Alternatives®
FOR THE HEALTH-CONSCIOUS INDIVIDUAL
Mountain Home Publishing — Special Report


Dr. David G. Williams

TOPICS IN THIS REPORT

SAFE ALTERNATIVES TO AN ASPIRIN-A-DAY

Despite the fact that aspirin has been touted as a way to prevent everything from heart attacks to colon cancer, and unlike most doctors, I have never felt comfortable recommending the regular use of aspirin. I do acknowledge that occasional use may be okay and that it can be a lifesaver when taken at the first sign of a heart attack. However, taking aspirin continuously as a preventive can cause more problems than benefits.

A lot of people don't understand why I feel this way. I think their confusion comes from a steady stream of studies that seem to confirm aspirin's miraculous powers. When studies came out suggesting that aspirin might help prevent second heart attacks, aspirin consumption in this country skyrocketed. Just a few years ago (April, 2000) a glowing report from France concluded that because of aspirin's ability to prevent venous blood clotting it could be used routinely following many surgical procedures that entail risk of blood clotting. This study focused on the use of aspirin following hip replacement therapy. *(Lancet 00;355(9212):1288-9)* It's another study cited as additional support for routinely using aspirin.

Don't Be Buffaloed by the Word "Buffered"

Since the regular use of aspirin has been linked to bleeding in the upper gastrointestinal tract, many consumers take buffered or enteric-coated aspirin, assuming that it is less likely to cause such bleeding. Research at the Boston School of Medicine has found otherwise.

Interviews were conducted with 550 people admitted to the hospital for upper gastrointestinal bleeding (UGIB) and 1202 control subjects concerning their use of aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs). Those taking 325 mg or less of regular aspirin had a 2.6 times greater risk of developing UGIB compared to those not taking aspirin. Enteric-coated aspirin increased the risk to 2.7, and with buffered aspirin the risk was 3.1. At daily dosages of more than 325 mg, the risk with plain aspirin went up to 5.8; with buffered aspirin it was 7.0. (There wasn't enough data available to evaluate the effects of enteric-coated aspirin at the higher doses.) *(Lancet 96;348(9039):1394-5)*

There is also evidence that NSAIDs and aspirin tend to raise blood pressure in older men. In a study of 5,201 men at least 65 years old, systolic blood pressure increased as much as 7.7 mm Hg when either aspirin, NSAIDs, or both were taken for two or more days during a two-week period. The increase in blood pressure was greatest among those men who weren't taking any type of blood pressure medication. *(Personal report from the International Society of Hypertension in Amsterdam, Holland.)* This research further supports evidence that aspirin is not the quintessential heart protector it's touted to be. In an acute heart attack situation, yes, but over the long term its downsides far outweigh its benefits.

Regardless of which form you take, a daily dose of 325 mg of aspirin carries with it a three-fold risk of developing major gastric bleeding. Keep in mind that the 550 people interviewed in the study were admitted to the hospital solely because of the severe bleeding caused by aspirin. Some cases of internal bleeding can be very difficult to control. Hospitals lose tens of thousands of patients each year when their internal bleeding can't be stopped.

The Truth About Aspirin—and Other Medical Breakthroughs

Unfortunately, the public isn't told the whole truth behind such studies. Several doctors not associated with the above study reviewed the data and concluded that, "a study that was essentially negative was presented as a positive....aspirin did not reduce vascular deaths, had no significant effect on major non-fatal vascular events other than deep vein thrombosis, but did result in an excess of six per 1,000 postoperative transfused bleeds....[and] dangerous generalizations about the benefits of aspirin have been made that unfortunately may have dire consequences for patient care." *(BMJ 00;321 (7260): 569)*

In addition to triggering gastric bleeding, **more and more research points to the fact that it can increase the risk of heart attack and stroke in as much as 40 percent of the population.** And scientists recently

determined that using aspirin for a period of ten or more years is associated with a **44-percent increase in the risk of developing subcapsular cataracts** (the most common and disabling form of cataracts). The aspirin-related risk was greatest in those under age 65. *(Ophthalmol 98;105:1751-1758)*

Dr. Michael Buchanan, a pathologist at McMaster University in Hamilton, Ontario, gave aspirin doses (ranging from 80 to 1,300 mg daily) to 86 patients. The patients were from three groups: bypass patients, other hospitalized patients, and healthy volunteers. During the study the "bleeding time" of all the participants was carefully monitored. (Aspirin's reported benefit comes from its ability to stop blood platelets from sticking together and forming clots. This in turn decreases the chance of blockages, which can lead to heart attacks and strokes. It also increases how long an individual will bleed before clotting takes place or "bleeding time.") Dr. Buchanan discovered that aspirin actually decreased the bleeding time in 40 percent of the patients, which would make them more susceptible to strokes and heart attacks! He recommends that anyone who is a prospect for regular prophylactic use of aspirin be tested first.

Dr. Buchanan's work is further supported by Dr. Grotemeyer in Germany, who has been studying the effects of aspirin on blood clotting for several years. *(Fortschr Neurol Psychiatr 85;53(9):350-3) (Throm Res 91;63(6):587-93)* Dr. Grotemeyer recently followed the health outcome of 180 carotid stroke patients for two years. All were given aspirin to prevent the recurrence of secondary strokes, heart attack, or cardiovascular-related death. The aspirin seemed to reduce platelet activity and retard blood clotting in all patients. However, 12 hours after taking it, platelets in 33 percent of the patients actually showed more activity than normal. (The aspirin apparently triggered a rebound reaction that promoted blood clotting.) These patients were referred to as secondary nonresponders to aspirin therapy, but were continued on the aspirin along with the other patients (the aspirin responders). During the next two years five of the 114 aspirin responders died from a cardiovascular event, like secondary stroke, heart attack, etc. Of the 60 secondary non-responders, 24 died of such events.

There are at least two lessons to be learned from this:

- Be wary any time someone suggests taking a drug or synthetic substance on a continuing basis to prevent disease or improve health. An apology or "late breaking update" years down the road won't mean much if your health is ruined.

- If you're dead set on using aspirin, tell your doctor to research the above studies. Then have him/her perform the proper tests to determine if you are among the 40 percent of people who increase their risk of stroke, heart disease, or other cardiovascular event by taking aspirin.

How to Block the Ill Effects of Aspirin

If you or your doctor are determined that you take daily aspirin for any reason, it's important to take steps to minimize gastrointestinal bleeding and counteract the loss of vitamin C, folic acid, and iron that bleeding causes. To make up for nutrients lost due to bleeding, make sure your multivitamin/mineral provides you with at least 1 gram of vitamin C and 400 mg of folic acid per day. Also, periodically have your doctor check your iron levels—especially if you are still menstruating. If your iron levels are below normal, you may also need a daily

iron supplement. Here are some additional nutrients you should consider.

To help prevent bleeding in the first place, wash aspirin down with 10 to 12 drops of **Tabasco** mixed with a little water, or take it with along with a red pepper capsule. I don't know anything that will neutralize the increased stroke risk, but I think you're better off substituting red pepper for the aspirin. **Capsaicin** (a major component of red or cayenne pepper) has been shown to help protect the stomach lining from bleeding (and lower triglycerides and improve the clot-dissolving ability of the blood). *(Gastroenterology 89;96:1425-1433)* Capsaicin in capsules or as an extract is available from Arrowroot Standard Direct at 800-234-8879 and from Frontier Natural Products at 800-669-3275.

Deglycyrrhizinated licorice (DGL) is often used to treat ulcers. DGL works by helping the stomach and intestines produce more protective mucus. One study found that taking 350 mg of DGL with each dose of aspirin helped prevent gastrointestinal bleeding. *(Scand J Gastroenterol 79;14:605-7)* DGL tablets must be chewed, not swallowed whole, to be effective. A reliable source for DGL is Enzymatic Therapy. Their products are sold in health food stores. If you can't find them, call Enzymatic Therapy at 800-783-2286. They'll help you locate a store in your area that carries their products.

Rhubarb. Although practically unknown in medical circles, rhubarb can be very effective at stopping upper digestive tract bleeding. Chinese researchers discovered that 15 grams daily of raw rhubarb powder or tablets, or roasted rhubarb powder stopped digestive tract bleeding in 95 percent of cases. The 15-gram dose was divided and given throughout the day. Although practically all of the 400 individuals given rhubarb initially experienced abdominal pain and cramping, the rhubarb stopped the bleeding quickly. The initial pain was not intense enough to require intervention, and it lessened or stopped completely once the individuals had a bowel movement. (Unlike many medications to stop gastrointestinal bleeding, rhubarb increased bowel movements instead of bringing them to a halt.) *(Pharmacology 80;20 (Suppl 1):128-130.)* Bulk rhubarb powder isn't always easy to find in health food stores, but it can be ordered through the mail from places like Penn Herb Co. Ltd., 800-523-9971. (Doctors and health professionals can obtain it from Nuherbs, 800-233-4307.)

A Tropical Alternative to Aspirin

Bromelain, the protein enzyme from pineapple stems and fruit, provides aspirin-like benefits without dangerous side effects. Like aspirin, bromelain decreases the stickiness of blood platelets, improves blood flow, and increases the ability of blood cells to break down and remove foreign or damaged proteins. In addition, bromelain lowers blood pressure, increases the efficiency of the heart, and even helps in cancer prevention and treatment. As an added benefit, bromelain inhibits the formation of particular prostaglandins that increase inflammation and promotes the formation of beneficial prostaglandins that have anti-inflammatory effects. Aspirin, on the other hand, inhibits the production of all prostaglandins, good and bad.

I've used bromelain to successfully treat indigestion, chronic sinusitis, and heart disease and to inhibit appetite and increase the breakdown of body fat. Bromelain and bromelain-based products also work miracles at minimizing bruising and speeding healing after cosmetic surgery. Every plastic surgeon in the country should be recommending these products to their patients.

