthy diet that includes a variety of plant-based and animal-based foods that provide nutrients to the body. Such nutrients give energy and keep the body running. Most foods contain a mix of some or all of the nutrient types, and the nutrients that peoples are known to require are of two types; macronutrients which are needed in relatively large amounts and micronutrients which are needed in smaller quantities. A type of carbohydrate, dietary fiber i.e., non-digestible material such as cellulose, is also required, for both mechanical and biochemical reasons. Other micronutrients include antioxidants and phytochemicals, which are said to influence or protect some body systems. Their necessity is not as well established as in the case for instance, vitamins. Poor health can be caused by a lack of required nutrients, or in extreme cases, too much of a required nutrient. Most foods contain a mix of some or all of the nutrient types, together with other substances, such as toxins of various sorts (Fuhrman, 2014).

4.1. Macronutrients

The macronutrients are carbohydrate, fat, protein, fiber and water. The macronutrients (excluding fiber and water) provide structural material (amino acids from which proteins are built, and lipids from which cell membranes and some signaling molecules are built) and energy often called Calories. Molecules of carbohydrates and fats consist of carbon, hydrogen and oxygen atoms. Carbohydrates range from simple monosaccharides (glucose, fructose, galactose) to complex polysaccharides (starch). Fats are triglycerides, made of assorted fatty acid monomers bound to a glycerol backbone. Protein molecules contain nitrogen atoms in addition to carbon, oxygen and hydrogen. The fundamental components of protein are nitrogen containing amino acids, that can be metabolized to intermediates in cellular respiration, and the remaining ammonia is discarded primarily as urea in urine (Berg et al,. 2002).

4.1.1. Carbohydrates

Carbohydrates may be classified as monosaccharides, disaccharides, or polysaccharides depending on the number of monomer (sugar) units that contain one, two and three or more sugar units, respectively. Polysaccharides are often referred to as complex carbohydrates because these are typically long, multiple branched chains of sugar units. Glucose stimulates the production of insulin through food entering the bloodstream, which is grasped by the beta cells in the pancreas (Jenkins et al., 1986).

4.1.2. Fiber

Dietary fiber is a carbohydrate that is incompletely absorbed in humans and consists mainly of cellulose, because humans do not have the required enzymes to disassemble it. Whole grains, fruits (especially plums, prunes and figs), and vegetables are good sources of dietary fiber that helps to reduce the chance of gastrointestinal problems such as constipation and diarrhea by increasing the weight and size of stool and softening it. Insoluble fiber, found in whole wheat flour, nuts and vegetables, especially stimulates peristalsis, which is the rhythmic muscular contractions of the intestines, which move digesta along the digestive tract. Soluble fiber, found in oats, peas, beans and many fruits, dissolves in water in the intestinal tract to produce a gel that slows the movement of food through the intestines.

4.1.3. Fats

A molecule of dietary fat typically consists of several fatty acids (containing long chains of carbon and hydrogen atoms), bonded to a glycerol. Fats may be classified as saturated or unsaturated, saturated fats (typically from animal sources such as butter or lard) have been a staple food in many cultures, but unsaturated fats (vegetable oils such as olive oil or flaxseed oil) are considered healthier, while trans fats are to be avoided (Mitchell and Haroun, 2012).

4.1.4. Essential Fatty Acids

Most fatty acids are non-essential, meaning that the body can produce these as needed, however, at least two fatty acids are essential (omega-3 and omega-6) and must be included in the diet for health or taken in through marine food sources. The amount and type of carbohydrates consumed, along with some types of amino acid, can influence processes involving insulin, glucagon, and other hormones; therefore, the ratio of omega-3 versus omega-6 has wide effects on general health, and specific effects on immune function and inflammation, and mitosis (i.e., cell division).

4.1.5. Protein

Proteins are structural materials in much of the animal body (e.g., muscles, skin and hair) and each protein molecule is composed of amino acids (twenty amino acids are found in the human body). A diet that contains adequate amounts of amino acids is particularly important during early development and maturation, pregnancy, lactation, and injury or burn. It is possible with protein combinations of two incomplete protein sources (e.g., rice and beans) to make a complete protein source and characteristic combinations are the basis of distinct cultural cooking traditions.

