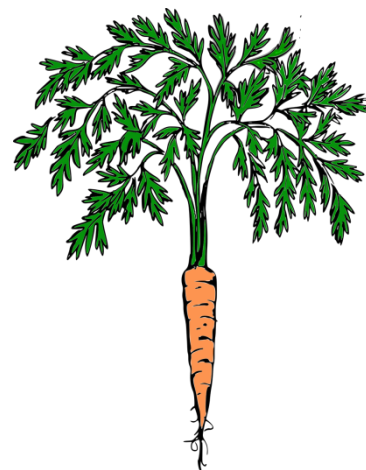




Superfoods Fact Sheet

Carrots

(Daucus Carota)



Parts used: Root

Related to parsnips, fennel, parsley, anise, caraway, cumin and dill, these root vegetables have been cultivated across the world, and come in a variety of colours.

Historic and Traditional Uses

Carrots have been cultivated for thousands of years, tracing their ancestry back to central Asia and the Middle East, as well as European countries. Indeed, carrot seed has been found in Switzerland and Germany dating back 2 – 3,000 years BC. It is thought to have originated in Afghanistan and been carried around the globe from there. Indeed, evidence of carrots has even been found in Egyptian tombs. The Greeks used them medicinally, and the Romans ate them both raw and cooked. Many ancient societies considered them to be aphrodisiacs.

Although today we expect a carrot to be orange, these original carrots were red, purple, white and yellow in colouring and the orange we are accustomed to today has been attributed to Dutch breeders who crossed the red and yellow carrot to produce the orange, emblematic of the House of Orange. It is this colour that is now widely cultivated around the globe. The other colourful carrots are still available today, although not common.

Carrots became widely cultivated in Europe during the 15th and 16th centuries, and were brought over to North America by early settlers. They were also an important food for colonists in Australia. During the Second World War, the population was encouraged to cultivate carrots as their high nutrition content was useful during times of rationing.

Early carrots were used more for their seeds and leaves than the woody root. For thousands of years they have been used for medicinal purposes – indeed the Greeks prized them more for this than as food. They were thought to have healing, sedative and diuretic properties. The Roman Pliny the Elder suggested that carrot was used as love potion, and Galen, another Roman claimed that it ‘procures lust’!

There are many recorded uses for carrots over the centuries – grated raw carrot was given to children to expel worms, pulped it was used as cataplasm for ulcers and sores. It was also supposed to improve memory and relieve nervous tension. An infusion of carrot seeds was believed to be diuretic, as well as helping to stimulate the appetite, reduce colic and relieve menstrual cramps. The dried flowers in a tea were believed to be a remedy for dropsy. Carrots are also supposed to help wind and carrot soup is supposed to relieve diarrhea and help with tonsillitis.



For centuries the seeds made into a tea were considered to be contraceptive, and it has since been scientifically proven that carrot seed extract taken orally from day 4 – 6 post-coitum, can inhibit egg implantation. Tea made from the seeds can also promote menstruation as well as stimulate milk flow during lactation.

Eating carrots was also considered beneficial for allergies, anaemia, rheumatism, as a tonic for the nervous system, improving vision, constipation, intestinal inflammation, as a liver tonic and also as an immune system tonic. They have also been used to aid skin damage, broken veins, creeping impetigo and wrinkles as well as helping dandruff and round worms.

Chinese Practitioners maintain they are good for the health of the spleen and the stomach and well as improving impotence, sexual dysfunction, night blindness, persistent coughs and improving kidney function as well as eliminating excess wind and cold from our bodies.

All-in-all, over the centuries carrots have been an amazing all-rounder for health and well-being.

Health Benefits

Sometimes called 'The King of Vegetables', the properties of carrots are such that studies have suggested that eating as little as one carrot a day could cut the levels of lung cancer in half, but that is only the tip of how they can help.

Cardiovascular Health

Rich in a variety of antioxidants, it is not surprising that there has been a lot of research done around carrots and their cardiovascular benefits. Oxidative, or free radical damage can have a big impact on cardiovascular health and a diet high in antioxidants will have a protective effect.

A study from the Netherlands which followed its participants for 10 years, determined that carrots were the single most risk-reducing food for cardiovascular benefit – particularly the orange and yellow varieties.

25gm or ¼ cup of carrots eaten regularly showed a significantly reduced risk, and the higher the intake, the higher the benefits. ¹

It is thought that the different varieties of antioxidants work together synergistically to give this overall protective effect. ²

The effect of polyacetylenes are also thought to provide beneficial effects. These are made from the metabolism of particular fatty acids and animal research has shown they have an anti-inflammatory effect as well as anti-aggregatory properties, both of which help to play a key role in cardiovascular protection.



¹ Oude Griep LM, Monique Verschuren WM, Kromhout D et al Colours of fruit and vegetables and 10-year incidence of CHD. Br J Nutr 2011 Jun8:1-8

² Potter AS, Foroudi S, Stamatikos A, Patil BS, Deyhim F. Drinking carrot juice increases total antioxidant status and decreases lipid peroxidation in adults. Nutr J. 2011 Sep 24;10:96. doi: 10.1186/1475-2891-10-96.



Eye Health

Carrots have long held a place in folklore for their beneficial effect on vision, particularly night vision. You would therefore expect this area to have plenty of studies to offer. In fact, there are very few, but the few which have been done show clear benefit between eating carrots and eye health.

As a good source of both lutein and zeaxanthin, carotenoids which have shown protective properties against macular degeneration and cataracts, carrots would seem to be living up

to their reputation!

An American study showed significantly lower rates of glaucoma in women who consumed carrots at least twice a week³.

Animal studies have shown that the intake of the phytonutrient geranyl acetate, which is found in carrots, is associated with reduced risk of cataracts.

