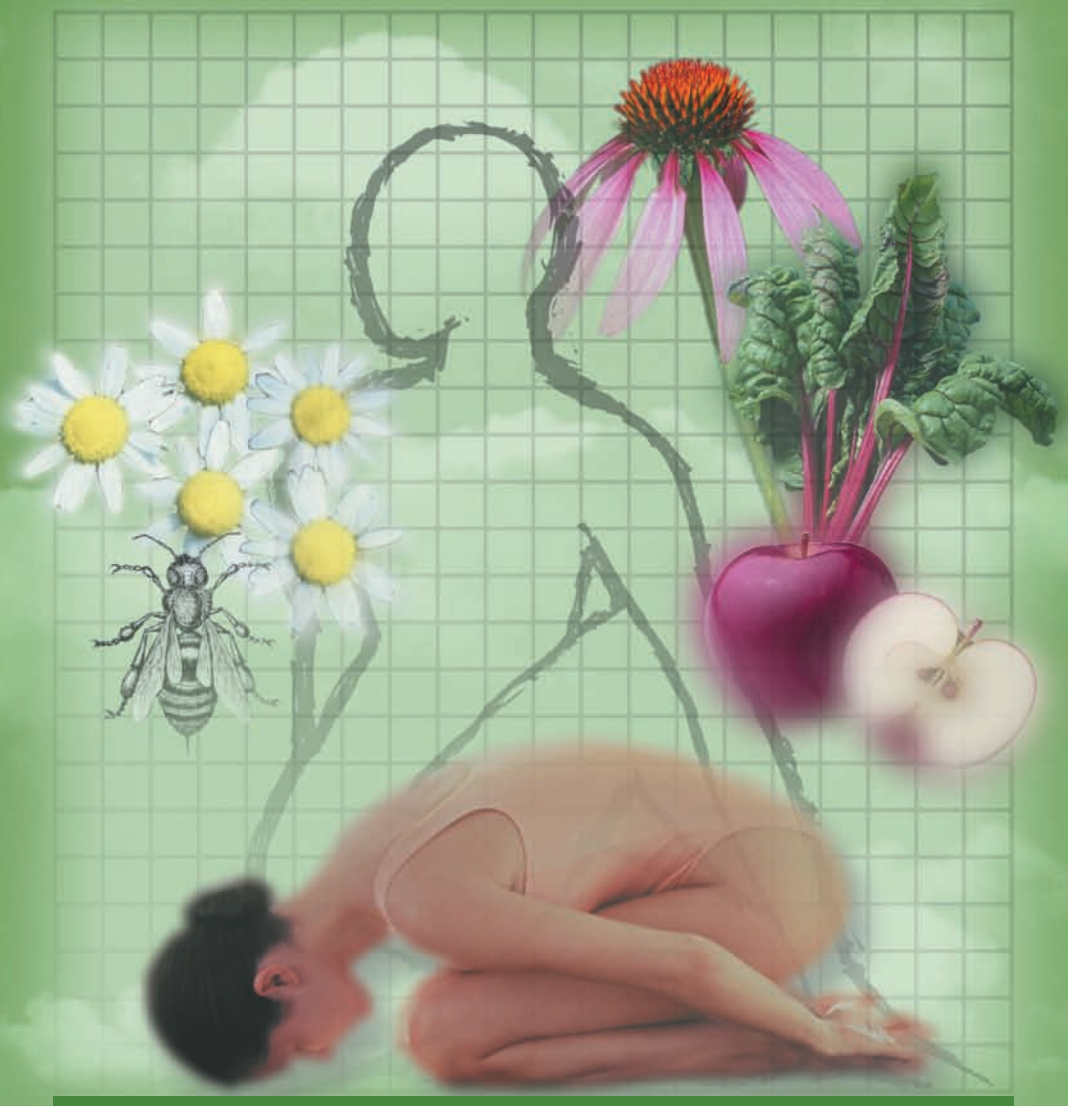
The GALE ENCYCLOPEDIA *of* ALTERNATIVE MEDICINE

FOURTH EDITION



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VOLUMES

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PLEASE READ—IMPORTANT INFORMATION

The *Gale Encyclopedia of Alternative Medicine, 4th Edition* is a health reference product designed to inform and educate readers about a wide variety of alternative and complementary medical therapies, including herbal remedies and treatments for prevalent conditions and diseases. Cengage Learning believes the product to be comprehensive, but not necessarily definitive. It is intended to supplement, not replace, consultation with physicians or other healthcare practitioners. While Cengage Learning has made substantial efforts to provide information that is accurate, comprehensive, and up-to-date, Cengage Learning makes no representations or warranties of any kind, including without limitation, warranties of merchantability or fitness for a particular purpose, nor does it guarantee the accuracy, comprehensiveness, or timeliness of the information contained in this product. Readers should be aware that the universe of medical knowledge is constantly growing and changing, and that differences of opinion exist among authorities. Readers are also advised to seek professional diagnosis and treatment for any medical condition, and to discuss information obtained from this book with their healthcare provider.

