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The Role of Fruits and Vegetables in Improving Household Nutrition and Wellness

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Abstract: *This paper examined the roles of fruits and vegetables in improving household nutrition and good health. Diets rich in plant-based foods such as fruits and vegetables, whole grains and legumes have been found to increase longevity and reduce the susceptibility of people to cancer and chronic diseases. The role of phyto-nutrients (antioxidants) in protecting human cells from oxidative stress caused by unstable molecules (free radicals) were discussed. These free radicals have been associated with various cancers, Alzheimer disease, cardiovascular disease and age-related functional decline. Heart disease, cancer and stroke are amongst the major causes of death in Africa which can be avoided by increasing the consumption of fruits, vegetables and whole grains for wellness.*

Keywords: *Fruits, Vegetables, Nutrition, Wellness, Whole Grains, Household.*

INTRODUCTION

Food scarcity is the most serious problem threatening humanity, with over 300 million people in the world malnourished (FAO, 1985). Food provides not only essential nutrients needed for life but also other bioactive compounds for good health and disease prevention. Previous epidemiologic studies have consistently shown that diet plays a crucial role in the prevention of chronic diseases (Temple, 2000).

Nutritional science looks at the relationship between diet and health. Adequate nutrition encourages wellness, once the individual incorporates fruits and vegetables into the daily menu. Nutrition is the process of getting food into the body and using it as raw materials for growth, fuel for energy and vitamins and minerals that keep the body healthy and functioning properly (Abimbola, 2012). The consumption of variety of food provides various nutrients and functional foods which contribute greatly to healthy living. It is a common saying that health is wealth. When members of the family are healthy, they would be productive and consequently contribute to the development of the nation.

Generally, vegetables can be described or seen as the major succulent plant parts that may be eaten as major food plants, as supplementary foods or side dishes in the raw or coked form alone or in combination with meat or fish, in stews, soups and various preparations (Mba et al., 2014). They provide a source of food low in calories and dry matter content and are often consumed in addition to starchy food in order to make them more palatable (He et al; 2007). They are also universally recognized to have a greater nutritional value and form an essential part of an adequate human diet. Fruits on the other hand are developed from flowers and house seeds. They are commonly consumed as desert. Fruits are fleshy or pulpy in character often juicy and usually sweet with fragrance aromatic flavour.

Consumption of fruits and vegetables, as well as grains has been strongly associated with reduced risk of cardiovascular disease, cancer, diabetes, Alzheimer disease, cataracts and age-related functional decline (Redy, 2015; Mba et al;2014). Generally fruits and vegetables abound in nature. Within Nigeria, especially in the southern parts of the country, the fruits that are more available are members of citrus species (oranges, grape fruits, lime and lemon); Musa species (banana, plantain); Ananas sativa (pineapple); paw-paw (carica papaya); cashew (Anacardium occidentale), African star apple (chrysophylum albidium) and many other common tropical fruits are known. Leafy vegetables like bitter leaf (veronica amygdalina), fluted pumpkin leaf (Telferia occidantalis), water leaf (solanium triangulare), spinarch (green) (Amaranthus hydridus), wild spinarch (okazi) (gnetum africanum), Oha ojii (African rose wood) (pterocarpus mild braelii Harms) and many other leaves consumed in these areas supply the needed vitamins and minerals for good nutrition and wellness (FAO/WHO, 2004). Majority of these fruits and vegetables contain photochemicals and antioxidants which are substances that protect the cells from the damage caused by unstable molecules known as free radicals. Antioxidants interact with and stabilize free radicals to minimize or even prevent the damage caused by free radicals. Free radicals are molecules produced when the body break down food or by environmental exposure to the smoke from tobacco and radiation.

Fruits and vegetables are rich in minerals, vitamin B and pro vitamin A (lycopene) and vitamin C (as antioxidant) and phytochemical which explains their ant carcinogenic effect in humans (George, 2007). Other sources of antioxidants include egg which contains lutein (Oladummoye et al; 2012). According to the authors, the zeaxanthin, a yellow pigmented carotenoid is present in many yellow and orange fruits and vegetables; flavonoids and isoflavones and vitamins A, C and E and other nutrients are abundant in fruits and vegetables as well as other foods including nuts and grains.

Heart disease, cancer and stroke are among the leading causes of death in Africa and most industrialized countries. It is estimated that one third of all cancer deaths in Africa could be avoided through appropriate dietary modification (Norman and Joseph, 2007), which suggests that a change in dietary behaviour such as increasing consumption of fruits, vegetables and grains may be overtly responsible for significant reduction in the incidences of chronic diseases, hence improving/promoting household nutrition and wellness. This review focused on the role of fruits and vegetables in promoting household nutrition and wellness.

