

Could an Enzyme in a Traditional Japanese Dish Hold the Key to Treating COVID-19?

Nattō, a popular Japanese breakfast food, contains an anti-clotting, anti-spike protein powerhouse called nattokinase

PREMIUM SPIKE PROTEIN



Emma Suttie

Jan 31 2023



A bowl of natto—a traditional Japanese dish of fermented soybeans / NOBUHIRO ASADA via Shutterstock

Japan is a country famous for the health and longevity of its citizens and boasts people with the [longest life expectancy on earth](#). It is also home to the [world's largest population over 65](#) (at 28 percent) and some of the world's lowest rates of [cardiovascular disease](#) and [stroke](#). So what lessons can we learn from the Japanese that may help us thrive long into old age?

Part of the answer may lie in one of Japan's traditional foods—called nattō. Nattō is made from fermented soybeans and has been part of the Japanese diet for hundreds of years. Nattō was traditionally eaten for breakfast—often with rice and a raw egg. It has a strong odor and slimy consistency, making it unappealing to most people outside Japan. Many Japanese believe nattō is a superfood and include it in their diets due to its health benefits, which include [lowering blood pressure](#), [improving circulation](#), and [reducing the risks of heart disease](#) and [strokes](#).

Research Shows Nattō Inhibits SARS-CoV-2 Viral Infection

Some exciting research has shown that an enzyme from nattō inhibits the ability of the virus that causes [COVID-19](#) to infect cells.

A [study](#) demonstrating nattō's effects on the virus that causes COVID-19 was published in July 2021 in the *Biochemical and Biophysical Research Communications Journal*. The research examined whether nattō impairs infection by viruses. The specific viruses tested were severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)—the virus that causes COVID-19, and bovine herpesvirus 1 (BHV-1)—a similar respiratory infection in cows. Results using cells showed that when treated with nattō extract, both SARS-CoV-2 and bovine herpesvirus lost their ability to infect cells in vitro. The researchers also found that the nattō inhibited infection by mutated strains, such as the [Alpha variant](#).

Additionally, when the researchers heated the nattō to 100 degrees for ten minutes and applied it to both viruses, they found that the viruses regained their ability to infect cells. The experiments concluded that heating natto deactivates its neutralizing properties, and the viruses regain their ability to infect cells as expected.

What is Nattō?

Nattō is made by soaking whole soybeans, cooking them via steaming or boiling, then adding the bacterium *Bacillus subtilis* (a bacteria found in plants and soil) and allowing the mixture to ferment. This fermentation process gives nattō its pungent smell and characteristic stringiness and is likely the reason for many of its health benefits.

Nattō is traditionally a breakfast food eaten with rice but is now available in a wide variety of products, from [sushi](#) to [donuts](#). Many Japanese eat nattō on a daily basis, and a typical Japanese grocery store has dozens of varieties and brands of nattō to choose from. Nattō is often sold in small plastic containers that come in packs of three. Eating one a day can give you all of nattō's health benefits—it is high in protein, packed with dietary fiber, rich in manganese, and an excellent source of [vitamin K2](#).

What is Nattokinase?

In 1980, Hiroyuki Sumi, a Japanese researcher from the University of Chicago Medical School, [extracted an enzyme from nattō](#), naming the novel enzyme nattokinase. Sumi and his team discovered that nattokinase could dissolve [blood clots](#) because of its ability to break down fibrin—making it a potent fibrinolytic enzyme.

Fibrin is a protein in our bodies that helps blood to clot after an injury. Once the wound begins healing, plasmin helps break up fibrin that makes up the clot. These two work together, achieving a delicate balance to ensure the body heals properly and clots don't stick around. As we age, the amount of plasmin the body produces decreases, which can lead to strokes and other problems due to excess clotting.