INTRODUCTION

The *Gale Encyclopedia of Alternative Medicine (GEAM)* is a one-stop source for alternative medical information that covers complementary therapies, herbs and remedies, and common medical diseases and conditions. It avoids medical jargon, making it easier for the layperson to use. The *Gale Encyclopedia of Alternative Medicine* presents authoritative, balanced information and is more comprehensive than single-volume family medical guides.

SCOPE

More than 800 full-length articles are included in the *Gale Encyclopedia of Alternative Medicine*. Many prominent figures are highlighted as sidebar biographies that accompany the therapy entries. Articles follow a standardized format that provides information at a glance. Rubrics include the following (if applicable within an entry):

Therapies

- Origins
- Benefits
- Description
- Preparations
- Precautions
- Side effects
- Research and general acceptance
- Resources
- Key terms

Herbs/remedies

- General use
- Preparations
- Precautions
- Side effects
- Interactions
- Resources
- Key terms

Diseases/conditions

- Definition
- Description
- Causes and symptoms
- Diagnosis
- Treatment
- Allopathic treatment
- Expected results
- Prevention
- Resources
- Key terms

INCLUSION CRITERIA

For the first edition, a preliminary list of therapies, herbs, remedies, diseases, and conditions was compiled from a wide variety of sources, including medical professionals, guides and textbooks, as well as consumer guides and encyclopedias. For this updated edition, the advisory board, made up of three medical and alternative healthcare experts, evaluated the topics and made suggestions for inclusion and deletion. Final selection of topics to include was made by the medical advisors in conjunction with Cengage editors.

ABOUT THE CONTRIBUTORS

The essays were compiled by experienced medical writers, including alternative healthcare practitioners and educators, pharmacists, nurses, and other healthcare professionals. *GEAM* medical advisors reviewed completed essays to ensure that they are appropriate, up-to-date, and medically accurate.

HOW TO USE THIS BOOK

The *Gale Encyclopedia of Alternative Medicine* has been designed with ready reference in mind:

- Straight **alphabetical arrangement** allows users to locate information quickly.
- **Bold-faced terms** function as *print hyperlinks* that point the reader to related entries in the encyclopedia.
- A list of **key terms** is provided where appropriate to define unfamiliar words or concepts used within the context of the essay. Additional terms may be found in the **glossary**.
- **Cross-references** placed throughout the encyclopedia direct readers to where information on subjects without their own entries can be found. Synonyms are also cross-referenced.
- A **Resources section** directs users to sources of further complementary medical information.
- An appendix of alternative medical organizations includes valuable **contact information**.
- A comprehensive **general index** allows users to easily target detailed aspects of any topic, including Latin names.

GRAPHICS

The *Gale Encyclopedia of Alternative Medicine* is enhanced with more than 500 color images, including photos, tables, and customized illustrations.

ADVISORY BOARD

Experts in the medical community provided invaluable assistance in the formulation of this encyclopedia, and the editor would like to express her appreciation. The advisory board performed myriad duties, from defining the scope of coverage to reviewing individual entries for accuracy and accessibility.

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A

5–HTP

Description

5–HTP is the acronym for 5–hydroxytryptophan, also called 5–hydroxy–L–tryptophan. 5–HTP is found primarily in the brain. This compound is made from tryptophan, a natural amino acid found in foods. Tryptophan is an essential amino acid, which means that it cannot be made by the body; it must be obtained from food, particularly proteins. In the liver and brain, 5–HTP is converted to an important monoamine neurotransmitter called serotonin. Neurotransmitters are chemical messengers that transmit signals between neurons (nerve cells).

Taking 5–HTP increases the body's supply of the compound, which leads to higher serotonin levels in the brain. Serotonin, also called 5–hydroxytryptamine or 5–HT, plays an important role in controlling behavior and moods. It influences many normal brain activities and also regulates the activity of other neurotransmitters. Having adequate levels of serotonin instills a feeling of **relaxation**, calm, and mild euphoria (extreme happiness). Low levels of serotonin, serotonin deficiency syndrome, leads to **depression**, anxiety, irritability, **insomnia**, and many other problems.

Conditions associated with low levels of serotonin include:

- anxiety
- attention deficit hyperactivity disorder (ADHD)
- bulimia
- depression
- epilepsy
- fibromyalgia
- headaches
- hyperactivity
- insomnia
- obesity
- obsessive compulsive disorder (OCD)
- panic attacks
- premenstrual syndrome (PMS)
- schizophrenia
- seasonal affective disorder (SAD)

5–HTP has other effects on the body. It is an antioxidant that protects the body from damage by substances called free radicals (unstable, toxic molecules). In this role, 5–HTP may help slow the **aging** process and protect the body from illness. Because serotonin is used to make **melatonin**, taking 5–HTP may help achieve some of the same benefits as melatonin, such as treating **jet lag**, depression, and insomnia. There is some evidence that 5–HTP can replenish the supply of the pain–relieving molecules called endorphins. Studies have shown that low levels of endorphins are associated with **chronic fatigue syndrome**, **fibromyalgia**, **stress**, and depression. In addition, 5–HTP affects other neurotransmitters, including norepinephrine and dopamine.

