

## Here's the Latest on Nattokinase

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### STORY AT-A-GLANCE

- › Nattokinase, an enzyme isolated from natto (the bacterium *Bacillus subtilis*, a traditional Japanese food made from fermented soybeans that has been eaten for millennia), has been found to have unique health benefits
- › A recent study shows that nattokinase relieves nasal inflammation, chronic rhinosinusitis (CRS) and related problems like nasal polyps, which is good news since conventional interventions have proven ineffective
- › Nattokinase has been shown to break down and dissolve fibrinogen, a component of blood clots and atherosclerotic plaque, which are risk factors for cardiovascular disease, and has no side effects
- › Consumption of nattokinase is linked with lowering systolic and diastolic blood pressure, as well as viscosity, which in turn improves blood flow and subsequently, lowers blood pressure



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**This is an older article that may not reflect Dr. Mercola's current view on this topic. Use our search engine to find Dr. Mercola's latest position on any health topic.**

## By Dr. Mercola

If you're not familiar with nattokinase, you're not alone. CliffsNotes on the term might describe it as an enzyme that's purified and extracted from the bacterium *Bacillus subtilis* (aka natto), a traditional Japanese food made from fermented soybeans and eaten for millennia. How is nattokinase significant for health? The answer is multifaceted, as it's been found to be significant in both disease treatment and prevention.

Benefits include a dramatic effect on blood clots; more recently, research has revealed how the enzyme impacts persistent **sinus conditions**. Especially during colder times of the year, a common malady is nasal-related problems, which can turn into a number of variants, including sinus inflammation. The symptoms are not pleasant (few nasal problems are) and can lead to chronic rhinosinusitis (CRS) and/or nasal polyps.

But a recent study<sup>1</sup> indicates that nattokinase is an effective way to deal with these and related symptoms. Natural health proponent Dr. Michael Murray says **nattokinase** has the ability to produce powerful effects to improve CRS, far better than conventional drugs. He explains how nattokinase is produced:

*"The enzyme nattokinase is produced by adding the bacterium *Bacillus natto* to boiled soybeans. The bacteria try to digest the soybeans by secreting nattokinase. The most popular and scientifically studied application for nattokinase has focused on its potent fibrinolytic ('clot-busting') activity.*

*What that means is that it breaks down fibrinogen, a component of blood clots and atherosclerotic plaque. Elevated fibrinogen levels are another clear risk factor for cardiovascular disease."*<sup>2</sup>

One of the most common ways high fibrinolytic levels manifest in the body is via the development of **nasal polyps**, as it settles in the nasal mucous. That's also the reason why researchers decided to determine how nattokinase might be beneficial for this condition.

## What Is a Mucolytic Agent?

A mucolytic is an agent that renders mucus – the thick substance that makes spit difficult to rid your throat of when you have a cough, and often contributes to an “unproductive” cough as well – looser and thinner, making it easier to get rid of. Most mucolytics are prescription form because they’re chemically concocted rather than being a natural substance. Further, you’ll note that drug companies producing them make it clear that taking the drugs regularly is needed for them to work properly.

Murray noted that for healthy nasal passages, sinuses and airways, it’s important for secretions to maintain elasticity and fluidity in your respiratory tract. If your mucus is too thick, it’s hard to get rid of, which promotes inflammation, blocked airways, difficulty breathing and, as a result, polyp formation. That’s where nattokinase comes in, improving these secretions and the resulting inflammation and other issues. In addition:

*“This effect is similar to other enzymes such as bromelain and serrapeptidase. And, indicates that nattokinase is a strong consideration in conditions beyond CRS such as chronic obstructive pulmonary disease (COPD), bronchitis, and sinusitis.”<sup>3</sup>*

## Background on Nattokinase: What It Is and What It Does

In 1980, Hiroyuki Sumi from Chicago University Medical School was researching the clot-busting aspects of conventional drugs and tried placing natto in a petri dish with a blood clot. In 18 hours, the blood clot dissolved – far less time than occurs with drugs prescribed for the same purpose. Later clinical studies have determined nattokinase also:

- Dissolves excess fibrin in blood vessels, which improves circulation, dissolves blood clots and reduces the risk of serious clotting, aka atherothrombotic prevention
- **Increases HDL** (good cholesterol), optimizes cholesterol levels and has no side effects
- Decreases blood viscosity, which in turn improves blood flow and, subsequently, **lowers blood pressure**
- Exerts “considerably stronger thrombolytic activity” comparable to that of another well-known blood thinner: aspirin, a remedy known to trigger bleeding and gastric ulcers
- Can be absorbed by your intestinal tract when taken orally

## **Nattokinase and Decreased Blood Pressure**

In 2016, researchers observed a link between the consumption of nattokinase and both lowered blood pressure and von Willebrand factor, which helps stimulate blood clotting and control bleeding after an injury. Von Willebrand disease is an inherited condition that impedes this factor (related to another clotting disorder known as hemophilia). According to the study,<sup>4</sup> nattokinase consumption was associated with a decrease in both systolic and diastolic blood pressure.

