Your Premier Information Resource for Lone Atrial Fibrillation
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VIRTUAL LAF CONFERENCE

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SUBJECT: Nattokinase – Interim Survey

INTRODUCTION
This informal review is titled "Nattokinase" but, in reality, it is about clot prevention, and the use of oral systemic enzymes to break down fibrin, reduce inflammation and clean out blood vessels.

I have written a small book (and this is the 'short version') from a large collection of data. A reference section is included so those interested can continue with independent research, also a glossary at the end and a who's who directory in the field of oral systemic enzyme research and use. I'm sure there are many others. These are a few of the people most frequently writing on the subject. I corresponded with several who were kind enough to provide assistance. When I excerpt or quote, their name will be in ( ) and references are at the end. I've taken some license with form, footnotes and references to enable a quicker read.

This survey focuses mainly on the specificity of nattokinase (NK) and its ability to lyse (break down or dissolve) fibrin as it pertains to thrombi or clots. It is important to understand that the direct and indirect effects of NK occur ONLY in the plasminogen or fibrinolytic system which is a separate and independent pathway to the formation the thrombus. The coagulation cascade is not involved, and thus avoids deleterious effects of conventional thrombolytics and anti-platelet therapies. (Holsworth)

For the mechanisms of clotting, please refer to Hans' book, "Thrombosis and Stroke Prevention." Also, note the numerous pages on nattokinase.

As a review or a pre-amble, also refer to the Conference Room Session 24 "The Role of Cardiac Fibrosis". Many properties of proteolytic enzymes including nattokinase (NK) are described. Later, more was posted on the potential use of NK as an alternative to warfarin (Coumadin) and aspirin. As a result of that research, I began using systemic enzymes as suggested to help with fibromyalgia symptoms and later, after my post-ablation/ cardioversion clot, I began to use NK. http://www.afibbers.org/conference/session24.pdf

Immediately following this is a post on Anecdotal Testimonials.

CLARIFICATIONS AND PRECAUTIONS

For those with soy allergies, there are options that function similarly and well. They are included so keep reading. The concept applies to all fibrinolytic enzymes.

CAUTIONARY NOTE

Patients currently taking blood thinners such as Coumadin, Warfarin, Plavix should consult with their physicians to incorporate
NK into treatment plans. Any of the systemic enzymes that influence clotting ability should not be used without professional supervision. Several experts can and do work with patients' physicians to incorporate NK into Coumadin

dosing. Most conventional medicine doctors are not aware of this protocol.

Don't stop reading. In addition to the more potent systemic enzymes such as NK and serrapeptase (SP), there are other enzymes that are anti-inflammatory and also help prevent clotting. Read on to the end and consider all the options available.

TRAVEL AT YOUR OWN RISK – We are breaking new ground here. Traditional medicine is not prescribing NK as an alternative to Coumadin, although it is being used successfully (for several years now) by some of the professionals referenced, and several human studies are being conducted according to Drs. Holsworth and Gordon. It's only a matter of time before more studies are published. At present, there are two small human studies published in a total of 17 published on NK.

DISCLAIMER:
This survey is not intended to be construed as medical advice or instruction. It is intended to create awareness about options to prescription blood thinners and aspirin and to add one more natural adjunct to the arsenal we already have in Hans Larsen's books.

BRIEF REVIEW/HISTORY
Nattokinase is a potent, fibrinolytic enzyme extracted and highly purified from a traditional Japanese food called Natto. Natto is a fermented cheese-like food used in Japan for over a thousand years for its popular taste and as a folk remedy for heart and vascular diseases. NK is produced from combining boiled soybeans and a beneficial bacteria (Bacillus subtilis natto). Nattokinase is the enzyme produced by the resulting fermentation reaction.

Hiroyulki Sumi, MD, while working as a researcher and majoring in physiological chemistry at Chicago University Medical School, discovered NK in 1980. He tested 173 natural foods as potential thrombolytic agents before announcing that NK showed a "potency matched by no other enzyme." Dr. Sumi is often called, Dr. Natto.

It is possible to achieve the same therapeutic effects from the food, "natto", as from the enzyme, nattokinase. The use of natto, the cheese food, as a folk remedy for heart and cardiovascular disease has been well established. It is a particular favorite of Asians and others have also cultivated a taste for it. Most agree, however, it is not a palatable dish and the odor is difficult to overcome. In the US, some Asian markets carry natto which is very inexpensive. Natto is a sticky, smelly, lumpy bean dish to the culturally uninitiated.

While soy food does contain a variety of enzymes, it is only the natto preparation that contains the specific nattokinase enzyme. Unfermented soy products such as tofu or soymilk do not contain nattokinase. (Lam) For clarity, this discussion is only on the enzyme, nattokinase, not on natto, the food, although there is a small section on the food, natto.

Nattokinase is in the family of oral systemic (metabolic) enzymes—and when uses apart or separate from meals, (not used specifically as digestive enzymes), many are effective in a variety of conditions involving fibrotic conditions, such as in adhesions and scar tissue from surgery or injury, or that seen in atherosclerotic plaques as well as reducing inflammation, pain and hypertension.

Nattokinase works by optimizing the blood's fibrinolytic properties and the production of plasma fibrinogen concentration; these play a critical role in determining blood viscosity and red blood cell aggregation.

THE SURVEY FOCUS

The focus is the use of NK as a safe, viable alternative with anti-clotting properties as a blood-thinner for preventive measures and substitute for warfarin (Coumadin) or daily aspirin in LAF patients with no risk factors. (In other words, a preventive measure before it becomes a mandate by the physician.) This means:

· Diagnosis of LAF with no underlying structural heart defects
· No other stroke risk factors – as in previous stroke, heart attack, diabetes, clotting dysfunctions
· Under age 75 – as indicated by AHA guidelines

· This does not mean patients currently using warfarin and Coumadin should stop and switch to NK… that is a decision to be made with the patient's physician.
· But, it is a healthy alternative for any health-conscious individual wishing to use a natural therapy to prevent blood clotting and reduce inflammation. LAF is not a prerequisite.

NATTOKINASE EFFECT ON FIBRIN/BLOOD CLOTS

"Over the years, a significant amount of medical research has been performed on enzymes and their use for circulatory and cardiovascular health. Scientists worldwide have found that vascular and circulatory disorders respond extremely well to systemic oral enzymes." Gordon (1)

"A clot or thrombus forms when platelets and red blood cells clump together. It is the blood protein, fibrin, that "glues" them together. Fibrin is formed at the site of a clot from the soluble circulating protein, fibrinogen. If the clot form at the site of a broken or cut blood vessel, it is appropriate, even lifesaving. If the clot forms inside a blood vessel in the absence of a wound or trauma, it is unnecessary, even life-threatening, since it may plug up a crucial heart or brain artery.

There are more than 20 enzymes involved in the coagulation cascade that creates clots, but only one enzyme – plasmin – that can dissolve fibrin and thus, break up small clots. Plasmin is a thrombolytic (clot-dissolving) enzyme and is made from plasminogen through the action of an enzyme, tissue plasminogen activator (TPA).

Natural, thrombolytic enzymes are produced in blood vessel linings, and their production decreases with age. Even in healthy people, fibrinogen levels rise by 25 mg/dl per decade. There are several pathways by which acute or chronic increase in fibrinogen levels can lead to a cardiovascular (or cerebrovascular) event including increased platelet aggregation and thrombus formation, and increased fibrin formation.

In other words, high fibrinogen levels tend to promote the spontaneous formation of unnecessary fibrin clots. High fibrinogen (and consequently, high fibrin) levels are a serious risk factor for heart attacks and strokes." South(2)

" Underlying connective tissue weakness due to nutritional deficiencies and dysfunction of the endothelium gives rise to inflammatory and repair mechanism. Once initiated, this pro-inflammatory/pro-oxidative process is not only the underlying process of atherosclerosis and vascular dysfunction, but also causes a propensity to thrombi and thrombo-emboli.

In general, once damage has occurred to the blood and blood vessels, the process of coagulation and clotting involve the following: Damaged, weakened or traumatized blood vessel or blood vessel wall, as initiated by nutritional deficiencies, trauma, and/or infection (can be chronic or acute)> Prothrombin Activator> Catalyzes the conversion of prothrombin to thrombin> Thrombin acts as an enzyme to convert fibrinogen into fibrin fibers > Fibrin fibers cause clotting. The final clot is composed of a meshwork of fibrin fibers, running in all directions and entrapping blood cells, platelets and plasma.

Normally, the body has its own anti-coagulants, which are able to keep balance between the pro-coagulants, allowing for repair and healing, but not overshooting to cause pathological mechanisms. However, chronic nutritional deficiencies, infection, cell senility, and/or trauma can overwhelm the body's endogenous coagulation homeostasis, resulting in thrombus and emboli.

Although it is extremely important to treat the underlying cause, such as replenishing the necessary nutritional factors to allow for the formation and repair of healthy connective tissue and to support proper endothelial function, often immediate and acute modulation of a decompensated clotting system is needed. Until now, the only tools available to target a decompensated clotting system were potent pharmaceutical agents ("clot busters") with known serious side effects.

Now, however, an ideal candidate appears to be Nattokinase, which can safely accomplish this task in many instances.

It is interesting to note that (studies show) oral Nattokinase (NK) is more effective than Plasmin in dissolving thrombi. Research indicates that the mechanisms of Nattokinase stems from its close resemblance to endogenous plasmin; it

appears to be able to dissolve fibrin directly and it may enhance the body's own production of plasmin. Furthermore, Nattokinase appears to have ACE (Angiotensin Converting Enzyme) Inhibitor activity and in studies has been able to lower Systolic Blood Pressure up to 11% and diastolic pressure up to 9.7%." Calvino (3)

"Nattokinase acts much like plasmin and gently up-regulates the body's anti-clotting pathways so when patients have thick blood in the morning, their body's ability to dissolve incipient clotting is greatly increased. In studies, we have high-resolution images of NK literally eating away artificially-induced canine blood clots. NK is more potent and economically feasible than any current thrombolytic agent including urokinase.

