



Strawberries 101: Nutrition Facts and Health Benefits

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The strawberry, scientifically known as *Fragaria ananassa*, originated in Europe in the 18th century.

It is a hybrid of two wild strawberry species from North America and Chile.

Strawberries are bright red in color, have a juicy texture, a characteristic aroma, and a sweet flavor.

They are an excellent source of vitamin C and manganese, and also contain decent amounts of folate (B9) and potassium.

Strawberries are very rich in [antioxidants](#) and plant compounds, and may have benefits for heart health and blood sugar control ([1](#), [2](#)).

They are usually consumed raw and fresh, but can also be used in a variety of jams, jellies, desserts and for food flavoring.

This is what strawberries look like:



Nutrition Facts

Strawberries mainly consist of [water](#) (91%) and carbohydrates (7.7%). They contain only minor amounts of fat (0.3%) and [protein](#) (0.7%).

One cup of whole strawberries (150 grams) contains less than 50 [calories](#).

The table below contains information on all the main nutrients in strawberries (3).

Strawberries - Nutrition Facts

Type

Strawberries, raw

Serving

100 grams

General

Vitamins & minerals

General information

	Amount
Calories	32
Water	91 %
Protein	0.7 g
Carbs	7.7 g
Sugar	4.9 g
Fiber	2 g
Fat	0.3 g
Saturated	0.02 g
Monounsaturated	0.04 g
Polyunsaturated	0.16 g
Omega-3	0.07 g
Omega-6	0.09 g
Trans fat	~

[More details](#) ▼

Carbs

Fresh strawberries are very high in water, so their total carb content is very low (less than 12 grams of carbs per cup).

Most of the carbs in them come from simple sugars, such as glucose, fructose and sucrose, but they also contain a decent amount of fibers.

The net digestible carbohydrate content is less than 6 grams for every 100 grams of strawberries.

Strawberries have a [glycemic index](#) score of 40, which is relatively low (4).

This means that strawberries should not lead to big spikes in blood sugar levels, and are considered safe for diabetics.

Fiber

About 26% of the carb content of strawberries is in the form of [fibers](#).

1 cup of strawberries provides 3 grams of fiber, both soluble and insoluble.

Dietary fibers are important to feed the friendly bacteria in the gut and improve digestive health. They are also useful for weight loss, and can help prevent many diseases (5, 6).

Bottom line: The carbohydrate content of strawberries consists mainly of fibers and simple sugars. They score relatively low on the glycemic index and should not cause big spikes in blood sugar levels.



Vitamins and Minerals

The most abundant vitamins and minerals in strawberries are listed below.

- **Vitamin C:** Strawberries are an excellent source of vitamin C, an antioxidant that is important for the immune system and skin health (7, 8).
- **Manganese:** Frequently found in high amounts in whole grains, [legumes](#), fruits and vegetables, this trace element is important for many processes in the body (9).
- **Folate (B9):** One of the B-vitamins, important for normal tissue growth and cell function. Folate is particularly important for pregnant women and the elderly (10, 11, 12).

- **Potassium:** A mineral that is involved in many essential body functions, such as regulating blood pressure (13, 14).

To a lesser extent, strawberries also contain iron, copper, magnesium, phosphorus, vitamin B6, vitamin K and vitamin E.

Bottom line: Strawberries are a good source of vitamin C, manganese, folate (B9) and potassium, and contain small amounts of several other vitamins and minerals.

Other Plant Compounds

Strawberries are loaded with antioxidants and beneficial plant compounds.

- **Pelargonidin:** The main [anthocyanin](#) in strawberries, responsible for their color (15).
- **Ellagic acid:** Found in high amounts in strawberries, ellagic acid is a polyphenol antioxidant that may have many health benefits (16).
- **Ellagitannins:** Related to ellagic acid, ellagitannins are converted to ellagic acid in the gut (16).
- **Procyanidins:** Antioxidants, commonly found in strawberry flesh and seeds, that may have beneficial health effects (17, 18, 19).

Bottom line: Strawberries contain high amounts of beneficial plant compounds and antioxidants, such as pelargonidin, ellagic acid, ellagitannins and procyanidins.

Anthocyanins

More than 25 different anthocyanins have been found in strawberries. [Pelargonidin](#) is the most abundant (15, 20).

Anthocyanins are responsible for the bright colors of [fruits](#) and flowers.

They are usually concentrated in the skins of fruit, but berries (such as strawberries) also tend to have anthocyanins in their flesh.

Anthocyanin content is usually proportional to color intensity, increasing greatly as the fruit ripens (21, 22).

Eating anthocyanin-rich foods has been associated with numerous health benefits, especially regarding heart health (23, 24).

Bottom line: Pelargonidin is the major anthocyanin in strawberries, and causes their bright red color. Anthocyanins may have benefits for heart health.



Ellagitannins and Ellagic Acid

Strawberries are consistently ranked among the top sources of [phenolic antioxidants](#), with levels up to 2-11 times greater than other fruits (25, 26, 27).