Nutritional Composition of Fruits and Vegetables

Other than the various nutrient that are beneficial to human health, the essential vitamins, minerals, fibre and other substances are also found in fruits and vegetables. Most fruits and vegetables are naturally low in fat and calories but high in fibre. Fruits contain about 75 – 90% moisture; 2 – 20% carbohydrate;0.2 -2 % protein; 0 – 1% fat; minerals contained in fruits include 5 – 40mg/100g calcium, 0.1 – 1.0mg/100g iron; vitamins include 0 – 300mg/100g ascorbic acid, 0 -10mg B-carotenes, small and variable amounts of thiamine, riboflavin and nicotinic acid (Okaka, 1997). One essential nutrient which is found in fruit is ascorbic acid or vitamin C. Almost all fruits contain physiologically significant amount of this vitamin. Carbohydrate in fruits consists of various kinds of sugar such as glucose, sucrose and fructose, in addition to indigestible cellulose, hemicellulose and pectin, which act as dietary fibre, add bulk to the diet and may sometimes act as mild natural laxatives to human beings. Fruits contain various organic acids, mainly as citric and sometimes tartaric acid in grape fruit. The acid in fruits confers on it pH below 7. Thus fruits are usually described as acid foods (Frazier, 1977). Lime, lemon and black current have high acidity, orange and grape fruit have moderate acidity while apples have low acidity.

Vegetables, on the other hand, contain sugars, organic acids, mineral salt, volatile sulphure compounds, tannins and non-volatile acids such as malic, citric, oxalic and succinic acids which contribute to flavour. The proportion of the fibres in the vegetables depends on maturity. The turgidity or rigidity of the vegetables also depends on the water content, which may sometimes be between 75% and 95%. With respect to the nutritive value of vegetables, they are low in calorie, they contribute fairly moderate quantities of proteins and are however, rich sources of vitamins, minerals and contribute roughage or dietary fibre to the diet when the solid

marter is considered (Enwere, 1998). Vegetables are generally low in fat content in which the fat soluble vitamins such as the carotene, vitamins E and K in the vegetable are soluble. The dietary fibre in vegetables increases bulk and reduces food transit time in the alimentary canal and the incidence of constipation and other related diseases.

A daily diet rich in fruits and vegetables is low in fat and cholesterol and when combined with daily exercise can help fight overweight, obesity and other related chronic diseases such as hypertension, diabetes, cancer and heart disease. Nutrition is a basic wellness necessity since wellness is a state of emotional, mental, physical, social and spiritual wellbeing that enable people to reach and maintain their personal potential in their various communities

The Role of Fruits and Vegetables in Promoting Household Nutrition and Wellness

The National Academy of Science had in their 1989 report on Diet and Health emphasized that fruits and vegetables are important in diets. According to the report, citrus fruits and vegetables especially cruciferous vegetables when added to the diet reduce the risk of cancer. From the same report, it was recommended that people should consume 5 or more servings of fruits and vegetables daily so as to reduce the risk of cancer, stroke and heart diseases. Since prevention is a more effective strategy than treatment of chronic diseases, consumption of plant based foods such as fruits, vegetables and whole grains, which contain significant quantities of bioactive phytochemical substances may provide desirable health benefits beyond basic nutrition to reduce the risk of chronic diseases (National Academy of Science, 1989). The susceptibility of people to heart diseases can be regulated by diet. From a recent study by Harvard-based Nurses and Health Professionals, the health and dietary habits of almost 110,000 men and women were followed for 14 year. It was observed that those who had higher average daily intakes of fruits and vegetables presented lower chances of developing cardiovascular disease. Report from a similar research showed that people in the lowest category of fruits and vegetable intake (less than 1.5 servings a day) were more at risk compared to those who consumed on the average 8 or more servings a day, who were said to be 30% less likely to have a heart attack or stroke (Hung et al., 2004). Eating more fruits and vegetables can also help to lower cholesterol level in the body. Despite the fact that all frits and vegetables contribute to these benefits, green leafy vegetables such as lettuce, spinach, cabbage and citrus fruits such as oranges, lemon, limes and grapefruits make important impact.

Fruits and vegetables contain a wide variety of antioxidant (phytochemcials) that may help protect cellular systems from oxidative stress and lower the risk of chronic diseases. Leafy vegetables are reportedly inexpensive, easy to cook, rich in vitamins and provide dietary fibre (Barminas et al., 1998). Research has shown that phytochemcials in certain fruits and vegetables can have complementary and overlapping mechanisms of action, including modulation of detoxification enzymes, scavenging of oxidative agents, like free radicals, stimulation of immune system, regulation of gene expression in cell proliferation, hormone metabolism and antibacterial and antiviral effects (Waladkhari and Clemens, 1998). Nutritional wellness is achieved by eating adequate quantities of the proper nutrients from the various food groups. Poor nutrition can lead to reduced immunity, increased susceptibility to disease, impaired physical and mental development and reduced productivity (Abimbola, 2012). Any imbalance of nutrients, either in excess or deficiency can affect bodily function and cause poor health. This implies that for every household to improve their nutrition and wellness, their diets should be constituted from a diverse and abundant natural fruits and vegetables that are rich in antioxidants and not from expensive nutritional supplements, which do not contain the balanced combination of phytochemicals found in fruits, vegetables and whole grains. Furthermore, the health benefits of consuming fruits and vegetables transcends beyond lowering the risk of developing cancers and cardiovascular disease, as they also have preventive effects on other chronic diseases such as cataracts, age-related muscular degeneration, central neurodegenerative disease and diabetes (Genry, 2007). A balanced diet consisting of 5 – 9 servings of fruits and vegetables per day will ensure adequate intake of antioxidant nutrients for enhanced household nutrition and wellness.