It's a two-pronged attack, as it dissolves fibrin, it so gently (yet effectively) up-regulates the body's own anti-clotting mechanisms. I'd rather see patients taking nattokinase and literally chewing away presumptive blood clots than meeting them later inside the confines of a hospital ICU after a heart attack or stroke…and that's what nattokinase excels at, keeping my patients out of hospital ICUs. NK is more potent than the clot busting drugs we use there; yet, paradoxically, it is completely safe." Gordon (1)

….. "But the fibrin is the thing…. I want to make it very clear that the fibrinogen, which we all know is a risk factor, goes up whenever C-reactive protein goes up and it goes up specifically where infection is most active. Fibrinogen is the late-phase marker of inflammation. And then it goes in the direction of a thrombus or a blood clot, so we need anti-inflammatory enzymes (like Wobenzym N) to get our C-reactive protein levels down to a healthy range." Gordon (1)

…"We have nattokinase to help break up that thrombus, if it does go that far, and help break it into fibrin-degradation products. We know it is safe, thanks to the great clinical work that Ralph Holsworth, DO is doing now in New Mexico. We've already done about one million dollars worth of studies on it, so here you have something that's backed by research that shows it would work in stroke, angina, venous stasis, thrombosis emboli, atherosclerosis, fibromyalgia, fatigue, claudication, retinal pathology, hypertension, diabetes, deep vein thrombosis and arterial embolism." Gordon (1)

INTRO SUMMARY

It is clear to me the approach to avoiding strokes and heart attacks is by preventing inflammation which is the initiator of the whole cascade of contributory conditions…including oxidized LDL, elevated CRP, elevated fibrinogen, and elevated homocysteine. While nattokinase and serrapeptase have these properties, they are aimed more specifically or have a specificity toward breaking down and preventing clots. The second prong of the approach to prevent or reduce inflammation would be through the use of other oral systemic enzymes with high propensities for reducing inflammation such as pancreatin, bromelain, papain, chymotripsin, trypsin, rutin…all contained in Wobenzym N.

Dr. Gordon works closely with Mucos Pharma of Germany and he has used this two pronged approach successfully in his practice. I'm convinced that it is important to use both a NK product and a product such as Wobenzym N which is the anti-inflammatory portion of the two pronged attack to control inflammation, clear out blood vessels, and prevent clotting.

I urge you to go to http://www.wobenzym.com/products.html - and at the right side of the screen… click to order the free CD by Dr. Gordon. This explains the importance of controlling inflammation and how Dr. Gordon uses it in his practice. It's a very valuable piece of free information.

The products I currently use and recommend are Naturally Vitamins NK 1500 and Wobenzym N….both available through Hans Vitamin Website. These are economical, proven, and enteric coated.

I also have a supply of Vitalzym (serrapeptase) and use a few of those as well. Note my personal testimonial in the Testimonial Section following this post as a separate entry

I should mention, I have no affiliation with any of the bottlers of supplements or any of the doctors providing data. Jackie

INTESTINAL ABSORPTION OF ORAL SYSTEMIC ENZYMES

Let's begin with a matter of controversy that surfaced when NK originally was presented on this forum last year… that of absorption through the intestinal wall and actually having a therapeutic effect.

While previous teachings were that it would be impossible for an enzyme such as NK to pass the intestinal wall and enter the blood stream, it has been studied and proved that indeed, this is the case. Dr. Holsworth indicates numerous studies validate the GI absorption of NK, pH, pI and temperature stability and this is well researched and documented via alpha-2 macrogloublin. Allergy Research Group publishes in their NK data sheet that research has shown NK is absorbed from the intestinal tract and degrades plasma fibrinogen. (11/02)

"Many scientists and physicians in the US still believe that enzymes are too big to pass through the intestinal tract and get into the blood stream intact. For those late bloomers here in the States – there are over 200 peer reviewed medical and university studies proving beyond the shadow of a doubt, not only the absorption of enzymes, but their medical therapeutic actions". Wong (4)

Refer to the professionals listed at the end They all work with systemic oral enzymes and are achieving the results expected. Further, laboratory testing to measure the resulting fibrin degradation products is one method of measuring how much fibrin is dissolved; blood values for fibrinogen reduction and viscosity are others being evaluated. And last, there are testimonials both personal and published on the efficacy. This brings up the topic of the necessity for enteric coating.

ENTERIC COATING – Essential requirement

I've read a dozen product labels, talked with three NK bottlers, and read a huge number of publications on NK. Because of the fragility of the enzyme which needs to survive stomach acid in order to be absorbed in the small intestine and have therapeutic value, any supplement form should be enteric coated. I've learned the following facts:

1) Some NK and some Serrapeptase does not need to be enterically coated if the enzymes have been cultured to be acid- and heat- resistant. However, many bottlers of enzyme products don't actually know whether the enzymes are acid resistant or enterically coated as a powder. Some bottlers use enteric coating. Those using tablets face the issue of heat in the tableting process destroying the enzyme. In Germany, where Wobenzym is made as a tablet, the presses are water cooled.

2) There are only 2 or 3 raw enzyme material suppliers in the US and most who sell enzyme products get their enzymes from one of those three.

3) Of the three, only Specialty Enzyme of Chino, CA, grow and culture their own enzymes. Other raw material suppliers buy enzymes on the open market and are not completely sure of their quality. Specialty Enzyme is the leading producer in the world and even Mucos Pharma (Germany) makers of Wobenzym get most of their enzymes from Specialty.

4) In the Vitalzym product, the most acid-sensitive enzyme is Serrapeptase and it is enteric coated as a powder.
(Items 1 – 4 - courtesy Wong)

5) All serrapeptase enzymes must be enteric coated one way or the other.

ENZYMES & DRUGS – COUMADIN, PLAVIX, HEPARIN

Warning: Once again, this can only be done with the supervision of your physician.

While Drs. Holsworth and Milner indicate they are dosing patients with both Coumadin and NK. Dr. Wong recommends using a combination of nattokinase and other highly fibrinolytic enzymes since they work better in combination (synergy) than alone. He says in Europe, there is a protocol of weaning, adding, and testing. He says they have done rather well getting patients off drugs and onto enzymes.

Dr. Wong also emphasizes the importance of keeping dehydration in check as well as keeping calcium down to no

more than 600 mg. a day and keeping vitamin K1 in check as well since these nutrients increase clotting factor. When combining enzymes and drugs like coumadin, protimes should be done weekly until a stable level of clotting time is achieved between the drug and the enzyme. (meaning you can't measure results from NK in protimes, but you can watch the PT and INR levels.)

COMBINATION NATTOKINASE & LOW-DOSE WARFARIN THERAPY

Experts agree that NK is remarkably safe and virtually non-toxic for use by people who are not already using anticoagulant-type drugs. However, if patients already are using warfarin, heparin or other anti-coagulant drugs, the use of NK might normalize the blood's coagulation properties, making the adjustment of medications necessary to prevent bleeding.

From Allergy Research Group – Focus -April 2003 -

"If a physician uses warfarin, he/she may consider using warfarin and NK together and titrate the warfarin downward to maintain a prothrombin time of 18 to 20 seconds," notes Ralph Holsworth, Jr., D.O., who is considered one of the nation's leading experts on NK ("I suggest this protocol for physicians who are uncomfortable with eliminating warfarin completely but who are interested in minimizing the negative effects of warfarin, and achieving the positive effects of NK.

This protocol could save thousands of patients from the harmful effects of warfarin …. Combination therapy with both warfarin and NK therapy can provide increased prophylaxis and minimize the negative attributes of solitary warfarin treatment above the standard of care."

Dr. Holsworth says he is often asked by colleagues if they can use NK to adjust their patients' prothrombin time and international normalized ratio with the natural supplement as they might with warfarin. However, he points out warfarin and NK "act on two separate and independent arms, coagulation cascade and plasminogen system, respectively" and that the contribution of NK "to thrombogenesis is not appreciated by the PT/INR test method."

ENZYMES & ASPIRIN

Short version: Don't use together. No need.

"Aspirin has its own set of problems regarding risk for hemorrhage. Aspirin does have significant complications with long-term risk. I advise my patients to use aspirin for short-term needs but always to keep in mind that it is at the top of the list for gastrointestinal tract complications, including micro-bleeding and ulcers. Enterically coated or buffered aspirin is no less irritating, claims from manufacturers, not withstanding. There is also a small but very real risk among aspirin users for hemorrhagic stroke. Aspirin is without a doubt an important and proven medical tool but NOT innocuous." (Gordon) 4

At the A4M Convention (December, 2004), mention was made of recent studies showing aspirin use linked to pancreatic cancer in women (NEJM) and increased incidence of macular degeneration (Opthalmology)

Also see Aspirin Withdrawal at www.drwong.us (Wong)

ENZYMES & OTHER NATURAL SUPPLEMENTS

There is no reason to reduce or eliminate the intake of supplements to help keep platelets "slippery" or reduce inflammation, such as Omega 3 fish oils, garlic, Ginkgo biloba, or vitamin E.

In the 5 decades of systemic enzymes use, alone and with other supplements, the only folks who have had a blood thinning problem with the enzymes are hemophiliac's and borderline hemophiliac's. No incidents of the blood becoming too thin have ever been reported with any enzyme even nattokinase. (Wong)

At the A4M Conference, I picked up an outstanding, 12-page article written by Michael Lam, MD, titled "Heart Disease Prevention – A complete Nutritional Approach." I was delighted to find it online as well. For anyone not wanting to go

the oral systemic route or for those wanting to enhance the enzymes, definitely, this is a good read. All of the natural anti-inflammatories are reviewed once again with explanations of the therapeutic actions. Note especially the Omega 3 fatty acids, Curcumin and Bromelain. Dr. Lam reviews the important indicators for assessing cardio vascular risk. It's worth printing for quick reference.