The Power of Pineapple

Raw pineapple itself can be used topically to speed healing and prevent infection. In tropical regions, I've seen healers apply it directly to open wounds. With one case, it was the sole treatment used for a Haitian cane field worker who cut his leg to the bone with a machete. The wound healed remarkably fast, and he was back working in the fields in less than two weeks. (If you're ever injured in the tropics, raw pineapple and sugar are usually two items you should easily find to pack a wound. Both will prevent infection and facilitate healing. And, where there's sugar, there's always rum, which can help pass the time during your recuperation!)

A few people tend to be allergic to bromelain, and at the highest dosages it can cause temporary problems like diarrhea or skin rash. Overall, however, it is considered a very safe, non-toxic compound. (If you're allergic to pineapple, bromelain likely will cause problems for you.) Excellent results can be achieved by taking 2–4 grams of bromelain per day. To help relieve indigestion or to improve general digestion, it's best to take bromelain with meals. For any of the other problems mentioned, the dosage should be divided and taken two or three times during the day between meals. You can buy bromelain tablets in most health food stores. An excellent mail-order source is Freeda Vitamins, 36 East 41st St., New York, NY 10017 at 800-777-3737. If you mention that you're a subscriber to *Alternatives*, they'll give you 20 percent off your order.

Bromelain is an inexpensive, underutilized healer. Not surprisingly, most of the research on this compound has been undertaken by the pineapple industry. The pharmaceutical companies want nothing to do with this amazing substance unless it can be patented. Fortunately for us, it can't.

The Clot-busting Miracle

Blood delivers nutrients and oxygen throughout your body, directing antibodies to areas of infection, sending heat in your body out to your skin, and excreting waste products from your body. When your circulation is impaired, these functions are greatly compromised.

Unfortunately, too many people learn to live with impaired circulation. Because blood vessels become clogged gradually and the detrimental effects appear so slowly, most people accept new circulation-related limitations simply as a sign of aging. (Some people do experience the ill effects of decreased circulation quickly. Later in this report I'll talk about why some end up with chronic illness while others, exposed to the same pathogens, recover quickly.)

Dozens of common health problems have improved dramatically when proper circulation has been restored, but not by conventional medication. For the vast majority, it is not the best way to keep the circulatory system performing at peak levels.

Conventional Medicine Isn't the Answer

Products like aspirin, heparin, and Coumadin (warfarin) are standard tools for "thinning" the blood to increase blood flow. When blood flow is drastically impaired or actually stops because of a clot, conventional medicine's answer is ultra-expensive "clot-busting" drugs like streptokinase, Activase, and urokinase. When these fail, the answer is bypass—blood vessels from other parts of the body are sewn in place to "bypass" the blockage.

"Blood thinners"—natural or otherwise—may provide relief, but they don't provide a "cure." Impaired circulation must be treated at a much deeper level. In the early days, health pioneers recommended saunas, massage, and hot springs to increase circulation. We now know that regular exercise can be enormously beneficial in improving circulation and blood flow. And vitamins, minerals, and herbs—some of the most beneficial being niacin, lecithin, and ginkgo—act as antioxidants and help prevent free radical damage to blood vessels and other tissue.

The Japanese Secret

As you will learn in the months ahead, I spend a great deal of time researching and traveling the world for true cures, not just "cures" that treat symptoms. I bring the results to you each month in *Alternatives*. For the last year or so, I've been researching and investigating a product that appears to get to the root of many problems associated with impaired circulation.

Japan has one of the highest rates of fish consumption in the world and some of the lowest rates of depression, homicide, and suicide. For years, their health statistics have been used to support the benefits of eating fish. Historically, the Japanese have also experienced less prostate and breast cancer, less heart disease, and greater longevity. No doubt, these benefits also can be attributed to their high fish and seafood consumption. They also have one of the highest consumption rates for soybean products. Closer examination of research data indicates that consumption of natto, a soybean-based food, may contribute to their high degree of good health. Natto is a fermented product made by adding spores of the beneficial bacteria *Bacillus natto* to boiled soybeans. It has been referred to as "vegetable cheese" because many people report that it tastes like cheese. The average per capita annual consumption of natto in Japan is roughly 4.5 pounds. Natto has been used in Japan for at least 1,000 years to treat heart and vascular diseases, beriberi, and fatigue.

Understanding Blood Clots

In 1980, Doctor Hiroyuki Sumi, who was completing his chemistry degree at Chicago University Medical School, was searching for a natural compound that would dissolve blood clots in arteries. Through testing 173 different foods, he concluded that natto exhibited the strongest thrombolytic activity. Further research revealed that an enzyme in natto had the ability not only to prevent fibrous clot formation but also to dissolve already-formed fibrous blood clots. He named the enzyme nattokinase ("enzyme in natto"). Natto and/or nattokinase could be one of the most significant breakthroughs in treating a long list of diseases.

To fully understand the benefits of natto and nattokinase, you have to have a basic understanding of how and why clots, or fibrin deposits, are formed. Your body produces numerous compounds whose sole purpose is to make blood clots (thrombi). Your ability to form blood clots quickly can prevent you from bleeding to death if you're cut and stop excessive blood loss after trauma or injury. Pathogens (such as bacteria, viruses, and fungi) and toxins trigger the release of the compound thrombin. This begins the chain of events that results in fibrin production.

Fibrin is made up of sticky protein fibers that can accumulate and stick to blood vessel walls or continue to circulate in the blood stream. Fibrin slows blood flow and forms a matrix for blood clots. Think of a clot as a lump or plug that stops blood from flowing through a vessel. When clots occur in vessels of the heart, the heart muscle is deprived of oxygen and quickly begins to die. The result: angina or a heart attack. A similar situation occurs when clots migrate from the heart to the brain or

form in blood vessels that supply brain tissue. This can result in nerve cell death, which manifests as senility and/or stroke.

In the absence of or prior to full-clot formation, fibrin accumulations create hyper-coagulation or "clogging" in blood vessels. When blood coagulates more than normal, an outright clot and complete blockage might not occur immediately. Blood flow simply might begin to slow down. When that happens, fibrin strands start sticking to artery walls and blood flow is slowed even more. Over time, it slows to a trickle in the smallest vessels, the capillaries. The surrounding tissue begins to starve for oxygen, while increasing amounts of toxins and waste material accumulate.

Why Circulation Slows Down

As I mentioned earlier, your body makes several compounds to promote clotting (or thrombi). But it produces only one enzyme to dissolve and break down fibrin in blood clots. That thrombolytic, or "clot-busting," enzyme is called plasmin. Plasmin is normally produced in the endothelial cells that line the interior walls of arteries, veins, and lymph vessels. To control excess bleeding and increase blood flow when necessary, the body must produce a proper balance of these enzymes. In a very large segment of the population, the thrombolytic enzymes that reduce blood clots and hyper-coagulation are in short supply. Various factors contribute to this imbalance and trigger hyper-coagulation of blood:

- Genetic Defects can inhibit the production of plasmin and other enzymes needed to prevent hyper-coagulation and/or clotting. *(Blood Coagulation & Fibrinolysis 99;10:1-4) (Genetics In Medicine May 2002)*

- Aging: As we age, our blood vessels become less elastic and blood flows more slowly through capillaries, which increases its tendency to coagulate.

- Sedentary Lifestyles: Exercise promotes the development of collateral blood vessels and helps maintain their elasticity.

- Low Antioxidant Levels: Antioxidants scavenge free radicals that, left unchecked, inflame endothelial cells lining blood vessels and cause the release of clot-promoting enzymes.

- Improper Fats: Unsaturated fatty acids are essential components for the formation of nervous tissue and an integral component of every cell wall and membrane in the body. They form one of the first lines of defense against various pathogens and toxins trying to invade cells. When essential fatty acids are deficient, your body has to use inferior fats for building and repair. Fragile or weak arterial cell walls are more susceptible to damage, which triggers the release of blood clotting enzymes.

- Toxins (pesticides; herbicides; industrial chemicals; household cleaners; sprays; toxic metals; vaccinations; air, water, and food contamination, etc.) are fat-soluble, fat-loving molecules that selectively bind to fatty barriers in the membrane of endothelial cells. They quickly dissolve in fatty tissue, which enables them to set up residence in the nerves, brain, liver, and kidneys. These "neurotoxins" and hyper-coagulation have been linked.

- More-Virulent Pathogen Exposure: Due to the overuse of antibiotics and the resulting resistant strains that have emerged, we are exposed to more and more dangerous forms of bacteria. Mutations are occurring at an alarming rate among numerous strains of viruses, molds, and fungi,

making them far more virulent. Most, if not all, of these pathogens directly assault the endothelial cells, eventually causing the formation of more fibrin, which in turn contributes to hyper-coagulation. Most of the bacterial pathogens are also anaerobic. In other words, to survive and replicate they require a low-oxygen environment. Under normal circumstances, plasmin and other fibrolytic ("fibrin cutting") enzymes rush to the scene, clear up the mess, and open up circulation. By triggering inflammation and other processes that impede circulation and increase fibrin production, they insure their survival. Hyper-coagulation and fibrin deposits make ideal breeding grounds for these disease-causing pathogens.

The Threat From Fibrin

For an increasing number of people, however, this doesn't happen. Instead, they end up with a chronic illness that becomes almost impossible to get rid of. Their bodies quickly produce large amounts of fibrin that is deposited on top of the infected cells and bacteria. This seals bacteria off from the immune system and shuts off or greatly decreases the blood supply to the area. The pathogens no longer have to worry about oxygen levels getting too high or white blood cells from the immune system reaching them.

Other people cannot break down and remove fibrin deposits, due to a lack of enzymes. These bacteria-laden deposits can wreak all kinds of local havoc, depending on their location, and they constantly tax the immune system with toxins and "leaking" bacteria. If the deposits form in muscles, they become constantly sore and inflamed (fibromyalgia). If in the uterus, pregnancy might be impossible; and it's not uncommon to experience constant pain and other problems in that area. The deposit could be in the liver, brain, or practically anywhere in the body. That's why the correction of hyper-coagulation can be beneficial in so many different and difficult cases.

