



Ginger

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Abstract. The article discusses the main properties of ginger and its effect on the human body. A systematic review of modern specialized literature and relevant scientific data was carried out. The chemical composition and nutritional value of the product are indicated, the use of ginger in various types of medicine and the effectiveness of its use in various diseases are considered. The potentially adverse effects of ginger on the human body under certain medical conditions and diseases are analyzed separately. The scientific foundations of diets with its use are considered.

Keywords: ginger , useful properties, potentially dangerous effects, side effects, contraindications, diets

Beneficial features

Table 1. Chemical composition of ginger (according to [Food+](#)).

100 g of fresh ginger root contains [3]:					
Main substances:	G	Minerals:	mg	Vitamins:	mg
Water	78.89	Potassium	415	Vitamin C	5
Carbohydrates	17.77	Magnesium	43	Vitamin PP	0.750
Alimentary fiber	2	Phosphorus	34	Vitamin B6	0.160
Squirrels	1.82	Calcium	16	Vitamin B2	0.034
Sugar	1.7	Sodium	13	Vitamin B1	0.025
Fats	0.75	Iron	0.6		
calories	80kcal	Zinc	0.34		

Fresh ginger contains a large amount of useful minerals, vitamins, essential oils, essential amino acids. Almost all of them are preserved in ginger powder. But the pickled root crop cannot boast of the same usefulness. Moreover, in its composition, the level of sodium rises sharply, whose excess in the body can lead to increased pressure and edema. In addition, artificial sweeteners are often added to ginger marinade.

Medicinal properties

Of all the minerals, ginger has the most potassium, which will be useful for women taking diuretics to relieve tension in the premenstrual period. At this time, along with the liquid, the body loses a lot of potassium, and ginger helps to restore its level. Also, in tandem with phosphorus, potassium contributes to the supply of oxygen to the brain, and together with calcium, it controls neuromuscular activity. In combination with iodine and alkaline bases, which are rich in ginger, potassium has a positive effect on the body in diseases of the cardiovascular system and thyroid gland.

In addition to potassium, ginger is rich in magnesium. The lack of this element is observed in most people. At particular risk are patients with poisoning, accompanied by vomiting and diarrhea, pregnant women and the elderly. This substance is indispensable for the functioning of the nervous system, as well as for the synthesis of proteins and the removal of toxic elements from the body. Moreover, magnesium has a beneficial effect on the condition of a person after a heart attack and reduces the symptoms of premenstrual syndrome in women.

The high calcium content of ginger makes it especially beneficial for adult women (post-menopause) and the elderly. This element helps to maintain normal blood pressure, ensures blood clotting, and regulates the work of various enzymes. Its sufficient presence in the body helps prevent arrhythmia and muscle cramps.

Due to the presence of fiber and pectin in its composition, ginger helps the digestive system. The root crop stimulates the secretion of the digestive glands of the stomach, has a beneficial effect on the microflora and intestinal motility. When using ginger, there is a decrease in gas formation and neutralization of toxins. In general, it activates the digestive system and speeds up metabolism.

This spicy root also combats common problems such as cholesterol buildup and high blood sugar ^[9]. It strengthens blood vessels and prevents thrombosis. By the way, the effect on the vessels and the improvement of blood circulation have a positive effect on the fight against sexual dysfunction in men.

Ginger root contains a lot of vitamin C and B vitamins (B1, B2, B6, B9), which support the body's immune system, so ginger is recommended to eat in the initial stages of colds. In addition, ginger contains the alkaloid gingerol, which, together with essential oils, gives the root crop its specific smell and taste. This compound is credited with a lot of useful properties, the main of which ^[9]:

- suppression of nausea of any nature (caused by motion sickness, poisoning, toxicosis, etc.);
- antibacterial effect;
- relaxation of spasmodic muscle tissue;
- antioxidant activity (promotes renewal processes in the body);
- increased thermogenesis - the production of heat in the body (has a warming effect).

In medicine

In medicine, ginger is used to make tinctures and powders. They are recommended for use in motion sickness and motion sickness, to improve digestion, as well as cholesterol and fat metabolism. As part of a comprehensive treatment, ginger-based preparations are prescribed for joint diseases (arthrosis, arthritis) and atherosclerosis.