General use

In studies, 5–HTP has been proven effective in the treatment of carbohydrate cravings and binge eating, chronic headaches, depression, fibromyalgia, insomnia, anxiety, and panic disorders.

Much of the clinical research with 5–HTP focused on the treatment of depression. In 15 separate studies, 5–HTP was tested on a total of 511 patients with different kinds of depression. Over half (56%) of these patients had significant improvement in depression while taking 5–HTP. The compound was found to be as effective as the selective serotonin reuptake inhibitor (SSRI) fluvoxamine and the tricyclic antidepressants, chloripramine and imipramine. Many of these studies used relatively high doses ranging from 50–3,250 mg daily.

Three clinical studies found that 5–HTP can significantly improve the **pain**, anxiety, morning stiffness, and **fatigue** associated with fibromyalgia. The doses ranged from 300–400 mg daily. In one study, 5–HTP treatment was as effective as a tricyclic antidepressant (amitriptyline) and monamine oxidase inhibitors (MAOI; pargilyne or phenelzine).

Three clinical studies found that 5–HTP use led to decreased intake of food and subsequent weight loss in obese patients. The dose used in one study was 900 mg daily, which initially caused **nausea** in 80% of the patients.

A few clinical trials have found that 5–HTP can effectively prevent chronic headaches, including **migraine headache** and tension **headache**. In addition, 5–HTP compared favorably with propranolol and methysergide, drugs commonly used to prevent migraines.

In treating insomnia, 5–HTP is effective because it increases the length of rapid eye movement (REM) sleep, which improves sleep quality.

The symptoms of anxiety may be significantly reduced by 5–HTP. In studies, it instilled a sense of relief in patients with panic disorders.

Other conditions that may be treated with 5–HTP, but for which no studies exist, include chronic fatigue syndrome, **premenstrual syndrome**, **Parkinson's disease**, and seizure disorders (such as **epilepsy**).

Although 5–HTP may be a useful alternative to conventional antidepressant drugs, one study indicated that it may be of no value for patients who have failed to respond to traditional drugs. In this study, patients who failed to respond to tricyclic antidepressants were treated with either 5–HTP or a monoamine oxidase inhibitor (MAO–I). Half of the patients improved with the MAO–I treatment, while none showed any benefit from 5–HTP treatment.

Some uncertainty remained about the efficacy of 5–HTP. In reviewing the evidence about the use of 5–HTP in 2008, the Internet source SupplementWatch.com concluded that "The overall scientific evidence for the effectiveness of 5–HTP is not very strong."

Preparations

The 5–HTP preparation available commercially is isolated from the seed of an African plant called *Griffonia simplicifolia*. It is available as an enteric coated tablet, which does not break down until it reaches the intestine.

The recommended starting dose for headaches, weight loss, depression, and fibromyalgia is 50 mg three times daily. It can be taken with food. However, for weight loss it should be taken 20 minutes before eating. If it is not effective after two weeks, the dose may be increased to 100 mg three times daily, but only with the recommendation of a physician. Insomnia is treated with 25 mg (which may be increased to 100 mg after a few days) taken 30–45 minutes before bedtime.

Precautions

The Mayo Clinic detected, and the U.S. Federal Drug Administration (FDA) confirmed, the presence of a contaminant (peak X) in 5–HTP produced by six different manufacturers. This contaminant is similar to one found in L–tryptophan, which in 1989 caused the potentially fatal eosinophilia myalgia syndrome (EMS) in some persons. The L–tryptophan supplements were subsequently banned by the FDA. There have been 10 reports of EMS associated with 5–HTP use. The 5–HTP contaminant was not at levels high enough to cause illness. However, taking excessive doses of 5–HTP may lead to toxic levels of peak X.

Long–term studies on the safety of 5–HTP use had not been conducted as of 2013. To be safe, 5–HTP should be considered a short–term remedy.

Pregnant women should not take 5–HTP because there are no clinical studies on the compound's use among this population.

Side effects

Side effects associated with 5–HTP are rare but may include headaches, mild stomachaches, nausea, nasal congestion, and **constipation**. There are anecdotal reports that taking high doses of 5–HTP causes nightmares or vivid dreams. Side effects may be minimized by starting with a low dose of 5–HTP and taking it with food.

Interactions

It is theorized that the effectiveness of 5–HTP may be enhanced by taking vitamin B_6 and niacinamide. The action of 5–HTP may be enhanced by extracts of **ginger**, **passionflower** (*Passiflora incarnata*), **St. John's wort**, and *Ginkgo biloba*.