NATTOKINASE & ELEVATED LIVER ENZYMES

My research has not indicated elevated liver enzymes are a side effect… nor were they mentioned at all. However, Dr. Wong states that "99% of all patients will have no change in liver enzymes, while one or two people will have an elevation for a week or two which is physiologically meaningless."

ENZYMES & CORONARY ARTERY STENTS

Research currently being done is validating the clinically-seen effect of enzymes keeping stents open longer, (their life expectancy is 6 months), and opening both clogged arterial and micro circulation as well. With diabetic patients, for example, many have avoided lower extremity amputation when the enzymes lysed away fibrin blockages and arterial plaque restoring full circulation. We've seen the same with Peripheral Vascular Disease patients. (Wong)

FIBRINOLYTIC ENZYMES & ABLATION SCAR TISSUE

A major concern to me when reading how effective oral systemic enzymes are in breaking down or lysing scar tissue such as fibrosis, was the effect NK or other fibrinolytic enzymes might have on ablation scar tissue. I spoke with my EP, Andrea, Natale, MD, and he assured me that it would have no effect on the results of my ablation. The results depend on the destruction of the electrical signals across the gap junctions or pathways and not the scar tissue laid down.

SAFETY – TOXICITY ISSUES

In a nutshell-- NK is very safe as long as you have no clotting disorders. Toxicity tested up to 700 times the human physiologic dose yielded no toxicity in rodent studies.. Has been used safely as a food (from which the enzyme is derived) for over 1,000 years. Is self-limiting as to how much fibrinogen will be broken down in the body. Nattokinase can be used with Coumadin and other blood thinning drugs but only with supervision by a knowledgeable physician and with careful monitoring of INR because it is typically necessary to lower the dose of the drug when NK is added. Desirable effect, for sure.

Both the food, natto, and nattokinase is self-regulating and does not cause bleeding in excess as does heparin and coumadin. Levine (5)

Dr. Wong: "Scar tissue is protein tagged by the body as an exogenous tissue and enzymes work on eating away exogenous tissue.
The Nobel Prize for biology in 1999 (I believe) was won by the fellow who discovered and explained Protein Tagging. We have a 4- decade-plus history of the enzymes lysing away at ever decreased old scar tissue and leaving healthy normal tissue intact. Central European and Japanese physicians have been doing this for decades, now the doctors in India are joining them, it's only here in the States and parts of western Europe that the question of enzyme absorption and therapeutic action still rages despite over 200 peer reviewed studies and 50 years of therapeutic application."

There is no LD 50 for any enzyme. Enzymes have been tested both on animals and humans to huge doses with no hemorrhage, or toxicity. Only one case of hemorrhage ever reported that could possibly be linked with enzyme use; that was on a surgical patient in Mexico and he was using Wobenzym. Since none of the particulars are known of the surgery or the surgeon the enzyme may just as well have been a scapegoat for bad doctoring. In terms of lowering blood viscosity, NK, a very highly-fibrinolytic enzyme, is considered "mild" when compared to the drugs to thin the blood. (Wong)

A 90-day trial at a wide range of doses demonstrated that nattokinase does not cause gross histopathologic changes. Milner (6)

“Both the efficacy and the prolonged action of NK can be determined by measuring levels of EFA (euglobulin fibrinolytic activity) and FDP (fibrin degradation products), which both become elevated as fibrin is being dissolved. By measuring EFA & FDP levels, activity of NK has been determined to last from 8 to 12 hours. An additional parameter for confirming the action of NK following oral administration is a rise in blood levels of t-PA antigen (tissue plasminogen activator), which indicates a release of t-PA from the endothelial cells and/ or the liver. South (1)

I found only one reference to a potential and theoretical event to clot mobilization and this involved the food product. “Because natto (the food) is a very potent fibrinolytic agent, it is theoretically possibly that regular use could break a clot loose from a lower-extremity vein and cause a pulmonary embolism or pass upward and cause a stroke. In a patient with enlarged atrium chambers or with chronic atrial fibrillation, clots can develop, mobilize, and cause a stroke. Natto is also naturally high in vitamin K2. Since the flurry of research on natto began back in the 80s, there have been no reported side effects, complications or clot mobilizations. However, no controlled studies have been conducted to demonstrate natto’s safety.” Milner (6)

SAFETY SUPPORT:

(Note – The Allergy Research Group product comes from Japan – Dr. Sumi’s company (Japan BioScience) and Dr. Holsworth works with both concerns).

Nattokinase NSK-SD ™
First to Introduce
Allergy Research Group made a pioneering introduction of nattokinase (NSK-SD™) to the US market in 2002.

First in Quality
All nattokinase is not created equal: ARG has tested recent entries into this market (July 2002) and few meet Dr. Holsworth and Dr. Sumi’s standards. ARG offers only the patented NSK- SD formulation with no Vitamin K, which is the only form that has been tested for safety. Each batch is tested to ensure potency.

A note from Dr. Ralph Holsworth -

“As the leading researcher of nattokinase in the US and as a clinician, I am greatly concerned that the nattokinase available in the marketplace is safe and effective. It is important to realize that different commercial preparations of nattokinase may differ significantly in terms of safety and efficacy. Consumers must insist upon valid safety and efficacy data. For this reason, I have supported the proper development of NSK-SD nattokinase and carefully studied the safety and efficacy data, which consistently has the highest nattokinase activity available (>20,000 FU/g), the highest levels of safety testing, and the largest human clinical trials to date. Based on these studies and my personal experience with the product, I am confident in saying that NSK-SD is the gold standard for nattokinase on the market today.” Ralph E Holsworth, Jr., D.O. - Lt. Commander US Public Health Service

From: Allergy Research FOCUS August 2002

Dr. Holsworth on Safety:
“After reviewing the Single Oral Dose Toxicity Study of Nattokinase (NSK-FD) Powder in Rats dated February 26, 1999, I extrapolated the dose of 70 kilogram human would receive from the 200 mg. per kg of body weight dose administered to the animals. Each animal was given 20,000 FU per Kg of body weight or a dose equivalent to 1,400,000FU for a 70 kg human, or 700 times the recommended daily dose of NK (ie, 2,000 FU/day as suggested by Dr. Sumi). An FU is a fibrin unit or activity unit that quantifies the enzyme’s ability to lyse or “cut” fibrin in vitro. Activities allow us to “compare apples to apples and oranges to oranges.” I am convinced that the study (7) performed on behalf of Japan BioScience Laboratories indicates that NK is extremely safe!”

Dr. Martin Milner of the Center for Natural Medicine in Portland, Oregon and Dr. Kouhei Makise of the Imadeqawa Makise Clinica in Kyoto, Japan were able to launch a joint research project on nattokinase and write an extensive

paper on their findings. "In all my years of research as a professor of cardiovascular and pulmonary medicine, natto and nattokinase represents the most exciting new development in the prevention and treatment of cardiovascular related diseases," Dr. Milner said. "We have finally found a potent natural agent that can thin and dissolve clots effectively, with relative safety and without side effects."

Focus August 2002 – Dr. Milner regarding Drug Interactions:

The nattokinase in natto could require healthcare providers to lower patient's doses of Coumadin. It is necessary to take a consistent amount of natto/nattokinase each day. Physicians also need to monitor clotting time (PT, PTT and INR levels) in the first weeks of natto or nattokinase therapy until these levels are stable.

Allergy Research Group – online Q &A about their NK product.
http://allergyresearchgroup.com/faq/index.php?page=index_v1&c=3

Q *Can I use Nattokinase along with Plavix? Nattokinase used by itself is very safe. However, if used with nattokinase, any medication that effects coagulation must be monitored, under the supervision of a healthcare practitioner. Regular monitoring of blood is important because it is possible that also taking nattokinase may reduce the required dose for the medication*.
A Commonly used tests determine fibrin degradation products, or measure viscosity. Please consult your healthcare practitioner for guidance on this.
Does Nattokinase affect INR or Prothrombin time readings? - Answer No.

Q *If I want to measure the effect of nattokinase, is there a lab test that can be used? Some healthcare practitioners have reported doing this by determining fibrinogen breakdown products. The branched chain fibrinogen is metabolized and leads to breakdown products, which can rise initially, and then decline over time.*
A We have heard that a new test for viscosity is being developed that may be suitable for measuring the effect of nattokinase, but do not have information on it yet.

Q *I am interested in nattokinase but I have been hearing bad reports about soy causing cancer, thyroid problems, etc.*
A Nattokinase is an enzyme originally derived and isolated from Natto, a Japanese food made from boiled and fermented soybeans. By all accounts, eating the food Natto is a very healthy thing to do, but regardless of that, it is irrelevant to taking Nattokinase, because Nattokinase capsules contains only trace amounts of soy, if any. Comparing taking Nattokinase enzyme to eating soy protein or a tofu burger is like comparing taking a probiotic capsule to drinking a couple glasses of milk. They are not the same thing.
Our original Nattozyme is in a base of soy oil. If you want to avoid even that, then choose either Nattozyme with Vitamin E, which is in a base of rice bran oil, or Nattozyme 50 mg, which is a dry powder in a vegetarian capsule.
End of Q & A from Allergy Research Group.

ALLERGY TO SOY - Consider using either plain Serrapeptase or Vitalzym which contains Serrapeptase. Another non-soy product is Lumbrokinase, brand name, Bolouke, origin of enzyme is earthworms. Some brands warn on the label…if allergic to soy, do not take this product. Others make no mention. Some products are delivered in a soy oil base; others not. Some feel that the enzyme would not produce a reaction to a soy allergy. No testing is indicated to support this. If in doubt, use Serrapeptase or Lumbrokinase.

