

Tips for Realization of Maximum Nutrients from Vegetables

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SUMMARY

To derive maximum benefits of their nutrients, vegetables should be consumed fresh as far as possible. Most vegetables are best consumed in their natural raw state in the form of salads. An important consideration in making salads is that the vegetables should be completely dry. If vegetables have to be cooked, it should be ensured that nutritive value is preserved to the maximum extent, as between 20 to 70 percent of vitamins and mineral potency is lost in the cooking of green and leafy vegetables. Whole vegetables have lots of vitamins and minerals. So eat more green, orange, yellow vegetables. Steam them to retain the most nutritional value and be careful with sauces they may be high in calories and fats that are not good for you. The following hints will be useful.

INTRODUCTION

India shares 13.38 percent of world production of vegetables, occupies first position in cauliflower, second in onion and third in cabbage. Vegetable crops occupy only 2.8 percent of the total cultivated area. The area and production wise largest vegetable growing states are West Bengal, Uttar Pradesh and Madhya Pradesh. The different vegetables contain carbohydrates (Tuber crops), proteins (Legumes), vitamins, minerals and antioxidants which are essential for human body metabolic activities and for the growth. The following points are need to be considered to get more nutrients with minimum or without loss from the vegetables by following different methods in different crops.



Vegetables Are The Cheapest Source Of "Natural Protective Food."

- Cook vegetables in as little water and for as short time as possible to avoid loss of suitable vitamin B and C.
- Foods like potatoes will benefit from pressure cooking.
- Steam or stir fry vegetables if you can instead of boiling them.
- Keep food hot or re-heating can destroy B vitamins, so it is advisable that all family members should try to eat at the same time.
- Try to eat fruit and vegetables with skin intact because vitamins often are stored just below the skin e.g., potato.
- In fact one medium sized potato, eaten with skin intact has just 110 calories (no fat) and has nearly half of the daily value for vitamin C. Is one of the best sources of potassium and fibre.
- Over cooking and reheating destroys B vitamins.
- Larger slice you cut your vegetable into, the more vitamin-C you are saving.
- Do not get the vegetables cut at night and cook them in the morning hour rush. It is better to go without vegetables than doing this.
- For vitamin-C is lost on exposure to sunlight so if you leave vegetables after cutting them, a lot of vitamin content is lost due to exposure to light.
- Green leafy vegetables like amaranth leaves, chulai ka saag, drum stick leaves, fenugreek leaves (methi), mustard leaves, spinach and lettuce are rich sources of vitamin A.
- Vitamins are soluble in water, so vegetables must be washed before peeling and chopping in to big pieces, as fine shredding causes greater vitamin losses and cook immediately in very little water.

- Non-vegetarian diet contains saturated fats which lead to higher levels of cholesterol in blood, pre-disposing factor for heart attacks.
- Vegetables are an excellent choice for a cash crop. They can be grown quickly, produce good yields and generate higher prices at markets compared to cereals.
- Eat at least five servings a day of fruits and vegetables such as carrots, peppers, melons and berries. These contain compounds that protect against aging ailments like heart diseases and cancer.
- They provide crude fiber and bulk as well as a variety of flavours and odours.
- Vitamin C present in Methi leaves, but is destroyed by cutting and washing.
- The green colour, attributed to chlorophyll pigments is stable on steam cooking compared to pressure cooking.
- Avoid adding baking soda to rajma, channa and soft and green leafy vegetables as it destroys B vitamins.
- Avoid garlic that is soft, shrivelled and moldy. Whole garlic bulbs will keep fresh for about a month if stored well. Once you break the head of garlic, it greatly reduces its shelf life to a mere few days. Cut raw cloves (garlic) into small pieces and swallow them like pills.
- Cook vegetables with pan covered.
- Wash the vegetables before cutting, and if possible try using the skin of the vegetable for this vitamin lies very close to the jacket. That vitamin-C loss in Kale may amount to as much as 1.5% per hour. This means that just 24 hours after harvest Kale may already have lost Ca. one third of its original vitamin C.
- Bruising and wilting of plant material during their handling and transport, by allowing the oxidizing enzymes access to the vitamin, can result in an accelerated vitamin loss.
- Shredding of cabbage can reduce its ascorbic acid content by 20%. In addition cucumber may lose up to 22% of its original ascorbic acid during slicing and 33- 35% during standing for one hour. Cucumber salad, however, was noticed to lose 22% of its ascorbic acid during preparation and an additional 8% and 11% during standing for one or two hours respectively.
- Plant tissues (parts) located on the periphery (outside or more exposed positions) on plants, usually contain higher concentration of several vitamins, especially ascorbic acid. This is not only true for leafy vegetables such as cabbage and lettuce but also hold true for many different fruits and non-leafy vegetables and for vitamins other than ascorbic acid.
- In Cucumber, for example, the skin not only contains a higher concentration of ascorbic acid, it also contains higher concentration of riboflavin, niacin, pantothenic acid, biotin and tocopherol as compared with the inner parts of the plant.
- Discarded (outer) leaves (parts) of vegetable may be much higher in carotene than the inner parts usually consumed, for example, outer leaves of cabbage and broccoli are reported to be 4 to 21% or even 200 times higher in carotene than in the inner parts consumed. Even concentration of vitamin K, was noted to be higher by three fold in outer than the inner leaves of cabbage.
- The loss of total glucosinolate (which are metabolized to cancer preventive substances known as isothiocyanates) content after boiling for 30 minutes was broccoli 77%, Brussels sprouts 58%, cauliflower 75% and green cabbage 65%.
- Plants grown under water stress may have a different taste and flavour as compared with well-watered plants.
- Plant parts (leaves or fruits) grown under water shortage conditions are often smaller and have a less appealing texture than larger, more turgid, 'juicier' plants grown with adequate water.
- Carrots grown under low soil moisture are known to have a better colour.
- Use of various agrochemicals such as pesticides and herbicides may alter the concentration of vitamins in plants, in many cases by increasing them.
- When plants are attacked by fungi, virus or insects, their content of some vitamins, especially ascorbic acid decreases.
- Both air and soil pollution can modify the concentration of vitamins in plants.
- Vegetable crop varieties like tomato (pusa red plum), carrot (pusa yamadagni and pusa Meghali), pumpkin (arka chandan), palak (pusa jyoti), beet root (pusa swarnima) and sweet potato (pusa sunchri) are the richest source of carotene.
- Radish leaves are the richest source of riboflavin, followed by fenugreek leaves.
- Chilli is the richest source of fibre (6.8 g/100 g of edible part). Giant chillies are the richest source of thiamine followed by peas, while parsley of vitamin-C