Hyper-coagulation helps explain why one person develops a chronic illness while someone else, exposed to the same pathogen, quickly recovers. The breakthrough in the way we look at chronic illnesses actually came about through simple observation when researchers noted that many individuals suffering from chronic illness benefited almost immediately after being given various forms of anticoagulant drugs such as heparin and warfarin. Further investigation revealed that they had genetic defects that kept them from properly regulating the coagulation of their blood. *(J Lab Clin Med 97;130:540-43)* Reports began to surface showing that the majority of individuals with chronic fatigue syndrome and fibromyalgia could also be helped with anticoagulant therapy. *(Blood Coagulation & Fibrinolysis 99;(10):1-4)*

Clot Busters That Really Work

Using anticoagulant drugs—or even natural "blood thinners"—treats only the surface of the problem. Thinning blood and making blood cells less "sticky" temporarily allows more blood to flow through an area with blockages. The real solution is to actually remove the fibrin deposit or clot. That brings us full circle—back to drugs like urokinase, streptokinase, and Activase. While these drugs have attained a degree of success, they all come with their own set of problems.

For one, they are extremely expensive—so expensive, in fact, that not all clinics and hospitals stock the drugs. If they do, they use them only when someone arrives at a hospital within minutes after a stroke or heart attack, because they have to be injected quickly following one of these incidents. This is because the drugs' fibrinolytic activity

(ability to dissolve clots and fibrous tissue) lasts for about 4 to 20 minutes.

Until just recently, we really didn't have any natural solution to remove fibrin deposits, but from every indication, it now appears that natto and nattokinase are the natural solutions we've been searching for. Japanese researchers have shown that 100 grams of natto exhibits the same fibrinolytic activity as a therapeutic dose of urokinase. Even more remarkable is the fact that while an injection of urokinase is effective for only 4 to 20 minutes, nattokinase (the enzyme in natto) maintains its activity for four to eight hours. *(Acta Haematol 90;84:139-143) (Hemorheology and Related Research Vol. 5(1):43-44) (Data from Japan Functional Food Research Assoc)*

There are so many conditions that might benefit from natto that it's hard to list them all. Listing all the problems that would benefit from improved circulation alone would be an extremely long list that would include chronic fatigue syndrome, fibromyalgia, and multiple sclerosis. Natto is considered to be safe and beneficial. It has not been associated with any ill side effects, nor have I seen any reports of allergic reactions.

The Nattokinase Option

Natto isn't readily available in this country unless you live in an area where there is a large Japanese population. But nattokinase is available in the U.S. through Nutricology. Their product is Nattokinase, item #54750 (72-mg capsules). They can be contacted at 30806 Santana Street, Hayward, CA 94544, 800-545-9960. (Nutricology also sells to health professionals under the name Allergy Research Group.) The dosage generally recommended is one tablet in the morning and two at bedtime.

There are only a couple of precautions for taking nattokinase or eating natto:

If you take the prescription drug warfarin to prevent blood clots (it's also used as rat poison!), do not eat natto or take nattokinase. Natto has a high vitamin K content, which may impede the effectiveness of warfarin. (It is not uncommon for doctors to tell their patients who are on warfarin to avoid other vitamin K–rich foods such as cabbage and the green algae chlorella.)

Natto or nattokinase can be eaten any time during the day, but, if you're at risk from stroke or heart attack, it has been suggested that it be eaten or taken with the evening meal. Since most heart attacks and strokes occur within a few hours of rising, this should provide a greater degree of protection. (This is also the primary reason for recommending that two tablets of the enzyme nattokinase be taken at bedtime.)

Nattokinase is one of the most significant tools for improving chronic circulation problems I have uncovered in the last several years. If you suffer from any of the problems discussed in this report, it's something you should consider. And, if your risk of stroke or heart attack is high, I recommend keeping a bottle of nattokinase on hand. It can provide you with some of the best clot-busting activity at a fraction of the cost of drugs. Following a heart attack or stroke, time is of the essence. The sooner you put nattokinase to work, the better the ultimate outcome will be.

Aspirin and Blindness

Age-related macular degeneration (AMD) is the leading cause of blindness among the elderly in this country. In the U.S. alone, some 30 million people over age 65 are projected to have AMD by the year 2025. Until about 10 years ago, AMD was virtually unheard of in anyone under 60. Now it accounts for over 10 percent of blindness in people under the age of 60 and is starting to show up in people as

young as 30—a disturbing trend. But even with over 165,000 new cases diagnosed in the country each year, there is little information about how to prevent this terrible disease. What does this have to do with aspririn? **Well, new evidence shows a possible link between macular degeneration and aspirin.**

Aspirin reduces the blood's ability to clot. When small blood vessels break (hemorrhage), blood leaks out before your body can stop the bleeding. These small retinal hemorrhages (macular degeneration) can lead to blindness. Researchers discovered that 109 patients with macular degeneration were also taking frequent dosages of aspirin. With the current "aspirin-a-day" craze, we could be looking at increased amounts of unnecessary blindness in the years to come. *(New England Journal of Medicine 1988; 17:1126-27)*

How Does It Happen?

On the back of each eye, in the center of the retina, is a spot called the macula. This yellowish oval area doesn't have as rich a blood supply as the retina, but contains a vast network of nerve fibers. These fibers transmit visual signals directly to the brain, enabling you to read fine print or focus on small details such as a face in a crowd.

Degeneration of the macula may occur in two forms. The most common form—called the "dry type"—occurs when small, fatty blobs are deposited in the macular area. These blobs block the small blood vessels that supply oxygen to the area. Without sufficient oxygen, the macula is slowly destroyed.

Up to one-quarter of these cases progress to the second type, called the "wet" or neovascular type. This occurs when new blood vessels invade the macula. These new vessels leak fluid, which creates scar tissue, permanently damaging the macula. Although the dry type can take several years to develop and progress to the wet type, the wet type can occur independently and rapidly. It's not unheard of to go from normal vision to blindness within a few days to weeks.

Prevention Is Your Best Defense

There is no known cure for AMD, but there is growing evidence that nutritional supplements and diet may be able to slow its progression.

Your best defense against AMD and other degenerative eye diseases is to start with a diet rich in colorful fruits and vegetables, such as **carrots, spinach, and tomatoes**. Their deep colors signal the presence of beta-carotene, alpha carotene and other mixed carotenoids, powerful free-radical scavengers whose pigments literally "collect" on the surface of the macula and prevent its degeneration. Eat five to nine servings of fresh fruits and vegetables daily, along with **nuts, seeds, teas** and, in moderation, **red wine.** Better yet, pour yourself a cup of **green tea**. Its principal ingredient has been found to be 200 times more powerful than vitamin E in neutralizing pro-oxidants and free radicals. Many of these foods—and **eggs**—are rich in lutein and zeaxanthin, potent carotenoids proven to filter out harmful ultraviolet rays and promote macular density in the eye.

Bioflavonoids are a broad and diverse class of thousands of natural compounds that have a wide range of antioxidant and free radical scavenging effects—from cardiovascular health to cancer prevention to eye health. Some of the bioflavonoids receiving attention from researchers in recent years include those found in **grape seeds, green tea, soybeans, citrus, onions**, and **bilberry**. There is evidence that this bioflavonoid helps prevent free radical damage and protect blood vessels in the eye.

Vitamin C, perhaps the most-studied nutrient of all time, has been used with success in slowing the progress of AMD. Recommended dosage is up to 2,200 mg daily.

There is evidence that deficiency of the amino acid **taurine** can lead to retinal degeneration and AMD. Supplementation has been successfully used to prevent, treat, and stabilize such changes. You can safely take up to 700 mg of taurine daily.

Zinc is stored in many parts of the body, including the eyes, skin, hair, fingernails, and prostate gland. Take 20–40 mg in supplement form and eat foods rich in zinc and other trace minerals, such as **sunflower and pumpkin seeds, seafood, mushrooms, and brewer's yeast.**

Selenium has been shown to help combat macular degeneration.

Two herbs, ***Ginkgo biloba*** and ***Vaccinium myrtillus*** (huckleberry or bilberry), have been used widely in Europe with impressive results. Along with the mineral zinc sulfate, they were found capable of halting the progressive visual loss. *(Presse Med 1986;15:1556-8) (Arch Opth 1988;106:192-8)*

Many of the nutrients above are in a high-quality multivitamin and mineral complex and/or a specialized vision formula. Check the labels of the supplements you presently take. If they don't contain the nutrients I've listed above, boost your intake to get the antioxidants, fat-soluble vitamins, trace minerals and other components necessary for good vision and all-around health.

What to Do if You Already Have AMD

There is currently no recognized method for curing AMD. However, doctors at Indiana University School of Optometry have been studying AMD and retinitis pigmentosa. In one study, 46 patients with AMD were placed on a supplement program for two years. Ordinarily vision would deteriorate over that period of time, but these patients showed improvement. When tested using an eye chart, they gained an amazing average of 8.5 letters of acuity per eye. This research supports the importance of certain nutrients to eye health. In their study each patient received the following daily supplements (half in the morning and half in the evening):

Beta-carotene	40,000 IU
Vitamin E (natural)	400 IU
Vitamin C	1,500 mg
Citrus bioflavonoid complex	250 mg
Quercetin	100 mg
Bilberry extract	10 mg
Rutin	100 mg
Zinc	25 mg
Selenium	100 mcg
Taurine	200 mg
N-acetylcysteine	200 mg
L-glutathione	10 mg
Vitamin B	250 mg

Perfect TENS

In addition to nutrients, a **Transcutaneous Electrical Nerve Stimulator (TENS)** device was used to administer micro-current electricity to patients. The use of the TENS unit seemed to be one of the primary reasons for the dramatic improvements seen in these AMD patients.