In addition, ginger essential oil can be found on the pharmaceutical market. It is actively used as aromatherapy in the treatment of various psycho-emotional disorders. Also, the oil is effective in the treatment of SARS. On its basis, inhalations are made, hot baths are taken with it and it is used for rubbing.

Work is also underway to create a new drug based on gingerol . Its action will be aimed at combating bronchial asthma. Conducting research on fragments of the respiratory tract, scientists at Columbia University in the USA found that gingerol-6 helps to eliminate spasms, relax muscle tissue and, as a result, expand the bronchi ^[5] .

It is worth noting that simply eating ginger will not help people with asthma, because we are talking, firstly, about the effect of the substance gingerol-6 in its pure form, and, secondly, in the experiments, the effect was directly on the smooth muscles of the respiratory organs.

It is important to note that the use of ginger is incompatible with the use of certain medications. For example, blood-thinning drugs combined with regular consumption of ginger, which also helps to reduce blood viscosity, can cause bleeding. It is not recommended to use ginger while taking drugs that lower sugar.

In folk medicine

In folk medicine, ginger root has a wide range of applications: infusions, powder, decoctions, tea are prepared from it, it is used for compresses. People who do not tolerate long journeys are advised to take gingerbread or a piece of root vegetable with them on the road - this helps to get rid of nausea. Also, half an hour before the intended trip, you can drink half a glass of water with one teaspoon of ginger powder.

It is believed that this powder has a beneficial effect on the condition of the liver and is sometimes even recommended for use as an additional therapeutic agent in the drug therapy of viral hepatitis and fatty liver. Ginger contributes to the restoration of cells and tissues and contributes to the normal functioning of the body.

In addition, to increase the body's resistance to various viruses and infections (especially in the autumn-winter period), a vitamin mixture is prepared, consisting of 400 g of ginger root, 250 g of honey, 3-4 lemons and nuts. All ingredients must be ground with a blender or passed through a meat grinder, then transferred to a glass dish and stored in the refrigerator. Take the mixture one tablespoon per day.

- Decoction

With frequent breakdowns of the digestive system, flatulence, indigestion, lack of appetite, folk healers advise taking ginger broth. You can prepare it by pouring one teaspoon of ginger powder with a glass of boiling water. Then leave the resulting mixture for 30 minutes on a steam bath and strain after cooling. It is necessary to take a decoction of a quarter cup 3 times a day half an hour before meals. You can also add yarrow and chamomile flowers to the decoction.

- Tea

For colds accompanied by fever, folk healers recommend mixing two tablespoons of raspberry jam, one tablespoon of ginger honey and half a cup of strong tea. It is especially useful to drink this drink at night.

If you are worried about a sore throat, then 25-50 g of ginger should be poured with hot water, adding honey and lemon, and drinking instead of tea. With a strong cough, you should take the juice of 1 ripe lemon, 2 tablespoons of purified glycerin and 1 tablespoon of ginger honey. The mixture should be stored in a cool place and taken one teaspoon at bedtime or, if necessary, 3-4 times during the day.

- infusions

With the help of an infusion of herbs with ginger honey, it is recommended to eliminate irritability, sleep disturbances, headaches and pain in the heart area that occur in women during menopause or premenstrual syndrome. To prepare the infusion, you need to take 15 g of chamomile flowers and motherwort herb, 10 g of sage herb, St. John's wort, yarrow, rose hips, hawthorn flowers and calendula. Two tablespoons of this collection should be poured into 0.5 liters of hot ginger water and let the mixture brew for an hour. Then strain, add ginger honey and drink half a cup warm.

Ginger can also be useful in case of male potency problems. It is believed that a tincture of 50 g of ginger powder, 10 g of clove and vanilla powder, 5 g of cinnamon powder and 1 kg of powdered sugar helps restore a normal erection. All this mixture must be poured over 2 liters of dry white wine, mixed and allowed to brew in a cool dark place for a day, and then filtered through cheesecloth. Take this remedy should be 20-30 minutes before sexual intercourse.

Ginger tincture, according to traditional healers, helps to fight another male disease - prostatitis. To prepare it, you need to take 100 g of a root crop and 1 liter of vodka. Infuse for two weeks in a dark place, strain, and then take 15 drops three times a day 20 minutes before meals.

