



Beet (*Beta vulgaris*)

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While some complementary and alternative techniques have been studied scientifically, high-quality data regarding safety, effectiveness, and mechanism of action are limited or controversial for most therapies. Whenever possible, it is recommended that practitioners be licensed by a recognized professional organization that adheres to clearly published standards. In addition, before starting a new technique or engaging a practitioner, it is recommended that patients speak with their primary healthcare provider(s). Potential benefits, risks (including financial costs), and alternatives should be carefully considered. The below monograph is designed to provide historical background and an overview of clinically-oriented research, and neither advocates for or against the use of a particular therapy.

Related Terms

- Arabino-oligosaccharides, beet fiber, beet molasses, beet pulp, beet root, beet sugar, beetroot, betalains, *Beta vulgaris*, carotenoids, Chenopodiaceae (family), red beets, sugar beet, sugar beet arabinan, sugar-beet fiber, sugar beet pectin.

Background

- Beet is a flowering perennial plant that produces leaves and roots that are widely used as a food source in humans and animals. Beets are a source of vitamins A and C, iron, and other minerals, carotenoids, and dietary fiber.
- Betalins are natural pigments (colors) in beets that account for the red color in beet stems and leaves. After eating beets, these pigments produce red or pink urine (called beeturia) in about 10%-14% of people.
- Sugar has been extracted from beets and used as a sweetener since the 16th Century and is still widely used today.
- Beet pulp, the remaining byproduct of beet juices and sugars extracted from the root, is widely used in animal feed as a source of dietary fiber in humans. It is also used as a biosorption matrix.
- According to secondary sources, beetroot has been used since Roman times to treat various medical conditions, including fever, constipation, digestive illnesses, and blood conditions. In ancient Rome, it was also used as an aphrodisiac. Today, beetroot is still a popular medicinal tonic in Africa, where it is used in treatment of AIDS and other illnesses. Beet leaves also have a long history of use for medicinal purposes; it is alleged that Hippocrates promoted use of the leaves for treatment of wounds.
- Human studies have tested the effects of beet on blood sugar, cholesterol and blood pressure levels. However, results are mixed. Early evidence suggests that it may be beneficial for inflammation of the abdomen and pelvic walls (called toxic peritonitis). Additional research is needed to determine if beet is effective for any medical condition.
- The U.S. Food and Drug Administration (FDA) has approved dehydrated beets and sugar beet extract flavor base as food additives or listed or affirmed them as generally regarded as safe (GRAS).

- The American Academy of Pediatrics recommends avoiding feeding beets and other high-nitrate foods to infants younger than three months of age to avoid the risk of nitrate poisoning.

Scientific Evidence

Uses

These uses have been tested in humans or animals. Safety and effectiveness have not always been proven. Some of these conditions are potentially serious, and should be evaluated by a qualified healthcare provider. **Grade***

High blood pressure

Along with high blood sugar levels and high cholesterol, high blood pressure is a known risk factor for heart disease that may be improved with diet and lifestyle changes. Early evidence suggests that sugar beet fiber may modestly lower systolic blood pressure in patients with type 2 diabetes. Additional research is warranted. **C**

Hyperglycemia (high blood sugar levels)

Dietary fiber has been shown to help improve blood sugar levels in people with type 2 diabetes. However, it is unclear if beet fiber improves glucose metabolism or blood sugar control. Research results are mixed. **C**

Hyperlipidemia (high cholesterol)

Eating a diet rich in fiber has been shown to help improve cholesterol levels and reduce the risk of heart disease. Beet pulp and pectin have been used as dietary fiber in humans. However, it is unclear if beet has cholesterol-lowering effects. Research results are mixed. **C**

Peritonitis

Early evidence suggests that a pectin medicine made from red beet may improve inflammation of the abdomen and pelvic walls (called toxic peritonitis). However, additional studies are needed before a conclusion can be made. **C**

Type 2 diabetes (gastric hormone secretion)

It is unclear if sugar beet fiber improves the secretion of gastric hormones in patients with type 2 diabetes. Additional research is warranted. **C**



Grading System

Tradition/Theory

The below uses are based on tradition, scientific theories, or limited research. They often have not been thoroughly tested in humans, and safety and effectiveness have not always been proven. Some of these conditions are potentially serious, and should be evaluated by a qualified healthcare provider. There may be other proposed uses that are not listed below.

- Aphrodisiac, blood disorders, constipation, digestive disorders, digestive tonic (prebiotic), fever, HIV/AIDS, tonic, wound healing.