Dopa–decarboxylase inhibitors, such as carbidopa or benserazide block the enzyme that is responsible for the destruction of dopamine. However, a study by the Massachusetts College of Pharmacy and Health Sciences demonstrated that 5–HTP reaches the brain without the use of a dopa–decarboxylase inhibitor and will produce the benefits of stress reduction and reduced food intake even when used alone.

KEY TERMS

Eosinophilia myalgia syndrome (EMS)—A chronic, painful disease of the immune system that causes joint pain, fatigue, shortness of breath, and swelling of the arms and legs. EMS can be fatal.

Monoamine oxidase inhibitor (MAOI)—An antidepressant drug that prevents the breakdown of monoamine neurotransmitters (such as serotonin) in the gaps between nerve cells. Nardil and Parnate are common MAOI brands.

Neurotransmitter—A chemical messenger that transmits signals between nerve cells.

Selective serotonin reuptake inhibitor (SSRI)—A family of antidepressant drugs that block the reabsorption of serotonin by nerve cells. Prozac, Zoloft, and Paxil are common brand names for these drugs.

Serotonin syndrome—A syndrome characterized by agitation, confusion, delirium, and perspiration, which is caused by high levels of serotonin in the brain.

Tricyclic antidepressant (TCA)—A group of antidepressant drugs that all have three rings in their chemical structure. Their mechanism of action is not fully understood, but they appear to extend the duration of action of some neurohormones, including serotonin and norepinephrine. They have also been used to treat some forms of chronic pain. Common brand names are Aventyl, Elavil, Surmontil, and Vivactil.

There is a chance of developing serotonin syndrome when taking 5–HTP with an antidepressant drug. Serotonin syndrome was seen in patients taking high doses (greater than 1,200 mg daily) of L–tryptophan and MAO inhibitors. Combining 5–HTP with a MAOI or selective serotonin reuptake inhibitor antidepressant should be done with caution, under the supervision of a physician.

Resources

PERIODICALS

Jason, C.G., et al. "Serotonin (5–HT) Drugs: Effects on Appetite Expression and Use for the Treatment of Obesity." *Current Drug Targets* (March 2005): 201–213.

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Abdominal pain *see* **Stomachaches**

Abscess

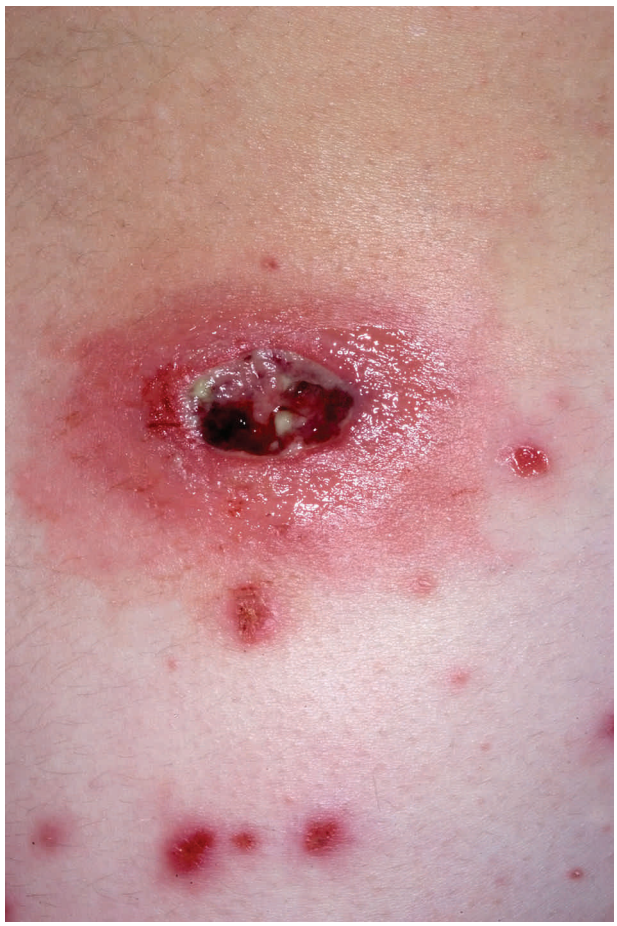
Definition

An abscess is a place of accumulation of the creamy white, yellow, or greenish fluid, known as pus, surrounded by reddened tissue. It is the result of the body's inflammatory response to a foreign body or a bacterial, viral, parasitic, or fungal infection. An abscess usually dries out and resolves when it is drained of pus. The most common parts of the body affected by abscesses are the face, armpits, arms and legs, rectum, sebaceous glands (oil glands), and the breast during lactation.

Description

Most abscesses are septic, which means they are the result of an infection. Abscesses occur when white blood cells (WBCs) gather in response to an infection. They produce oxidants (for example, superoxide radical) and enzymes to digest the invading bacteria, viruses, parasites, or fungi. The infective agents are then broken down by the WBCs into small pieces that can be transported through the bloodstream and eliminated from the body. Unfortunately, the enzymes may also digest part of the body's tissues along with the infective agents. The resulting liquid of this digestion is pus, which contains the remains of the infective agents, tissue, white blood cells, and enzymes.