There are no studies linking carrots with good night vision, but Vitamin A is essential for good eyesight, so there is a direct association between the levels of Vitamin A in carrots (as beta carotene) and good vision.⁴

Cancer Benefits

Again, given the levels of antioxidants in carrots research has been conducted as to their benefits for cancer. The best researched area is colon cancer. Preliminary research shows encouraging results. Laboratory studies have shown the ability of carrots to inhibit the growth of colon cancer cells. This has been specifically linked to the polyacetylenes found in carrots.⁵

A further study in which participants drank 1 ½ cup of carrot juice daily showed small, but significant effects on colon cell health, suggesting at the very least a protective effect.

There are a few other small scale studies which show benefit for other cancers, and more research in this area is on-going.⁶ For example, a study from the University of Newcastle upon Tyne and Denmark, published in the Journal of Agricultural and Food Chemistry found the phytonutrient falcarinol reduced cancer risk, and another at Harvard University found women who ate two or more servings of carotenoid-rich foods daily had an 18% lower risk of breast cancer. Studies with rats have also shown a reduced risk by up to a third of pre-cancerous tumours developing into full-scale cancer if reasonable quantities of carrots are eaten, so they have a protective effect.

Other Benefits

Carrots are rich in Vitamin A as beta carotene. As well as being a powerful antioxidant Vitamin A is particularly

³ Giacony JA, Yu F, Stone KL, Pedula KL, Ensrud KE, Cauley JA, Hochberg MC, Coleman AL; Study of Osteoporotic Fractures Research Group – association of consumption of fruit/vegetables with decreased risk of glaucoma amongst African-American women. *Am J Ophthalmol.* 2012 Oct;154(4):635-44. doi: 10.1016/j.ajo.2012.03.048.

⁴ Theodosiou M, Laudet V and Schubert M From carrot to clinic: an overview of the retinoic acid signalling pathway. *Cellular and Molecular Life Sciences* Basel May 2010 Vol 67, 9:1423-1445

⁵ Okuyama Y, Ozasa K, Oki K, Nishino H, Fujimoto S, Watanabe Y. Inverse associations between zeaxanthin and other carotenoids and colorectal neoplasm in Japanese. *Int J Clin Oncol.* 2013 Feb 5

⁶ Shebaby WN, El-Sibai M, Smith KB, Karam MC, Mroueh M, Daher CF. The antioxidant and anticancer effect of wild carrot oil extract. *Phytother Res.* 2013 May;27(5):737-44. doi: 10.1002/ptr.4776. Epub 2012 Jul 20. Liu YT, Dai JJ, Xu CH, Lu YK, Fan YY, Zhang XL, Zhang CX, Chen YM. Great intake of fruit and vegetables is associated with lower risk of nasopharyngeal carcinoma in Chinese adults **Cancer Causes Control.** 2012 Apr;23(4):589-99. doi: 10.1007/s10552-012-9923-z. Butalla AC, Crane TE, Patil B, Wertheim BC, Thompson P, Thomson CA. Effects of carrot juice intervention on plasma carotenoids, oxidative stress and inflammation on overweight breast cancer survivors. *Nutr Cancer.* 2012;64(2):331-41. doi: 10.1080/01635581.2012.650779.

necessary for a healthy immune system as well as healthy eyesight, mucous membranes and teeth and bones. It also plays a part in tissue development and is therefore deemed to have an anti-ageing effect.

They are also rich in many of the B vitamins, which are required to keep the nervous system healthy and are co-factors in many of the body's metabolic processes.

Nutritional Value

Notably rich in antioxidants as well as vitamins and dietary fibre, they only provide 41 calories per 100 g, despite their sweet taste. Best known for the phytonutrient beta-carotene named after them there are, in fact, a variety of phytonutrient antioxidants found in carrots:

Carotenoids – alpha-carotene, beta-carotene, lutein

Hydroxycinnamic acids – caffeic acid, coumaric acid, ferulic acid

Anthocyanindins – cyanidins, malvidins

Much of the research has concentrated on the carotenoids, but there is another category of phytonutrients contained in carrots called polyacetylenes. Carrots include the polyacetylenes called falcarinol and falcarindiol, and recent studies have shown they can help to inhibit colon cancer cells, and also suggest a beneficial interaction between carotenoids and polyacetylenes in the body.

In addition, carrots are an excellent source of Vitamin A, Vitamin C, the bone-building vitamin K and well as containing good levels of dietary fibre, potassium, B6, B3, folic acid and Vitamin E

Per 100 mg

Calcium	33 mg
Iron	0.3 mg
Magnesium	12 mg
Phosphorus	35 mg
Potassium	320 mg
Sodium	69 mg
Zinc	0.24 mg
Vitamin C	5.9 mg
B1	0.066 mg
B2	0.058 mg
B3	0.983 mg
B6	0.138 mg
Folic acid	19 µg
Vitamin A	16706 iu
Vitamin E	0.66 mg
Vitamin K	13.2 µg

Source: USDA National Nutrient Database

Unlike most fruit and vegetables carrots would seem to offer better nutritional value cooked rather than raw. Cooking changes some of the compounds



making them more bioavailable. It is also beneficial to have a little fat eaten alongside the carrots as both the vitamin A and carotenoids are fat soluble and this also helps uptake.

How To Use

Carrots are a great base for juicing , and this is one way to maximize the concentration of beta-carotene. Carrots can be eaten both raw and cooked, and the fresher they are the better as their nutritional content begins to decline as soon as they are picked – so why not try growing some at home – they are an easy crop!

The carrot tops or greens are edible and are rich in proteins, minerals and vitamins, and can be made in to tea, as well as being used in salads and as a garnish. For the tea, simply infuse in boiling water for a few minutes and strain, to brew a mild diuretic tea.

