

Reasons for which vegetables are cooked

1. To soften the product
2. To improve the flavor.
3. To increase the digestibility.
4. To preserve the vegetables.

Effects of heat on vegetables

Cooking is the application of heat to food to make it safer to eat, digestible and more palatable. Cooking also changes the appearance of the food. Heat breaks down the cellulose and the starches present, changes and blend flavor within the food, and also destroy bacteria to make food digestible.

- **CARBOHYDRATES:** Caramelization and Gelatinization. Both sugar and starch are carbohydrates. Caramelization is browning of sugars and Vegetables get softened by the gelatinization of the starch.
- **VEGETABLE FIBERS:** Fibbers are a group of complex substances that give structure and firmness to plant. they cannot be digested. Heat breaks down the fibers. Alkali makes fiber softer but make them mushy and lose essential vitamins.
- **MINERALS, VITAMINS, PIGMENTS AND FLAVOUR COMPONENTS:** Minerals dissolve in water during cooking. Vitamins and pigments may also be destroyed by prolonged cooking. Pigment and flavor may also determine whether the food is appetizing enough to eat or not.
- **PROTEIN:** When heat is applied to the protein they become firm or they start to coagulate with heat. Proteins become tough and dry when exposed to high heat.

Various Rules For Vegetable Preparation

1. Do not let the vegetable soak in water unless necessary.
2. Wash the vegetables just before peeling.
3. Cook or bake the vegetable in their skin.
4. Use the minimum amount of liquid during boiling.
5. Use the water in which the vegetables are boiled (pot liquor).
6. Use the correct cooking medium which can be acidic, alkali or neutral.
7. Cut the vegetable as near to the cooking time as possible.
8. Serve the food as soon as it is ready for the service.
9. Keep the oxygen away from the vitamin-rich foods by covering them with water.
10. For uniform doneness, cut into uniform sizes before cooking.
11. If vegetable must be cooked in advance, slightly undercook them, cool rapidly in cold water, drain and refrigerate, then reheat to order.

Suggestive cooking for different vegetables

- **Boiling:** This is the most common method of cooking vegetables. For green vegetables such as peas, french beans, etc. The vegetables are put in boiling water and cooked for the minimum time possible and refresh to avoid overcooking. Green vegetables while boiling should not be covered; otherwise, their color will be changed to olive green. Root vegetables should be placed in cold water and the pot should be covered by a lid, the water is brought to boiling point then simmer till the vegetables are cooked.
- **Steaming:** vegetables are cut into even size after washing and placed in the steamer for cooking. This method helps in the maximum preservation of the nutrients and good for peas, beans, cauliflower, cabbage, etc.
- **Braising:** vegetables after blanching are laid on aromatic to be braised such as cabbage, onion, etc.

- **Baking**: vegetables baked in a baking oven suitable for potatoes, tomatoes, pimentos, etc
- **Roasting**: some vegetables can be roasted. They are placed in a hot pan containing oil and condiments suitable for potatoes, onions, and parsnips, etc.
- **Shallow frying**: it is applicable for mushrooms, onions, pepper, tomatoes, etc.
- **Deep frying**: vegetables such as potatoes, brinjals and onions can be deep-fried but a loss of vitamins takes place in this method of cooking.
- **Grilling**: small potatoes can be grilled to give color.
- **Stewing**: vegetables such as marrows, peas, etc. Can be stewed.

How to Retain the color of Green Vegetables

- Cook them uncovered to allow the vegetables volatile acid to escape. when the vegetables are cooked with a cover, the plants natural acid in leached into the cooking liquid and is trapped there creating an acidic cooking medium. This combined with the heat present and destroys the pigment.
- Cook them quickly until just “Al Dente”, Extended exposure to heat will destroy the color.
- Steam Green vegetables whenever possible, this shorten the cooking time, allows for less acid build-up and retain more color.
 - Raw materials used in food production are mostly natural products. They are available in various shapes and weights. For example, no two potatoes or onions will be the same in size, shape, and weight. No two red pumpkins will be of the same size, shape, and weight. Preparing finished product calls for basic uniformity in size, shape, and weight. This is the base for uniformity in cooking and also the appearance of the food. Breaking down the raw materials into the required form is called ‘pre-preparation’. Following are a few pre-preparation techniques –
 - **Washing** – superficial dirt is removed during washing. Vegetables, fish, meat and sometimes even eggs are washed with cold water before any other process. These days this is done at the very entrance of the store to prevent any dirt and mud entering the store /kitchen/workplace. Water-soluble vitamins and minerals are

lost if they are soaked for a long period of time or washed after cutting.