Ellagitannins and ellagic acid comprise a large part of these antioxidants in strawberries (28).

They have received considerable attention, and have been linked to numerous health benefits. This includes fighting bacteria and helping to prevent cancer (29, 30, 31).

The main ellagitannin in strawberries is [sanguin H-6](#) (1).

Bottom line: Ellagitannins and ellagic acid are very powerful antioxidants found in strawberries. They have been linked with numerous health benefits.

Health Benefits of Strawberries

The consumption of berries has been associated with reduced risk of many chronic diseases ([31](#), [32](#), [33](#)).

Strawberry consumption may improve heart health, lower blood sugar levels and help prevent cancer.



Heart Health

Cardiovascular disease (heart disease) is the most common cause of death worldwide.

Studies have found a relationship between berries, or berry anthocyanins, and improved cardiovascular health ([21](#), [34](#), [35](#), [36](#)).

Large observational studies, that included thousands of people, have linked berry consumption with lower risk of heart-related deaths ([37](#), [38](#), [39](#)).

According to a study in middle-aged people with well-established risk factors for cardiovascular disease, berries may increase HDL-cholesterol, lower blood pressure and improve the function of blood platelets ([40](#)).

Strawberries may also improve blood antioxidant status, decrease oxidative stress, inhibit inflammation, improve vascular function, improve the blood lipid profile and reduce the harmful oxidation of LDL-cholesterol ([21](#), [23](#), [41](#), [42](#), [43](#), [44](#)).

Lately, the effects of freeze-dried strawberry supplements on type 2 diabetes or metabolic syndrome have been studied intensely, mainly in overweight or obese individuals.

A significant decrease in several major risk factors was observed after 4-12 weeks of supplementation. This includes LDL-cholesterol, inflammatory markers (C-reactive protein), and oxidized LDL-particles (45, 46, 47, 48, 49).

Bottom line: Strawberries may decrease the risk of heart disease by improving the cholesterol profile, lowering blood pressure and reducing inflammation and oxidative stress.

Blood Sugar Regulation

When carbohydrates are digested, they are broken down into simple sugars, which are then released into the bloodstream.

With increased blood sugar levels, the body starts secreting insulin, which tells cells to pick up the sugar from the bloodstream and use it for fuel or storage.

Imbalance in blood sugar regulation, or diets high in foods that lead to big spikes in blood sugar, are associated with increased risk of obesity, type 2 diabetes and cardiovascular disease (50, 51, 52).

Strawberries seem to slow down glucose digestion and reduce spikes in both glucose and insulin following a carbohydrate-rich meal, compared to a carbohydrate-rich meal without strawberries (53, 54, 55, 56).

This implies that strawberries may be particularly useful for the prevention of metabolic syndrome and type 2 diabetes.

Bottom line: Strawberries may slow down the digestion of carbs and reduce spikes in both blood sugar and insulin levels.

Cancer Prevention

Cancer is a serious disease, characterized by uncontrolled growth of abnormal cells, beyond their normal boundaries.

Cancer formation and progression is often linked to oxidative stress and chronic inflammation (57, 58).

A number of studies suggest that berries may help prevent several types of cancer, through their ability to fight oxidative stress and inflammation (59, 60, 61).

Strawberries have been shown to inhibit tumor formation in an animal model of oral cancer and in human liver cancer cells (62, 63).

The protective effects of strawberries may be driven by the ellagic acid and ellagitannins, which have been shown to inhibit the growth of cancer cells (64, 65).

More human research is needed to improve understanding of the effects of strawberries on cancer.

Bottom line: Animal and test tube studies suggest that strawberries may help protect against several types of cancer.

Adverse Effects

Strawberries are usually well tolerated, but allergy is fairly common.

Strawberries that are grown in protected environments (such as greenhouses), may contain more pesticide residues than strawberries grown in the open (66, 67, 68).

Strawberry Allergy

Strawberry allergy is fairly common, especially in young children.

Strawberries contain a protein that may cross-react and cause symptoms in people who are sensitive to birch pollen or apples, known as [pollen-food allergy](#) (69, 70, 71).

Common symptoms include itching or tingling in the mouth, hives, headaches, swelling of lips, face, tongue and throat, or breathing problems in severe cases (72).

The allergy-causing protein is believed to be linked to the red anthocyanins. Colorless, white strawberries are usually well tolerated by allergic individuals (73).

Bottom line: Strawberry allergy is rather common, especially among children. Individuals who are sensitive to birch pollen, or have apple allergy, may experience allergic symptoms after consuming strawberries.

Summary

Strawberries are low in calories, and are both delicious and healthy.

They are a good source of many vitamins, minerals and plant compounds, some of which have powerful health benefits.

The health benefits include lower cholesterol and blood pressure, reduced inflammation, decreased oxidative stress and cancer prevention.

Furthermore, they may help prevent big spikes in both blood sugar and insulin levels.

Strawberries are an excellent addition to a healthy diet.