

COOKING METHODS

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Food and nutrition are essential aspects to be understood by everybody. Food preparation is an important step in meeting the nutritional needs of any family. Food has to be pleasing in appearance and tasty in order to be consumed.

Some foods like fruits, vegetables and nuts can be eaten raw. Most other foods are cooked to bring about desirable changes. The process of subjecting any food to the action of heat is termed as cooking. Cooking is an ancient method since the invention of fire.

The cooking process properly sterilizes the food. Cooking food above 40°C rapidly decreases the growth of bacteria. Hence the food is made safe for human consumption.

It softens the connective tissues of meat in non-vegetarian food and the coarse fibre of cereals, pulses and vegetables under vegetarian food items. Due to this, our digestive period is shortened and the gastro intestinal tract is less subjected to irritation.

Palatability and food quality such as appearance, flavor, texture and taste of food are enhanced while cooking. It helps in increasing the consumption of food.

Cooking even increases the availability of nutrients. For example, by consuming raw egg, avidin binds biotin which is made unavailable to the body. But by cooking, avidin gets denatured and biotin is made available.

Cooking methods vary from nature of food, raw materials and the requirement of the end products. It is also possible that various cooking methods give different dishes from the same ingredients. For example Rice can be made into biriyani and kheer.

In cooking process, heat is transferred to the food by conduction, convection, radiation or microwave energy. Cooking takes place by moist methods and dry heat methods. Moist heat methods involve the use of water and steam. Air or fat are used in dry heat methods.

The major and popular cooking Methods are

Moist Heat	Dry Heat	Combination
Boiling	Roasting	Braising
Stewing	Grilling	
Steaming	Toasting	
Pressure Cooking	Baking	
Poaching	Sautéing	
Blanching	Frying	

In this episode, we will be coming to know in detail, about the following cooking methods:

1. Moist heat methods
2. Dry heat methods
3. Combination of cooking methods
4. Microwave cooking
5. Solar cooking

1. **MOIST HEAT METHODS**

Moist heat refers to cooking with added liquid or steam. It uses temperatures ranging from 140°F - 212°F to cook. Moist heat cooking methods include

- Boiling
- Stewing.
- Steaming
- Pressure cooking
- Poaching and
- Blanching

Boiling is a method of cooking foods by just immersing them in water at 100 C and maintaining the water at that temperature, till the food is tender. Rice, egg, dhal, meat, roots and tubers are cooked by boiling.

It is a very simple method of cooking. It does not require special skill and equipment. In boiling cooking method uniform cooking can be achieved.

Boiling cooking methods are not always suitable. Continuous and excessive boiling leads to damage in the structure and texture of food. When the water or

stock is discarded there are high chances of loss of heat, labile nutrients such as B and C vitamins.

Cooking food using boiling methods takes more time to cook the food. Fuel may also be wasted and water soluble pigments may be lost, during this process.

- Stewing:

Stewing refers to the simmering of food in a pan with a tight fitting lid using small quantities of liquid to cover only half the food. This is a slow method of cooking. It is a basic method of Chinese cooking.

The liquid is brought to boiling point and the heat is reduced to maintain simmering temperatures ranging from 82⁰ C-90⁰C. The food above the liquid is cooked by the steam generated within the pan. Apple, meat along with roots, vegetables and legumes are usually stewed.

Stewed dish can be kept for nearly a week. Its flavor improves with each reheating and loss of nutrients is avoided as water used for cooking is not discarded. But the process is time consuming and there is wastage of fuel.

- Steaming

Steaming is a method of cooking food in steam generated from vigorously boiling water in a pan.

The food to be steamed is placed in a container and is not in direct contact with the water or liquid. Idli, Custard and idiappam are made by steaming.

Steaming is a quick and efficient method of cooking delicate foods like fish. Steamed food has a better texture and food becomes light and fluffy.

While steaming, food is not immersed in water. So loss of nutrients is minimal. Steamed foods are less in fat and are easily digested. It is good for children, aged and for therapeutic diets.

In steaming cooking method there are less chances of burning and scorching. It requires special equipment in which food can be steamed and only limited foods can be prepared in it.

- Pressure Cooking

When steam under pressure is used the method is known as pressure cooking and the equipment used is the pressure cooker. In this method the temperature of boiling water can be raised above 100⁰C. Rice, dhal, meat, roots and tubers are usually pressure cooked.

Foods are cooked much faster by pressure cooking than by other methods. The food is cooked at a temperature above the normal boiling point of water, killing most micro-organisms.

The minimum quantity of water or liquid used for cooking keep the pressure cooker filled with sufficient steam to cook food. This protects from the loss of vitamins and minerals from food.

Pressure cooking equipments are considerably more expensive than conventional cooking equipments. The maintenance and knowledge of the usage of cooker should be taken carewhile handling pressure cooking equipments.