OTHER ORAL SYSTEMIC ENZYMES – ALTERNATIVES TO SOY DERIVED ENZYMES

Serrapeptase (SP), also called serratia peptidase, is an enzyme derived from the Serratia bacteria which lives in the intestinal tract of silk worms and is used to break down cocoon walls. It has been used for over 30 years in Europe and Asia (where it is called Danzen) to reduce pain, inflammation and excessive mucous secretion. SP has been shown to be well-absorbed fro the intestinal tract, although it must be enterically coated to protect it from degradation in the stomach. Hans Neiper, a pioneering medical doctor in Germany has recommended SP for decades to gradually reduce atherosclerotic plaque buildup. Mazzone etal note that "serritia peptidase (Danzen) has been shown to induce intense

fibrinolytic, anti-inflammatory and anti-edemic activity. Since inflammation increases fibrinogen levels and increased fibrinogen increases pathological clotting risk, the powerful anti-inflammatory activity of serrapeptase complements its fibrinolytic activity. South (1)

This enzyme is proving to be a superior alternative to NSAIDS traditionally used to treat rheumatoid arthritis and osteoarthritis. Its uses have been extended to the treatment of chronic sinusitis and post–operative inflammation.

Serrapeptase is the major oral systemic/proteolytic/fibrinolytic enzyme component of the product, Vitalzym. http://www.energeticnutrition.com/vitalzym/serrapeptase.html

Vitamin Research Products offers a Serrapeptase product (#6265) stating it has been used in Europe for arterial blockage. Their tablets are enterically coated for proper absorption and each capsule provides 20,000 units of proteolytic enzyme activity. www.vrp.com

One web site indicates serrapeptase is not fibrinolytic.. To that, Dr. Wong responds: “Silk is the strongest connective tissue on earth, far stronger than mammalian connective tissue, if serrapeptase isn’t fibrinolytic, then nothing is!”

LUMBROKINASE – brand name Boluoke ® is referred to as earthworm fibrinolytic enzymes (EFE), earthworm powder, (EPE or e-PA.)
For many centuries earthworm has been used in the Far East traditional medicine practice, and it was recorded in the "Ben Cao Gang Mu", the traditional Eastern world's pharmacopoeia, as a potent medicine for “Liver Wind uprising and Channel blockage” conditions. In the 1980's, Japanese scholars like Dr. Hisashi Mihara and others succeeded in extracting a fibrin-dissolving enzyme from Lumbricus rubellus and found that this enzyme consists of a few proteolytic sub-enzymes, which are collectively named lumbrokinase.

Boluoke® (lumbrokinase) is the only fully researched oral fibrinolytic supplement on the market. Besides having in vitro studies, animal studies, toxicity studies, and pharmacokinetic studies done, Boluoke® has also been put through all phases of clinical trials (including randomized double blind controlled studies) in China. Lumbrokinase has been studied as a treatment for various clinical conditions, including acute, sub-acute, and chronic conditions that are associated with the presence of hypercoagulation and hypoperfusion.

Boluoke® seems to be beneficial for any illness that has an accompanying hypercoagulable blood state, which has been shown to be present in many chronic illnesses. Some practitioners are also recommending Boluoke® for those who choose to be on hormone replacement therapy or birth control pills, and for those who could not tolerate standard preventative pharmaceutical drugs.

This product page has interesting data and many research references, although the comparison enzyme chart indicates that Serrapeptidase is not a true fibrinolytic enzyme… and Dr. Wong has responded that if it isn’t, then nothing is, so I take their claims on this web site as perhaps somewhat biased. Nevertheless, for someone unable to take a soy-based product such as NK, this is an option.

Allergy Research Group offers their product – hypoallergenic – Fibrenase III. Lumbrokinase. Item 74870. Each capsule contains 230 mg. lumbrokinase. Refer to www.AllergyResearchGroup.com

DOSING RECOMMENDATIONS - Nattokinase

As with most therapeutic measures, consistency is the key issue.

Enteric coating. Empty stomach. Away from meals. Follow label instructions. Always one dose at night.***

2,000 FU – preventive or maintenance dose
4,000 FU – therapeutic dose…. in some cases, higher will be required.

*****Of extreme importance relates to the significance of nightly dosing. See discussion in next segment under**

PAI-1.

Dr Wong indicates: “Enzyme recommendations will differ for everyone with most, falling into a range. The recommended therapeutic dose of enzymes for one will not even be a maintenance dose for another.”

Dr. Lam: To guard against thrombus formation and to dissolve existing clots, take 25 mg to 100 mg of NK in the form of nutritional supplements if you do not like to consume natto bean. Make sure the FU value is more than 20,000Fu/gram. (8)

From Vitamin Research Products:
In Dr. Sumi’s original NK paper, it was reported that natto had an average of 40 fibrinolytic units (FUs) per gram. In human research, 50 to 200 grams is the typical food dose used to supply nattokinase. This would be equivalent to a dose of 2,000 to 8000 FUs.

The nattokinase currently available for supplements supplies 20,000 Fu/gram, while serrapeptase supplies 60,000 FU/gram. A combination of 36 mg nattokinase and 5 mg serrapeptase would yield 1,020 FUs. Taking one such capsule two or three times a day on an empty stomach would be a reasonable preventive or maintenance dose.
South (1)

Dr. Milner: “In some ways, NK is actually superior to conventional clot dissolving drugs. T-PAs (tissue plasminogen activators) like urokinase (the drug) are only effective when taken intravenously and often fail simply because a stroke or heart attack victim’s arteries have hardened beyond the point where they can be treated by any other clot-dissolving agent. Nattokinase, however, can help prevent that hardening with an oral dose of as little as 100 mg a day. Allergy Research Group Publication

Dr. Milner: Daiwa Pharmaceutical Company, Ltd. Tokyo, Japan, produces one specific brand of enteric coated, highly active nattokinase. Daiwa recommends dosing at 500 mg daily with each tablet delivering 250 mg of NKCP.(6)

Dr. Calvino: Standard doses of Nattokinase vary from 250-1,000 mg and positive effects can be seen with as little as 50 mg.

Dr. Gordon: Recommended maintenance dose is 1,000 FU twice a day and therapeutic dose is 2,000 twice a day. (2,000 and 4,000) Therapeutic levels have been associated with spectacular “spontaneous” resultuion of all paralysis from a recent, within past 48 hours, STROKE.

Review Dr. Wong’s Dosing Instructions, Vitalzym ingredients and dosing information…. http://www.life-enthusiast.com/enzyme/vitalzym.htm

Dr. Gordon: The response to all blood thinning substances, whether natural or drugs is HIGHLY variable since there are so many factors impacting our likelihood of having a clot or bleeding to death, from cigarettes and hormones to diet and stress, all on top of genetics and chronic infections of our vascular tissues that we all have.

Thus, the poor doctor prescribing Coumadin, is merely protecting himself because the powerful drug interests have managed to make this unfortunate practice of using drugs and avoiding natural clot busters (like Nattokinase), the current standard of medical practice.

This means the practicing doctor carries some liability if he does not try to push his patients into taking Coumadin when they have anything tat may increase the risk of a blood clot, and certainly they believe that irregular heart beats is one such risk factor. Unfortunately, the powers that be make sure he knows nothing about natural substances that could do the job far better without any risk of the patient!

If the doctor, however, believed in the doctrine of informed consent, he would also HAVE to tell you about the number of serious bleeding complications that regularly occur with Coumadin. This bleeding can be into the eye (losing vision) or into the spinal cord with resulting loss of function of a part of the patient’s body. This warning would help set you free to do your own research and find protocols such as that which I am advocating on my website.
www.gordonresearch.com/answers/making a decision about coumadin.html

Clot related-deaths from the current estimate is 1.9 million deaths in the USA, alone. www.gordonresearch.com

Dosing and Surgery-
Dr. Gordon: Referencing a patient who has been on NK for a year and will have knee surgery and also is positive for anti-cardiolipin Ab, question is…does NK have to be stopped pre-op and if so how long?
Answer: It would be enough to stop NK 24 hours before surgery but have the patient resume with 3 BID the minute they can keep things down. Also Wobenzym, which will help clean up the loose blood in tissues without the lipid peroxidation as it has the Rutosid to act as an iron chelator. Take at least 30 a day post-op.

Discontinue it 24 hours prior to MOST major surgery.
For Minor surgery: do not discontinue either the Nattokinase or Wobenzym; although you may have to tie off 1 or 2 extra bleeding vessels at most. The reduction in post-surgical pain, swelling and ecchymosis, etc is worth the minor inconvenience of seeing 1 or 2 extra vessels that need cautery or whatever. www.gordonresearch.com

PLASMINOGEN ACTIVATOR INHIBITOR 1 (PAI-1)

Plasminogen activator inhibitor (PAI-1) is the primary inhibitor of tPA and other plasminogen activators in the blood. During fibrinolysis, tissue plasminogen activator (tPA) converts the inactive protein, plasminogen, into plasmin. Plasmin, in turn plays a critical role in fibrinolysis by degrading fibrin and also provides other localized protase activities.

Increased PAI-1 levels are associated with a number of atherosclerotic risk factors. PAI-1 has been shown to act as a prothrombic factor in both arterial and venous thromboembolic disorders. Increased levels are associated with an increased incidence of acute coronary syndrome and acute and chronic artery disease in patients who suffer re-stenosis after coronary angioplasty.

Of particular significance for this discussion is that increased PAI-1 levels may reduce the effectiveness of anti-thrombolytic therapy.(9)

There is a correlation between the circadian variation in the time of onset of myocardial infarction, with the highest incidence at about 8 a.m. and the circadian rhythm of plasma PAI-1 activity, which is also highest early in the morning (10)

The inactivation of PAI-1 is directly related to the enhancement of fibrinolysis.(11) Studies have shown nattokinase important in this mechanism.

The bottom line – there are elevated levels of PAI-1 at night and through the early morning. The most important dose will be in the evening before bed to last until around 8 a.m.

TPA-1 is a most interesting research project all on it's own because of its role in fibrosis. This piece only touches on the one key issue for use when dosing with nattokinase.

FOOD - NATTO

But you don't have to buy supplements in order to benefit from nattokinase.

"I tell my patients that they can make natto for pennies a day," Dr. Holsworth said. (You can find directions for making your own natto on-line at www.gaia21.net/natto.

In addition to saving money, you can actually get added health benefits by eating the whole food. Natto contains nutrients that also help fight cancer and osteoporosis.