Using TENS units to stimulate healing in the eye is not a widely accepted therapy. In fact, most doctors would recommend against it. Studies, however, have shown that micro-current electricity improves blood flow to eyes and enhances the transfer of ions across cell membranes. These effects could help deliver nutrients to retinal tissue. Micro-current also may be one of the few methods that can

increase circulation to the retinal area, a major problem with retinal injuries or disease.

In addition, micro-current therapy appears to enable two remarkable events in the eye. The first is retinal regeneration. One patient's retina had been surgically removed. After nine months of therapy, the retina had regenerated and 20/40 visual acuity had returned. The second event, the regrowth of photoreceptors and nerve connections in the eye, might require a year or more of treatments.

The Proof Is in the Patients

Dr. Allen reports that the combination of nutritional therapy and micro-current therapy has reversed the conditions of several patients and allowed them to lead normal lives. Many of them had even lost their ability to walk without assistance. Several were told to forget about driving a car and to learn Braille. They now have driver's licenses and few or no vision problems!

Most of these patients continue taking supplements and TENS therapy (at least twice daily), even after their conditions have improved. Some have been on the program for more than 12 years and have experienced nothing but positive results. I'll continue to follow Dr. Allen's work and keep you updated on my own test results using his TENS unit on vision problems.

If you are interested in purchasing a TENS units, contact Altoona Medical Supply at 800-442-8367. Ask for the 804MP model. Please note that you will need a doctor's prescription to purchase the product. Altoona will be happy to send you a packet of information to share with your doctor when you call. The 804MP costs about $300, and there is a full money-back guarantee.

Bromelain Has Cardiovascular Benefits Too
by David Williams, MD, www.drdavidwilliams.com

Did you ever think that an "aspirin substitute" could come in the form of a digestive enzyme? Think again.

Bromelain is a digestive enzyme extracted from the pineapple plant. It is referred to as a "protease," which means it breaks down proteins, reducing them to their basic building blocks.

Almost 500 years ago, Christopher Columbus and his crew "discovered" the pineapple on the Caribbean Island of Guadeloupe. Even then, they were amazed at its medicinal uses. Natives used the juice to aid in digestion of meat and cure stomachaches. Women used it to beautify their skin and warriors used it to improve the healing of their wounds. Recent research suggests that the pineapple (more specifically bromelain, which is extracted from the stem) may be one of the best tools we can use to help prevent and even treat heart disease.

Research has continually shown that the clots formed in arteries are composed largely of protein (fibrin). These clots also contain particles of various fats and cholesterol, but the protein mesh of fibrin seems to be the culprit holding the clot together. In fact, the new clot-busting drugs that have been shown to dissolve 70 percent of the clots in heart patients, work by breaking down the protein fibrin!

Bromelain works much the same way as these new miracle clot-busting drugs. (Just like streptokinase, bromelain stimulates the conversion of plasminogen to plasmin, which in turn helps break down fibrin clots.) Even more surprising, bromelain may be able to "clean" arteries of atherosclerotic plaquing before a problem occurs. In an animal study, bromelain broke down arteriosclerotic plaque in the aortas of rabbits.

Bromelain also has been shown to be very effective in treating inflammation, again without the side effects of aspirin or the non-steroid anti-inflammatory drugs (NSAIDs) like Motrin, Advil, Midol, etc. In fact, even the treatment of rheumatoid arthritis has been effective using 2,250 mg of bromelain twice daily between meals. In one study, over 70 percent of those on the program experienced good to excellent results of less joint swelling, less pain and more mobility.

Bromelain is sold in health food stores everywhere as a digestive aid and is generally considered very safe, without any known side effects. After all, it comes from pineapple juice, which again has been used medicinally for hundreds, if not thousands of years.

Most studies recommend between 2,000 and 4,000 mg daily. When taken to ease common digestive problems, it should be taken after meals. If you are using this digestive enzyme for inflammation and as an aspirin substitute, it is best taken between meals.

Another Reason Seniors Need to Avoid Aspirin

POSTED BY
Dr. Mercola
May 02, 2007

Seniors who regularly take regular aspirin to prevent strokes could instead actually be increasing their risk. In healthy older people, aspirin may very well be doing more harm than good.

Researchers looked at data on intracerebral hemorrhagic strokes that occurred between 1981 and 1985, and between 2002 and 2006.

The number of strokes caused by high blood pressure fell by 65 percent over this period. But in people over 75, so many more strokes occurred among patients taking blood-thinning drugs such as aspirin and warfarin, known as antithrombotics, that the overall rate of strokes remained the same.

Between the two periods studied, the proportion of stroke patients on antithrombotic drugs increased from 4 percent to 40 percent. The number of strokes associated with these drugs increased by a factor of seven.

The increasing use of these drugs means that they may soon overtake high blood pressure as the leading cause of intracerebral hemorrhagic stroke in those over 75.

The Lancet Neurology May 1, 2007 (Registration Required)

BBC News May 1, 2007

Dr. Mercola's Comment:

Many years ago I fell prey to the flawed recommendation that taking one-fifth of a baby aspirin three times a week was a wise preventive approach for cardiovascular problems.

But then I read the British and American research, and finally realized what I should have understood all along -- this was simply a flawed approach that in no way, shape or form was addressing the underlying cause of the problem. The definitive article was published in the British Medical Journal over five years ago yet many "experts" continue to recommend aspirin.

Just doesn't make any sense at all.

Healthy older seniors who still take a low dose of aspirin every day to ease cardiovascular concerns should know that the widely accepted "safe" amount may not be safe at all. It could very well cause, rather than prevent, an intracerebral hemorrhagic stroke.

But fortunately, you don't have to rely on drugs to prevent heart disease and strokes, even if those drugs happen to be dirt cheap.

There are many other safer methods that are effective at treating cardiovascular disease without the dangers, and which are even cheaper -- like eating the right foods based on your body's unique metabolic type, and rebalancing your intake of omage-3 fats by taking a high-quality fish oil or krill oil daily.

Related Articles:

Aspirin Not Recommended for Heart Disease Anymore

Ibuprofen and Aspirin Can be a Deadly Combo

Aspirin, Like All Other Drugs, is a Poison

Aspirin's Mostly Unrecognized Connection to Serious Medical Problems

June 17 2012 | **35,956 views** | + Add to Favorites

By Dr. Mercola

It has been more than a decade since I stopped recommending aspirin for the prevention of heart disease. The evidence in support of aspirin has always been quite weak, and over the last decade it has become even weaker.

In fact, it looks as though aspirin, even "low-dose aspirin" (LDA), may do more harm than good. It is debatable whether or not aspirin may have some beneficial actions in heart disease protection.

However, recent scientific studies have uncovered a number of serious side effects that suggest any benefits of aspirin, just like statins, may be overshadowed by its risks, especially when safe and effective alternative measures of prevention exist.

As is true with nearly all medications, the longer we look at side effects, the more we find—even for drugs like aspirin that have been around for more than 100 years.

Aspirin's Effectiveness has Been Overvalued

Nearly ten years ago, Dr. John G. F. Cleland, a cardiologist from the University of Hull in the U.K., wrote an excellent article published in the *British Journal of Medicine*[i] casting doubt upon the efficacy of aspirin therapy for prevention of heart attacks.

Based on a series of meta-analyses from the *Antithrombotic Trialists' Collaboration*[ii], which is an enormous body of research following more than 100,000 patients at high risk for cardiac events, Dr. Cleland concluded aspirin therapy was NOT shown to save lives.

He made the following main points:

- Antiplatelet activity of aspirin is not as safe and effective as widely believed.
- All large, long-term trials involving people treated with aspirin after having a heart attack show no benefit for mortality. In other words, those who take aspirin don't live any longer than those who don't.
- Aspirin seems to change the way vascular events present themselves, rather than preventing them. The number of non-fatal events may be reduced, but there is an INCREASE in sudden deaths. Aspirin may conceal a cardiac event in progress.

He wrote that the studies claiming aspirin is beneficial are seriously flawed, and interpretation of those studies is biased. In the years since Cleland's original research, there have been numerous studies pointing out aspirin's questionable benefit, as well as its sizeable risks.

More Science Showing Aspirin's Dismal Failure

In 2004, Dr. Cleland published the results of a new study (Warfarin/Aspirin Study in Heart Failure, or WASH) in the *American Heart Journal* in which he investigated antithrombotic strategies in 279 patients with heart failure. He found that the patients who received aspirin treatment actually showed the worst cardiac outcomes, especially

Previous Article

Story at-a-glance

- Scientific studies have failed to prove that low-dose aspirin offers safe and effective protection from cardiovascular disease, despite its vast popularity among physicians. Many studies suggest it may be doing more harm than good.
- Aspirin seems to change the way vascular events present themselves, rather than preventing them. The number of non-fatal events may be reduced, but there is an INCREASE in sudden deaths. Aspirin may conceal a cardiac event in progress.
- Aspirin can lead to serious medical problems such as ulcers, gastrointestinal bleeding, and kidney failure, among others.
- A better alternative to protect your heart is grounding yourself to the Earth (Earthing), which allows the transfer of free electrons into your body. This naturally reduces your blood viscosity or "thins your blood" and lowers your risk for heart attack and stroke.

Most Popular

1 NEW Urgent Warning to All Cell Phone Users
2 6 Ways to Shrink Your Belly (And 5 Don't Include Exercise!)
3 This Popular Procedure Tripled the Cancer Risk of 1.65 Million People Last Year
4 Used in Gardens Everywhere, This "Biodegradable" Product is Likely Carcinogenic
5 The BEST Way to Stop a "Beer Belly"

Related Links:

What OTC Drug May Have Killed More People in 1918 Flu Pandemic than Flu Itself?
Powerful Antioxidant Found Useful for Most

Common Cause of Death

The Hidden and Pervasive Cause of High Blood Pressure

worsening heart failure. Dr. Cleland concluded there was "no evidence that aspirin is effective or safe in patients with heart failure."

