### Garlic does a Body Good

### WITH MATERIAL FROM HERBALIST BUNNY DENTON, SPORTS NUTRITIONIST ASHLEIGH GASS, AND ENVIRONMENTAL SCIENTIST CHRISTINA SGRO

Garlic's impressive track record to date begs the question: Just what is it about this "cure-all" superfood that makes it so invaluable to our bodies? The secret lies in its high antioxidant and vitamin content, along with two key chemical constituents: allicin and ajoene.

When the garlic clove is broken or crushed, as it is in a garlic press, the chemical alliin is converted into allicin and ajoene. As allicin decomposes, it generates a potent antioxidant that reacts with free radicals in your body.

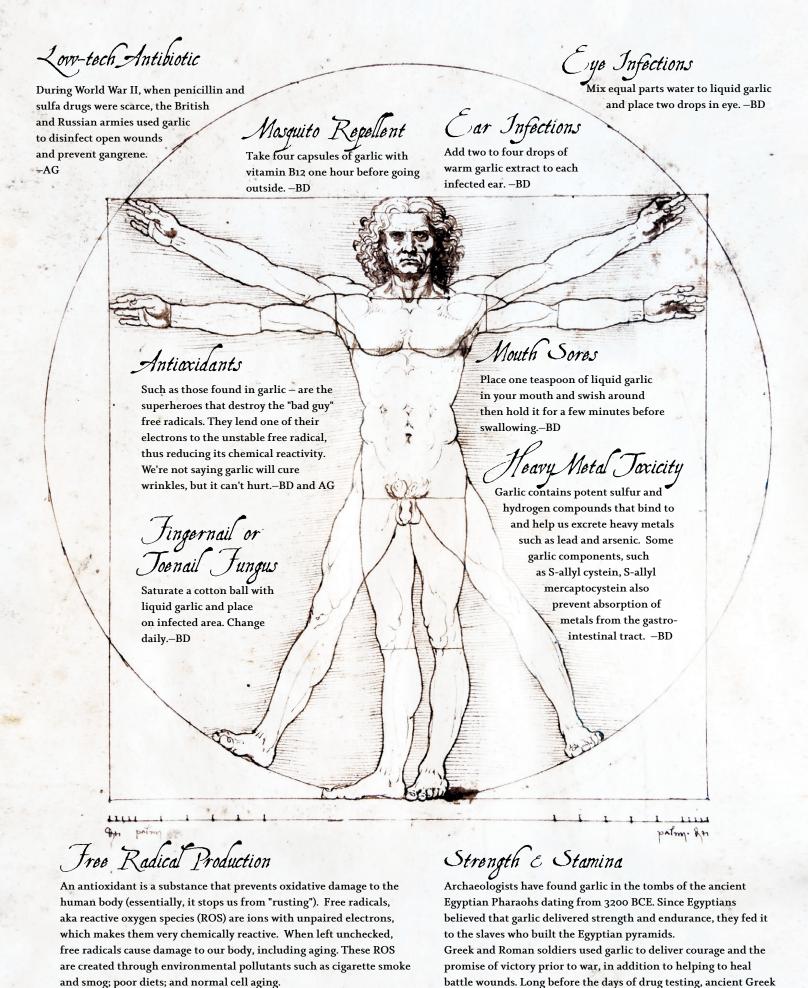
The formation of ajoene, on the other hand, occurs when allicin is dissolved in various solvents, including edible oils. It is most stable and abundant in macerated garlic (crushed or chopped garlic in edible oil). As with allicin, ajoene functions as an antioxidant, has anti-clotting properties (potentially reducing the risk of heart disease and stroke), antibacterial and antifungal properties, and has been shown to be effective in inhibiting tumour cell growth.

Garlic contains many therapeutic ingredients that help it enhance immune function:

 17 amino acids, the building blocks of protein, including glutamine, aspargine, glutamic acid and lysine, which are critical for muscle remodeling

- Vitamins B1, A, and C, which display a variety of antioxidant properties
- Minerals such as magnesium, selenium, and germanium. Magnesium helps to maintain healthy muscle and nerve function, while supporting immune function. Germanium is known to enhance natural killer cell activity. Finally, selenium is required for the production of many more antioxidants which ultimately strengthen the immune system to fight off infection caused by bacteria, viruses, and fungi.