- Outdoor use

Ginger compresses are used for colds, bruises, sprains and sciatica. Their action is aimed at reducing pain. To prepare a compress, you should take 2 teaspoons of ground ginger, 1 teaspoon of turmeric and half a teaspoon of chili pepper, filling it all with warm water. Then you need to leave the mixture to infuse in a dark place for about two weeks. Before use, warm the liquid, then apply it on a cotton cloth and attach it to the sore spot, securing it with cling film.

With arthrosis and arthritis, rubbing the joints with ginger oil helps. A few tablespoons of freshly grated ginger are recommended to be poured with vegetable oil (preferably sesame) and let it brew in a dark place for 21 days. Then rub this oil on the affected areas.

in oriental medicine

In traditional Tibetan medicine, ginger is classified as a product that generates heat and cures diseases of mucus (problems with the digestive system, liver and kidneys) and wind (various infectious diseases).

In the traditional system of Indian folk medicine, ginger is revered as the best spice and universal remedy for many ailments. It helps to get rid of nausea and vomiting, reduces the accumulation of gases in the intestines and stomach, relieves cramps in the abdominal cavity, relieves pain from inflammation of the joints.

In China, the root vegetable is considered a means of expelling "full cold". It is used to improve blood circulation, normalize pressure, improve the functioning of the stomach and kidneys. This is one of the remedies used to quickly bring a person to his senses in fainting and shock. Ginger is also used in the practice of cauterization of biologically active points.

Chinese doctors suggest that regular use of ginger can improve memory and maintain sobriety of mind until old age. The Chinese also refer to the root crop as an adaptogen of natural origin - products that help to cope with stress and, in general, with the adverse effects of the environment.

In addition, according to the Chinese and Japanese, this is a very effective remedy in the fight against runny nose and sore throat. So, in the Celestial Empire, ginger broth is considered a traditional recipe. A few thinly sliced pieces of the root are placed in 1 liter of chicken broth, a few cloves of garlic and a couple of green onions are added. This drink is drunk throughout the day. In addition, the Chinese boil Coca-Cola, add ginger and lemon to it, and drink this "potion" warm.

Ginger is also used for food poisoning. Two teaspoons of finely chopped root are boiled in 0.5 liters of water, then filtered and drunk a quarter cup warm during the day. The Chinese claim that ginger also helps with a hangover. In order to recover faster, it is recommended to drink a tincture of root vegetables, tangerine, and brown sugar in the morning.

In scientific research

Naturopaths from the University of Michigan conducted a study, the results of which revealed that ginger can be considered as a potential remedy for colorectal cancer. A group of people who were given 2 g of ginger per day for a month showed fewer markers of colonic inflammation than those who took a placebo at the same time ^[10].

Moreover, scientists have been able to prove the usefulness of ginger root for cancer patients who are undergoing chemotherapy. In most cases, patients complain of persistent nausea and vomiting, which doctors recommend to eliminate with the help of special antiemetic drugs. However, many patients complain that drugs relieve directly from the gag reflex, but not from the remaining feeling of nausea. In this case, ginger can come to the rescue. 1 g of the root vegetable daily three days before and three days after "chemo" helps to overcome nausea ^[11].

Interesting experiments on the appearance of cancer have recently been carried out in the USA. During experiments on mice with a predisposition to lung cancer, scientists were able to find out that the alkaloid capsaicin, similar to gingerol, (found in red pepper and makes it pungent) provokes the development of tumors in 100% of cases. Gingerol-6, in turn, caused the development of cancer in half of the experimental subjects, but the combination of capsaicin and gingerol led to the appearance of the disease in only 20% of the rodents. Researchers are now trying to determine the potential benefit of alkaloid interactions ^[12].

After a series of studies, scientists from the University of Georgia came to the conclusion that ginger reduces pain in the muscles after intense physical exertion. They conducted an experiment in which 74 people took part. They were divided into two groups, for 11 days the representatives of one of them received 2 g of ginger daily, and the representatives of the other received a placebo. All participants performed a specific set of exercises with heavy weights to put a strain on the muscles of the hands and provoke a slight inflammation. As a result, participants in the ginger group had a less pronounced inflammatory process. ^[13].