4.1.6. Water

Water is excreted from the body in multiple forms including urine, feces, sweating and by water vapor in the exhaled breath. Therefore, it is necessary to adequately rehydrate the body to replace lost fluids. Recommendations for the quantity of water required for maintenance of good health suggest that 6-8 glasses of water daily is the minimum to maintain proper hydration (Le et al., 2010). However, for healthful hydration, the current guidelines recommend total water intakes of 2.0 lit/ day for adult females and 2.5 lit/ day for adult males. Pregnant and breastfeeding women require additional 700 ml water/ day above the recommended intake values than for non-lactating women.

4.2. Micronutrients

The micronutrients are mineral, vitamin and others.

4.2.1. Minerals

Dietary minerals are inorganic chemical elements required by living organisms, other than the four elements carbon, hydrogen, nitrogen and oxygen that are present in nearly all organic molecules. Some Dieticians recommend that these be supplied from foods in which they occur naturally or at least as complex compounds, or sometimes even from natural inorganic sources (such as calcium carbonate from ground

oyster shells). On the other hand, minerals are often artificially added to the diet as supplements and the most famous is likely iodine in iodized salt which prevents formation of goitre.

(i). Macrominerals

Many elements are essential in relative quantity; these are usually called bulk minerals, and play a role as electrolytes. Elements with recommended dietary allowance greater than 150 mg/ day are calcium, chlorine, magnesium, phosphorus, potassium, sulfur, sodium and calcium.

(ii). Trace Minerals

Many elements are required in trace amounts, usually because these play a catalytic role in enzymes. Some trace mineral elements (< 200 mg/ day) are cobalt, copper, chromium, iodine, iron, manganese, zinc, nickel, selenium, vanadium and molybdenum.

4.2.2. Vitamins

As with the minerals discussed above, some vitamins are recognized as organic essential nutrients, necessary in the diet for good health including vitamin D and vitamin-like compounds such as carnitine. Vitamin deficiencies may result in disease conditions, including goiter, scurvy, osteoporosis, impaired immune system, disorders of cell metabolism, certain forms of cancer, symptoms of premature aging, and poor psychological health (including eating disorders), among many others.

4.3. Other Nutrients

In general, other micronutrients are the more recent discoveries that include phytochemicals which may act as antioxidants, but not all phytochemicals are antioxidants.

4.3.1. Phytochemicals

In general, phytochemicals are chemical compounds that occur naturally in plants and may have biological significance, for example antioxidants. Many fruits and vegetables that contain phytochemicals are thought to be components of a healthy diet.

4.3.2. Antioxidants

A cellular metabolism or energy production requires oxygen, and potentially damaging (e.g., mutation causing) compounds known as free radicals. Most of these are oxidizers (i.e., acceptors of electrons) and some react very strongly. For the continued normal cellular maintenance, growth and division, these free radicals must be sufficiently neutralized by antioxidant compounds and studies suggest that antioxidant supplements might promote health.

4.3.3. Intestinal Bacterial Flora

Human intestines contain a large population of gut flora such dominant phyla are Firmicutes, Bacteroidetes, Actinobacteria and Proteobacteria. These are essential for digestion including breaking down and aiding in the absorption of otherwise indigestible food, stimulating cell growth, repressing the growth of harmful bacteria, training the immune system to respond only to pathogens and defending against some infectious diseases (Guarner and Malagelada, 2003; Khanna and Tosh, 2014).

5. Healthy Diets

An important way to maintain the personal health is to have a healthy diet. A healthy diet includes a variety of plant-based and animal-based foods that provide nutrients to body. Such nutrients give energy and keep the body running. Nutrients help to build and strengthen bones, muscles, and tendons and also regulate body processes (i.e., blood pressure). Making healthy food choices is important because it can lower the risk of heart disease and developing some types of cancer, and it can contribute to maintain a healthy weight.