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Olympians used garlic as a performance enhancer. -AG



## GARLIC & CARDIOVASCULAR HEALTH

Cardiovascular disease is one of the most widespread maladies of present day. Whether this is due to the stressful rat-race lifestyle of North America; our diets; or a combination of a variety of factors, one thing is certain: we must do what we can to halt its giant steps forward.

Cardiovascular disease is associated with multiple risk factors such as high blood pressure, raised serum total cholesterol, increased low-density lipoprotein (LDL), aka "bad cholesterol" along with increased LDL oxidation, increased platelet aggregation (in other words, clotting and clogging), and smoking.

Garlic can't make you quit smoking, but it can help with most everything else.

### High blood pressure

Garlic helps reduce high blood pressure by blocking some enzymes and enabling others. The net effect is more relaxed, open blood vessels.

Angiotensin converting enzyme (ACE) is a vasoconstrictor — it narrows blood vessels. This increases blood pressure. Garlic appears to inhibit the activity of ACE.

Conversely, garlic increases the activity of nitric oxide synthase, which is an enzyme essential for nitric oxide (NO) synthesis. NO reduces blood pressure by acting as a vasodilator. When vasodilation occurs, blood vessels increase in diameter, which then reduces blood pressure. Thus, by increasing the activity of this enzyme, garlic makes more NO available.

Garlic also contains chemicals that act as calcium antagonists, which help to relax and widen blood vessels. This, again, reduces blood pressure and can decrease the incidence of arrhythmia, abnormal heart rhythms that are commonly associated with heart attacks, or scarring of the heart muscle from previous heart attacks.

### High cholesterol and triglycerides

Elevated blood triglycerides plus LDL or "bad" cholesterol, and lowered HDL or "good" cholesterol, appear to be risk factors for cardiovascular disease. Research in both humans and animals

has irrefutably established garlic's ability to lower blood triglyceride and "bad" cholesterol levels.

Studies often compare high-fat diets with and without garlic. Diets that include large amounts of garlic consistently produce the lowest cholesterol levels, regardless of dietary fat intake. In animal studies the herb significantly lowers blood cholesterol levels (up to 80 percent). Multiple studies in humans have also reported small reductions in total blood cholesterol and LDL in periods up to 12 weeks.

# GARLIC ALSO CONTAINS CHEMICALS THAT ACT AS CALCIUM ANTAGONISTS, WHICH HELP TO RELAX AND WIDEN BLOOD VESSELS.

Although these results are promising, additional research is required in this area, since Big Pharma still "pulls out all the stops" in order to get in the way of garlic becoming an acceptable replacement for creating a more favorable cholesterol profile. The research has to be more definitive for garlic to get to the point of replacing pharmaceutical drugs for use in patients suffering from cardiovascular diseases.

### Opening the pipes

Regular garlic ingestion also inhibits atherosclerosis, or narrowing of the arteries from fatty plaques and calcium deposits, along with the inflammation that can result.

Garlic has been shown to inhibit enzymes involved in lipid synthesis,

decrease platelet aggregation, lower plasma fibrinogen levels, prevent lipid peroxidation of oxidized erythrocytes and LDL, and increase antioxidant status.

In other words, it decreases the crud that can clog blood vessels; prevents the crud from accumulating and clotting; and from becoming inflamed and oxidized. Just call garlic the Roto-Rooter of your cardiovascular system.

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Garlic seems to enhance the functioning of the immune system by stimulating certain cell types, particularly by prompting a rapid increase in the production of lymphocytes in our body. Garlic acts as a catalyst to macrophage phagocytosis, a process by which microorganisms and cellular debris are engulfed and destroyed.

Lymphocytes are white blood cells that play a significant role in defending the body against disease. There are two main types of lymphocytes: B cells and T cells. B cells make antibodies that attack bacteria and toxins, while the T cells attack body cells themselves, once they have been taken over by viruses or have become cancerous.

Natural killer (NK) cells, which form a major part of the innate immune system, kill off diseased cells.

Macrophages are certain white blood cells, known as phagocytes, that destroy bacteria and tumour cells by consuming them.

A catalyst is an enzyme that accelerates a chemical reaction. Since garlic kicks off the destruction of harmful bacteria and tumour cells, it is clearly a great friend to your immune system!

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