

TRADITIONAL FOODS; NUTRITIONAL ASPECTS

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Abstract:

Currently the society is undergoing an increasing apprehension about food and diet effect on human health. The functional food insight was introduced in the last century and has become a regular element of importance on the consumer's life. Present day life style, increase in rate of life expectancy and medication high costs are the factors that lead food industry to study the specific food properties that might help to prevent and treat several ailments. Traditional Diets/Foods prove to be an excellent source of Functional foods. These are the foods or dietary components that may provide a health benefit beyond basic nutrition. It is imperative to enhance consumption of these foods on regular basis and must be included in a balanced diet in order to achieve good health. Consumer's awareness on food health benefits has been rising day by day with the rapid growth of food market segment. Traditional Foods are hub of all nutrients with special focus on the availability of essential amino acids and vitamins. It is essential to include traditional foods in our food servings in order to gain good health

Key Words: Aboriginal Foods; Traditional Diets; Vitamins Deficiency; Mineral Deficiency; Malnutrition

Introduction

Discussing about aboriginal foods/diets, tradition is a very large subject that can be addressed at different levels: within social groups as small as a family or as a function of time scale for example, traditional foods can be correlated to particular events such as a

wedding or a birthday as for example the traditional wedding cake in Great Britain. Religious factors also have a great importance in the discussion about traditional foods: like prohibited foods in Islam and other religions, special dishes corresponding to an event of the religious calendars.

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Traditional foods are also often associated to local foods and artisan foods referring to particular ingredients, location of the production and know-how/information about specific foods and their ingredients. It could be the food made by your grand-mother or by the native people of your country (ethnic food).

Traditional foods were supposed to have a direct connection to agriculture. It is usually admitted that the phrase "traditional food" refers to a product with explicit raw materials with a recipe known for a long time prepared by following a specific method.

Traditional foods reveal cultural inheritance and have left their traces on contemporary dietary patterns. They are key elements for the dietary patterns in different countries and consequently are significant to precisely and calculate approximately population dietary intakes.

Significance of Micro-nutrients in Traditional Foods

Quality of a diet is an important limiting factor to adequate nutrition in many resource-poor settings. Similarly dietary quality with respect to adequacy of micronutrient intakes is also one of an important aspect of is bioavailability. Several traditional household food-processing and preparation methods can be used to enhance the bioavailability of micronutrients in plant-based diets. These include thermal processing, mechanical processing, soaking, fermentation, and germination/malting. Main objective of all these strategies aim to augment the physicochemical accessibility of micronutrients, reduce the content of antinutrients, such as phytates, or increase the

content of such compounds that improve bioavailability. An amalgamation of strategies is most likely to be required in order to ensure a positive and significant effect on micronutrient adequacy.

Connotation of Vitamins in Traditional Foods

Vitamins are available in two forms: water-soluble and fat-soluble. Water-soluble vitamins are easily lost through bodily fluids and must be replaced each day. Water-soluble vitamins include the B-complex vitamins and vitamin C. Vitamins B6 and B12 are two of the most well-known B-complex vitamins. Since they are not lost as easily as their water-soluble counterparts, **fat-soluble vitamins** tend to accumulate within the body and are not needed on a daily basis. The fat-soluble vitamins are A, D, E and K.

Role of Traditional Foods in Alleviation of Micro Nutrients Deficiencies

Micronutrient deficiency is a universal problem, which presently affects over two billion people worldwide, resulting in poor health, low worker productivity, high rates of mortality and morbidity. Deficiency in micronutrients has led to increased rates of chronic diseases and permanent impairment of cognitive abilities in infants born to micronutrient deficient mothers. Wild vegetables have been the mainstay of human diets for centuries, providing millions of consumers with important micronutrients, such as vitamins and minerals needed to maintain health and promote immunity against infections. Compared to conventional

cultivated species, wild vegetables are hardy, require less care, and are a rich source of micronutrients. Hence, they could make an important contribution to combating micronutrient malnutrition as well as providing food security. Unfortunately, wild vegetables are currently underutilized, and have been neglected by researchers and policy makers. Their promotion and integration into human diets could assist in their protracted use and consequent conservation. However, the chemical, nutritional and toxicological properties of especially local wild vegetables, the bioavailability of micronutrients present in these, and their modification by various processing techniques still need to be properly established and documented before their use as an alternative dietary source can be advocated.

