ASK THE DOCTOR

Answers to Your Health Questions

The Right Garlic for Optimal Health

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Which is more beneficial— Fresh or Aged Garlic?

Every summer in late July, the Gilroy Garlic Festival is held in California's fertile Santa Clara Valley. For the past 27 years, this world-renowned festival has celebrated the goodness of garlic. More than four tons of fresh garlic are consumed in foods like garlic fries, garlic bread, and even garlic ice cream during the three-day event. The good folks of Gilroy and the 2.9 million people who have visited the festival so far, reflect garlic's popularity as a much-loved food for the past 90 centuries.[1]

One reason that garlic has been so enduring is its medicinal use. From ancient Egypt, to medieval Europe, to colonial America garlic has been used to treat both illness and injury. And now, modern-day research has validated that use. So far, over 2,200 credible studies have supported garlic's ability to stand the test of time.[2] Unfortunately, garlic's characteristic odor is also quite enduring. While 21st Century Americans may appreciate garlic's health benefits, we aren't as appreciative of having garlic breath everyday.

Enter the garlic supplement! Hailed as the convenient and socially acceptable way to get your garlic and keep your friends, garlic supplements have been available for more than 20 years. However, there's more than one way to make a garlic supplement and which method is the best has been an ongoing controversy. Both the makers of fresh garlic supplements and the makers of aged garlic extracts claim their garlic supplement product is the most effective.[3]

But now, after years of use and years of claims and counter-claims, research has finally and definitively provided the answer to which garlic supplement is the best, and the answer is definitely **fresh**![3-5]

In this Ask the Doctor we're going to talk about fresh garlic and how it keeps us healthy. And we're going to discover how America's leading garlic researchers determined once and for all that fresh garlic supplements are the most effective, most beneficial, and the absolute best kind of garlic supplement you can buy.

Q. What is it about garlic that is so good for our health?

A. At first glance, fresh garlic may not seem to be much of a vegetable. It's eaten in very small amounts - one tiny clove is generally enough to satisfy even the most rabid garlic lover. The amount of classical nutrients in one serving of fresh garlic compared to single servings of other vegetables is very low. For example, one serving of fresh garlic contains only one milligram (1 mg) of vitamin C, compared to broccoli's 82 mg and a baked potato's 26 mg.[6] Even the water content of fresh garlic (60%) compared to other vegetables (80% - 90%), makes garlic seem kind of wimpy.[7]

But it's a collection of chemical compounds, known as the sulfur compounds inside fresh garlic that makes this rather funny looking plant, into a Super-Vegetable. Well over 90% of all garlic research has been conducted on these sulfur compounds. Sulfur is known for its wide range of pharmacological activity; sulfur-containing drugs include antibiotics, blood pressure lowering drugs, and diuretics.

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Researchers have zeroed in on one group of fresh garlic's sulfur compounds called the thiosulfates. Alliin, the primary substance of garlic, and alliinase, the activating enzyme, are present in separate chambers of the garlic clove. When garlic is ruptured, alliinase interacts with alliin and converts it to the thiosulfate allicin – fresh garlic's most beneficial compound.[7]

Research has shown that allicin has an amazing range of health benefits. In fact, allicin has been found to:

- Kill bacteria and fungi[8-11]
- Prevent the common cold[12]
- Reduce inflammation[13]
- Stop tumor growth and kill cancer cells[14-17]
- Eliminate H. pylori, the bacteria that causes ulcers[18]
- Keep blood from clotting[19,20]
- Prevent heart attacks and strokes[21]
- Inhibit atherosclerosis or hardening of the arteries[22]
- Reduce triglycerides levels in the blood[23]
- Reduce blood levels of LDL, the "bad" cholesterol[24,25]
- Raise blood levels of HDL, the "good" cholesterol[25-27]
- Lower blood pressure[27,28]
- Prevent weight re-gain[29]
- Improve blood flow to the lungs and open breathing passages[30,31]
- Reduce the liver damage caused by cirrhosis[32]
- Scavenge disease-causing free radicals (works as an antioxidant)[13, 33]

However, despite the abundance of evidence that clearly shows allicin is the essential garlic compound, some garlic supplement makers discount allicin as fresh garlic's primary health compound.