Then in 2010, another study[iii] looked into whether or not patients taking aspirin before an acute coronary syndrome (ACS) were at higher risk of recurrent problems or mortality. ACS is a term used for any condition brought on by sudden, reduced blood flow to the heart, such as a heart attack or unstable angina. The study found that patients who were taking aspirin showed a higher risk for recurrent heart attack and associated heart problems.

Thus far, aspirin's performance is quite unimpressive. But what about aspirin's benefits specifically for women? As it turns out, aspirin fares no better with women.

In 2005, Harvard conducted a study[iv] to investigate whether or not low-dose aspirin offered cardiovascular benefits for women. They followed nearly 40,000 healthy women for a full 10 years. Again, the results did not show any heart benefit from aspirin therapy; researchers concluded aspirin did NOT lower the risk of heart attack or death from cardiovascular causes among women.

Aspirin Never Proven Safe or Effective for Diabetics

Cardiovascular disease is a serious concern if you have diabetes, and a number of studies have set out to determine whether aspirin can offer a degree of protection. Three studies have shown the benefits to be either inconclusive, or nonexistent.

1. In 2009, a study in the *British Medical Journal*[v] found no clear evidence that aspirin is effective in preventing cardiovascular events in people with diabetes. Results differed between men and women, but overall, they found no clear benefit and called for more studies on aspirin's toxicity.

2. Also in 2009, a Swedish study[vi] examined the effects of aspirin therapy in diabetic patients. Researchers found no clear benefit that aspirin is beneficial for diabetics but did note that it can increase the risk for serious bleeding in some of them. They stated that the current guidelines for aspirin therapy should be revised until further study is done.

3. In 2010, a meta-analysis[vii] in the U.K. examined six trials consisting of 7374 diabetic patients, comparing the relative cardiac risks for aspirin users and non-users. They concluded, as did the other researchers, that aspirin did not reduce heart attack risk for diabetic individuals.

It's pretty clear that aspirin isn't all that it's cracked up to be when it comes to preventing you from having a heart attack. But is it doing any harm? Well, as it turns out, the answer is yes—in a number of possible ways.

Aspirin Increases Your Risk of Hemorrhage, GI Damage, and Several Other Problems

Routine use of aspirin has been associated with the following problems:

- Bleeding, especially in the gastrointestinal tract
- Duodenal ulcers, GI damage, and diverticular disease
- Increased risk of ER/PR-negative breast cancer in women
- Increased risk of kidney failure
- Cataracts, hearing Loss[viii] and tinnitus[ix]

In fact, there are studies listed on *Greenmedinfo*[x] showing aspirin's connection with 51 different diseases! The most well established side effect of aspirin is bleeding, which results from aspirin's interference with your platelets—the blood cells that allow your blood to clot. According to one scientific article[xi], long-term low-dose aspirin therapy may DOUBLE your risk for gastrointestinal bleeding.

You can certainly understand how a bleed is possible, given what is known about the effects aspirin has on your GI tract.

For example, a study[xii] done earlier this year investigated the effects of low-dose aspirin on the gastrointestinal tracts of healthy volunteers. After only two weeks, the group receiving aspirin showed "small bowel injuries" capable of interfering with blood flow (diagnosed upon endoscopic examination). And a 2009 Australian study[xiii] showed that aspirin causes gastroduodenal damage even at the low doses used for cardiovascular protection (80mg).

The damage to your duodenum—the highest part of your intestine into which your stomach contents pass—can result in duodenal ulcers, which are prone to bleeding. A Japanese study[xiv] found a higher incidence of bleeding at the ulcer cites of patients with duodenal ulcers taking low-dose aspirin therapy, versus those not taking LDA. More than 10 percent of patients taking low-dose aspirin develop peptic ulcers.

The risk of bleeding is particularly pronounced in the elderly, which is very concerning as the elderly are often put on aspirin prophylactically to protect against cardiovascular disease. With all of these adverse effects, why risk it when there are safer and more effective alternatives? One of those alternatives is a relatively new emerging field called Earthing—meaning, grounding your body to the Earth.

How Earthing can Affect Your Blood

Earthing may actually be one of the best-kept secret strategies for preventing blood clots. In its simplest terms, Earthing (or grounding your body) is what occurs when you walk barefoot upon the Earth. There is a transfer of free electrons from the Earth to your body. And these free electrons are probably some of the most potent antioxidants known to man. These antioxidants are responsible for the clinical observations seen in Earthing experiments, such as:

- Beneficial changes in heart rate
- Decreased skin resistance
- Decreased inflammation

Earthing has been shown to produce a number of health benefits, including decreasing pain and inflammation, improving sleep, and even slowing the aging process. One very important discovery, and one of the most recent, is that Earthing thins your blood, making it less viscous. This discovery could have profound implications for cardiovascular disease.

Virtually every aspect of cardiovascular disease has been correlated with elevated blood viscosity.

Earthing experts Dr. Stephen Sinatra and Dr. James Oschman measure blood viscosity using a method called zeta potential, which is a measure of how quickly your red blood cells migrate in an electrical field. When you ground to the earth, your zeta potential quickly rises, which means your red blood cells have more charge on their surface, forcing them away from each other.

Earthing causes your blood to flow more easily and your blood pressure to drop.

It follows then when your red blood cells become more electro native they are less inclined to stick together and form a clot. They actually repel each other similar to two magnets with the same pole.

Blood clots don't have to be very big to form a mass that could kill you instantly (such as pulmonary embolus), so this is an important part of lowering your risk for heart attack, stroke, and multi-infarct dementias, where you start losing brain tissue due to micro-clotting in your brain.

This is what many physicians erroneously believe low-dose aspirin is doing for you, and why it's so widely prescribed. The problem is, as you have seen from the studies summarized above, science just hasn't been able to prove that aspirin does what it was intended to do. Rather, studies show that aspirin has several dangerous side effects.

Other Recommendations for a Healthy Heart

The real key to preventing heart disease is to use a combined approach, one that treats all facets of your physical and emotional health. Make sure you are addressing the following lifestyle factors:

- Restrict your consumption of fructose to less than 25 grams per day. High sugar intake, especially fructose, is directly tied to cardiovascular disease.
- Avoid processed foods, preservatives, additives, artificial sweeteners and grains as much as possible, and eat a good proportion of your food raw. Make sure your diet contains abundant fresh organic vegetables and high quality protein.
- Incorporate a high quality animal based omega-3 fats into your diet to optimize your omega 6:3 ratio. An excellent animal source of omega-3 is krill oil.
- Make sure you are getting adequate vitamin D (ideally from sun exposure) and vitamin K, since both are necessary for good cardiovascular health.
- Be sure you're getting enough exercise, and the right kinds of exercise. I highly recommend taking a look at my Peak Fitness program.
- Optimize your sleep, which is essential for every aspect of your health.
- Optimize your body weight and composition, and keep an eye on your blood pressure, blood glucose and insulin levels, iron level and lipid profile.

References:

[i] Preventing Atherosclerotic Events with Aspirin, British Medical Journal, January 12, 2002: 324(103); 71, Dr. John G. F. Cleland.

[ii] Collaborative Meta-analysis of Randomised Trials of Antiplatelet Therapy for Prevention of Death, Myocardial Infarction, and Stroke in High Risk Patients, British Medical Journal, January 12, 2002: 324(7329); 71-86,

[iii] Prior Aspirin Use and Outcomes in Acute Coronary Syndromes, Journal of the American College of Cardiology, October 19, 2010: 56(17): 1376-85, Jonathan D. Rich, et al.

[iv] A Randomized Trial of Low-Dose Aspirin in the Primary Prevention of Cardiovascular Disease in Women, The New England Journal of Medicine, March 31, 2005: 352(13); 1293-304, Paul M Ridker, et al.

[v] Aspirin for Primary Prevention of Cardiovascular Events in People with Diabetes: Meta-Analysis of Randomised Controlled Trials,British Medical Journal, November 6, 2009: 339; b4531, Giorgia De Berardis, et al.

[vi] Aspirin Increases Mortality in Diabetic Patients without Cardiovascular Disease: A Swedish Record Linkage Study,Pharmacoepidemiol Drug Safety, December 1, 2009: 18(12); 1143-9, Lennart Welin, et al.

[vii] Role of Aspirin in the Primary Prevention of Cardiovascular Disease in Diabetes Mellitus: A Meta-Analysis, Expert Opinion on Pharmacotherapy, June 1, 2010: 11(9); 1459-66, Naveed Younis, et al.

[viii] Analgesic Use and the Risk of Hearing Loss in Men, American Journal of Medicine, March 1, 2010: 123(3); 231-7, Sharon G Curhan, et al.

[ix] Behavioral Assessment and Identification of a Molecular Marker in a Salicylate-Induced Tinnitus in Rats, Neuroscience, Feb 17, 2010: 165(4): 1323-32, K. Kizawa, et al.

[x] Aspirin Page, GreenMedInfo.

[xi] Aspirin for Primary Prevention of Cardiovascular Disease?, Drug and Therapeutics Bulletin, November 2009: 47(11); 122-5.

[xii] Evaluation of Small Bowel Blood Flow in Healthy Subjects Receiving Low-Dose Aspirin, World Journal of Gastroenterology, January 14, 2011: 17(2); 226-30, U. Nishida, et al.

[xiii] Gastroduodenal Toxicity of Low-Dose Acetylsalicylic Acid: A Comparison with Non-Steroidal Anti-Inflammatory Drugs, Current Medical Research and Opinion, November 2009: 25(11); 2785-93, Neville D Yeomans, et al.

Special Report

Nattokinase & Cardiovascular Health

Ralph E. Holsworth, Jr., D.O.