5.1. Whole Plant Food

Generally, whole plant food is considered a healthy diet because it has been found in some regions that peoples have virtually no cancer or heart disease, with shifts from diets that are found to be entirely plant-based to heavily animal-based. Similarly, peoples rarely suffer from these diseases possibly where their diets are rich in vegetables, fruits and whole grains, and have little dairy and meat products. The healthcare nutrition guidelines recommend a whole plant food diet, and propose using protein only as a condiment with meals. Generally to display longevity and avoid suffering from a fraction of the diseases that commonly kill peoples in many parts of the world, eating fruits, vegetables and whole grains is best practice to emulate. In sum, the habit of consuming beans, soy milk, tomatoes and other fruits lower the risk of developing certain cancers, while eating whole grain bread, drinking five glasses of water a day and consuming of nuts reduce the risk of heart disease (Campbell and Campbell, 2005).

5.2. Milk as a Source of Macro and Micronutrients

Milk intake may be a marker for quality diet because of its high nutrient content as it is an excellent source of macro and micronutrients, high in energy, lipids, proteins also including calcium and vitamin which are critical for growth and development. Milk fat contributes about half of the energy in whole milk, and for this reason, animal milk can play an

important role in the diets of infants and young children in populations with a very low fat intake (Fulgoni et al., 2007; Michaelsen et al., 2011). Food-based approaches include dietary diversification and modification (adding new elements into the diet to boost its nutritional content or help the absorption of micronutrients), biofortification (changing the composition of agricultural products through breeding or genetic modification) and fortification (adding micronutrients to food or putting them in processed foods rather than giving supplements as a pill). According to Gibson (2011), a combination of health approaches is likely to be needed in developing countries. Dairy products provide a way to diversify the diet, and when consumed in moderate quantities can enhance the diet and improve nutrition. Thompson (2011) suggests that using micronutrient-rich foods to create a balanced diet is a more sustainable way to improve nutrition than providing supplements. Breastfeeding enhances the emotional and physical well-being of both mother and baby. Breast milk is the best food for infants owing to an ideal blend of nutrients, and provides everything a baby needs for growth and development. It is also easy for the baby to digest, and contains antibodies to protect from infections such as coughs, colds and tummy upsets, as well as long-term health benefits (Brian, 2004).

6. Physical Health and Nutrition

Puberty is a good time for children and youth to begin taking responsibility for their physical health from what they eat to keep themselves fit. In addition to maintain a healthy diet and being active each day, adolescents should get a good night's sleep, receive dental check-ups twice a year and a physical check-up once a year. During this phase, adolescents with chronic conditions like asthma and depression can begin to learn how to manage those conditions. Although some adolescents face barriers to receive an adequate diet yet they have to take care and check-ups for health (Glewwe et al., 2001; Lakhan and Vieira, 2008).

7. Conclusion

These food guidelines are relevant to children and adults, and are intended as a resource and guide for all relevant stakeholders, careers, parents and school inspectors. This article also fulfils the important commitment to sufficient, nutritious and varied foods, available to a child or adult. A proper maintenance and promotion of health is achieved through different combination of physical, mental, and social well-being, together with the environment that is often cited as an important factor influencing the health status of individuals. As outlined in the guidelines, the early years are critically important for the formation of good habits and a positive attitude towards healthy varied eating. Research findings show a correlation between a wide range of positive health behaviors and the consumption of fruits and vegetables amongst humans, and healthy eating is essential for long-term health benefits. Food or diet constituents refer to energy, nutrients, related substances, ingredients and any other feature of a whole food. Research shows that some combinations of a variety of plant and animal based foods that provide nutrients to body to give energy, keep body running, regulate body processes and help in build and strengthen of bones, muscles and tendons, Good nutrition and healthy eating habits build a healthy foundation for future generations. The use of a balance food and nutrition can assist in providing healthy diet to younger and mature individuals as well as developing positive attitudes to eat and physical activity as part of a healthy lifestyle. Usually, it is a good idea to see the Physician before starting a nutrition program as a filter or safety net to help in deciding whether or not the potential benefits of diet outweigh the health risks for a person.

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