A sterile abscess is one that is not produced by an infection. It is caused by irritants, such as foreign bodies or injected drugs, and medications that have not been totally absorbed. Sterile abscesses quite often heal into hardened scar tissue.



Methicillin resistant Staph aureus skin abscess. *(Scott Camazine/Alamy)*

Common types of abscesses

- Boils and carbuncles. Sebaceous glands and superficial skin are the places usually infected.
- Dental abscess. An abscess that develops along the root of a tooth.
- Pilonidal abscess. People who have a birth defect involving a tiny opening in the skin just above the anus may have fecal bacteria enter this opening, causing an infection and a subsequent abscess.
- Retropharyngeal, parapharyngeal, peritonsillar abscess. As a result of throat infections like strep throat and tonsillitis, bacteria invade the deeper tissues of the throat and cause a parapharyngeal or peritonsillar abscess. A retropharyngeal abscess is a result of something usually blood–borne, and not from a direct spread of tonsillitis. These abscesses can compromise swallowing and even breathing.
- Lung abscess. During or after pneumonia, an abscess can develop as a complication.
- Liver abscess. Bacteria, parasites, or amoeba from the intestines can spread through the blood to the liver and cause abscesses.
- Psoas abscess. An abscess can develop in the psoas muscles, when an infection spreads from the appendix, the large intestine, or the fallopian tubes.
- Butin abscess. Any blood–borne feeding off bacteria that stimulate pus production (pyogenic organisms). Can cause abscesses in possibly many sites.

Causes and symptoms

Many different agents cause abscesses. The most common are the pyogenic, or pus–forming bacteria, such as *Staphylococcus aureus,* which is nearly always the cause of abscesses directly under the skin. Abscesses are usually caused by organisms that normally inhabit nearby structures or that infect them. For example, abscesses around the anus may be caused by any of the numerous bacteria found within the large intestine. Brain abscesses and liver abscesses are caused by the bacteria, amoeba, and fungi that are able to travel there through circulation.

Symptoms of an abscess are the general signs of inflammation. Symptoms that identify superficial abscesses include heat, redness, swelling, and **pain** over the affected area. Abscesses in other places may produce only generalized symptoms, such as **fever** and discomfort. A sterile abscess may present as painful lump deep under the site of an injection. A severe infection may bring on fever, **fatigue**, weight loss, and **chills**. Recurrent abscesses may indicate undiscovered **allergies** or decreased immune functioning.

Diagnosis

A general physical examination and a detailed patient history are used to diagnose an abscess. Recent or chronic disease or dysfunction in an organ suggests it may be the site of an abscess. Pain and tenderness on physical examination are common findings. There may also be a leakage of pus from a sinus tract connected to an abscess deep in the body tissue.

Treatment

Bentonite clay packs with a small amount of **goldenseal** powder (*Hydrastis canandensis*) can be placed on the site of a superficial abscess and used to draw out the infection. **Tea tree oil** (*Melaleuca* spp.) and **garlic** (*Allium sativa*) directly applied to abscesses may also help to clear them.

Applications of a hot compress to the skin over the abscess will hasten the draining or the reabsorption of

the abscess. Contrast **hydrotherapy**, using alternating hot and cold compresses, can also be used. Additionally, localized warm/hot soaks three to five times daily frequently brings an abscess to heal.

Homeopathic remedies that can be taken to help diminish abscess formation include **belladonna**, **silica**, Hepar sulphuris, and **calendula**. Also, **acupuncture** may be recommended to help treat pain caused by an abscess. In addition, **vitamins** A and C, **beta–carotene**, **zinc**, liquid chlorophyll, and garlic are useful as supportive daily nutrients to help clear up abscesses.

Allopathic treatment

Often, the pus of an abscess must be drained by a physician. Ordinarily, the body will handle the remaining infection. Sometimes antibiotics are prescribed. The doctor may often put a piece of cloth or rubber, called a drain, in the cavity of the abscess to prevent it from closing until all the pus has drained.

Expected results

Once the abscess is properly drained, it should clear up in a few days. Any underlying diseases will determine the overall outcome of the condition. Recurrent abscesses, especially those on the skin, return due to either defective/altered immunity, or staph overgrowth, where there is high bacterial colonization on the skin. The patient should consult a physician for treatment with which to wash the skin areas, and treatment to eradicate colonization.

If the abscess ruptures into neighboring areas or if the infectious agent spills into the bloodstream, serious consequences are likely. Abscesses in and around the nasal sinuses, face, ears, and scalp may spread the infection into the brain. Abscesses in the abdominal cavity, such as in the liver, may rupture into that cavity. **Blood poisoning**, or septicemia, is an infection that has spilled into the bloodstream and then spreads throughout the body. These are emergency situations where the patient needs to be seen by a physician as soon as possible.