Vitamin A, D and E

According to a research, approximations of retinol (A), cholecalciferol (D), and α -tocopherol (E) in frequently consumed traditional Arctic food were made and applied to dietary analysis within a large-scale effort to assess nutrient adequacy of Indigenous Peoples in the Canadian Arctic. A total of 180 independent samples of Arctic traditional food species expected to be reasonable sources of fat soluble vitamins were sampled from a wide geographic range. Many values for these vitamins are reported for the first time in these tissues. Excellent sources of all three nutrients were found in sea mammal fats (beluga, narwhal, seal, walrus) and organ meats (liver of both sea and land species). Fish (char, cisco, lake trout, loche, sculpin, whitefish) was especially rich in D, with highest levels in loche liver (mean 318 $\mu\text{g}/100\text{ g}$). It is concluded that

traditional food resources that are excellent sources of fat-soluble nutrients can be promoted to protect vitamin nutrition in Arctic indigenous populations.

Pessimistic Consequences of Modern Processed Foods on Health

In a research, diets in 16 Dene/Metis communities in the Canadian Arctic were assessed. Nutrient intakes and identified nutrients at risk among adult Dene/Metis, evaluated the influence of traditional food on diet quality, and examined the direction of dietary change by comparing intergenerational and between-community differences in dietary intake. Diet varied according to sex, age and community. Nutrients of possibly inadequate intake (irrespective of subject sex, age or community) included calcium, vitamin A and folic acid. Dietary fiber intake was also of concern. Traditional food (animals and plants harvested from the local environment) was consumed on 65.4% of interview days; on those days intakes of iron, zinc and potassium were higher and those of sodium, fat, saturated fat and sucrose were lower than on days when market food only was consumed. In this population, the shift away from traditional food towards a diet composed exclusively of market food was characterized by an increase in absolute energy intake and an increase in the relative contributions of carbohydrate (particularly sucrose), fat and saturated fat. This pattern of change calls for initiatives to document the current health status of this population and to prevent potential negative health consequences of dietary change.

Global high prevalence of vitamin D insufficiency and re-emergence of rickets and

the growing scientific evidence linking low circulating 25-hydroxyvitmain D to increased risk of osteoporosis, diabetes, cancer, and autoimmune disorders have stimulated recommendations to increase sunlight (UVB) exposure as a source of vitamin D. However, concern over increased risk of melanoma with unprotected UVB exposure has led to the alternative recommendation that sufficient vitamin D should be supplied through dietary sources alone. It is evident from global review that vitamin D intake is often too low to sustain healthy circulating levels of 25-hydroxyvitmain D in countries without mandatory staple food fortification, such as with milk and margarine. Even in countries that do fortify, vitamin D intakes are low in some groups due to their unique dietary patterns, such as low milk consumption, vegetarian diet, limited use of dietary supplements, or loss of traditional high fish intakes. This global review indicates that dietary supplement use may contribute 6–47% of the average vitamin D intake in some countries. Recent studies demonstrate safety and efficacy of community-based vitamin D supplementation trials and food staple fortification introduced in countries without fortification policies. Reliance on the world food supply as an alternative to UVB exposure will necessitate greater availability of fortified food staples, dietary supplement use, and/or change in dietary patterns to consume more fish.

Barley-main Hub of Vitamins

Barley and wheat always remain the most popular in Pakistan from the cereals group. Barley has very important health effects but unfortunately people are moving towards the processed foods and leaving behind the

unprocessed and natural sources of food. Barley water is a good source of dietary fiber and adding it to daily diet will help to get the recommended daily dosage of fiber. (Ohiokpehai and Omo, 2003).

Barley is a rich source of phosphorous that is very important for cell production and repair in the body. It contains a good amount of copper and is therefore beneficial to people suffering from arthritis (inflammation of joints) and other inflammatory diseases. Ancient civilizations believed that barley water was a good remedy for improving complexion which means lighten the skin color and reducing the signs of aging and now it is proven scientifically also. It is a rich source of vitamins B1, B2, B3, B5, B6, B9, and vitamin E and these B vitamins regulating various metabolisms in human body. Barley water is also a good source of minerals like selenium, calcium, magnesium, iron, potassium, and zinc. There are a number of nutritional benefits of barley water that help treat and prevent a variety of diseases and disorders. Barley water because of its high fiber content lowers cholesterol levels in the body ultimately reduces high blood pressure. (Murooka et al, 2008).

