

## Calcium

- Dairy products can also cause calcium losses at the same time as increasing calcium intake – absorption from dairy is about 32%.
- Like all animal protein, milk acidifies the body's pH, which can be neutralized by calcium from the bones that is then removed via the urine, causing a calcium deficit – 30% from milk and 60% from cheeses is wasted this way.
- In contrast, calcium absorption from green leafy vegetables (GLV) ranges from 50%-60%, although it is important that they are low in oxalates.
- Furthermore, GLV like broccoli and spring greens are alkaline so less calcium is lost.

## Oxalates

- Oxalates (Oxalic Acid) are chemical compounds that are found naturally in our bodies, as well as in many plants, fruits, and all nuts and seeds.
- Typically, when it is healthy, your gut doesn't absorb much of the chemicals from your diet and oxalates are usually metabolized by the good bacteria in your gut and excreted.
- However, when oxalates meet up with damaged tissues, they bind with calcium and crystallize into stones - causing irritation and pain.
- Moreover oxalic acid can bind with some nutrients, making them inaccessible to the body.
- Individuals with gout, rheumatoid arthritis, or autoimmune conditions such as hypothyroidism are advised to reduce or avoid foods high in oxalic acid or oxalates.
- However, you do not need avoid foods high in oxalates unless absolutely necessary, as they are some of the healthiest foods you can eat.
- Cooking can reduce (destroy) the oxalates in foods, especially in leafy vegetables.

## Main Health Benefits

- As with all vegetables and foods that are natural they contain a plethora of the nutrients that are beneficial to the optimal functioning of the body.
- Fibre, vitamin k and the essential antioxidant compounds are the nutrients of note.

## Health Problems

- Apart from the oxalate issue there are none known.

## The Bottom Line:

Green leafy vegetables should be an important part of our daily diet, as they provide all the essential vitamins, minerals and fibre that can sustain and maintain health. Their antioxidant capacity is staggering and this can help reduce inflammation and oxidative damage, improve immunity, heart health and ageing, and even bone health, as they can even provide better levels of calcium than dairy. Remember with all green veggies that minimal cooking is needed to ensure you're obtaining their best nutritional value.

# FOOD *in* FOCUS

## LEAFY GREENS

## WELCOME

Each month our nutritionist  
**Gary Baverstock**  
provides some basic science  
and unbiased information, to  
help demystify certain  
popular foods in our diet.

## Leafy Greens

- Nearly one thousand species of plants with edible leaves are known.
- Leaf vegetables, also called potherbs, greens, vegetable greens, leafy greens, or salad greens, are plant leaves eaten as a vegetable, sometimes accompanied by tender petioles and shoots.
- Although they come from a very wide variety of plants, most share a great deal with other leaf vegetables in nutrition and cooking methods.
- Leaf vegetables most often come from short-lived herbaceous plants such as spinach.
- The leaves of many fodder crops are also edible for humans, but usually only eaten under famine conditions – these include alfalfa, clover, and most grasses, including wheat and barley.
- These plants are often much more prolific than more traditional leaf vegetables, but exploitation of their rich nutrition is difficult, primarily because of their high fibre content.

## Nutrition

- Leaf vegetables are typically low in calories and fat, and high protein per calorie, dietary fibre, vitamin C, pro-vitamin A carotenoids, folate, manganese, and vitamin K.
- The vitamin K content of leaf vegetables is particularly high, since these are photosynthetic tissues and phyloquinone is involved in photosynthesis.