It is important to take note that abscesses in the hand may be more serious than they might appear. Due to the intricate structure and the overriding importance of the hand, any hand infection must be treated promptly and competently.

Prevention

Infections that are treated early with heat, if superficial, or antibiotics, if deeper, will often resolve without the formation of an abscess. It is even better to avoid infections altogether by promptly cleaning and irrigating open injuries, particularly **bites** and puncture **wounds**.

KEY TERMS

Bentonite clay—A green clay of aluminum silicate containing magnesium and trace minerals. The clay has the ability to attract and hold to its surface agents of infection from a wound.

Enzyme—A protein that can increase the rate of chemical reactions.

Sinus tract—A channel connecting a body part with the skin outside.

Resources

BOOKS

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Patience Paradox

Absinthe *see* **Wormwood**

Açaí berry

Definition

Açaí (pronounced ah–sah–EE) berry is the drupe, or fruit, of the açaí palm tree (*Euterpe oleracea*), a species of palm native to Central and South America. The name of the plant is the Portuguese form of its name in the Tupi language—a word that means "fruit that cries water." At one time the açaí palm was cultivated primarily for hearts of palm, a vegetable obtained from the inner core and growing bud of the

Spoonful of acai berries. *(Istockphoto.com)*

tree. Since the early 2000s, however, the açaí palm has been cultivated primarily for its fruit while closely related species of palm are grown for hearts of palm.

Other names for açaí berry include Açaí Palm, Amazon Açaí Fruit, Assai, Assai Palm, Baie de Palmier Pinot, Cabbage Palm, Chou Palmiste, and Palmier d'Açaí.

Purpose

Açaí berries are a traditional food for the indigenous tribes of the Amazon rainforest; the berries were also used by the tribespeople to treat **diarrhea**. In Canada and the United States, the berries are most often sold in health food stores or specialty supermarkets as frozen pulp or used in juices and juice products, smoothie mixes, jellies, ice cream, liqueurs, and similar fruit–flavored products. Açaí berries may be blended with other fruits or berries in these products or used as the sole flavoring.

Açaí berries are also used in the manufacture of dietary supplements that include liquid tonics, tablets, shake mixes, and snack bars. These products claim to produce health benefits ranging from weight loss and boosting of the immune system to diabetes management and increased virility in men. However, no scientific studies provide any proof of these claims.

There were four clinical trials of açaí berries registered with the National Institutes of Health (NIH) as of summer 2012: one study evaluated the effects of the berries when added to a high–antioxidant diet to slow the effects of **aging**; a second study concerned the effects of açaí in lowering risk factors for **atherosclerosis**; the third study was recruiting subjects for a study of the effectiveness of açaí in treating men with high levels of prostate–specific antigen; and the fourth study evaluated a high–fiber product that contained açaí berries as a treatment for **constipation**. Açaí berries have been used as an ingredient in some skin care products, as the plant oils contained in the berries appear to be beneficial in reducing inflammation and hyperpigmentation. Açaí has also been used in a pilot study as a possible treatment for metabolic syndrome, a condition that is often a precursor of type 2 diabetes, but the authors recommend further study to replicate their tentative findings.

Description

The açaí berry itself is a small, round, blackish–purple fruit about an inch in diameter that grows in branched clusters of 500–900 fruits under the fronds of the açaí palm, a slender species of palm tree that ranges from 45 to 90 feet in height. Its dark color is caused by anthocyanins, a class of flavonoids or plant pigments. The berries resemble grapes in size and general shape but contain much less pulp; the seed of the açaí berry comprises about 80% of the fruit. Açaí berries are not naturally sweet.

According to a 2006 study published in the *Journal of Agricultural and Food Chemistry*, a standardized freeze–dried powder made from the skin and pulp of açaí berries contains 533 calories per 100 grams (about 3.5 ounces dry weight), 52.2 g carbohydrates, 8.1 g protein, and 32.5 g total fat. The carbohydrate portion of the pulp included 44 grams of dietary fiber and little sugar. Of the fat content, 56.2% is oleic acid (the same fat found in olive oil), 24.1% is palmitic acid, and 12.5% **linoleic acid**. With regard to **vitamins** and minerals, the **vitamin C** content of the powder is very low, but the preparation does contain 260 mg of **calcium**, 4.4 mg of **iron**, and 1,002 units of **vitamin A**.

Brand names

The most common brands of açaí berry products sold in the United States and Canada are marketed by Sambazon and MonaVie. The latter company, which also markets its products in Australia, New Zealand, Brazil, Hungary, Japan, Israel, Singapore, Austria, the United Kingdom, Mexico, Thailand, and Taiwan, has been subjected to enforcement actions by the U.S. Food and Drug Administration (FDA) in the United States for exaggerated health claims made about its products.

Sambazon primarily sells bottled juices, smoothie mixes, energy drinks, sorbet, and the freeze–dried powder. Its products include combinations of açaí berries and cranberries, pomegranates, and other fruits as well as pure açaí products. Although Sambazon describes

açaí as a "superfood," it does not claim that its products will speed up weight loss, cure the **common cold**, or reverse the aging process.