Dosing

The below doses are based on scientific research, publications, traditional use, or expert opinion. Many herbs and supplements have not been thoroughly tested, and safety and effectiveness may not be proven. Brands may be made differently, with variable ingredients, even within the same brand. The below doses may not apply to all products. You should read product labels, and discuss doses with a qualified healthcare provider before starting therapy.

Adults (18 years and older)

- For abnormal glucose metabolism, 7-27 grams of sugar beet fiber has been taken daily in patients with type 2 diabetes.
- For high cholesterol, 26-30 grams of sugar beet fiber has been taken daily.

Children (under 18 years old)

- There is no proven safe or effective dose for beet in children.

Safety

The U.S. Food and Drug Administration does not strictly regulate herbs and supplements. There is no guarantee of strength, purity or safety of products, and effects may vary. You should always read product labels. If you have a medical condition, or are taking other drugs, herbs, or supplements, you should speak with a qualified healthcare provider before starting a new therapy. Consult a healthcare provider immediately if you experience side effects.

Allergies

- Avoid in individuals with known allergy/hypersensitivity to any part of the beet plant, including the beetroot, beet leaves, beet fiber, beet pulp, or to members of the Chenopodiaceae family.
- Cases of allergic reactions to red beet used as food coloring have been reported.
- Sensitization and development of allergic reactions, particularly skin reactions, to beet pollen have been reported.
- Anaphylaxis (a severe allergic reaction) has been reported after eating foods sweetened with sugar beet or sugar cane. Microbial contamination of the sugars at the processing facilities was presumed to be the cause.

Side Effects and Warnings

- The U.S. Food and Drug Administration (FDA) has approved dehydrated beets and sugar beet extract flavor base as food additives or listed or affirmed them as generally regarded as safe (GRAS).
- The American Academy of Pediatrics recommends avoiding feeding beets and other high-nitrate foods to infants younger than three months of age to avoid the risk of nitrate poisoning.
- Several occupational illnesses, including asthma, anaphylaxis, poisoning, respiratory infections, and a bacterial infection called tularemia, have been reported in beet farmers and workers in beet sugar processing facilities. Most of these illnesses were not directly caused by beet exposure but rather to exposure to environmental bacteria, fungi, pollutants, or chemical insecticides present in such settings.
- Eating beetroot is known to produce red or pink urine (beeturia) in about 10-14% of people.

Pregnancy and Breastfeeding

- Use of beet is cautioned in pregnant or breastfeeding women due to a lack of available scientific evidence.
- According to the American Academy of Pediatrics, breastfed infants of mothers who eat beets and other foods high in nitrates are not at risk of nitrate poisoning because nitrate concentration does not increase significantly in breast milk.

Interactions

Most herbs and supplements have not been thoroughly tested for interactions with other herbs, supplements, drugs, or foods. The interactions listed below are based on reports in scientific publications, laboratory experiments, or traditional use. You should always read product labels. If you have a medical condition, or are taking other drugs, herbs, or supplements, you should speak with a qualified healthcare provider before starting a new therapy.

Interactions with Drugs

- Beet may lower blood sugar levels. Caution is advised in patients with diabetes or low-blood sugar levels, and in those taking drugs that affect blood sugar. Blood sugar levels may need to be monitored by a qualified healthcare professional, including a pharmacist, and medication adjustments may be necessary.
- Beet may interact with cholesterol-lowering drugs. However, the effects of beet fiber on lipid levels are unclear.
- Sugar beet fiber may increase the transit time of drugs that are taken by mouth.

Interactions with Herbs and Dietary Supplements

- Beet may lower blood sugar levels. Caution is advised in patients with diabetes or low-blood sugar levels, and in those taking drugs that affect blood sugar. Blood sugar levels may need to be monitored by a qualified healthcare professional, including a pharmacist, and medication adjustments may be necessary.
- Beet may interact with cholesterol-lowering drugs. However, the effects of beet fiber on lipid levels are unclear.
- Sugar beet fiber may increase the transit time of herbs or supplements that are taken by mouth.
- Beet does not appear to affect the absorption of zinc, iron, or copper.
- Beet pectin may stimulate the growth of friendly bacterial in the gut called probiotics.

Author Information

- This information is based on a systematic review of scientific literature edited and peer-reviewed by contributors to the Natural Standard Research Collaboration (www.naturalstandard.com).

References

Natural Standard developed the above evidence-based information based on a thorough systematic review of the available scientific articles. For comprehensive information about alternative and complementary therapies on the professional level, go to www.naturalstandard.com. Selected references are listed below.

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