Fibrin is a protein that forms in the blood after trauma or injury. This is essential to stop excess blood loss. There are more than twenty enzymes in the body that assist in clotting the blood, while only one that can break the clot down (plasmin). Bacteria, viruses, fungi and toxins present in the blood also trigger an inflammatory condition resulting in excess cross-linked fibrin. Since there is no danger of blood loss and trauma has not occurred, this cross-linked fibrin will circulate through the blood and will stick to the walls of blood vessels. This contributes to the formation of blood clots, slows blood flow and increases blood viscosity contributing to the elevation of blood pressure. In the heart, blood clots cause blockage of blood flow to heart muscle tissue. If blood flow is blocked, the oxygen supply to that tissue is partially cut off (ischemia) which results in angina and heart attacks, or if prolonged, death of heart muscle (necrosis). Clots in chambers of the heart can mobilize to the brain, blocking blood and oxygen from reaching necessary areas, which can result in senility and/or stroke.[1]

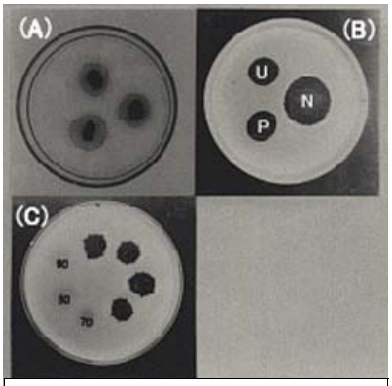


Figure 1

Thrombolytic enzymes (enzymes that break down blood clots) are normally generated in the endothelial cells of the blood vessels. As the body ages, production of these enzymes begins to decline, making blood more prone to coagulation. This mechanism can lead to cardiac or cerebral infarction, as well as other conditions. Since endothelial cells exist throughout the body, such as in the arteries, veins and lymphatic system, poor production of thrombolytic enzymes can lead to the development of blood clots and the conditions caused by them, virtually anywhere in the body.[7]

Figure 2

It has recently been revealed that thrombotic clogging (blood clots) of the cerebral blood vessels may be a cause of dementia. It has been estimated that sixty percent of senile dementia patients in Japan is caused by thrombus. Thrombotic diseases typically include cerebral hemorrhage, cerebral infarction, cardiac infarction and angina pectoris, and also include diseases caused by blood vessels with lowered flexibility, including senile dementia and diabetes. If chronic diseases of the capillaries are also considered, then the number of thrombus related conditions might be much higher. Cardiac infarction patients may have an inherent imbalance. Their thrombolytic enzymes are weaker than their coagulant enzymes. Nattokinase holds great promise to support patients with such inherent weaknesses in a convenient and consistent manner, without side effects. [1,6,7]

Discovery of a Fibrinolytic Enzyme

Dr. Hiroyuki Sumi, M.D. (a.k.a, Dr. Natto) a researcher of the Japan Ministry of Education and majoring in the physiological chemistry at the blood laboratory of the University of Chicago, had long researched thrombolytic enzymes. He was searching for a natural agent that could successfully dissolve thrombus associated with cardiac and cerebral infarction (blood clots associated with heart attacks and stroke). One day in 1980 Dr. Sumi took the natto that he was eating for lunch and dropped a small portion into the artificial thrombus (fibrin) plate (Figure 1). The natto gradually dissolved the thrombus and had completely resolved it in 18 hours! Dr. Sumi found that the sticky part of natto, commonly called "threads" (Figure 2), exhibited a strong fibrinolytic ("blood clot busting") activity. He named the corresponding fibrinolytic enzyme "nattokinase". Dr. Sumi commented that nattokinase showed "a potency matched by no other enzyme." [1,7]

Dr. Sumi conducted research on about 200 kinds of food from all over the world, and he found that natto had the highest fibrinolytic ("blood clot busting") activity among all those foods. There are many traditional foods for the prevention and treatment of thrombosis (e.g., azuki beans, Korean ginseng, Japanese water dropwort) but most of these foods inhibit platelet aggregation

Index

similar to aspirin. Only nattokinase acts only on the fibrinolytic system to dissolve thrombi within the blood vessels. In 1986, Dr. Sumi presented the results of his research in Japan for the first time at the Japan Agricultural Chemistry Society. Later he wrote a similar article for the International Thrombolytic Association where the audience began to believe that the dietary intake of natto was the major contributor to the longevity of Japanese people.

The Proof is in the Pudding

Nattokinase has been the subject of 17 studies, including two small human trials. Dr. Sumi and his colleagues induced blood clots in male dogs, then orally administered either four capsules of nattokinase (250 mg per capsule) or four placebo capsules to each dog. Angiograms (Figure 3) revealed that the dogs who received nattokinase regained normal blood circulation (free of the clot) within five hours of treatment. Blood clots in the dogs who received only placebo showed no sign of dissolving in the 18 hours following treatment. [1,3]

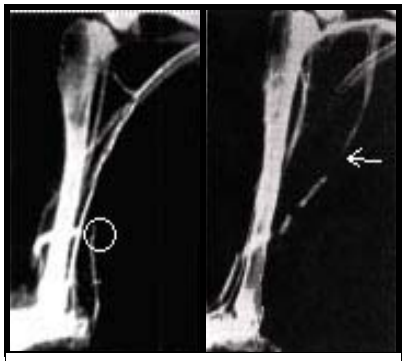


Figure 3

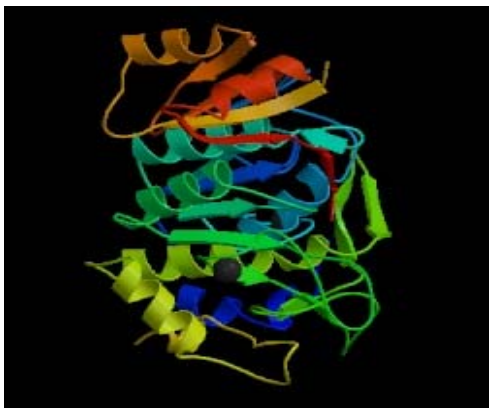
Researchers from Biotechnology Research Laboratories and JCR Pharmaceuticals Co. of Kobe, Japan, tested nattokinase's ability to dissolve a thrombus in the carotid arteries of rats. Animals treated with nattokinase regained 62 percent of blood flow, whereas those treated with plasmin regained just 15.8 percent of blood flow. [1]

Researchers from JCR Pharmaceuticals, Oklahoma State University, and Miyazaki Medical College tested nattokinase on 12 healthy Japanese volunteers (6 men and 6 women, between the ages of 21 and 55). They gave the volunteers 200 grams of natto (the food) before breakfast, then tracked fibrinolytic activity through a series of blood plasma tests. The tests indicated that the natto generated a heightened ability to dissolve blood clots. On average, the volunteers' ELT (a measure of how long it takes to dissolve a blood clot) dropped by 48 percent within two hours of treatment, and volunteers retained an enhanced ability to dissolve blood clots for 2 to 8 hours. As a control, researchers later fed the same amount of boiled soybeans to the same volunteers and tracked their fibrinolytic activity. The tests showed no significant change. [1,3,6]

At Tottori University in Japan, nattokinase therapy is used for treatment of diseases causing thrombosis of the eye grounds with patients who become blind after a blood clot hinders blood flow and weakens the ophthalmic nerve (i.e., vena centralis retinae atresia). Venograms confirm the thrombi, dilation of veins and hemorrhage and subsequent resolution of the eye ground in patients with vena centralis retinae atresia. Patients regained their eyesight within 10 days and no abnormalities observed after 2 months.

Conclusion

Nattokinase is a particularly potent treatment because it enhances the body's natural ability to fight blood clots in several different ways and has many benefits including convenience of oral administration, confirmed efficacy, prolonged effects, cost effectiveness, and can be used preventatively. It is a naturally occurring, food dietary supplement that has demonstrated stability in the gastrointestinal tract. The properties of nattokinase closely resemble those properties of plasmin so it dissolves fibrin directly! More importantly, it also enhances the body's production of both plasmin and other clot-dissolving agents, including urokinase (endogenous). Nattokinase may actually be superior to conventional clot-dissolving drugs such as recombinant tissue plasminogen activators (rt-PA), urokinase, and streptokinase, which are only effective therapeutically when taken intravenously within 12 hours of a stroke or heart attack. Nattokinase, however, may help prevent the conditions leading to blood clots with an oral daily dose of as little as 2,000 fibrin units (FU) or 50 grams of natto.

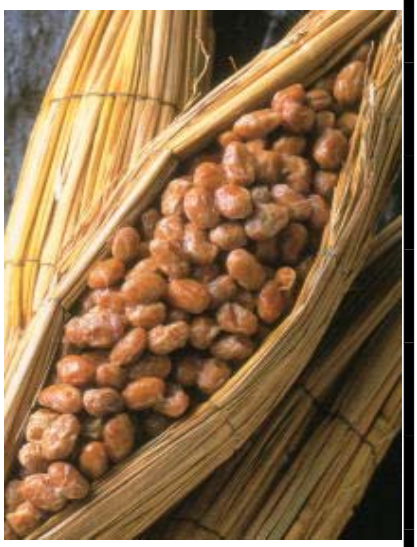


Nattokinase Enzyme

Natto, The Food of Warriors

Ralph E. Holsworth, Jr., D.O.

Say It Ain't Soy! Yes, but this soybean is different! What makes it different is simple. After hours of fermentation, the boiled soybeans metamorphose to an ancient medicinal food called "natto" pronounced "nah'-toe". Natto may just be the "perfect food" producing 18 valuable amino acids and an enzyme nattokinase that may challenge the pharmaceutical industry's best "blood-clot busters". Natto, which has recently attracted attention throughout the world, is the third most popular type of fermented soybean in the Japanese diet. Japan has the highest average longevity in the world, which may partly be attributed to a high consumption of natto.



When compared with ordinary soybeans, the natto produces more calories, protein, fiber, calcium, potassium and vitamin B_2. Its high protein and economical price in terms of protein per gram has earned it the sobriquet "hata-ke no niko," or meat of the field. This nickname appears well deserved, as in comparison with an equivalent amount of beef, natto has slightly less protein (16.5 grams to 21.2 grams), but contains more carbohydrates and fiber, and is also higher in calcium, phosphorous, iron and vitamin B_2. Plus, it has nearly double the calcium and far more vitamin E to boot.