## Nutritional values of selected green leafy vegetables

Green Leafy Veg	Calories	Net Carbs	Fibre	Glycaemic Index	Glycaemic Load
Broccoli	34 cals	7g	3g	15	3
Kale	50 cals	10g	2g	24	4
Chard	19 cals	4g	2g	10	2
Cabbage	25 cals	6g	3g	10	2
Spinach	23 cals	4g	2g	15	1

Based on 100g Values of Raw Vegetables – Source: nutritiondata.com  
(Net Carbs + Fibre = Total Carbs)

## Broccoli

- Broccoli contains many phytonutrients such as thiocyanates, indoles, sulforaphane, isothiocyanates and flavonoids like beta-carotene cryptoxanthin, lutein, and zeaxanthin that may help against certain cancers.
- It is an exceptionally rich source of vitamin C a powerful natural anti-oxidant and immune modulator, that helps fight against flu causing viruses and A that helps in maintaining the integrity of skin, mucosa and eye health.
- Fresh heads are an excellent source of vitamin B9 (folate) and a rich source of vitamins K, B2, B3, B5 and B6
- Furthermore, it is also a good source of minerals like calcium, manganese, iron, magnesium, selenium, zinc and phosphorus, and its florets also hold some amount of omega-3 fatty acids.

## Cabbage

- The vegetable is a storehouse of phytochemical antioxidants like thiocyanates, indole-3-carbinol, lutein, zeaxanthin, sulforaphane, and isothiocyanates that protect against some cancers and help reduce LDL or “bad cholesterol” levels in the blood.
- Fresh cabbage is an excellent source of natural antioxidant, vitamin C and rich in the B vitamins that are essential for energy metabolism.
- It also contains minerals like potassium, manganese, iron, and magnesium that work by controlling heart rate and blood pressure; red blood cell formation and as a co-factor for the antioxidant enzyme, superoxide dismutase.
- Cabbage is a very good source of Vitamin K has a potential role in bone metabolism through promoting osteotrophic activity and in the amelioration of Alzheimer’s disease by limiting neuronal damage inside the brain.

## Kale

- Kale contains health-promoting cancer preventing phytochemicals, sulforaphane and indole-3-carbinol and di-indolyl-methane, a metabolite of indole-3-carbinol that is an effective immune modulator, anti-bacterial and anti-viral agent.
- It is also a very rich source of β-carotene, lutein and zeaxanthin - an important dietary carotenoid, beneficial for eye health and “age-related macular degeneration disease” in the elderly.
- It is very rich in vitamins A and K and vitamin C and Vitamins B1, B3, B5, B6 that are essential for energy substrate metabolism in the body.
- It is also rich source of minerals like copper, calcium, sodium, potassium, iron, manganese, and phosphorus.

## Chard

- Chard leaves are an excellent source of antioxidant vitamin C that can help maintain normal connective tissue, prevent iron deficiency, and also help the human body develop resistance against infectious agents by boosting immunity.
- Chard is one of the excellent vegetable sources for vitamin K, vitamin A and flavonoid anti-oxidants like β-carotene, a-carotene, lutein and zeaxanthin - carotenes convert to vitamin A inside the body.
- It is also rich in B-complex group of vitamins such as folate, vitamin B1, B3, B5, B6 that are essential for optimum cellular metabolic functions.
- It is also rich source of minerals like copper, calcium, sodium, potassium, iron, manganese and phosphorus, and it is also rich source of omega-3 fatty acids.

## Spinach

- Fresh spinach leaves are rich source of several vital antioxidant vitamins A, C, and flavonoid poly phenolic antioxidants such as lutein, zeaxanthin and beta-carotene.
- Together, these compounds help act as protective scavengers against oxygen-derived free radicals and reactive oxygen species (ROS) that play a healing role in ageing and various disease processes.
- 100g of fresh spinach contains about 25% of daily intake of non-heme iron - that needs vitamin C to be absorbed - required by the human body for red blood cell production and as a co-factor for oxidation-reduction enzyme, cytochrome-oxidase during the cellular metabolism.
- Its leaves also contain a good amount of vitamin K and many of the B vitamins and minerals like potassium, manganese, magnesium, copper and zinc, the latter as a co-factor for many enzymes that regulate growth and development, sperm generation, digestion and nucleic acid synthesis.