For a preventive dose, simply eat 3 1/4 tablespoons of natto each day. For a therapeutic dose, eat 6 1/2 tablespoons.

"The ironic thing," Dr. Holsworth noted, "is that when we occupied Japan after the war, we said that natto was unsanitary because of its smell and preparation. Because of that false presumption, we forbade the Japanese from using it. Now the food that we banned is coming into the United States and we are touting it as a medicinal food." Source: Health Science Institute: Cures for mystery diseases: The unexpected side effects of this HSI discovery November 2002

The Daiwa product at 500 mg. a day, therapeutic dose, is equivalent to the amount delivered in a 150 gram portion of natto (food).

Food Sources: While soy food does contain a variety of enzymes, it is only the natto preparation that contains the specific nattokinase enzyme. Unfermented soy products such as tofu or soy milk do not contain nattokinase. Lam (8) The food source – Natto is naturally high in vitamin K2.

VARIOUS BRAND NAMES

Here are a few of the many brands out there. I like the Wobenzym and Vitalzym products because of experience, price, reliability and enteric coating. There are only a few key players so far, but as NK and other systemic enzymes gain popularity, there will be many more. Here's a brief rundown on what I've learned so far…no particular rank or order of importance or reliability. Look for enteric coating and strength of FU's… minimum delivered 20,000 FU. I prefer to choose a product that indicates the soy base is GMO free.

The enzyme ingredient SKD-SD is the formula developed and patented by Dr. Sumi with Japan BioScience. He refers it to as his "pure" formulation. If you see that identification on a product, you can probably assume the NK ingredient is the best. However, controls on ingredients being what they are, it is best to select a reliable source rather than just rely on the SKD-SD designation.

While it isn't addressed in the SKD-SD literature, I also presume the enzyme powder, itself, is treated since most labels indicating SKD-SD make no mention of enteric coating. SKD-SD has good physician endorsements and may be more costly than another product. It is fully tested. But, it is not the only enzyme supplier or only effective nattokinase product. So, do your label comparisons.

Nattokinase 1500 Fibrin Units, Naturally Vitamins, From WobenzymUSA GMO-Free, No Animal Gelatin• Enteric Coated, pH-Stable Consult physician prior to use if taking blood thinners or anticoagulants. Endorsed by Dr. Gordon

Rutozym, Naturally Vitamins, Enteric Coated Tabs From WobenzymUSA pH-Resistant Enteric Coat – nattokinase plus bromelain, papain, rutin bioflavonoid complex, white willow bark extract. Dr. Gordon endorses.

Wobenzym N – non-nattokinase product. Powerful anti-inflammatory enzymes, pancreatin, papain,bromelain, trypsin, chymotripsin, rutin. Endorsed by Dr. Gordon

Mucos Pharma GmbH - Wobenzym of Europe -WobeMucos product in Europe – Dr. Gordon

Vitalzym – World Nutrition - Serrapeptase, proteinase, bromelain, papain, amalase & Lipase, Amia, Rutin. The enzyme is enteric coated. Endorsed by Dr. Wong.

Nattokinase 50 mg NSK-SD™, Allergy Research Group® Soybean oil, soybean lecithin, glycerin fatty acid ester, beeswax. Soybean oil, soybean lecithin, glycerin fatty acid ester, beeswax. Endorsed by Dr. Sumi, Dr. Holsworth, Dr. Milner. Presumably, the enzyme is enteric coated. Nothing in their literature addresses enteric coating.

Nattovita – by World Nutrition – Endorsed by Dr. Sumi – contains Dr. Sumi's "pure" NK formula and CoQ10, Vitamin E, B6, and K2, bromelain, papain, protesse and folic acid. Available only from licensed health care professionals.

Flite-Tabs – by Aidan Products…study on long haul flights and deep vein thrombosis.. proven efficacy.
Adian also has a NK product… Nattokinase… NSK-SD - at the full 20,000 FU/gm - www.aidanproducts.com

I presume the powder, itself, is enteric coated because when I questioned the rep, he said no need for enteric coating.

Nattokinase, Source Naturals- NSK-SD - 1 to 2 softgels three times daily on an empty stomach with 8 ounces of water Other Ingredients: soybean oil, gelatin, glycerin, beeswax, glycerin fatty acid ester, and soybean lecithin. – no comment about enteric coating.

NattoZyme (Nattokinase), Nutricology, - no comment about enteric coating

Virastop (Formerly Purify) Enzymedica - blend of both serrapeptase and nattokinase and other enzymes. No comment about enteric coating.

Jarrow Formulas NattoMax (Nattokinase),, No indications on soy allergy .NattoMax is concentrated without solvents ..Non-genetically modified soybeans. Each capsule offers 1,600 fibrinolytic units/80,000 IU Urokinase and 5 mcg of menaquinone-7 (MK-7). No comment about enteric coating

Serrapeptase 5 mg. – enteric coated – Smart Drugs - http://www.smart-drugs.net/serrapeptase-research.htm

Serrapeptase - In Europe and Asia – called Danzen

Boluoke – www.canadarna.com/

Lumbrokinase (Fibrinase III) from Allergy Research/Nutricology

Lumbrokinase – Boluke – by Canada RNA

Neprinol AFD - Newcomer said to be an advanced, broad spectrum of an enzyme blend. Includes nattokinase, serrapeptase, peptizyme, lipase, protease, amia, papain, bromelain, rutin, CoQ10 and magnesium. … This comes from the company Dr. Wong says grows and cultures their own enzymes… Specialty Enzyme of Chino CA. Worth remembering. http://www.arthurandrew.com/

INTERIM SURVEY CONCLUSION

I am awaiting data that may provide clarity for some of the uncertainties. The final report will be short , just to clear up any questions left uncovered by the initial investigation. As research progresses, there will be more to learn and I will keep you all informed .

3/8/04 Jackie Burgess

Glossary of terms

Enzyme – a protein molecule that catalyzes chemical reactions of other substances without itself being destroyed or altered upon completion of the reactions.

Systemic Enzyme – means body wide and not just operating for digestion, but throughout every system and organ.

Proteolytic Enzymes (or proteases) refer to the various enzymes that break down protein into smaller units. These enzymes include the pancreatic proteases chymotrypsin and trypsin, bromelain (pineapple enzyme), papain (papaya enzyme), fungal proteases, and Serratia peptidase (the “silk worm” enzyme) (and nattokinase, lumbrokinase) Murray (12) .

What’s the difference between proteolytic and fibrinolytic? Probably not much on the surface. They all break down or lyse protein…some more efficiently than others and some with a specificity toward fibrin in blood clots, such as the focus here, but more specifically we are talking about the “plasminogen system,” a term some feel is an update to the term, “fibrinolytic system.”

Endogenous – produced by the body as opposed to exogenous (originating 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 or a component of fibrosis or scar tissue.

Fibrinolytic: Pertaining to or causing the breaking up of blood clots and/or lysing other fibrin accumulations as in atherosclerotic plaques or fibrotic tissues.

FU – Fibrinolytic Unit: A unit or activity unity that quantifies the enzyme's ability to lyse or "cut" fibrin in vitro.

Lyse or lytic - Break down or dissolve

Plasmin: An endogenously produced fibrinolytic enzyme. (produced naturally in the body)

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.

KNOW THE EXPERTS

Hiroyulki Sumi, MD, discoverer of nattokinase, 1980. Resides in Japan. Works with Japan Bio Science Laboratory Co., Ltd., Japan; consults with researchers in the US. Dr. Sumi was born in Nara prefecture, 1945. He received his MD in Medicine from Tokushima University. Dr. Sumi experienced overseas research personnel of the Ministry of Education, Science and Culture in Michael Rees Research Institute, Chicago. After experience as assistant professor in the field of physiology in Miyazaki Medical College, Dr. Sumi performed as professor in Department of Physiological Chemistry, College of Science & Industrial Technology, Kurashiki University of science and Arts. Besides he is a director of an extra-governmental organization, JTTAS and also popular as "Dr. Natto" among mass media. Dr. Sumi bio and photo http://www.jafra.gr.jp/eng/interview-sumi.html

William Wong, ND, PhD, Texas State Naturopathic Medical Association professional member, World Sports Medicine Hall of Fame member, a Classical Naturopath, a Ph.D. Exercise Physiologist, a Certified Athletic Trainer (AATA), a Certified Sports Medicine Trainer (ASMA), and a Health/Fitness Consultant. Dr. Wong has more than 23 years of professional experience in natural health, as applied to sports medicine and rehabilitation, with the last 12 devoted almost exclusively to chronic fatigue and fibromyalgia, and the use of systemic enzymes. Author of many books and web site host. Uses Vitalzym systemic enzymes in his practice.
Bio and photo at http://www.totalityofbeing.com/AboutUs.html
Home Page http://www.totalityofbeing.com/index.html

Ralph E. Holsworth, Jr. DO, Lt. Commander, US Public Health Service, is a board-certified Osteopathic Family Medicine Physician. Has been practicing with emphasis in functional and integrative medicine for over five years. He has a specific interest in enzyme therapy for ten years and assisted in clinical and laboratory research. He serves on the medical staff of Mescalero Public Health Service Indian Hospital in Mescalero, New Mexico. Is establishing a protocol for physicians to combine warfarin and NK and has human studies underway. Endorses Allergy Research Group Nattokinase NSK-SD with Dr. Sumi and Japan BioScience product from Japan. He is identified as the leading researcher on nattokinase