As of 2013, neither the FDA nor any other government regulatory agency had evaluated açaí berries as a foodstuff. The Academy of **Nutrition** and Dietetics (formerly the American Dietetic Association) considers açaí to be as healthful as other fruits such as strawberries or blueberries, and safe to eat, but not as exceptional as it is made out to be in mass–market advertising.

Recommended dosage

There is no particular recommended dosage for açaí berry products used in so–called functional foods or nutraceuticals in combination with other ingredients, including other fruits or fruit flavorings. The Sambazon freeze–dried açaí berry supplement recommends adding one "scoop" (3 grams) to "your favorite smoothie, juice or milk." There is not enough scientific information to provide guidance on appropriate dosages of açaí as a dietary supplement.

Precautions

Açaí berries used in beverages, smoothies, and similar products appear to be safe for most people to eat; a toxicology report published in 2010 found nothing harmful in the fruit itself. Because the berries are acidic like most other fruits, consumers who have gastric ulcers or recurrent problems with **heartburn** should be careful not to ingest them together with NSAIDs like aspirin or ibuprofen. Until açaí dietary supplements have been evaluated for safety, they should not be used by children and pregnant or lactating women.

The chief danger for consumers of açaí berry products is the risk of false advertising claims, contaminated or mislabeled products, and credit card scams. As early as 2007, the FDA sent a registered letter to one of the executives of MonaVie, warning the company that its advertising of açaí as a fruit that can lower blood **cholesterol** levels, relieve the **pain** of arthritis, and relieve muscle pain was in effect to "establish the products as drugs" and violated the Federal Food, Drug, and Cosmetic Act. The company is largely responsible for the worldwide interest in açaí berries, which began with its aggressive marketing of the fruit in 2005. In addition to making unsupported claims about the health benefits of its products, MonaVie sells its tonics, dietary supplements, shake mixes, and energy drinks at inflated prices: one bottle of MonaVie Active (a fruit drink) is priced at $37, while a case of four bottles sells for $130. The dietary supplement, "designed to promote weight management success," is $65 for a one–month supply.

Other açaí berry products have been found by the FDA to be mislabeled. In one case, a man developed rhabdomyolysis (a muscle disorder) after taking a product labeled as an açaí berry dietary supplement. Chemical analysis revealed that the product did not contain any açaí. In an October 2011 case, the FDA issued a public warning about an açaí berry product, Açaí Berry Soft Gel ABC, which contained sibutramine, a controlled substance removed from the market in 2010 for safety reasons. Sibutramine raises blood pressure and pulse rate and thus poses a risk to people with high blood pressure, **heart disease**, or a history of **stroke**. The FDA issued the statement "to inform the public of a growing trend of products marketed as dietary supplements or conventional foods with hidden drugs and chemicals."

Credit card scams involving açaí berry products first came to media attention in 2009, when the Center for Science in the Public Interest (CSPI) issued a warning about Web–based açaí scams. The scams promise consumers a "free" trial of açaí products provided the customer pays a $5.95 shipping and handling fee, for which a credit card number must be supplied. The company then continues to charge the customer each month for a shipment of the product, and customers who try to cancel the shipments have difficulty stopping the recurrent charges. The Better Business Bureau (BBB) has specifically given "F" ratings to such companies as FX Supplements, which markets Açaí Berry Maxx; Advanced Wellness Research, which sells Pure Açaí Berry Pro and AçaíBurn; and SFL Nutrition.

Some people believe that consuming açaí berries will negate the effects of an unhealthy diet. This is not true, and eating açaí berries or using açaí berry products does not replace the need to consume a wide variety of fruits and vegetables, many of which are cheaper than açaí.

Side effects

No serious side effects have been reported for açaí berry functional foods and flavored beverages. The case of rhabdomyolysis concerned a patient who had used a dietary supplement mislabeled as containing açaí when none was present in the product.

Interactions

Little information is available on interactions between açaí berries and other drugs. People taking

KEY TERMS

Anthocyanins—A subgroup of flavonoids that cause the red, dark blue, or purple color of certain plants. Anthocyanins are responsible for the dark purplish color of açaí berries.

Antioxidant—Any molecule that inhibits the oxidation of other molecules. Antioxidant compounds in dietary supplements or cosmetics are claimed to benefit health and slow down the aging process.

Drupe—Any fruit that contains a soft, fleshy pulp (mesocarp) surrounded by an outer skin (exocarp) and containing a central inner stone or pit (endocarp) that contains the seed. Açaí berries are drupes.

Flavonoid—Any member of a large group of aromatic compounds that occur naturally in higher plants, mostly as plant pigments.

Functional food—A term used to describe a natural or processed food that contains biologically active compounds in sufficient amounts to benefit health.

Nutraceutical—A fortified food or dietary supplement that provides health benefits. Nutraceutical is often used as a synonym for functional food.