Incidentally, the reduction in systolic blood pressure was seen for both sexes but was more robust in males consuming nattokinase. Significantly, the researchers also noted that while a number of pharmaceutical options are available for these conditions, notably “thiazide-type diuretics, angiotensin-converting enzyme inhibitors/angiotensin II receptor blockers, calcium channel blockers and beta-adrenergic blockers,”<sup>5</sup> adverse effects can include:

- Contraindications, aka possible harm

- Synergistic effects, which can exacerbate the effects of protocols, making all combined greater than the individual effects
- Increased risk for certain individuals, such as those with diabetic nephropathy, aka kidney damage caused by **diabetes**, including the possibility of **impaired renal function**, abnormally low blood pressure (hypotension) and hyperkalemia, aka higher-than-normal blood potassium

In fact, the study notes:

*“There is a growing interest in non-pharmaceutical sources of angiotensin-converting enzyme inhibitors, as well as food-based strategies for supporting cardiovascular function and specifically for reducing hypertension.*

*Natural methods to reduce such inflammatory conditions are of interest, and dietary components of functional benefit for the hypertensive patient include essential fatty acids where cardioprotective fatty acids found in oils from fish, flax, nuts, seeds, and algae have known anti-inflammatory activities.”<sup>6</sup>*

## Research on Nattokinase

Studies on both animals and humans have shown how effectively nattokinase (NK) “provides support to the circulatory system by thinning the blood and dissolving blood clots.”<sup>7</sup>

- In one study, dogs with chemically induced thrombi in their major leg vein were given nattokinase capsules, and the clots dissolved within five hours.<sup>8</sup>
- A similar study on rats with induced thrombosis in their carotid artery showed “considerably stronger thrombolytic activity” and an increased blood flow of 62 percent, compared with other enzymes that exhibited

15 percent and zero percent blood flow.<sup>9</sup>

- According to Life Extension, another rat study involved nattokinase supplementation for three weeks before and after endothelial injury to the animals' femoral arteries.<sup>10</sup> The result was more effective thickening and dissolution of **blood clots** near the injury, as compared to control animals not given the supplement.<sup>11</sup>
- Because thicker blood viscosity and coagulation can raise your risk of cardiovascular disease, one study involved the administration of NK to healthy individuals as well as those with elevated cardiovascular disease factors and others undergoing dialysis, with a significant decrease in fibrinogen levels within two months.<sup>12</sup>

On long-haul flights (and vehicle travel), one risk is the development of deep vein thrombosis, or blood clots, especially when individuals fail to get up and move around. A study comparing the effects of a combination of nattokinase and **pycnogenol** (derived from pine bark), and a control group of participants given a placebo, resulted in five thromboses problems among the control group and zero in the NK/pycnogenol group.<sup>13</sup>

In addition, studies indicate that the longevity of Japanese who've been consuming natto (interestingly, one of the derivatives is **vitamin K2**) for thousands of years is greatly increased.<sup>14</sup> In a far lower life form, the life span of nematodes (*Caenorhabditis elegans*) was also significantly extended by nattokinase.<sup>15</sup>

## **Nattokinase: Conventional Remedies**

Previous research on nattokinase, involving a collaboration between Qingdao University in China and Northeastern State University at Broken Arrow, Oklahoma, called natto a "miracle food" and noted one of its most significant benefits: heart disease prevention.

It's well-known in the medical world that when patients exhibit the main risks for the primary cause of death in the U.S. – cardiovascular disease (CVD) – such as obesity, high blood pressure and Type 2 diabetes, the first order of business is to put them on **statin drugs**, suggest bypass surgery or angioplasty to clear excess plaque from arteries or prescribe blood thinners. The latter can pose serious side effects, including:

Hemorrhage (internal bleeding)	Abdominal pain and cramping
<b>Diarrhea</b>	Fatigue
Feeling cold and chills	Liver damage
Hair loss	Nausea

However, savvy scientists understand that blood clots are another risk factor for heart health. The risk rises due to several factors, age being one of them. Smart Publications notes:

*“Although our human body produces several enzymes for making blood clots, it produces only one enzyme – plasmin – for dissolving them. The problem is, as we age the production of plasmin is reduced, making blood more prone to coagulation and clotting.*

*To make matters worse, fibrinogen (a blood clotting protein) levels rise as we get older. And high levels of fibrinogen usually lead to increased platelet aggregation, blood clots, and eventually heart attack or stroke ... Preventing blood clots, particularly in older individuals, is a crucial step in preventing heart attack and stroke.”<sup>16</sup>*

The key is doing it naturally, which is what nattokinase offers. According to Life Extension, nattokinase has been available for purchase since 1998. Keep in mind that the food natto may be made from **genetically engineered** soy, so be sure to read food labels.

## Final Notes on Nattokinase

Currently, scientists say the recommended amount of powdered nattokinase is two 100-milligram capsules per day. If you're wondering about the soy it contains, remember that natto is fermented soy, and fermentation removes the disadvantages associated with eating raw or cooked soy. You can even **make your own natto** at home, but if you prefer a supplement form, nattokinase is actually an enzyme derived from the food. The Baseline of Health Foundation notes:

*“Some may question the use of using a soy-derived product for health. Note that when soy is fermented, it neutralizes the harmful effects on your hormones. But more importantly, what you get in a supplement is not natto, the food derived from fermenting soy, but nattokinase, the purified enzyme extracted from natto. In other words, there’s virtually no soy left in nattokinase. Just be sure to look for a brand that uses non-GMO Nattokinase since most soy is genetically modified.”<sup>17</sup>*

Significantly, a study in Egypt asserts that nattokinase may benefit people with **Alzheimer’s disease**, as it did in research on rats, which scientists determined after oral administration and subsequent study of their brain tissue.<sup>18</sup> Additional studies are ongoing.