Garry Gordon, MD, DO, MD(H) Director of his clinical practice and Gordon Research Institute in Payson, Arizona. He is a member of the Board of Medical Examiners for Alternative add Homeopathic Medicine in the State of Arizona, Director of Peer Review for chelation therapy for the State of Arizona and a member of the Board of Directors for the National Foundation for Alternative Medicine, and founder of the International College for the Advancement of Longevity Medicine (ICALM). He uses and lectures extensively about the beneficial use of systemic enzymes such as nattokinase, serrapeptase and other enzymes used to reduce inflammation. Currently, Dr. Gordon is full-time consultant for Longevity Plus, a nutritional supplement company located in Payson, Arizona. Bio/CV
http://www.chelationtherapyonline.com/GarryGordon/ChelationResearch/per.htm
Website: http://www.gordonresearch.com/
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Rohit Medhekar, PhD, is the technical resources manager at National Enzyme Company, Forsyth, MO. He is presently involved in the characterization of fungal enzyme activities, the effects of enzymes on botanical compounds, and the application of enzyme products to specific health needs.
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Michael Lam, M.D., M.P.H., A.B.A.A.M. is a specialist in Preventive and Anti-Aging Medicine. He is currently the Director of Medical Education at the Academy of Anti-Aging Research, U.S.A. He received his Bachelor of Science degree from Oregon State University, and his Doctor of Medicine degree from Loma Linda University School of Medicine, California. He also holds a Masters of Public Health degree and is Board Certification in Anti-aging Medicine by the American Board of Anti-Aging Medicine. Dr. Lam pioneered the formulation of the three clinical phases of aging as well as the concept of diagnosis and treatment of sub-clinical age related degenerative diseases to deter the aging process. Dr. Lam has been published extensively in this field. He is the author of The Five Proven Secrets to Longevity (available on-line). He also serves as editor of the Journal of Anti-Aging Research. http://www.DrLam.com

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Vitalzym – http://www.energeticnutrition.com/vitalzym/main.html - http://www.life-enthusiast.com/enzyme/vitalzym.htm

Serrapeptase - http://www.energeticnutrition.com/vitalzym/serrapeptase.html#insect

Allergy Research Group – www.AllergyResearchGroup.com

Wobenzym, http://www.mucos.cz/

Adian Products – Flight Tabs –www.aidanproducts.com (also carries a NK product called “Nattokinase”)

Naturally Vitamins - www.naturally.com

Vitamin Research Products: www.vrpppcp.com

Lumbrokinase – Boluoke - http://www.canadarna.com/b_buluokeintro.htm

Dr. Milner Lectures: http://www.cnm-inc.com/scripts/Lecture

Dr. Gordon: www.LongevityPlus-RNA.com.

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TESTIMONIALS - Published and Anecdotal

Case histories source: http://www.allergyresearchgroup.com/news/letters/ARGFocus_May2003_GreenTea.pdf

More Case Histories from Martin Milner, N.D.

Case 1 – Peripheral Vascular Disease

Case 1 is a female patient with an array of health problems including advanced peripheral vascular arterial disease. Her iliac artery was bypassed surgically due to full occlusion in 1999 with current occlusion of her popliteal artery. As a result, she was experiencing severe intermittent claudicating bilateral calf and thigh pain, worse at night and with exertion. She experienced cramps and pains throughout the night disrupting her sleep for years. Many therapies were unsuccessful in resolving her debilitating pain.

She has a long history of using intravenous EDTA once monthly for five years and then once weekly for the last year without improvement. She is an avid and conscientious consumer of health supplements, having taken for many years an array of nutrients, none of which, in combination with intra-venous EDTA improved her intermittent claudication.

She began taking ing nattokinase in July of 2002, taking 2 caps 2x daily on an empty stomach. Within two weeks she reported that the heaviness and achiness on exertion in her left leg had improved 50-70%. Her muscles in her calves began to reduce in achiness and within 1-2 weeks she was sleeping through the night with no pain.

After taking nattokinase for over 6 months, she had experienced only two episodes of waking at night with leg pain. She has reported no side effects throughout the course of therapy.

In addition, with her history of mild hypertension, severe peripheral vascular arterial disease, and left atrial enlargement, she probably has some pulmonary hypertension and micro embolization in her lungs which has been helped significantly with nattokinase.

Case 2 – Pulmonary Emboli with Headaches

Case 2 is a 64 year-old female with a history of five prior episodes of pulmonary emboli (clots in the lungs), apparently due to lower extremity venous thrombi that mobilized into her lungs. The last episode was in 1977 with no new occurrences since vein stripping, which was performed in 1977. With her history, a possible chronic coagulation disorder aggravating her other conditions was suspected. Her other related conditions included migraine headaches and a long-standing seizure-like disorder. She began taking nattokinase 2 caps 2x daily upon rising and before bed in January of 2003. This reduced her headaches from 2-3x weekly to none for the first 30 days. When the first headache did occur in late February of 2003, she developed the pre-migraine symptoms of nausea and visual changes without ever developing head pain.

Case 3 – Fibromyalgia with Headaches

Case 3 is a female with a long standing history of chronic fatigue, fibromyalgia, persistent leg cramps, varicose veins, hypothyroidism, chronic migraines, GERD, colitis, mild osteoporosis, some degenerative disk disease (L 4-5), osteoarthritis in one knee, obesity, hypertension, aluminum and arsenic toxicity, severe adrenal insufficiency and food allergies. She has taken supplements extensively for many years. She began taking nattokinase in January 2003 2 caps 2x daily on an empty stomach, and then increased to 3 caps 2x daily in April 2003. After starting nattokinase her energy improved with complete resolution of her headaches and improved varicose veins. This is extraordinary in a patient who has attempted a wide array of headache medications with no response.

Case 4 – COPD, Shortness of Breath, Pulmonary Microembolisization with Pulmonary Hypertension, Essential Hypertension

Case 4 is a 49 year-old female with chronic fatigue, shortness of breath and stress-related illness. Patient is obese with

a variety of cardiovascular conditions including heart palpitations, high blood pressure, Type IV Hyperlipidemia, Syndrome X, COPD with 30% airway obstruction, pulmonary hypertension, and reports swelling in feet. After taking nattokinase 2 caps 2x daily for 2.5 weeks, p a t i e n t 's breathing was dramatically improved as well as her fatigue. Patient is also able to walk around the block at a medium pace with no heavy breathing at all. She is also now able to grocery shop, and is even starting to walk longer distances wearing small
ankle weights.

Case 5 – Peripheral Vascular Disease, possible TIA and DVT

Case 5 is a 63 year-old male with possible DVT and passive embolization, who reports a sensation of tightness in his legs and felt like he was standing for hours yet wasn't. He developed a suspected deep vein thrombus (clot) on physical examination, and was also blowing out bloody granules from his nose for three days. These bloody granules were of concern in assessing possible pulmonary microemboli. He also reports a history of pain in right leg, which was diagnosed as an inflamed vein, phlebitis. He also has possible transient ischemic symptom complex including cold nose, numbness around lips, cold upper extremities in paroxysms, intermittent cold tingling in his hands, face and feet. Reported coldness in hands, feet and back of head over into his face with a loss of sensation in hands, left foot slight loss of sensation. Patient began nattokinase, 2 caps 2x daily and all of the above symptoms resolved after one week.
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(Dr. Holsworth interview with HSI)

Dr. Holsworth comments in cases of pain, thee is poor circulation and perfusion. You are not getting enough oxygen to cells so they are anaerobic and form lactic acid, which is very painful. Ask any athlete.

He relates one long-term cancer patient had excruciating pain in her extremities due to poor circulation. Her condition left her so exhausted that she slept 14 hours a day. After three weeks on nattokinase, the pain disappeared, and she could get by on jus 8 hours of sleep.

Dr. Holsworth's own mother-in-law, who has lupus, was suffering from chronic pain and fibrous buildups on her skin. She even took to wearing gloves "in tropical Texas" to avoid exacerbating her symptoms. After 10 days on nattokinase, her pain and skin irritation began to ease. A few week later, she was able to stop taking prednisone,
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Jonathan Wright, MD. "The literature about natto and nattokinase is very impressive. The first patient we asked to try it had a rapid and dramatic response. While this was likely an unusually good result, nattokinase appears to be a true therapeutic breakthrough."

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Betty Kaman, PhD. Because of our deep involvement in the nutrition field, my husband and I are aware of a long list of helpful, natural and safe modalities for recovery from illness – regardless of the disease category. Many of these substances worked well for my husband's recent problem, but nothing appeared as magical as nattokinase! In terms of his energy and well-being, it was as though a switch was suddenly turned on when he started taking this amazing supplement. The positive effects of nattokinase are swift and dramatic!"
(Betty introduced us to nutrition concepts more than 50 years ago; she has written 20 popular nutrition books, hundreds of articles and has done extensive work as host and guest on radio and TV.

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PERSONAL TESTIMONIAL – Jackie Burgess

I was motivated to try oral systemic enzymes based on my research for the Cardiac Fibrosis post submitted to the Conference Room last year. From this research, I learned that fibrotic tissue builds in bands around muscle tissue and creates the pain experienced in Fibromyalgia. Since I had a recurrence of FM symptoms after ablation (later found to be the result of hypothyroidism), I decided to try Vitalzym – the product using serrapeptase as the fibrinolytic enzyme.

And I began around the first of February last year…in very small doses.

There was a bit of a delay in my plan, however, because after 103 days after my PVI ablation, I developed AF that didn't self-convert and I was cardioverted at 39 hours. In early March, I had the spiral CT scan to check for stenosis and about 4 weeks later, I learned I had a clot in the left atrial appendage…. meantime, I had resumed the Vitalzym and when I learned of the clot (after the fact), I started taking nattokinase. At the time, I wasn't aware of the requisite of enteric coating, and I just bought what was available- Source Naturals, gel caps. I was unsure about dosing, but followed the recommendation, 2000 preventive/maintenance.
I have low platelets and tend to bleed easily, so I decided to be conservative.

Fairly soon, I did note that when I sustained a nick or a scratch from a thorn when gardening, the blood ran freely and didn't stop immediately, so I thought most likely, the NK was working. I also presumed since I was functioning well, the LAA clot had been lysed. I joked with Dr. Natale that at least I was still alive to talk about it, so it must have dissolved. I did discuss with him the concern that nattokinase would lyse away important scar tissue and "undo" my ablation. He reassured me that would not be the case since ablation didn't depend on the scar tissue, itself, but rather the destruction of the signal pathways.