Nattokinase dissolves blood clots by breaking down fibrin. Since Sumi and his team's discovery of nattokinase, many [animal](#) and [human](#) trials have demonstrated nattokinase's powerful ability to dissolve blood clots, which may help account for Japan's low rates of cardiovascular disease and stroke.

A [review](#) published in 2017 in the International Journal of Molecular Sciences looked at nattokinase as an oral anti-clotting agent for the prevention of cardiovascular disease. It notes that nattokinase has been studied extensively for this purpose in Japan, Korea, and China but that nattokinase's anti-clotting abilities had only recently been recognized by Western medicine. The review concludes that nattokinase exhibits “exceptionally potent” anti-clotting activity and that various human and animal trials have demonstrated that nattokinase improves blood circulation and helps decrease the risk of a variety of cardiovascular diseases without producing any adverse side effects.

In animal and human clinical studies, no adverse effects have been reported when healthy human volunteers [consumed nattokinase \(10 mg/kg\) daily for 28 days](#). Participants did not show significant changes in their urine, blood pressure, or pulse. At present, the [recommended dosage for nattokinase is two capsules \(100 mg/capsule\) daily](#). In human trials, nattokinase taken orally was considered very safe at the prescribed dosage.

Nattokinase Degrades Spike Protein

In a second study looking at viruses in vitro, scientists have shown that nattokinase destroys the spike protein on the surface of both corona SARS CoV-2 virus cells and bovine herpes virus cells that allow them to infect host cells.

In the study entitled [Degradative Effect of Nattokinase on Spike Protein of SARS-CoV-2](#), published in *Molecules* in July 2022, researchers demonstrated that nattokinase degrades the spike protein on the surface of SARS-CoV-2—the virus that causes COVID-19. The researchers showed that nattokinase degraded spike protein in a dose and time-dependent manner. The study concluded that nattokinase and natto extracts have potential effects on inhibiting SARS-CoV-2 host cell entry via spike protein degradation.

The study authors also note that the introduction of heat blocked the ability of nattokinase to degrade the spike protein on the surface of the viruses, corroborating findings in the first study.

It's important to note that both studies on nattokinase and its effect on viral infection were conducted on cells in vitro and not in living bodies. These studies also focused on the spike protein's degradation in terms of infection. Still, this information could be helpful for people suffering from symptoms of [long COVID](#) thought to be caused by an abundance of spike protein or by those who have received the vaccine and would like a way to remove or destroy spike proteins they may have in abundance.

More research is needed to know if these mechanisms could be replicated in humans. But, the data is compelling, and further research will allow scientists to understand the implications for human subjects.

Final Thoughts

Although the research on nattokinase and its effect on COVID-19 is still in its infancy, the ability of nattokinase to degrade spike proteins combined with its anti-clotting properties makes it an exciting topic for further study.

Some researchers and clinicians theorize that symptoms of long COVID may be at least partially due to the blockage of vessels by [microclots](#), and that the [spike protein](#) might be the trigger—which is supported by a recent [Harvard Medical School study](#). If this is the case, nattokinase could be a potential treatment for those suffering from Long Covid and its extensive list of symptoms. Nattokinase’s anti-clotting prowess and ability to dissolve spike proteins could also be helpful with the clotting problems many doctors have observed in those who took the [vaccine](#), and could be a way to dissolve those blood clots before they can do irreparable damage to tissues and organs. Researchers will be [studying nattokinase in a lab setting](#) this year to help find the answers, but these initial findings suggest that this humble Japanese dish may hold the key to unlocking some of the most critical health obstacles we face. At the very least, it is a nutritious food that boosts the microbiome.









Emma Suttie
D.AC, AP

Emma Suttie is an acupuncture physician and founder of Chinese Medicine Living—a website dedicated to sharing how to use traditional wisdom to live a healthy lifestyle in the modern world. She is a lover of the natural world, martial arts, and a good cup of tea.

SHARE 912

SHARE 912

 Friends Read Free
  Copy
 


 Friends Read Free
  Copy
 