

Importance of Cooking Methods and Their Effects on Food and Nutrition

Uzma Fasih¹, Arshad Shaikh²

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Nutrition means how the food substances interact with each to maintain, health, disease and growth of an organism. Nutrition starts from food intake and involves absorption, assimilation, biosynthesis, catabolism, till excretion¹. The human diet is largely dependent on its availability and whether it is palatable or not. A healthy diet depends on hygienic preparation of food and safe storage to reduce the risk of food borne diseases¹.

Good and proper nutrition plays an important role for providing a healthy diet. Both physical activity and diet can help you to live a healthy life and reduce the risk of heart disease and cancer and promote an overall good health². Food choices every day can affect your health, the epidemic of obesity in the United States is the result of unhealthy eating habits. Almost one-third of U.S adults (33.8%) are obese and about 12.5 million (17%) of children and adolescents aged 2-19 years are obese².

Association between good nutrition and health is too important and cannot be ignored. If you take healthy food, you can maintain your health. By increasing your exercise and by making minute changes in your diet you can live a long healthy life².

Unhealthy diet and weight gain are major risk factors for diabetes and hypertension in young age. Dietary habits developed during childhood continue

in adulthood, so children should be taught to take a healthy diet at young age to live a healthy life².

Food is a gift from Allah Almighty. Many types of food are available in solid and liquid form. Many types are taken in raw form like vegetables and fruits.

When cooking food, heat can be transferred by conduction, or convection, radiation (microwave cooking). During conduction heat flows to the food stuff. For better and equal conduction bottom of the pan should be flat and thick as for example in steaming and poaching. Baking takes place by convection. In radiation heat only reaches the surface of food and the rest of the food is cooked by conduction and convection as for example in boiling or toasting³.

Cooking can be carried out in various medias as air, water, steam and fat or combination of these medias may be used. Grilling, roasting and baking take place in air. Boiling, simmering or stirring involves cooking in water. Steam is another medium for cooking. It is of three types. In steaming food is cooked by steam formation by added water. Whereas in waterless cooking steam originates from food itself. In pressure cooking time is reduced by increasing the pressure so that boiling point is quickly reached and food is cooked by condensation of steam over the food. Fats can be used as a medium for instant cooking. Shallow and deep frying can be used to cook food by this method³.

The methods of cooking include boiling, grilling, frying baking, deep frying, pressure cooking and cooking on charcoal. Majority of the methods used destroy proteins and vitamins at high temperatures.

¹⁻²Department of Ophthalmology, Abbasi Shaheed Hospital & Karachi Medical & Dental College.

Correspondence: Dr. Uzma Fasih
 Department of Ophthalmology, Abbasi Shaheed
 Hospital and Karachi Medical and Dental College
 Email: yousufuzma@hotmail.com
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Frying has little effect on the protein and mineral content of fried food. The increased temperature and less cooking time of the frying process cause least damage to heat labile vitamins than other types of cooking. The nutritional value of the frying material should also be considered. Some fat is added to the food when fried which increases its energy and makes the food more palatable. Frying adds taste to the food and benefits of healthy oils can be utilized which are used for frying⁴.

It has been reported that microwave cooking results in higher losses of moisture from food but overall effects of microwave on protein, lipid and minerals is minimal⁵. Less cooking time and decreased exposure to heat can preserve the nutrients of food when cooked in microwave⁶. Grilling and boiling increase the flavour but also decrease B vitamins but grilling increases carcinogenic substances⁷. Boiling, simmering and poaching are all methods of water-based cooking. They only differ by water temperature to which the food is exposed:

Poaching: Less than 180°F/82°C.

Simmering: 185-200°F/85-93°C.

Boiling: 212°F/100°C.

Vegetables are an important source of vitamin C, but most of it is wasted when cooked in water. Maximum conservation of vitamin C is by microwaving⁸

Roasting or baking mostly effect B vitamins. Sautéing and stir-frying increase the absorption of fat-soluble vitamins and some of the plant compounds, but most of the vitamin C is wasted in vegetables⁹.

Steaming is one of the best cooking methods to preserve nutrients and water-soluble vitamins¹⁰.

It is also important to understand that when food is subjected to heat certain destructive changes in proteins and carbohydrates are beneficial. For example, due to effect of heat on proteins deamination takes place which helps in destruction of microorganisms. In addition, cooking deactivates

certain enzymes and toxic substances in food that may have serious effects on health. Carbohydrates when cooked in water make the starch molecules in it to swell and break and increase the digestibility of carbohydrates³.

It's important to choose proper methods of cooking to get maximum nutritional value of meal. However, there is no perfect cooking method. Generally, less cooking time at a low temperature with minimum water will produce good results. The nutrients in your food should not be wasted.

Adequate and proper nutrition is important for a healthy life. Awareness is needed to educate parents, teachers so that they can communicate to the students and children about healthy food. Many of the educated people are unaware of the nutritional deficiencies especially calcium and vitamin D. They live for taste alone, health through education is needed.

It is important to promote an awareness about the nutritional value of foods and their importance for maintaining body growth, reproduction, health, and disease prevention in humans. Proper nutrition is important for normal cardiovascular function, muscle strength, respiratory ventilation, protection of infection, wound healing, and psychological well-being¹¹.

The World Health Organization (WHO) reported that almost 60% of all deaths, and 43% of global burden of disease are caused by nutritional diseases and by 2020, the burden of nutrition-related diseases is expected to increase to 73% of all deaths and 60% of the global burden of disease¹².

WHO reports that the factors that lead to unhealthy eating habits among individuals include lack of knowledge about nutrition and dangers to health, and getting wrong information about health and nutrition matters³. when foods are not consumed in quantities required for individual's body need, it compels towards taking junk food so malnutrition or over-nutrition may result. Thus taking in consideration the roles played by nutrients in promoting health and optimal functioning in humans

counselling and education about diet and nutrition is required to be on priority by all relevant professionals, including nutritional counsellors, home economists and dieticians¹⁰.

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