I continued on with NK but switched to Naturally Vitamin's brand – made by Wobenzym because of the enteric coating. My regimen was two at night and one in the morning, delivering 2250 FU, which I determined to be adequate for my situation.

My observations after taking NK for almost a year are the following:

Left outside calf – from knee to ankle - For about two years, in the evening, had experienced a coldness to this muscle. It was very uncomfortable. Doctors could find nothing and I had an extremity study which also proved negative for blockage or circulation.
After about six months of NK, I noticed a lessening of evening coldness. About 9 months later, most of the cold symptom has diminished greatly – about 95%. And, the muscle is soft and pliable compared to hard and stiff. Welcome relief. Probably some micro-circulation blockage.

Varicose vein - Behind my knee, a very small vein had raised and was hard to the touch. It was about half an inch long and about ¼ inch raised. In less then six months, this vein softened, then flattened; and now is just a diffuse area of redness that I presume will resolve with time.

Thin tissue on inside of leg above inside ankle. A few years ago, I injured my ankle stepping in a hole on the golf course and again twice in the yard. It was diagnosed as tarsal tunnel syndrome since the attachments were in the area of the thin tissue. Difficult to describe, but anyway, the area always looked red and often looked bruised..a dffuse discoloration. This area is now almost completely normal in color and I predict it will eventually lose the discoloration. Again, a matter of circulation and cleaning out residue, I'm sure.

Of minor, but interesting consideration, are the occasions when I pinch or bruise myself. I just take a bit extra NK and the focal area has normalized by the next day in most cases. It's remarkable. If all this is happening on a visual level, I can only imagine the good that is being done internally.

As for the fibromyalgia symptoms, I can't say for sure because FM is a symptom of hypothyroidism and once that was normalized, I had fewer muscle aches. I presume, any of that tissue will eventually be lysed, as well.

My real hope is that through the use of NK and Vitalzym, any cardiac fibrosis accumulated in my heart as a result of AF or inflammation, is being lysed away slowly with time and that tissue will normalize. I'm also expecting that any atherosclerosis that may be lurking (after all, I'm 69)… will also lyse away as will any accumulations of the unstable or vulnerable plaques that are so worrisome since they can't be detected by diagnostics.

I will probably take a minimal dose of NK for the rest of my life just to insure clear pathways for circulation.

Oral systemic enzymes certainly are worth investigating and incorporating into one's life. Safe, economical protection.
Live with Passion!

Jackie

Hi, Jackie --

Thank you very much for this thorough and informative overview of orally administered systemic enzymes, and also for recounting your personally beneficial use of them. Based on this and on my own experience, I am convinced of the efficacy of nattokinase, and of the other oral enzymes that you describe. Here's my experience with nattokinase.

About half of my working years have been spent at hands-on construction contracting with its dust producing activities and other physical hazards (the other half spent low-risk desk bound). In addition to decades of exposure to significant amounts of airborne particles from wood, cement, fiberglass, etc., I also once survived a severe fall, luckily sustaining only a badly damaged shoulder which was subsequently dislocated a few dozen times.

About one year ago I started having subtle chest pains, quite randomly located, which I thought might logically be caused by a degree of "pulmonary fibrosis" from decades of inhaled dusts, or perhaps from pulmonary "microemboli". Also, and a bit more worrisome, was increasingly frequent chest-centered discomfort, usually upon awakening, which I thought was possibly angina from ischemia resulting from coronary artery blockage. A few years ago a nuclear treadmill stress test imaging was borderline suspicious for slightly impaired circulation at the apex of the heart, but I chose to forgo the recommended "gold standard" angiogram and instead tried to learn about possible ways to reduce any such blockage. For a while I considered signing up for intravenous "chelation therapy", but didn't follow through.

Fortunately for me, in time I read Hans Larsen's very informative book 'Thrombosis and Sroke Prevention' and it's section on nattokinase, for which I will always be grateful. In addition to some of the articles on nattokinase referenced there, I also located and read the article by Martin Milner, ND and Kohhei Makise, MD, 'Natto and Its Active Ingredient Nattokinase', at

http://www.cnm-inc.com/art_nattokinase_2.pdf

This article states pretty definitely that "enteric coating is essential to protect the enzyme... from gastric acid degradation". About three months ago I started taking enterically coated nattokinase from Wobenzym / Naturally Vitamins to see what, if anything, it might do for the chest pains.

The first consequence, amazing and totally unintended and unexpected, after just three weeks of nattokinase use, was complete elimination of shoulder pain which had become increasingly severe over the preceding year. In considering surgery for relief, an MRI and arthrogram had clearly revealed the extent of damage from ~25 years ago. According to this highly reputed shoulder surgeon, the physical damage to muscles and ligaments could all be repaired, but with no assurance that the pain would thereby be relieved, so I delayed. My sense is that internal scarring (adhesions, fibrosis) had developed over time, had been increasingly impinging on certain nerves, and had now been taken away by the fibrinolytic potency of the nattokinase. This complete relief came about even before finishing the first $18.00 bottle from iHerb.com., a 30 day supply (now available at a 20% discount from Hans's supplement "store" at the bottom of this page!).

Then, after another month of nattokinase use, all random chest pains had stopped, and today all (presumed) anginal pains have also disappeared.

Perhaps nattokinase, or one of the other enzymes you describe, will also remove cardiac fibrosis -- which I'm still speculating was the initiating cause of my afib, secondary to long term Mg deficiency as considered by Dr. K. Shivakumar -- see the BB thread at:

http://www.yourhealthbase.com/forum/read.php?f=3&i=17819&t=17819#reply_17819

By the way, I did have one other rather "interesting" experience after about six weeks of taking this nattokinase. One evening while sitting at my desk a pain suddenly developed on top of my other shoulder, radiating up my neck to the base of my skull, and in less than a minute it grew in intensity until it was really quite severe. I walked around a bit,

wondering if this was 911 time, but after just a few minutes the pain disappeared as suddenly as it had come on. Did the debris of a lysed "unstable" plaque or clot temporarily block an artery or vein in that region? Well, I'll never know. It never happened before and hasn't since, and there were no after effects.

Erling

Erling -

Thank you for your very informative and enlightening testimonial. Well done.

I'm very glad to learn of your shoulder improvement and that you suffered no ill effects from what was probably a "soft" clot....maybe disintegrated just enough to slip by some narrowing of a vessel. Let's hope and pray the NK continues to "eat away at presumptive clots" as Dr. Gordon suggests it does and your blood vessels will be clear and flexible.

As I said, I too, think that a continuing dose of either NK or SP will work on eliminating any cardiac fibrosis I probably have as a result of so long a time dealing with AF.

Best regards; be well.

Jackie

I would also like to point out that Vitamin K is present in Natto the food and often times Nattokinase supplements. Though the fibrinolytic activity is said to outweigh the clotting agents in the vitamin K many suggest to pursue Natto that has the Vitamin K completely removed.

To add on to what Jackie was saying there seems to be some argument to whether or not Nattokinase can even survive a trip through stomach acid. I personally have seen conflicting reports, and in my own personal experience eating large amounts of Natto on an empty stomach worked wonders in my case. Regardless, in addition Enteric coating may be pursued along with the removal of Vitamin K for optimal results from the Nattokinase supplements.

Eric

Eric - Thanks -

You said:
Many suggest to pursue Natto that has the Vitamin K completely removed.

When discussing this topic it is important to differentiate between the food, natto, and the enzyme, nattokinase.... in this statement above, you refer to Natto....and I know what you mean, but it is incorrect to use the term natto when talking about the supplement... (since vitamin K is always present in the food, natto.)

Most of the reliable brands indicate in the literature, they have removed the vitamin K.

I know the Sumi brands do and the Wobenzym brands do...and several of the others also do. Probably the only time this would become a real issue is when the use of nattokinase and Coumadin are combined. This would make dosing and regulation very unpredictable, if the vitamin K was not removed.

Jackie

Jackie -

Sorry if I wasn't clear, this was meant as i wrote it, as 2 different items:

"that Vitamin K is present in Natto the food and often times Nattokinase supplements."

Eric

Jackie

Thank you so much for your very comprehensive article on NK. From what you say - I gather that taking "Dr's Best" NK for the last few months has therefore not really been of any benefit at all, as it is not in the enteric form. It's rather scary considering that it was all that I have taken in the last few months when going into AF. (I do take it all the time - I just up my dose during AF).

Had it not been for your article, I would have just gone on taking it - not realising the importance of it being in either the enteric form or that the enzymes have been cultured to be acid- and heat- resistant.
Thank you for all your valuable input on the BB.

Maureen

Maureen, i am very curious about the supplement you have been taking. Did you notice any improvement in yourself while taking it? Eric, Erling, Jackie, and all those anecdotal examples have all been able to tell the nattokinase they took was doing good. Did you notice any change?

PeggyM

Maureen - What the troubling part of this whole labeling issue is the lack of information from suppliers. For all we know, Doctor's Best could well be just fine... but they don't indicate how their enzymes are protected, so we just don't know. As Dr. Wong states, they may not know, either, so that explains the absence of labeling data.

As I mentioned, I started out taking Source Naturals...because of my experience with brand reliability. I still don't know anything about the enteric coating part, but since it was a gel cap, I'm assuming it was not enteric coated in any way. But, that said, I did notice my blood thinned out - I mentioned the thorn issue. I was snagged by a rose bush, didn't think about it until I felt something wet on my arm and looked down to see this river of blood. So, I thought at the time, hmmmmm.... I guess there IS something to this nattokinase and blood thinning.

Anyway, after reading more and sharing some notes with Erling, who was also into the NK project at the time, we collectively decided going with an enteric coated product (until there is further clarification) is the best choice. While there may be some benefit with other products, we could be wasting our money, and worse, as you said, we might not be protected.

So for now... let's be selective and use enteric coated products.

I'm attempting to clarify this a bit more, but am still waiting for information to roll in.

Thanks for writing. If I help only one person avoid a clot situation, it will be well worth my effort and my mission to create awareness will have been accomplished.