Vitamin E

In another research with multiple logistic regression analysis, urban residence, positive skin tests, family history of allergic disease, and the lowest intakes of vitamin E, magnesium and sodium correlated significantly and independently to risk. In univariate analyses, family history, atopy, and eating at fast food outlets were significant risk factors for wheezy illness, as were the lowest

intakes of milk and vegetables and of fibre, vitamin E, calcium, magnesium, sodium, and potassium. These differences were present also in the urban children considered separately. Sex, family size, social class, infections, and parental smoking showed no relationship to risk. The lowest intake of vitamin E was associated with a threefold (95%) increase in risk when adjusted for the other factors. Intake of milk and vegetables both showed inverse linear relationships to being a case. Trichopoulou (2006).

This study concluded that dietary factors during childhood imposed significance influence in formulating the expression of wheezy illness, after allowing for urban/rural residence, sex, family history, and atopy. The findings are inconsistent with earlier studies in adults and with the hypothesis that alteration in diet has been a determinant of the worldwide increase in asthma and allergies.

Compatibility of Traditional Diet with Nutritional Recommendations

The longevity associated with the Mediterranean Diet could be partly attributed to Mediterranean traditional foods, which this diet incorporates. A weekly menu, representative of the Greek traditional diet, was found compatible with the nutritional recommendations of the European Commission and with high flavonoid content. The analysis of several traditional Greek foods indicated that they may add to the perceptible health benefits of the Greek version of the Mediterranean diet.

Alleviating Vitamin A Deficiency

Banana Cultivars rich in provitamin A

carotenoids may serve as an impending food source in the control of vitamin A deficiency, mainly in developing countries. A study suggested bananas to be an important food for many people in the world. Many factors are linked with the currently recognized food sources of vitamin A that bound their efficacy in improving vitamin A status. Suitable carotenoid-rich banana cultivars have been identified in Micronesia with identification of some carotenoid-rich bananas elsewhere. Bananas are an ideal food for young children and families for many regions of the world, because of their sweetness, texture, portion size, familiarity, availability, convenience, versatility, and cost. Foods which contains high levels of carotenoids have been shown to defend against chronic disease such as in certain cancers, cardiovascular disease, and diabetes. Color of the edible flesh of the banana seems to be an excellent sign of carotenoid content. So it may be possible to develop a simple method for selecting carotenoid-rich banana cultivars in the community. Research is needed on the identification of carotenoid-rich cultivars, targeting those areas of the world where bananas are a major staple food; investigating factors affecting production, consumption, and acceptability; and influencing the impact that carotenoid-rich bananas may have on improving vitamin A status. (Flyman et al., 2006, Receueur et al., 1997 and Calno et al., 2005).

Traditionally Produced Fermented Products are Rich in Micronutrients

A variety of fermentation products, such as foods containing probiotic bacteria, black rice

vinegar (kurosu), soy sauce (shoyu), soybean-barley paste (miso), natto and tempeh, are sold in food stores in Japan. These fermented food products are produced by traditional methods that exploit mixed cultures of various non-toxic microorganisms. These microorganisms include lactic acid bacteria, acetic acid bacteria, sake yeast, koji molds and natto bacteria. Many traditional fermented foods have been studied and their effects on metabolism and/or immune system have been demonstrated in animal and/or human cells. These traditionally prepared fermented products are rich in vitamins and minerals. Englberger and Lois (2003).

Aboriginal Diet and Nutritional Status

The aboriginal diet of the Arctic Eskimo, which consisted mainly of land and sea mammals and fish, is analyzed with respect to its capacity to provide the nutrients now regarded as essential for nutritional health. It is concluded that, despite its remarkably restricted composition, the native diet is capable of furnishing all the essential nutritional elements when prepared and consumed according to traditional customs. However, its low carbohydrate and high protein content necessitated major metabolic adaptations in energy and nitrogen metabolism. Erosion of the traditional diet culture and life style has been accompanied by a decline in nutritional status. Cayot and Nathalie (2007).