It has also been found that the alkaloids gingerol-6, gingerol-8 can be used to combat asthma. Usually, people suffering from this disease use bronchodilators (beta-agonists), which relieve spasms from the bronchi and allow normal breathing.

Scientists conducted an experiment in which they tried to relieve bronchospasm in several different ways: separately with beta-agonists, separately with gingerol-6, and combinations of bronchodilators with gingerol-6 and gingerol-8. The best performance was demonstrated by a pair of beta-agonists + gingerol-6. Now scientists are trying to find out whether the effect of the alkaloid is preserved not with direct exposure to the respiratory organs, but with the use of an aerosol ^[14].

Finally, recent studies by German scientists have demonstrated the relationship of gingerol-6 with fresh breath. It turned out that this alkaloid provokes the production of saliva enzymes that destroy sulfur-containing components. The latter often cause bad breath. Thus, gingerol-6 can become the basis of new oral hygiene products ^[15].

Weight regulation

According to popular belief, ginger is a miracle cure for weight loss. It is believed that the dropping of extra pounds occurs mainly due to the alkaloid gingerol-6. However, experts are not in a hurry with unambiguous conclusions.

Conducted studies have indeed demonstrated the ability of the alkaloid to enhance thermogenesis and accelerate metabolic processes. Gingerol has also been noted to inhibit the accumulation of lipids by adipocytes (the cells that make up adipose tissue). However, all these experiments were carried out on isolated cells outside a living organism.

Thus, experts agree that ginger is useful for overweight people, since it has a positive effect on metabolism. It can also be one of the factors affecting the change in weight, but the root crop itself does not have the magical ability to “burn” those extra pounds. The result can be achieved only by using ginger on the background of a healthy balanced diet and regular physical activity.

In cooking

Ginger is combined with almost any product, so it is used in cooking in a variety of ways: added to first and second courses, included in salads and desserts, sauces and many drinks are made based on it. In China, jam is made from the root crop, and ginger flour is produced in India. In Japan, the pickled root is used between different types of sushi to “zero out” the taste buds.

Interestingly, ginger sweets were a favorite delicacy of Queen Elizabeth I, which made the root vegetable popular in those days in England. In addition to sweets, they even began to make beer on its basis, which was called ginger ale. Until now, in the UK there is a tradition of preparing gingerbread cookies for Christmas. And this year, the royal confectioners even shared their recipe for this delicacy.

To make 10 cookies, mix:

- 150 g flour;
- 1.5 tsp _ baking powder for dough;
- 1/2 tsp . salt;
- 1/2 tsp . ground ginger;
- 1 tsp _ spice mixes (cinnamon, cloves, nutmeg, cardamom, allspice);
- 100 g butter.

Add 45 g of milk to this mixture, knead the dough and leave it for at least 2 hours (preferably overnight), wrapping it in cling film. Next, roll out the dough to 3 mm, cut out figures and bake at 180 ° C until cooked. Cooled pastries are traditionally decorated with icing.

Beverages

Traditionally, grated ginger root is put into tea or prepared on its basis as independent hot drinks with the addition of honey, lemon, cinnamon and other spices. The fresh root vegetable is also often added to smoothies and freshly squeezed juices.

In addition, ginger often becomes an ingredient in refreshing and tonic drinks with cucumber, lemon, mint, etc. Sometimes it is added to kefir or yogurt, and kvass is also made on it.

In cosmetology

Thanks to scientific studies that demonstrate the usefulness and discover new properties of ginger, its powder, extract and extracts are increasingly included in the composition of various cosmetic products. Especially a lot of them appear on the Asian market, but gradually they find their audience in European countries.

Given that gingerol improves blood circulation, ginger extract is often found in hair care products (in shampoos, balms, masks, lotions). It improves the blood supply to the scalp, nourishes the hair follicles and stimulates hair growth. However, you should be careful not to overdo masks and lotions on your hair, as this can lead to dry skin.

You can prepare a mask to strengthen the hair and at home. To do this, mix grated ginger and jojoba oil in equal proportions. The mixture is rubbed into the skin and applied to the hair, leaving for 30 minutes, then rinse thoroughly.

