

Lifestyle & Culture

Ginger: The Superfood with surprising health benefits



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Ginger (*Zingiber officinale*) is a plant whose rhizome, also known as ginger root, found its use all over the world both as a spice and a folk medicine. Ginger belongs to the *Zingiberaceae* family which also involves turmeric (*Curcuma longa*), cardamom (*Elettaria cardamomum*) as well as galangal. Ginger originated from Maritime Southeast Asia, which at the time, was occupied by Austronesian population. It was then transported through the Indo-Pacific during the Austronesian expansion (c. 5,000 BP) making it even as far as Hawaii. This makes ginger one of the very first spices exported from Asia arriving in Europe along with the spice trade. Ginger was well known for its medicinal purposes for thousands of years and commonly used by ancient Greeks and Romans. Nowadays, ginger is broadly applied in traditional Asian medicine systems including Traditional Chinese Medicine (TCM) for treatment of various conditions starting from colds to arthritis. When consumed as a supplement ginger showed a variety of health benefits such as reduction of inflammatory processes and improvement of outcomes related to Diabetes Mellitus type 2.

Benefits of ginger

Ginger consists of over 100 active compounds such as gingerols (antioxidant and anti-inflammatory properties), shogaols (anticancer, antioxidant and anti-inflammatory properties) paradols (antioxidative and anti-inflammatory properties) and zingerones (anti-inflammatory, antidiabetic, antipolytic, antiarrhythmic, antispasmodic and anti-tumour properties) which are believed to be directly linked to its health benefits. Studies presented that ginger supplementation, taken in varying doses and forms, is effective in overall health improvement of individuals suffering from certain medical conditions. Moreover, ginger showed benefits with regards to suppression of nausea and vomiting as well as promotion of the weight loss process.

Reduction of inflammation and cellular damage

There are many substances with anti-inflammatory properties found in ginger including the phenolic compounds shogaols, gingerols, zingerone and paradols respectively. These compounds work by inhibition of proinflammatory



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matory pathways within the body such as nuclear factor- κ B (NF- κ B) signalling pathway hence reducing the amount of tumour necrosis factor α (TNF- α) and interleukin-6 (IL-6) which are inflammatory proteins. Studies show that ginger supplementation has a beneficial effect on reduction of inflammatory markers such as IL-6, TNF- α and high-sensitivity C-reactive protein (hs-CRP). Therefore, ginger supplementation can reduce the symptoms of inflammatory conditions such as arthritis.

In a 2015 study, 41 individuals, who suffer from type 2 diabetes mellitus, were provided with two grams of ginger powder daily for a 12-week period. The results showed a significant reduction of an oxidative stress biomarker malondialdehyde when compared with control group.

A review conducted in 2020, which included 109 randomised controlled trials – eight of which investigated anti-inflammatory effects of ginger, showed that ginger supplements were beneficial with the reduction of pain as well as inflammatory markers in individuals suffering from osteoarthritis and rheumatoid arthritis. Additionally, it was shown that ginger supplementation was effective in reduction of symptoms related to inflammatory conditions such as rheumatoid arthritis. Moreover,

ginger reduces the amount oxidative stress markers which cause a condition in which reactive oxygen species (ROS) overwhelm the body's antioxidant defences resulting in cellular damage.

Protection against heart disease

Persistent elevation of blood sugar levels, blood pressure as well as certain blood lipids such as LDL cholesterol increases the risk of heart disease. Adding ginger to a healthy and balanced diet, exercise as well as a healthy lifestyle can further help with protection against heart disease. Studies show that individuals who consume ginger on a regular basis have a lower risk of high blood pressure and coronary heart disease. Moreover, ginger supplements also showed to decrease heart disease risk factors in people who are at a greater risk of heart disease including individuals with diabetes.

A 2018 review, involving 10 studies conducted on people with type 2 diabetes, presented that ginger supplementation with 1-3g of ginger daily for 6-12 weeks drastically enhanced blood lipid profile together with markers of short- and long-term blood sugar control.

A different review also conducted in 2018 of 12 studies showed positive effects of ginger

supplementation on decrease of triglyceride and LDL cholesterol levels.

Diabetes

Ginger supplementation showed to be effective and helpful for individuals with type 2 diabetes by stabilizing the glycaemic control and reduction of possible risks related to heart disease.

A study conducted in 2020 involved 103 people suffering from type 2 diabetes. The individuals were supplemented with 1.2 g of ginger daily for a period of three months. The effects presented a great reduction in total cholesterol levels as well as fasting blood glucose levels in comparison to a control group.

A 2022 review presented that ginger supplementation caused a significant reduction of fasting glucose levels, the long-term blood sugar control marker haemoglobin A1c (HbA1c) together with reduction of systolic and diastolic blood pressure values in individuals with type 2 diabetes.

Nausea

Shogaol and gingerols, which are compounds found in ginger, help with reduction of nausea by stimulating the flow of saliva and gastric secretions, aiding gastric emptying time and preventing serotonin (neurotransmitter) from binding to receptors in the brain.

Ginger supplements showed to be effective in treatment of nausea related to pregnancy as well as nausea as a side effect of chemotherapy and post-surgery.

A review conducted in 2022 which included 13 studies showed that ginger supplements lead to a significant improvement of nausea in pregnant women in comparison to placebo treatments. The researchers discovered that ginger was more effective in nausea reduction than vitamin B6, which is a different supplement widely recommended for treatment of pregnancy-induced nausea. Ginger supplements are thought to be safe during pregnancy, however it is advised that all pregnant women always consult their dietary supplements with their healthcare providers.

Weight loss

It is suggested that ginger supplements may aid and encourage weight loss. A review conducted in 2019 which involved 14 studies presented that ginger supplementation significantly decreased body weight together with waist-to-hip ratio in overweight and obese individuals. Waist-to-hip ratio is a measurement which compares hip and waist circumference. A high ratio suggests a greater amount of abdominal fat which is directly linked to a greater risk of disease. Researchers suggest that ginger consumption aids weight loss by enhancing fat burning processes, inhibition of fat absorption from the digestive tract as well as reduction of appetite.

Risks and interactions

Consumption of doses consisting of up to 4g daily appear to be safe and well-tolerated. However, it is advised not to exceed the threshold of 4g per day as greater doses are more likely to cause adverse effects. The most frequently reported side effects include acid reflux, heartburn, diarrhoea, abnormal heart rate, allergic reaction (including breathing difficulty, hives, throat and tongue swelling) and hypotension.

Moreover, it is not recommended to use ginger supplementation together with other herbal/health supplements or medicinal which influence blood clotting or which lower the blood glucose levels. If in doubt, contact a healthcare professional for further advice.

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