- Sweet potato is the richest source of vitamin-A (141 µg/100 g of edible part). Only about 10 percent of carotenoids present in various vegetables are precursors of vitamin-A.
- Vegetables are also a rich source of dietary fibre ranging from 0.2 g/100 g of edible portion in water melon to 3 g/100 g in pointed gourd.
- Folic acid commonly referred to as folate is found in abundance in spinach (123 µg/100g), other leafy vegetables (148 µg/100 g) and beans (144 µg/100 g). Whereas the actual requirement of Folic acid is 50-100 mg, depending upon age. Women of child-bearing age should consume an additional folic acid in the range of 150-300 mg/day.
- Sprouting broccoli has about 130 times more vitamin-A contents than cauliflower and 22 times more than cabbage. The darker colours of the florets (broccoli), such as blue green or purplish green contain more beta carotene and vitamin C than those with lighter green.
- Remove older outer leaf from cauliflower and head lettuce.
- Remove tops from radishes, carrots, beets, turnips and other root vegetables for longer shelf life.
- Vegetables require care at harvest.
- Cabbage must not be over cooked and tastes the best when crunchy and firm. Over cooking of vegetables leads to loss of important nutrients.
- Boil or steam your broccoli flowers lightly and eat so that they do not lose all the nutrients.
- Harvest at cool hours of day i.e. early morning or night harvesting should be preferred. Remove field heat of the crop immediately after harvest.
- Vegetables must be washed thoroughly before preparing the juice. Avoid straining/ discarding the pulp of the vegetables, as it will lead to loss of fibre.
- In Jerusalem artichoke, the nutrients are stored just below the skin, it is desirable not to peel them. Once cut artichoke discolour quickly, so it is better to cut them close to serving time, or cut and immerse them in water with lemon or vinegar to prevent oxidation. Cooking them with the skin on may cause a darkening of the skin because of their high iron content.
- They are suited to for production on small land parcels. They play a major role in improving the income of smaller farmers and are a source of additional family income. They play an important role in human nutrition in supplying certain constituents in which other food materials are deficient.
- No vegetable should be peeled unless it is so old that the peeling is tough and unpalatable. In most root vegetables, the largest amount of minerals, is directly under the skin and these are lost if vegetables are peeled. Soaking of vegetables should also be avoided and nutritive value are to be preserved.

Tomato

- Add a pinch of sugar to tomatoes when cooking them. It enhances the flavour.
- To keep baked or stuffed tomatoes from collapsing, bake in greased muffin tins. The tins will give them some support as they cook.
- Tomato will keep longer if you store them stem down.
- Tomatoes should never be left to ripen in direct sun light, as they will lose most of their vitamin C. To ripen, place green or unripe tomatoes in a brown paper bag and place in a dark spot for 3 or 4 days, depending on the degree of greenness. Do not put tomatoes in the sun to ripen. This softens them.
- Americans obtain more of their vitamins from tomatoes than from any other vegetable.
- One ounce (28.35 g) of tomato puree has twice the vitamin C and 20% more beta carotene than one ounce of fresh tomato.
- To peel tomatoes easily, place them in boiling water and remove from heat, allow to stand for one minute then plunge them into cold water.

CONCLUSION

Enjoy the health benefits of eating vegetables, but be sure you're getting the maximum nutritional value when you bite into your produce. Keep these tips in mind. An intake of about 400 grams of vegetables per day per person is considered essential for maintenance of good health. Of this, leafy vegetables should constitute 40 percent, root and tuber vegetable 30 percent and other vegetables like brinjal, ladies fingers the remaining 30 percent. The vegetables when consumed as salad in raw state will provide with all the vitamins and minerals without any loss. Mostly we need to avoid the peeling, over cooking to protect from loss of much nutrients present underlying the skin of vegetables. Preserve the nutritional value of vegetables by cooking them properly.

Finally, vegetables should not be cooked in aluminum utensils, as it is acted upon by both acids and alkalies. There is scientific evidence to show that tiny particles of aluminum from foods cooked in such utensils enter the stomach and that the powerful astringent properties of aluminum injure the sensitive lining of the stomach, leading to gastric irritation, digestive and intestinal ailments.

REFERENCE

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