When it comes to skin care, ginger can often be found in facial products for oily skin. This is due to the fact that the root helps to even out the color, normalizes the sebaceous glands and effectively fights inflammation (acne). The tonic effect of ginger is also known, so it is added to anti-aging creams and gels. You should pay attention to the fact that ginger tends to dry out the skin, therefore, you need to control the time the mask stays on the face, and people with dry skin should avoid using them.

Among folk recipes for ginger face masks, one can single out an anti-acne remedy. To prepare it, you need to mix 1 tsp. ground ginger, 1 tsp. honey and some milk. The mixture is applied to the face for 10 minutes and then washed off with water. Also, to give a healthy complexion to the skin of the face, you can prepare a mask of 1 tsp. ground ginger, 1 tsp. honey and 1 tsp. lemon juice. Before applying funds to the face, it is necessary to check whether they cause allergies by testing them on the wrist.

Note that numerous folk recipes for anti-cellulite scrubs and ginger-based masks, as well as lip augmentation products, do not have a scientifically proven effect and, moreover, can be hazardous to health.

Unconventional use

In addition to the root itself, in Asian countries, people actively use other parts of the plant. For example, flowers often become an element of decor. They do not fade for a long time and have a pleasant unobtrusive aroma. They decorate tables, they are used to create bouquets and garlands. Also beneficial are ginger leaves, in which enterprising market traders wrap products.

As for the root vegetable itself, its unconventional use was seen during the filming of *The Lord of the Rings*. Typically, ginger is used to treat colds and relieve sore throats, but on the set, actor Andy Serkis was specially prepared with a mixture of excessively large doses of ginger, lemon and honey in order to burn his throat. This helped the actor speak in the creaky voice of his Gollum character.

Dangerous properties of ginger and contraindications

Despite the fact that ginger is full of nutrients and, in general, has a beneficial effect on the human body, it should be consumed in moderation. Moreover, it is impossible to replace drug treatment with a

root crop. After consulting a doctor, it can be used in combination with medications. However, in some cases, it is better to refuse ginger altogether:

- while taking sugar -lowering drugs and blood thinners;
- with inflammatory bowel diseases (gastritis, enteritis);
- during the period of exacerbation of diseases of the heart, gallbladder, liver;
- with damage to the mucous membranes and bleeding;
- at too high a temperature;
- during pregnancy (second and third trimesters);
- children under 3 years old.

Botanical description

Botanically, ginger is a genus of perennial herbaceous plants that belongs to the Ginger family. This genus includes the species pharmaceutical or common ginger (Latin *zingiber officinale*). It is its rhizomes that are used in cooking and medicine.

origin of name

Scientists believe that the Latin and Greek names of this plant ("zingiber" and "zingiberis", respectively) are derived from the Prakrit word "singabera", which, in turn, appeared due to the Sanskrit "srngaveram", which meant "horned root"^[1]. Most likely, the root crop was so named because of its appearance.

As for the Russian word "ginger", which for a long time was pronounced and recorded as "inbir", then, according to linguists, it was borrowed from the German language, where the root crop is called "ingwer"^[2].

Story

Ginger is an ancient plant whose properties have been known to man for more than 5000 years. The homeland of ginger is the region of Southeast Asia. Some researchers even name a more precise place - the Bismarck archipelago in the Pacific Ocean. However, now this plant is no longer found in the wild in nature. India, China, Australia, Indonesia, Barbados, Jamaica and others are engaged in its cultivation.

Scientists claim that the cultivation of ginger was first started in India in the III-IV century BC. e., and from there he came to China. Also, the root crop was brought to Egypt, where he won the favor of many healers, and Alexandria for a long time became the center of its sale. Ginger was also popular in Europe. The ancient Greeks and Romans used it both as a seasoning for various dishes and as a medicine. For example, it was often eaten during feasts, because it was known that it eliminates the unpleasant consequences of overeating.

The ancient Roman writer Pliny Sr. in his work noted the warming and antidote effects of ginger and described its benefits for digestion. The physician Claudius Galen in his work "On the Parts of the Human Body" called this root crop a cure for sexual impotence.

This root was popular among European sailors. Going on long voyages, they took with them special pots in which they grew ginger, escaping it from scurvy, various infections and seasickness. In addition, the refreshing pleasant smell of the root crop prompted the Romans to create aromatic salt, which was actively used by noble ladies of that time.