According to legend, the first person to originate traditional Japanese natto was the famous warrior Yoshiie Minamoto during the Heian era of Japanese history (794-1192 A.D.). The horse was an extremely important to the Japanese samurai warrior of the period and great care was given to provide suitable provisions for the horses when armies were on the move. Typically, boiled soybeans were cooled down, dried in the sun and packed immediately in rice straw bags for transport with the army. If the army was on a rapid deployment, the boiled soybeans were packed hastily into the rice straw bags without cooling or drying. The rice straw just happened to contain a harmless and naturally occurring microorganism, Bacillus subtilis that fermented the soybeans and produced natto with its characteristic sticky texture.

Initially, the soybeans were presumed to have spoiled until Yoshiie Minamoto observed that his horses were "picky eaters" and demonstrated a preference for the "spoiled" soybeans or natto. One day, Minamoto demonstrated tremendous courage and dipped his finger into the seemingly "rotten goo". To his astonishment, the fermented soybeans were not only edible but had a distinct Umami flavor. Mimamoto was responsible for introducing natto to northwestern Japan where he ruled. To this day natto is especially popular in that region of Japan and a folk remedy for fatigue, beriberi, dysentery, heart and vascular diseases.

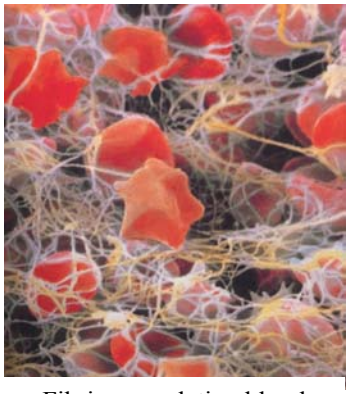
The most distinctive features of natto are the adhesive surrounding the soybeans and the strong flavor. The sticky material has been shown to consist of poly-g-glutamic acid (D and L) and polysaccharides (levan-form fructan) and the strong "cheese-like" flavor is due to the presence of pyrazine. These features sometimes make it hard for some people, especially people from other countries, to accept natto; however, these are the main factors which give natto the outstanding properties. Natto, which has recently attracted attention throughout the world, is a familiar part of the Japanese diet.

Dr. Ralph E. Holsworth, Jr., D.O. is a board-certified Osteopathic Family Medicine Physician. He has been practicing as a family medicine physician with emphasis in functional and integrative medicine for over five years. Dr. Holsworth has had a specific interest in systemic enzyme therapy for ten years and assisted in clinical and laboratory research. He is serving on the medical staff of Mescalero Public Health Service Indian Hospital in Mescalero, New Mexico.

Technical Aspects of Nattokinase

Nattokinase produces a prolonged action in two ways: it prevents the formation of thrombi and it dissolves existing thrombus. Nattokinase orally administrated to twelve healthy adults indicated elevations of the breakdown products of the fibrin and the ability of the blood to breakdown fibrin called euglobulin fibrinolytic activity (EFA). These results suggest the ability of Nattokinase to accelerate fibrinolysis in the blood for a prolonged period of time. FDP levels in the adults drastically increased 4 hours after the administration of the nattokinase indicating that fibrin within the blood vessels is gradually being dissolved with repeated intake of nattokinase. By measuring EFA & FDP levels, the activity of nattokinase has been determined to last from 8 to 12 hours. An additional parameter for confirming the action of nattokinase following oral administration is a rise in blood levels of tissue plasminogen activator (TPA) antigen, which indicates a release of TPA from the endothelial cells and/or the liver and the endogenous production of plasmin (the body's blood clotting buster).[6, 7]

In 1995, researchers from Miyazaki Medical College and Kurashiki University of Science and Arts in Japan studied the effects of nattokinase on blood pressure in both animal and human subjects (see below). In addition, the researchers confirmed the presence of inhibitors of angiotensin converting enzyme (ACE) within the test extract, which consisted of 80% ethanol extract of lyophilized viscous materials of natto. ACE causes blood vessels to narrow and blood pressure to rise - by inhibiting ACE; nattokinase has a lowering effect on blood pressure. [1,2]



Fibrin coagulating blood

The same natto extract was then tested on human volunteers with high blood pressure. Blood pressure levels were measured after 30 grams of lyophilized extract (equivalent to 200 grams of natto food) was administered orally for 4 consecutive days. In 4 out of 5 volunteers, the systolic blood pressure (SBP) decreased on average from 173.8 $\pm$ 20.5 mmHg to 154.8 $\pm$ 12.6 mmHg. Diastolic blood pressure (DBP) decreased on average from 101.0 $\pm$ 11.4 mmHg to 91.2 $\pm$ 6.6 mmHg. On average, this data represents a 10.9 percent drop in SBP and a 9.7 percent drop in DBP.[1,2,6]
(See page 8)

References:

1.Natto-Traditional Japanese Fermented Soy Beans with Recently Discovered Health Benefits and Novel Industrial Applications, Enzyme Wave, Volume 3, June 2002, Amano Enzyme, Inc., page 2-4.

2. Prevent Heart Attack and Stroke with Potent Enzyme that Dissolves Deadly Blood Clots in Hours. Health Sciences Institute, March 2002.

3. Maruyama M, Sumi H. Effect of Natto Diet on Blood Pressure. JTTAS, 1995.

4. Sumi H, Hamada H, Nakanishi K, Hiratani H. Enhancement of the fibrinolytic activity in plasma by oral administration of nattokinase. Acta Haematol 1990;84(3):139-43.

5. Sumi H, Hamada H, Mihara H. A novel strong fibrinolytic enzyme (nattokinase) in the vegetable cheese "natto." International 5. Journal of Fibronolysis and Thrombolysis. Abstracts of the ninth international congress on fibrinolysis, Amsterdam, 1988, Vol.2, Sup.1:67.

6. Sumi H, Hamada H, Tsushima H, Mihara H, Muraki H. A novel fibrinolytic enzyme (nattokinase) in the vegetable cheese Natto; a typical and popular soybean food in the Japanese diet. Experientia 1987, Oct 15;43(10):1110-1.

7. Sumi H. Healthy Microbe "Bacillus natto". Japan Bio Science Laboratory Co. Ltd.

Glossary of Terms

Cardiac Infarction: Heart attack.

Cerebral Infarction: Stroke.

Endogenous: Produced in the body.

Exogenous: Derived from outside the body.

Fibrin: A whitish, filamentous protein formed by the action of thrombin on fibrinogen and makes up part of coagulum or blood clots.

Fibrinolytic: Pertaining to or causing the breaking up of blood clots.

Infarction: Cardiac or cerebral tissue death due to failure of blood supply to the area usually caused by a blood clot.

Plasmin: An endogenously produced fibrinolytic enzyme.

Plasminogen: A precursor to plasmin. A protein found in many tissues and body fluids.

Thrombus: A blood clot that obstructs a blood vessel or a cavity of the heart.

Thrombolytic: Pertaining to or causing the breaking up of a thrombus.

TPA: Tissue plasminogen activator.

t-PAs: The most commonly used thrombolytic drugs including activase, urokinase, and streptokinase.

Urokinase: An endogenously produced thrombolytic enzyme & also a commonly used thrombolytic drug given intravenously to cardiac and cerebral infarction patients.

BLOOD Is Thicker than Water

By Ralph E, Holsworth, Jr., D.O.

Massive research efforts and numerous hypotheses have failed to identify the initiating event of atherosclerosis. Why atherosclerosis develops is significantly more important than how it progresses. To that end, the evolutionary approach to the origin of atherosclerosis is presented and explained based upon the biophysical properties of the blood and their interrelationship with the blood vasculature.

Historically, cardiovascular research has focused on a biochemical approach to atherosclerosis. The results have been a very detailed and accurate histopathology of atherosclerosis, starting with the histological manifestations of fat-laden cells in the intima to the complex series of mechanisms.

However, any theory that embraces only a biochemical, genetic, or environmental perspective leaves many questions unanswered. These question include the following:

- Why are the arteries leading to the heart and brain so susceptible to atherosclerosis?
- Why do we not observe atherosclerotic plaques in the intramyocardial coronary arteries, the arteries of the arms or breasts, or in the veins?
- Why do people with “normal” blood pressure and “normal” cholesterol still have heart attacks?
- Why do men develop cardiovascular diseases at a younger age than do women, especially premenopausal women?
- Why is there a pattern of increased heart attacks in the morning hours (Cannon et al. 1997, Cohen et al, 1997)?

There are simply too many questions that cannot be resolved by applying only current biochemical theories. The fundamental shortcoming of current biochemical theories is that they do not identify the initiating event that precedes endothelial injury (both denuding and nondenuding).

The absence of a theory to appropriately account for the initiating causal factors or factors in atherosclerosis is an unsettling on an individual and societal level. The cost to the United States in medical care and lost productivity due to cardiovascular diseases is estimated at $298 billion for 2001 (American Heart Association).

An Evolutionary Approach to Atherosclerosis

First, we recognize the human vasculature is a dynamic "organ" that responds to all intrinsic and extrinsic stimuli. Second, we believe that the damaged intima, the lesions, and the occlusions in the vascular system are secondary responses to another event.

The proposed event of mechanical injury as the initiator of the vessel wall injury stems from these shifts in perspective. First, certain types of blood flows may cause mechanical damage to the vasculature. These types of blood flows are referred as *injurious pulsatile flow*. Second, in response to this mechanical injury, the vasculature develops plaques and abnormalities in the vessel wall in a predictable pattern. The presentation of these various mechanisms in a unified concept is called *the protective adaptation theory*. The protective adaptation theory (Kensey and Cho 1992, Kensey and Cho 1994) provides the missing link, particularly in events preceding lesion development, where current biochemical theories cannot account for the mechanisms.