Conclusively, these local traditional vegetables, which do not require formal cultivation, could prove to be important contributors in the improvement of the nutritional status of rural and urban people.

Traditional Bangladeshi Fish Rich in Vitamin A

Bangladeshi diet, rich in sea food and fish. Emphasizing on the importance of fish in the diet, one of the Research which was based on the objective to screen commonly consumed fish species for vitamin A content to assess the potential of fish as a vitamin A source in food-based strategies to combat/increase vitamin A deficiency. In the regions of Kishoreganj and Mymensingh in Bangladesh, samples of 26 commonly consumed fish species and one crustacean were collected. The fish were cleaned by Bangladeshi women according to traditional practices to obtain edible parts. Distribution of vitamin A in parts of the fish and the effect of the cleaning practices on the vitamin A content in edible parts were measured. The content of vitamin A compounds was detected by high-performance liquid chromatography (HPLC). It was found that the vitamin A content in small fish ranged from 2680 retinol equivalents (RE)/100 g raw edible parts in mola (Amblypharyngodonmola) to 20 RE/100 g raw edible parts in chata (Colisalalia; an alternative scientific name is Colisalalius). Similarly the vitamin A content in cultured species, silver carp (*Hypophthalmichthys molitrix*), rui (*Labeorohita*), mrigal (*Cirrhinusmrigala*) and tilapia (*Oreochromisniloticus*) was low, <30 RE/100 g raw edible parts. In mola, 90% of the vitamin A was found in the eyes and viscera. Trichopoulou et al (2007).

It was concluded that the vitamin A content in the screened fish species was highly variable, by more than a factor of 100. The presence of commonly consumed fish in Bangladesh

belonging to the categories of very high and high vitamin A content offers a great unexploited potential for food-based strategies to improve the vitamin A intake by increasing /promoting the production/preservation and use of these species. Hotz et al (2007)

Vitamin B12 from Traditional Food Sources

Animal foods, meat, milk, egg, fish, and shellfish are the most common traditional dietary sources of vitamin B₁₂. As the intrinsic factor-mediated intestinal absorption system is estimated to be saturated at about 1.5–2.0 µg per meal under physiologic conditions so vitamin B₁₂ bioavailability considerably decreases with increasing intake of vitamin B₁₂ per meal. The bioavailability of vitamin B₁₂ in healthy humans from fish meat, sheep meat, and chicken meat averaged 42%, 56%–89%, and 61%–66%, respectively. Vitamin B₁₂ in eggs seems to be poorly absorbed (< 9%) in comparison to other animal food products. In the Dietary Reference Intakes in the United States and Japan, it is understood that 50% of dietary vitamin B₁₂ is absorbed by healthy adults with normal gastro-intestinal function. Some plant foods, dried green and purple lavers (nori) contain substantial amounts of vitamin B₁₂, although other edible algae contained none or only traces of vitamin B₁₂. Hijazi et al (2000).

According to a study, shifting of the diet from traditional to processed one in Mexican women has created the increased risk of breast cancer as the processed diet is deficient in folate, Vitamin B6 and Vitamin B12.

Conclusion

Traditional Foods particularly functional foods are very nutritive, energy providing and full of vitamins and minerals thus are suitable to be incorporated in daily life to combat various nutritional deficiencies. Additionally, fatty acids, fiber, and antioxidants high content contribute to protective properties against cancer, cardiovascular diseases, diabetes type 2, as well as neurological pathologies. Satiety sensation, caused by fiber and vegetable protein action, when consuming traditional foods, may help on obesity prevention/control. These foods being rich in antioxidants may contribute to reduce hepatic diseases risk. Arginine's high content associated to calcium levels may be compensated by foods rich in almond consumption an additional protection against osteoporosis, particularly for lactose intolerant individuals.

Traditional diet and foods are rich in vitamins but shifted trend towards processed and refined diet and food items has increased risk of many diseases and deficiencies, resulting in compromised nutritional status of the population.

Concluding, traditional foods in Pakistan have several functional potentialities that should be exploited to not only to valorize, explore and restore them but also to stimulate their consumption. Further investigations are recommended in order to a full nutritional characterization of Pakistani traditional foods. It would be beneficial to characterize Pakistani market as well as confirmation of functional properties mentioned in this work.

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