Arab merchants who brought ginger to Europe surrounded it with an aura of mystery. They told stories about mythical monsters guarding the lands where the root grows, and about the dangers that lie in wait for hunters of this spice. Naturally, this increased the interest of buyers and at the same time made it possible to inflate prices for the “magic” product. For example, in England, half a kilogram of a root crop cost about the same as a ram or a sheep ^[6].

However, wealthy families did not spare money for overseas curiosity and ginger was widely distributed in England, France, Germany, starting from the 9th-10th centuries. n. e. Especially rare and exquisite delicacy was considered gingerbread, which was served at the tables of many European kings. In the 16th century in Europe, this root crop was recognized as an effective means of preventing cholera, and was also used in the treatment of plague.

This root came to America at the beginning of the 16th century and immediately gained great popularity among the locals. In the same period in Russia, the first written mention of ginger appeared in the collection of instructions on all issues of the organization of life Domostroy. Although he was known and loved here long before that. Even in Kievan Rus, it was considered an essential ingredient in kvass, mash, liqueurs and Easter cakes.

Varieties

Ginger comes to us mainly in the form of a ripened root with a yellowish-brown skin and a light yellow core. However, in Asia there are a large number of different types of root crops. There are mainly two types:

- **black ginger**, which is not subjected to any pre-treatment (it is more pungent in taste and has a more pronounced smell);
- **white ginger** - peeled from a dense surface layer.

In addition, depending on the variety, the roots of white ginger can have a different shape: rounded, elongated, flattened. Sometimes they differ in flavors or have colored streaks. At the same time, regardless of the variety, the root crop becomes more piquant when ripe.

In Asian countries, where ginger has long been included in the daily diet of local residents, it is often eaten young. For example, Thais prefer roots harvested in March. By this time, the roots do not yet have time to become hard and too hot. With such ginger, you can not even remove the skin. Usually it is simply washed and eaten ^[8].

By the way, on the shelves of our stores you can often see pink or red pickled ginger. Many mistakenly believe that this is a special variety of root. In fact, manufacturers simply use safe food coloring to make the product more attractive. In nature, ginger only has a pinkish tint if it is harvested before it is fully ripe.

Growing features

Ginger practically does not produce seeds, so it is grown by dividing the rhizome, from which the ground part of the plant develops - spirally pointed leaves and flowers of yellow-orange and purple, collected in spike-shaped inflorescences. This plant thrives best in warm, humid climates. Harvested usually 6-10 months after planting, when the leaves begin to turn yellow. Dug up root crops must be washed and dried in the sun.

Our climatic conditions are not suitable for planting ginger in the garden, but it is quite possible to grow it in an apartment. By the way, ginger looks very nice as a flower and has a pleasant lemon

aroma. Usually they plant a root crop with live buds (if the buds are dry, put the root in warm water for several hours) in a shallow and wide pot in early spring. It is best to use the soil for vegetables (you can add fertilizer for root crops).

Growing ginger is impossible without good drainage. Despite the fact that the plant loves moisture, stagnant water usually leads to root rot. Ginger is also photophilous, but reacts badly to direct sunlight^[7]. In the warm season, it can be taken out to the balcony, terrace or garden.

Selection and storage

Choosing ginger is a simple matter. It is important that it be free of external damage, blackening and stains. The root crop should be dense and not too dry. It is believed that the darker the skin and core, the more mature and therefore more vigorous the product.

It is advised to store ginger in the refrigerator, because at room temperature it usually does not lie for more than 10 days - it dries out. If you have a piece of peeled or chopped / grated ginger left, it should be put in a closed glass dish and refrigerate. It is also recommended to pour the peeled root crop with white wine - this helps to preserve all its active substances.

In addition, ginger can be dried. To do this, it is cut into thin slices and placed in an oven with air convection. The root is dried, as a rule, at a temperature of 45-60 ° C. In this form, the root crop loses 20-30% of gingerol, but most of the useful elements are still preserved in full. Ginger remains useful both when powdered and pickled, but does not tolerate freezing very well. When exposed to low temperatures, the root crop does not lose its taste, but loses many useful elements.

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