- Poaching

Poaching involves cooking in the minimum amount of liquid at temperature of 80⁰ C-85⁰C that is below the boiling point. Poaching is particularly suitable for delicate food, such as eggs, poultry, fish and fruit.

Poaching takes patience. It allows the proteins in foods to uncoil slowly without squeezing out its moisture.

It is the fast method of cooking tender foods by keeping the flavor of the food. but if water is leached food can be scorched.

- Blanching

In meal preparation, it is often necessary to peel off the skin of fruits and vegetables without making them tender. This can be achieved by blanching.

In this method, food is dipped in boiling water for 5 seconds to 2 minutes depending on the texture of the food. This helps to remove the skin or peel without softening food.

It can also be done by pouring enough boiling water on the food to immerse it for some time or subjecting foods to boiling temperatures for short periods and then immediately immersing in cold water. The process causes the skin to become loose and can be peeled off easily.

It destroys enzymes that bring about spoilage. It also helps to maintain texture and improves the color and flavor of the food. But there are chances of loss of nutrients in blanched cooking.

2. DRY HEAT METHODS

Dry-heat cooking refers to any cooking technique where the heat is transferred to the food item without using any moisture. Dry-heat cooking typically involves high temperatures, of about 300°F or hotter.

Dry heat cooking methods include

- Roasting
- Grilling
- Toasting
- Baking
- Sautéing and
- Frying

Roasting is the method where food is cooked in a heated metal or frying pan without covering it. It is mainly used when cooking fleshy food like fish, meat or chicken.

When heat is applied to the outer covering of the food, it seals it up thereby trapping all the juices inside the food. The action of direct heating, heats up the juices inside the food, which then cooks the food.

Again there is very little nutrient lost and the flavour is not spoilt. Food is frequently rotated so that there is even heating applied to all parts of the food. This is how the heat is applied evenly to the food to make it get cooked properly. It is easy method of cooking without losing its appearance, flavor and texture of food.

Roasting is a preferred method of cooking for most poultry, and certain cuts of beef, pork, or lamb. Some vegetables, such as potatoes, pumpkin, turnips, cauliflower and peppers are roasted as well.

- Grilling

Grilling refers to the cooking of food by exposing it to direct heat. In this method food is placed above or in between a red hot surface. Papads, corn, phulkas, chicken can be produced by this method.

It is a healthy way of cooking because much of the fat will drip into the fire. It enhances flavor, appearance and taste of the food

- Toasting

Toasting is a method where food is kept between two heated elements to facilitate browning on both sides. Bread slices are cooked by toasting.

It is easy and quick method of dry heating. But careful monitoring is needed to prevent charring. It also requires special equipment for toasting.

- Baking

In baking cooking method, the food gets cooked in an oven or oven like appliance by dry heat. The temperature range maintained in an oven is 120⁰C-260⁰C.

The food is usually kept uncovered in a container greased with a fat coated paper. Bread, cake, biscuits, pastries and meat are prepared by this method.

Foods baked are generally more delicious as the original taste is largely retained. They are more juicy and flavorful. Usually, the fat content is lower compare to foods prepared using other techniques as no additional fat or oil is used. Baked food becomes light and fluffy.

Baking reduces simple carbohydrates in the cuisine. This way of cooking helps decreasing the cholesterol in foods. It is a favorite method to prepare weight loss diets.

For baking, baking equipments like oven is required. Careful monitoring is needed to prevent scorching.

- Sautéing

Sautéing is a method in which food is lightly tossed in little oil just enough to cover the base of the pan. The pan is covered with a lid and the flame or intensity of heat is reduced.

The food is allowed to cook till tender in its own steam. The food is tossed occasionally, or turned to enable all the pieces to come in contact with the oil and get cooked evenly.

The product obtained by this method is slightly moist and tender but without any liquid or gravy. Foods cooked by sautéing are generally vegetables which are used as side dishes in a menu. Sautéing can be combined with other methods to produce variety of meals.

Only enough fat to lightly coat the bottom of the pan is needed for sautéing. It takes less time and simple technique to sauté food. But attention is needed as there is chance of scorching or burning.

- Frying

Frying is the method where food to be cooked is brought into contact with larger amount of hot fat. When food is totally immersed in hot oil, it is called deep fat frying. Samosa, chips, pakoda are examples of deep fat fried foods. In shallow fat frying, only a little fat is used and the food is turned in order that both sides are browned. Example; Omlette, cutlets, parathas.

Frying requires keeping the oil at temperatures between 325°F and 400°F. Hotter than that the oil may start to smoke. If oil is any cooler it starts to seep into the food and make food greasy. After cooking, fried items should have very little oil on them, assuming they've been fried properly.