Rhabdomyolysis—A condition in which damaged skeletal muscle tissue breaks down and the breakdown products are released into the bloodstream.

Superfood—An unscientific term used largely in marketing to describe foods that have a high nutrient content or plant–derived compounds thought to be beneficial to health.

pain medications or **cancer** drugs should check with their doctor before using açaí, however, as it may lower their effectiveness. It is a good idea for adults to check with their doctor before adding açaí products to their diet.

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ORGANIZATIONS

Academy of Nutrition and Dietetics, 120 South Riverside Plz., Ste. 2000, Chicago, IL 60606–6995, (312) 899–0040, (800) 877–1600, amacmunn@eatright.org, http://www.eatright.org.

Center for Science in the Public Interest, 1220 L St. NW, Ste. 300, Washington, DC 20005, (202) 332–9110, Fax: (202) 265–4954, http://www.cspinet.org.

Center for Science in the Public Interest (Canada), Ste. 2701, CTTC Bldg., 1125 Colonel By Dr., Ottawa, Ontario, Canada K1S 5R1, (613) 244–7337, jefferyb@istar.ca, http://www.cspinet.org.

U.S. Food and Drug Administration, 10903 New Hampshire Ave., Silver Spring, MD 20993–0002, (888) INFO–FDA (463–6332), http://www.fda.gov.

Rebecca J. Frey, PhD

Aches and pains *see* **Pain**

Acidophilus

Description

Lactobacillus acidophilus, commonly referred to simply as acidophilus, is a friendly inhabitant of the gastrointestinal (GI) tract. It, as well as some related strains of bacteria, is known as a probiotic. Probiotic organisms secrete enzymes that support healthy digestion. They keep the flora of the intestines and vagina balanced and compete with some pathogenic organisms. When the probiotic population of the body is severely decreased, as can occur with treatment by many antibiotics, yeasts and harmful bacteria may take over and cause illness. Normal and healthy amounts of acidophilus can also be decreased by chronic **diarrhea**, **stress**, **infections**, and poor diet.

The species of *Lactobacilli* that inhabit the GI tract cause an increase of acidity. The bacteria do this by producing lactic acid from milk sugar (lactose). The increased acidity may promote the absorption of **calcium**, as well as of some other minerals. Lowered pH also discourages the growth of many pathogenic species of bacteria and yeasts. The hydrogen peroxide produced by the acidophilus also helps to suppress pathogens.

Acidophilus may function in the production of some of the B **vitamins**, such as **niacin**, **pyridoxine**, **biotin**, and **folic acid**.

General use

Yeast infections

Acidophilus may be used to reduce susceptibility to vaginal yeast infections, which are quite common. Symptoms including **itching**, burning, inflammation, and discharge occur due to an overgrowth of the yeast *Candida albicans*, which is part of the normal vaginal flora. Some women are more prone to yeast infections than others. Antibiotics destroy the normal probiotic flora and may lead to yeast infections. High sugar levels are another predisposing factor. Diabetics, who tend to have high blood sugar, and persons who consume a processed diet that is high in sugar have more frequent problems with yeast as well. The hormonal states created by **pregnancy** or the use of oral contraceptives also contribute to yeast infections. IUD users can also have an increased rate of infection. In rare cases, *Candida* is sexually transmitted, and both partners may require treatment in order to control repeated overgrowth. Anyone who has **AIDS** or any other condition causing immunosuppression has increased susceptibility to *Candida* and other types of infections. Acidophilus is one of the organisms that competes with *Candida* and decreases its population. Many studies have shown that oral and topical use (by douching) of acidophilus are effective to prevent and treat this condition.

Systemic candidiasis, or yeast hypersensitivity syndrome, is a condition that is not recognized by many allopaths. It is acknowledged by some practitioners of alternative and complementary medicine as a problem with broad–ranging consequences. This theory holds that some people have an allergic reaction to the yeast and/or its toxins, and that they can experience serious symptoms when the organism multiplies in the body to an abnormal degree. **Fatigue**, diarrhea, **constipation**, muscle **pain**, thrush, itching, mood changes, endocrine dysfunction, headaches, and tingling or numbness of the extremities are some of the symptoms that are reportedly associated with systemic candidiasis. A weak immune system may be more prone to allowing yeast to multiply, and large numbers of yeast can act to further suppress the immune function. Acidophilus, in combination with such nutritional supplements as **essential fatty acids**, is often recommended for the prevention and treatment of this syndrome.

Gastrointestinal disorders

Irritable bowel syndrome (IBS) is a functional disturbance of the lower intestine that can cause bloating, cramping, abdominal pain, diarrhea, constipation, and painful bowel movements. This condition is also known as spastic colon. One small study of the use of acidophilus to treat IBS showed more improvement in the treated group than in those who took a placebo. This evidence is not conclusive evidence, but in view of the safety of the treatment and the scarcity of effective alternatives, acidophilus may be worth trying.