Conclusion and Recommendations

Fruits, vegetables and whole grains are rich sources of antioxidants, fibre, minerals, vitamins B and C provitamin A (lycopene) and proteins that are essential for adequate nutrition and wellness. In our environment the consumption of fruits and vegetables is regulated by seasonality. The safest thing to do is to increase their intake at such periods, so as to reap the benefits.

From the foregoing, it is recommended that every house hold should eat mostly fruits and vegetables, dried peas, beans and whole grain cereals daily as they are good sources of proteins, minerals, vitamins and dietary fibre and provide adequate energy from carbohydrates. This will go a long way in promoting good nutrition and wellness among members of the society and reducing many chronic diseases that are prevalent in recent time.

References

1. Abimbola, J. (2010). Food Nutrition and Wellness. In food forum: A publication of Nigeria Institute of food science and Technology, ALFATOA communication, Ikeja, Lagos, 11, 1, 47 – 49.
2. Barminas, J.F., Charles, M., Emmanuel D, (1998). Mineral composition of non-conventional leafy vegetables, Plant Foods for Human Nutrition, 53, 29 – 36.
3. Enwere, N.J. (1998). Fruits & Vegetables in Foods of Plant Origin. A fro-Orbis Publishers, Nsukka. Pp. 153 – 168.
4. FAO, (1985). Traditional food plants, food and Nutrition paper. FAO, Rome, Italy, 42, 1.
5. FAO/WHO. (2004). Fruits and vegetables for health, Report of Joint FAO/WHO Workshop, 1 -3 September, 2004, Kobe, Japan.
6. Frazier, W.C. (1977). Food microbiology. Second edition. Tata McGraw-Hill Publishing Co. Ltd. New Delhi.
7. Ganry, J., (2007). Current status of fruits and vegetables production and consumption in francophone African countries – potential impact on health, FAO-WHO workshop, 23 – 26 October, 2007, Yoaunde, Cameroon.
8. George, D.P. (2007). Encyclopedia of foods and their healing power. A guide to food science and diet therapy, 7th English print, editorial safelize Madrid, 2, 271-277.
9. He, F.J., Nowson, C.A., Lucas, M. and McGregor, G.A. (2007). Increased Consumption of Fruits and Vegetables is related to a reduced risk of coronary heart disease: Meta-analysis of cohort studies. Journal of Human Hypertens. 21: 717 – 72 8
10. Hung, H.C, Josphipura, C.J. and Jiang, R. (2004). Fruits and vegetable intake and risk of major chronic diseases. Journal of National Cancer Inst, 96, 1577 – 1584.
11. Mba, B.O, Eme, P.E; and Ogbonna, C.G. (2014). Comparative analysis of the phytochemicals and nutrient composition of Moringa-based soups and other vegetable soups. Proceedings of the 43rd Nutrition society of Nigeria and Annual General meeting and scientific conference, pp. 51 – 53.
12. National Academy of Science, (1989). National Academy of Sciences, committee on Diet and Health National Research Council, Diet and Health, Implications for Reducing Chronic Disease Risk. Washington D.C. National Academy Press.
13. Norman, N. and Joseph, H.H. (2007). Vegetables and Fruits: In Food Science, 5th Edition, CBS Publishers, New Delhi, India. Pp. 409 – 425.
14. Okaka, J.C. (1997). Tropical Plant perishables: Handling, Processing, Storage. Silicon Publisher, Enugu.
15. Oladumoye, F., Olufidipe, B., Omosebi, T., Olayinka, O., (2012) Therapeutic Effects of Antioxidants in just a drink!!! Food forum: A publication of Nigeria Institute of Food science and Technology, ALFATOA Communications, Ikeja, Lagos, 11, 1, 44.

16. Redy, S.M., (2015). Fruits and Vegetables: In Basic Food Science and Technology, New Age International Publishers, New Delhi, India. Pp. 354 – 367.
17. Temple, N.T., (2000). Antioxidants and Disease: More questions than answers. Nutr. Res. 20, 49 – 59.
18. USDA, (2004). Nutrients Database for standard Reference (SR 17).
19. Waladkhani, A.R. and Clemens, M.R. (1998). Effect of Dietary Phytochemicals on Cancer Development. Int. J. Mol. Med, 1, 47 – 53.