Frying lends a delicious flavor and attractive appearance to foods. It has high caloric value because fat is used as the cooking media.

The oil should not be repeatedly use because it will have ill effects on health.

3. COMBINATION OF COOKING METHODS

Combination cooking involves both dry- and moist-heat cooking. This cooking method is excellent for cooking tougher cuts of meats and other food items.

Braising is a combined method of roasting and stewing in a pan with a tight fitting lid. Flavorings and seasonings are added and food is allowed to cook gently. Food preparations prepared by combination methods are:

Uppuma- Roasting and boiling.

Cutlet- Boiling and deep frying.

Vermicilli payasam - Roasting and simmering.

4. MICROWAVE COOKING

Microwaves are electromagnetic waves of radiant energy with wave lengths in the range of 250×10^6 to 7.5×10^9 Angstroms.

The most commonly used type of microwave generator is an electronic device called a magnetron which generates radiant energy of high frequency.

A simple microwave oven consists of a metal cabinet into which the magnetron is inserted. The cabinet is equipped with a metal fan that distributes the microwave throughout the cabinet. Food placed in the oven is heated by microwaves from all directions.

Microwaves are a type of energy that is absorbed by the food particles inside an oven. These waves make the water content inside the food particles to vibrate, which in return make food particles rub against each other, thus producing heat energy and cooking the whole food. The more the energy supplied the faster and better the food gets cooked. This is possible by either increasing the power supply to the oven or by increasing the cooking time.

Moist foods and liquid foods can be rapidly heated in such oven. Food should be kept in containers made of plastic, glass or china ware which do not contain metallic substances. These containers are used because they transmit the microwaves which do not absorb or reflect them.

While using microwave cooking method make sure that the food is cooked thoroughly to destroy any food poisoning bacteria that may be present in it.

Foods that can cook in the microwave include rice, pasta, meats, fish, poultry, vegetables, potatoes and any pre-cooked microwave meals. Fruits and vegetables in fact, retain more nutritional value because less water and a shorter cooking time are needed.

Microwave cooking is ten minutes faster than conventional method. So loss of nutrients can be minimized. In microwave cooking, only the food gets heated and the oven does not get heated.

The advantage of microwave cooking is that leftovers can be reheated without changing the flavor and texture of the product.

5. SOLAR COOKING

Solar cooking is a very simple technique that makes use of sun's UV rays or solar energy which is a non conventional source of energy.

Solar cooker consists of a well insulated box which is painted black on the inside and covered with one or more transparent covers.

The purpose of these transparent covers is to trap heat inside the solar cooker. These covers allow the radiation from the sun to come inside the box but do not allow the heat from the hot black absorbing plate to come out of the box. Because of this, temperature up to 140⁰ C can be obtained which is adequate for cooking.

A solar cooker lets the UV light rays in and then converts them to longer infrared light rays that cannot escape. Infrared radiation has the right energy to make the water, fat and protein molecules in food vibrate vigorously and heat up.

Solar cooking saves time, work and fuel. It is also environmentally friendly. Other advantages include: -

- Smoke free cooking and stirring of food is not required.
- Each solar cooker in sunny, arid climates can save one ton of wood per year.
- Solar Cookers help two of the world's most pressing problems – a growing shortage of cooking fuels and the scourge of water-borne diseases.
- Pasteurizing water and milk using solar cookers can help reduce Cholera and other waterborne diseases, which kill 50,000 people every day.
- Moderate cooking temperatures in simple solar cookers help preserve nutrients.

Cooking with solar cookers requires sunlight. This makes the process difficult during winter months and on rainy days. Cooking also takes a significantly longer time as compared to conventional methods. Users must schedule their cooking time and maximize the use of sunlight. As a result, preparation for cooking must start early in the morning so that the food can be placed in the cooker by noon.

Solar cookers are not as efficient at retaining heat as compared to conventional cooking devices. Factors such as wind, rain and snow can seriously hinder the operation of a solar cooker, since it is done outdoor. In such weather conditions, even after the food is cooked, it will lose its warmth very quickly.

Although solar cookers are easy to build and use, there is a risk of accidental injury or burns if the appliance is not used properly. Eyesight can also be damaged if the concentrated beams of sunlight are reflected back into the eyes from the solar cooker. The use of safety precautions and protective materials is necessary, to the operators.

CONCLUSION:

Food when consumed in adequate amount gives long life and youthfulness. When consumed in inadequate amounts increases production of toxins which is harmful for life. Having right food is the initial step towards achieving healthy life. But just having right food is not enough. Adopting the right cooking method is combination of materials and proportion of food items used is also important for an individual.

Cooking methods, techniques and ingredients vary widely across the world. Though the subject is ancient the methods are scientifically modern and promote everything for a healthy life.