- • **Peeling and scraping** – spoiled, soiled and inedible portions are removed. Skins of potatoes, carrots, radish or fruits can be removed by peeling. Smaller ingredients like ginger, galangal are scraped. Peel off as little of the fleshy part as possible. If vegetables like carrots are washed well, their peels could be used for making stocks.
- • **Paring** – remove surface layers by using a circular motion as in paring an apple.
- • **Cutting** – reducing to smaller parts with a knife or a pair of scissors. When a chopping knife or a food chopper is used, it is termed as chopping.
 - Cutting into even size cubes — — — dicing.
 - Cutting into very fine pieces — — — mincing.
 - A cutting (especially green leafy vegetables & cabbage) into fine, long pieces — shredding.
 - Cutting into slightly thicker, flat pieces — slicing.
- • **Grating** – reducing to fine particles by rubbing over a rough, sharp surface.
- • **Grinding** – reducing to fine fragments by crushing in a mill, a grinding stone or an ostrizer.
- • **Mashing** – breaking up soft foods like cooked potatoes. {SMASHes are in boxing, NOT in food production}
- • **Sieving** – passing through a mesh to remove impurities or to break down into even parts or to enclose air.
- • **Milling** – used for cereals, to remove the husk.
- • **Steeping** – extracting coloring or/and flavoring by allowing ingredients to stand in water at a simmering temperature.
- • **Centrifuging** – Separate two parts of a substance by application of whirling force like separation of cream from milk.
- • **Emulsification** – Blending or mixing to non-mixable (insoluble) liquids by application of force.
- • **Evaporation / Reduction** – removal of moisture by heating.
- • **Homogenization** – a subdivision of large drops into smaller ones by forcing them through a small opening under great pressure.
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- When raw materials are ready to be cooked, they are sent to the preparation area or hot section of the kitchen where it gets exposed to heat. Following are some of the techniques in preparation. The list may be enriched as and when you start actually cooking.
- **Stirring** – this mixes two or more ingredients as they get cooked. Wooden / stainless steel flat spoons, round spoons, perforated spoons etc. of various sizes could be used. Liquids, as well as solid and semi-solid ingredients, need stirring. Generally, it helps in even dispersion of heat leading to even cooking.
- **Masking** – to prevent food from getting burnt in case of baking/roasting, it needs to be masked with some other food material. It can also be done to get a desired color and appearance.
- **Coating or dipping in batter** – as mentioned earlier, the batter is a mixture of flour and liquid (mostly equal quantities). Certain foods are dipped in batter and deep fried. The aptest example would be potato vadas. The batter should coat the stuffing fully and not expose any stuffing. This needs skill because food should be dropped in hot oil immediately after dipping in batter. So, in a split of a second, the process has to be completed. Thus, the consistency of the batter plays a very important role.
- **Basting** – this is a technique which goes hand in hand with roasting. This means to apply fat/butter on the food while being roasted. It helps by protecting the surface from going dry and also by giving a pleasant brown color to the roasted food.
- **Tadka / baghar** – these terms and technique are used in Indian cuisine. Oil is heated to the required temperature and certain spice ingredients are added to it (which should crackle,) then the food (like cooked dal or chopped vegetables) are combined with this. It develops additional taste and flavor to the dish. A peculiar flavour which is the characteristic of the dish can be added through the ingredients in the tempering.
- Sometimes, continental dishes, especially rich soups, and sauces are also ‘tempered’; but the technique is applied for a different purpose and using different ingredients. A mixture of egg yolk and cream (*liaison*) is added to a dish to enrich it, to give it a glaze and to make it smooth. A little of the hot soup/sauce is first mixed with

the liaison, and then it is slowly stirred into the larger quantity of soup/sauce.

- **Seasoning** – seasonings bring about the natural taste and flavors of the ingredients. No dish can be complete without seasonings.
- **Flavouring** – these are those ingredients which impart additional flavours in the dishes. Nutmeg powder in creamed potatoes, cardamom powder in Indian sweets like kheers, vanilla essence in vanilla buns are some of the examples. Flavorings could be added in various forms – powders drops or whole spices (which are removed before serving the dish to the guest).