Garlic Fable vs. Fact

Fresh Garlic Allicin Fable	Fresh Garlic Allicin Fact
Allicin can't be of much benefit – there is almost no detectable amount of allicin in one garlic clove.	Allicin is protected inside fresh garlic clove cells until it is needed. By cutting, crushing, or pressing a garlic clove, the cell walls are broken and allicin is released. Because it's responsible for garlic's odor, allicin is pretty easy to detect![2,7]
Allicin can't be detected in blood or urine with HPLC, a common lab testing method.	A major hindrance in garlic research has been the inability to measure allicin from fresh garlic in our blood and urine with common lab testing methods. But that does not necessarily mean that allicin is not present. Allicin can be easily detected in the body by measuring an allicin metabolite called allyl methyl sulfide (AMS) in the breath.[34] That's right – that enduring old garlic breath is actually proof that allicin is completely absorbed and hard at work. Study after study that used allicin found it could kill germs, stop tumor growth, improve cholesterol readings, reduce heart attacks, and prevent strokes. In short, all of the health benefits attributed to garlic are attributable to allicin from fresh garlic.[3,34]
Allicin is a highly unstable compound and will disappear after a few hours.	Since it was first discovered, allicin has always been considered a stable compound. Its reputation of instability has been greatly exaggerated by aged garlic extract (AGE) supplement makers. Studies have shown allicin to have a half-life (a common research measurement of time required for a loss of 50%) ranging from 4 days to almost 30 days.[7]
Allicin in fresh garlic supplements is destroyed by stomach acid.	That's true. However, most fresh garlic extract supplements are enteric-coated. The tablets pass through the stomach intact without dissolving. This delivers the garlic tablet to the small intestine, where the tablet dissolves and releases its allicin. From the small intestine, allicin's many compounds are formed and then enter the bloodstream.[5,34]
Aged garlic extract (AGE) supplements are safer and studies show AGE has more health benefits than compounds from fresh garlic.	At the American Herbal Products Association International Garlic Symposium held in 2000, several noted garlic researchers and experts completely disagreed with these statements. During a roundtable discussion, the consensus determined there have been no studies showing AGE supplements to be safer than supplements made from fresh garlic. Of note, there have been no successful independent replications of the AGE studies.[3]

Q. Why would anyone discount allicin as garlic's primary beneficial compound? How can 90% of all garlic research be wrong?

A. Part of this "allicin-bashing" might be related to its chemistry – allicin is a pretty complex compound. But once you understand how allicin operates inside fresh garlic and inside our bodies, it's pretty easy to understand why it's so powerful for our health. The table on the previous page can help.

Q. What garlic compounds are in aged garlic extracts (AGE)? Is there any research on AGE?

A. Aged garlic extract contains S-allyl mercaptocysteine (SAMC), a compound that AGE makers claim is the reason garlic is so good for us. Interestingly, fresh garlic does not contain any SAMC. It only appears after the aging process.[7]

Most of the research on SAMC has been in cancer, heart, immune, and stress effects. Positive results from SAMC in these studies are seen in very high amounts (you need to take 10 to 20 grams of AGE a day), after five months of continuous use, or intravenously. Many AGE studies have been variable in their results. While other compounds in garlic have some positive health effects, they need to be taken in very high levels, that are nowhere near normal levels of garlic consumption.[7]

And, the validity of AGE research has been questioned by the majority of garlic researchers due to sponsor-associated bias. There have been no independent replications of any AGE findings.[3]

Q. How is aged garlic extract made?

A. To make AGE, sliced garlic is placed in 15-20% ethanol and stored for 20 months. The garlic is then filtered and concentrated. During the soaking and storage period, the thiosulfates are destroyed as well as most of the allicin.[7]

Q. Has fresh garlic extract research been independently replicated?

A. Yes it has - many times over! Garlic researchers from universities in the United States, Canada, Great Britain, and other European countries have obtained similar results validating fresh garlic's health benefits.

In fact, replication research found the answer to some puzzling results that occurred in fresh garlic research. Before 1995, fresh garlic researchers consistently found that garlic was able to lower harmful cholesterol blood levels. However, a meta-analysis (a large review study of several other studies with statistical analysis) of clinical trials that were conducted after 1995 showed some inconsistencies.[35]

Greatly concerned, Dr. Larry Lawson, a highly respected garlic researcher, studied the tablets actually used in these trials. He found out that they were not enteric coated. The allicin was released too early and was destroyed by stomach acid before it could reach the bloodstream. Dr. Lawson concluded the trials used poor-quality products. He further concluded that when enteric-coated tablets are manufactured using fresh garlic containing high allicin potential, a serum cholesterol lowering effect should be noted. He urged new clinical trials with such supplements.[34]

Q. What does 'allicin potential' mean?

A. Because allicin can't be measured in an intact clove of fresh garlic or an enteric coated fresh garlic extract supplement, makers of garlic supplements often provide the potential amount of allicin that can be obtained from their product. The best allicin potential comes from fresh garlic extract enteric-coated supplements.

Q. Is there a recommended daily dosage for allicin?

A. Experts recommend 4000 mg of fresh garlic each day.[36] To get that dose, all you need is one enteric-coated tablet of fresh garlic extract with a guaranteed yield of a minimum of 5,000 mcg of allicin and a minimum of 11,000 mcg of alliin. This dosage equates to roughly one to four cloves of fresh garlic.

The beneficial effects of garlic are partially because garlic helps to thin the blood. Because of this, garlic should be used very carefully if you are taking medications that prevent blood clots, such as Coumadin™ (warfarin).

Conclusion

No other medicinal plant sold as a dietary supplement on the American market today can come close to the superiority of garlic. That's because no other study of medicinal plants to date, has even come close to the quality and quantity of fresh garlic research.[1]

For thousands of years, people worldwide have benefited from fresh garlic's ability to spice up a meal and keep illnesses at bay. And now research has finally settled the seemingly age-old controversy of fresh versus aged garlic extracts.[3] While the aging process may be beneficial for whiskey, wine, and certain cheeses, when it comes to garlic - **fresh** is definitely best!

The Fresh Garlic Advantage

Look for a Supplement that:

- Delivers 5,000 mg of Allicin -Garlic's most beneficial compound for Heart Health
- Has a unique patented Swiss process to ensure maximum absorption
- Is independently tested
- Is clinically proven to support Heart Health
- Offers an easy 1 tablet per day dose

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