

Health benefits of Beta carotene(Provitamin A) from a plant source

Over 80% of the daily supply of vitamin A in the vegetarian Indian diet comes from beta carotene present in green vegetables, yellow yellow, and Orange vegetables and fruits.

- Help prevent early cataract in the eyes.
- Protection against cardiovascular diseases.
- Protection against acid-producing bacterial infection (H. Pylori) of the stomach- Vitamin A is an anti-infective vitamin, as it boosts the body immunity overall.

Plant and animal sources of Beta carotene/ Vitamin A

Green vegetables and yellow/ orange fruits are rich sources of beta carotene, which gets converted to vitamin A in the body. Proper absorption and synthesis of Vitamin A; a fat-soluble vitamin requires fat intake in the diet.

Vegetable sources of beta carotene – Green leafy vegetables, Amaranth leaves, Colocasia (Arabi) leaves, Coriander, Spinach, Broccoli, other dark green vegetables and Beet (Paan) leaves.

Yellow/orange vegetables and fruits – Carrots, Tomatoes, Pumpkin, jack fruit, Mango, Papaya, and oranges.

Animal sources of Vitamin A (Retinol) are – Dairy (Ghee, Milk, Butter, Cheese, yogurt/ curds) and eggs (yellow yolk of the egg).

Effects of Cooking, Food processing, and storage on beta carotene

Cooking vegetables break down the cell walls and make minerals, vitamins, and antioxidants available for absorption. However, there are some cooking processes which can cause a significant loss of nutrients and beta carotene content of foods:

- Cutting and stir-frying – 20-30% loss
- Grinding (like making chutneys) – 20-30%
- Grating and high heat frying like making pumpkin and carrot halwa – 50 to 90% of vitamin A can be lost based on how much frying occurs on high heat. An excellent way to preserve beta carotene in halwa is to cook vegetables in milk first and minimize stir-frying with ghee at high temperature.
- Pickling of vitamin A-rich vegetables such as carrots – beta carotene levels diminishes with the duration of storage of the pickle.
- Sun-drying green vegetables reduce the beta carotene content. Shade drying preserves beta carotene better than direct sun drying.
- Freezing vegetables – Uncooked vegetables which are flash-frozen retain their nutrients. Longer duration of storage may affect the nutrient value.

Both the temperature and duration of cooking makes a difference. The lower temperatures and shorter cooking durations are favorable to preserving beta carotene. Addition of fat to food increases absorption of beta carotene since Vitamin A is a fat-soluble vitamin.