The "Why" of arteriosclerosis and atherosclerosis is eloquently explained by the bellwether work of The Protective Adaptation Theory. Endothelium injury is caused by a high-intensity stimulus over a short period of time, i.e., a coronary artery stent placement. Stress is caused by a low-intensity stimulus over a long period of time, i.e., a callus is a standard adaptation of the skin to stress. A key difference between protective adaptation to stress and to injury is that protective adaptation to stress is usually reversible.

Fluid Mechanics and Hemodynamics

Blood behaves very differently in our circulatory system than water flowing in pipes. First of all, blood has a higher viscosity (thickness) than water. Increased blood viscosity and blood flow is pulsatile and the flow rate varies with time. The reason for the pulsatile flow is two-fold, a resultant of the ejection portion of the cardiac cycle and because the arterial wall is elastic. The arterial system is not a straight pipe with its many bifurcations and bends. Pulsatile blood flow imparts energy into the arterial system that is stored partially in the blood vessels.

The protective adaptation process theory organizes the arterial system's adaptative process into two cycles, both of which originate from the mechanical stresses in the system. The first cycle is the region-specific development of arteriosclerosis, a condition in which the arteries have lost their compliance (elasticity). The second cycle is site-specific development of atherosclerosis in arteries that lost their compliance in cycle one. Although, arteriosclerosis is a precursor to atherosclerosis, the two cycles develop synergistically and reinforce each other in a vicious circle.

Arterial occlusive disease results from a protective response to mechanical stress and injury, a futile effort to maintain the integrity of the vessel.

Region-Specific Protective Adaptation: Arteriosclerosis

At birth, arteries are extremely compliant and stretchable, but over a lifetime these characteristics decrease as a result of the changes in wall tissue structure. The loss of compliance has been defined as medial arteriosclerosis. The changes of compliance in the arterial wall is an adaptative response to the stretching and stress of high arterial pressure, which causes extended, repeated overstretching of the arteries.

Site-Specific Protective Adaptation: Atherosclerosis

Atherosclerosis is an adaptive response that leads to arterial occlusive disease. Starting as a response to the mechanical injury of endothelial cells, atherosclerosis occurs at very specific sites in the arterial system. These frequency of atherosclerosis in these specific sites correlates with their exposure to injurious systolic pressures and repeated stretch-recoil processes. This explains our first question of, "Why the arteries leading from the heart and brain are so susceptible to atherosclerosis?"

Whole Blood Viscosity – The Start of The Pathogenesis

Viscosity represents the stickiness and thickness of blood. It is the frictional resistance to blood flow. So as blood viscosity increases, blood flow decreases assuming that the heart maintains the same systolic pressure. In order for the heart to maintain the same cardiac output, the systolic pressure must increase as the whole blood viscosity increases. Elevated blood viscosity contributes to the arteriosclerosis, atherosclerosis and increased peripheral vasculature resistance. Increased vasculature peripheral resistance results in hypertension and an increased left ventricle requirement to work harder. Eventually the atherosclerosis narrows the lumens in the vascular and the blood pressure gradients increase inversely proportional the 4^{th} power of the lumen's decreased diameter size. Only 25-35 % of the left ventricular ejection flows directly to the peripheral vessels from the arterial system to the veins. As blood viscosity and peripheral vasculature resistance increases, an even large volume remains a "pulsatile mass" hammering the arterioles (greatest pressure gradient) very similar to the "water hammer" in water supply lines.

Get The Fibrinogen Out!

Fibrinogen is a major determinant of both plasma and whole blood viscosity. One of the logical and practical ways to reduce whole blood viscosity is to remove fibrinogen from the blood. Lowering fibrinogen levels limits red cell aggregation and reduces whole blood viscosity and plasma viscosity, especially at lower shear rates (Ehrly 1973).

Natto, made from fermented soybeans, is a traditional Japanese food. Many people enjoy it for its distinctive flavor, enlivened by the activity of ***Bacillus subitilis***. Natto has a long history, and some have theorized that it may even have a prehistoric origin, possibly circa B. C. It has at least been ascertained that natto has been popular since the Edo period, 400 years ago. Originally, natto was utilized as a folk remedy for heart and vascular diseases, fatigue, and beriberi. In 1980, Dr. Hiroyuki Sumi et al. found that natto contains a potent fibrinolytic enzyme, which they named nattokinase.

It was confirmed that oral administration of nattokinase (or natto) produced a mild and frequent enhancement of the fibrinolytic activity in the plasma, as indicated by the fibrinolytic parameters, and the production of tissue plasminogen activator. Nattokinase capsules were also administered orally to dogs with experimentally induced thrombosis, and lysis of the thrombi was observed by angiography (Sumi 1990). It was shown that the oral administration of natto and nattokinase enhance the fibrinolytic activity in plasma. A shortening of euglobulin lysis time (ELT) and an elevation of EFA were found for a long time (from 2 to 8 hr) after a single administration of natto ($p<0.01$) (Sumi 1989).

Conclusion

Nattokinase may prove to be a defibrinogenating enzyme that drastically decreases blood viscosity. Decreasing blood viscosity strikes at the root of arteriosclerosis and atherosclerosis as well as hypertension, peripheral vascular disease and congestive heart failure. The fibrinolytic activity of nattokinase resolves the active process of atherosclerosis and lyses thrombi. The per oral administration, prolonged half-life of 4-6 hours and extremely safe profile show favorably upon nattokinase as the key agent for restoration of vasculature health.

EFFECT OF NATTO DIET ON BLOOD PRESSURE

Masugi MARUYAMA and Hiroyuki SUMI*
Department of Physiology, Miyazaki Medical College, 5200 Kihara, Kiyotake-cho, Miyazaki-gun, Miyazaki 889-16, JAPAN, *Department of Physiological Chemistry, Science & Industrial Technology, Kurashiki University of Science and Arts, 2640 Turagima-cho-Nishinoura, Kurashiki-shi, Okayama 712, JAPAN
Basic and Clinical Aspects of Japanese Traditional Food Natto, 1-3, 1998

In Japan, it is said that taking Japanese traditional fermented soybean, natto, tends to lower the blood pressure. In spite of the knowledge, there has been almost no evidence which proves the efficacy of natto diet on high blood pressure.

In the present study, we first demonstrated that some components of natto had a lowering effect on blood pressure, by administrating natto extract to human subjects and rats.

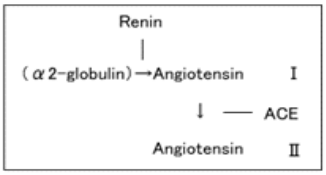


Fig.1 Renin-angiotensin system

We administered a 80% ethanol extract of lyophilize viscous materials of natto. It was reported that the extract contains inhibitors of angiotensin converting enzyme (ACE), which converts angiotensin□to its active form angiotensin (Fig. 1)[1,2].

Fig 2 shows systolic blood pressure (SBP) change after administration of 0.5ml of 80% ethanol extract (equivalent to 25 mg of viscous materials) into the peritoneal cavity of Wister rats (400-500 g, male). Average SBP of 6 rats was 166±14 mmHg before administration. After administration of the extract, SBP decreased significantly to 145±24 mmHg in 2 hours ($p<0.05$), and to 144±27 mmHg in 3 hours ($p<0.05$).

Fig 2

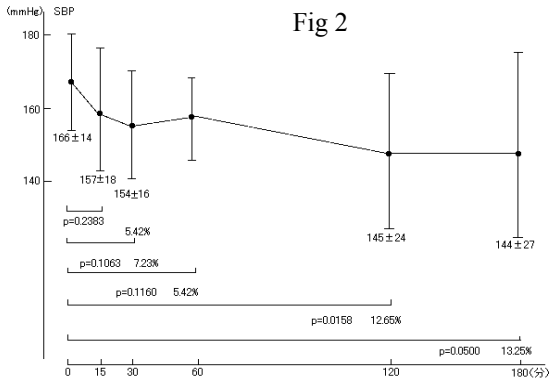
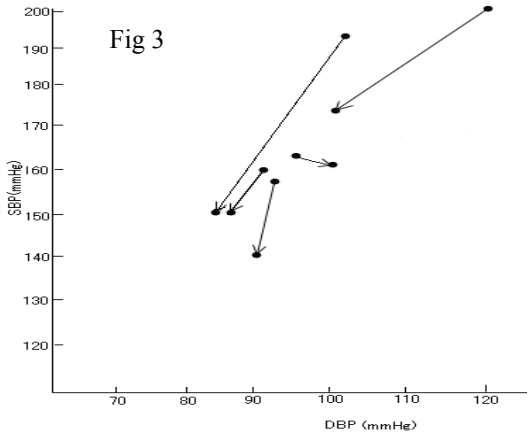


Fig. 3 shows the blood pressure change after oral administration of lyophilized product of 80% ethanol extract to human volunteers who had high blood pressure. Thirty grams of lyophilized extract (equivalent to 200g of natto) was administered per orally for 4 consecutive days. As shown in the figure, in 4 out of 5 volunteers, the SBP as well as diastolicblood pressure (DBP) decreased. The average values decreased from 173.8±20.5 mmHg to 154.8±12.6 in mmHg SBP and 101.0±11.4 mmHg to 91.2±6.6 mmHg in DBP.

For further confirmation of the blood pressure lowering effect of natto, we are going to increase the number of subjects and it is necessary to elucidate the mechanism of the action.

Fig 3



References

1)Hayashi W, Nagao K, Tosa S and Yoshioka Studies on Natto Science (Natto Kagaku Kaishi, Tokyo), 1: 83-93, 1977

2) Hanagata Y, Okamoto A, Koizumi Y and Yanagida T: Basic and Clinical Aspects of Japanese Traditional Food Natto, 1: 89-99, 1994

3) Guidebook of Model MK-1100, p. 1-12, 1994, Muromachi Co. LTD., Osaka