Be well.
Jackie

Jackie,

Thanks so much for your research. Something I would like to clear up. The way I understand it is Nattokinase should be enteric coated. Your paper refers to Allergy Research Group:

"Nattokinase 50 mg NSK-SD™, Allergy Research Group® Soybean oil, soybean lecithin, glycerin fatty acid ester, beeswax. Soybean oil, soybean lecithin, glycerin fatty acid ester, beeswax. Endorsed by Dr. Sumi, Dr. Holsworth, Dr. Milner. Presumably, the enzyme is enteric coated. Nothing in their literature addresses enteric coating."

I have been using Allergy RG, but their product is in gel form so I am wondering if it is enteric coated. Doesn't seem like it could be. So I am confused because of the endorsement by these docs. What's the deal?
Guess because of this article, I am still going with ARG. Why not them instead of Naturally Vitamins?

Jim

Hi again Jackie,

OK, I found this in your article:

"Some NK and some Serrapeptase does not need to be enterically coated if the enzymes have been cultured to be acid- and heat- resistant. However, many bottlers of enzyme products don't actually know whether the enzymes are acid resistant or enterically coated as a powder. Some bottlers use enteric coating."

So ARG must culture their enzymes to be acid and heat resistant? Seems this would be better than using a product with enteric coating.....

Jim

Jim, have you noticed any dramatic effects like Erling and Jackie have, or at least any effect you can point to at all? Just curiosity, i have just started taking the Wobenzyme product myself, got it from iHerb.

Peggy

Peggy

Sorry I haven't replied to your question earlier - I haven't logged on for a few days. I can't say I have noticed anything that stands out (re NK) -but having said that - my BP has gone down a fair bit (was on medication before for high BP - but not anymore) But I supplement with magnesium and potassium and that could have something to do with it - but it could also be the NK - or it could be all three!

Regards, ***Maureen***

Thanks, Maureen, i have just started taking the wobenzyme nattokinase and was trying to collect what data i could about whether there is any effect from the not-marked-enteric kinds. The bp effect sounds significant to me, but as you say it could be the electrolyte supplements. Only way to tell would be to discontinue the nattokinase and see if the bp rises again, while maintaining the electrolytes. That is a cumbersome procedure requiring too much time off nattokinase, i don't recommend it. Are you getting a good effect from the electrolyte supplementation? Less afib, i mean?

PeggyM

Hi Peggy
I can't say I've had a marked improvement - although I am finding Veggie Juice seems to help my ectopics. I obviously have to try Han's PAC tamer.
....but thank you for asking.

Maureen

Jim - Sorry this is late getting back... I didn't check the CR... until today.

I'm going to be posting again on this enteric coating issue. I have very current information from Dr. Holsworth's latest presentation.

He says the enzyme gets into the small intestine just fine without enteric coating.

However, he likes the purity and assay procedures with the Japanese enzyme product which is linked with Allergy Research and Adian...also, I believe.

I think the endorsements come from working closely with the researchers and I know that Dr. Holsworth is the one to watch and what he said, is based on his small trials with patients.

I'll be posting more but you can't go wrong by staying with Allergy Research Group.

Jackie

Jackie
Have been wondering if bruise marks disappear more quickly with use of additional nattokinase, as per your previous post on that subject some time ago.
Many thanks in advance.

Stan

Stan - Interesting about bruising. I used to bruise easily...fair skin. Now, either I'm not bruising or they are disappearing rapidly.

I recently grappled with a stubborn jar lid and ruptured a small vessel in a finger by the joint crease. It burned and turned dark reddish/blue. I took a couple of NK immediately and it was totally resolved by the next day....just cleaned out all that diffused blood like "magic."

Jackie

My wife has been reading the post on this site as she has moderately high blood pressure (average 140/90) and Cholesterol levels of approx 240) and her physician wants to put her on BP medication. She became very interested after reading the post on the effects of Natto on BP. Yesterday we decided that it couldn't hurt so we drove to Austin, TX (abt. 145 miles) to a Japanese wholesale market. We learned quickly that there are many, many varieties of Natto. After speaking with the owner and a couple of shoppers she opted for the organically grown and produced Natto. It is very inexpensive at .99 per package. She is going to eat one package per day and measure her BP levels daily. I will keep everyone informed of her progress.
Rodney

Fascinating. Rodney, please do keep us posted on this. I have recently started taking wobenzyme nattokinase, with an eye toward my own high bp, as well as its other benefits. Hope my lame old knees, gut full of old adhesions from long past surgeries, etc. can benefit too.

PeggyM

Rodney - that's excellent! If you have access to food sources and she can tolerate the product, it's said to be very healthy.

I believe I have some stats on consumption and Bp levels dropping in X period time. If I can dig those out, I'll post for you so you have more information.

Far less expensive to use the medical food and undoubtedly some extra side benefits as well.

I'm very interested in her experiment of one.

Thanks for sharing.

Jackie

Jackie, how long should it take for me to see some improvement in bp?

PeggyM

Peggy - depends on how stiff the blood vessels have become.

I'll look to see if any of the docs gave some indications... Wasn't there a testimonial on that?

Excuse the mind block. I'm preparing myself for a new computer system and cleaning out both the computer room and the existing computer files... in preparation.

I've stocked up extra on L-theanine and Holy Basil to manage the stress of the transition. :)

If I don't get to this yet today, it may be a couple of days so just keep taking the NK and relax and expect good things to happen.

Be well; best regards,

Jackie

No worry, i will keep taking it at least til i finish this bottle, and probably will get another one. I am in hopes it will clear out some old adhesions and assorted stiffnesses. Will give it plenty of time before giving up on it.

PeggyM

Jackie
I've just had an email from a health shop (in the USA) who said that - and I quote " Wobenzyme USA is a new player to the nattokinase market. There is an issue with the quality of raw materials. " I have asked him what he means by that -

but as yet have not had a reply. Do you know anything about this?
Maureen

Dr. Mercola has a new nattokinase info/commercial:

http://www.mercola.com/forms/cardioessentials.htm

Perhaps Jackie would critique it for us.

P.S. Well, it's a capsule, so I guess its not enteric-coated.

Bill

Maureen - I know nothing about the raw material issue.

However, I have more information based on Ralph Holsworth's research and he stands by the product from Allergy Research Group....refer to my Interim Summary article.

He says their powder in the capsule is fine just the way it is, no need for enteric coating. That's the only one he endorses because of purity and also the fact that all the vitamin K is removed.

And Bill... I've been reading Dr. Mercola's information but I have yet to satisfy the questions I have in my mind about his product. It could be that the powder is treated - as I mentioned the Summary.

When I learn more, I'll post it. I have recently received more information that may clarify some of the questions.

I've also learned that he feels it is safe to use NK with warfarin as long as it is directed by a doctor and that the brand used (his endorsement) is certified free of vitamin K. He says the physician can verify this with the manufacturer. Careful monitoring has to be done, initially.

As soon as I am adjusted to this new computer change, I'll be posting more information so stay tuned.

I also learned that the enzymes from Korea are not recommended.... there were some contamination problems. The reputable Nk bottlers will state the origin of the enzyme. From a cursory survey previously, I found this to be pretty scant information. So.... all I can tell you is that Erling and I have been using the Wobenzym product - NK 1500 distributed here by Naturally Vitamins and I'm not having any adverse effects... but possibly, one would not know right away. Wobenzym has been producing enzymes in Europe for 50 years (I think) and Dr. Gordon "swears" by their quality. That's all I have to go on at the moment.

Jackie

Hello, Jackie and all. I have been doing some research on nattokinase and blood pressure, and immediately found this article which states that nattokinase inhibits ACE. Here is the url:

http://www.springboard4health.com/notebook/health_nattokinase.html

and here is the paragraph on bp:

The Benefits of Nattokinase on Blood Pressure

”Traditionally in Japan, Natto has been consumed not only for cardiovascular support, but also to lower blood pressure. In recent years, this traditional belief has been confirmed by several clinical trials. 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), which converts angiotensin I to its active form angiotensin II 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 "

PeggyM

Peggy - Yes. Thanks. I have the new Dr. Holsworth's presentation and he says he notices in as short as a week or ten days, he has to modify Bp meds for some of his patients he treats with NK.... so... start watching yours. This is with the 2000 FU a day dose.

I'll have the play the tape again, but he says he hasn't seen the ACE effect in this article...

In a week or so, I'll have played and summarized these audio tapes from Holsworth and other speakers on the topic of hypercoagulation... there is new information that isn't covered in my Interim Summary because most of that data was several years old.

Dr. Holsworth is actively doing small human studies which has given him new insight to the marvel of NK. It's very exciting information and I'm anxious to share it.

Just have no time with the computer changeover which involved revamping the "computer room."... So hang in there. I'll get it soon.

Jackie

Have returned to keeping the bp monitor on an end table right by the desk, and a chart and pen right with it. Too soon to be sure, but i think i am seeing the beginning of a downward trend in bp measurements. I have quit taking the bedtime aspirin for bp control because of fear of some interaction between aspirin and nattokinase, and returned to using 10 mg lisinopril, taken at night to reduce the morning bp surge. I will keep you posted on how this goes. Been taking nattokinase about 2 weeks now.

PeggyM

Hi Jackie...

I, too, started taking NK about a week or so ago and I seem to be having trouble sleeping as much as I need. I can't remember if there was anything about this in your interim report but if I take one dose at night (as seems to be suggested) I just wonder if this is too stimulating? I am currently on Verapamil so one might think they could cancel each other's effects.

Would I get any benefit, do you think, if I took only one dose in the a.m.? And if it increases circulation....could it also stimulate AF (adrenergic)?

I thought with all your research on the subject, you might have read about any side effects akin to mine. Thanks a lot.

P.S. When I awaken earlier than usual, I am not particularly tired but last night I was wide eyed for almost the entire night so wont be able to keep this up much longer.

Laurel

Laurel, i have been taking nattokinase, [wobenzyme] for about 2 weeks and have not noticed any sleep disturbance. Each of us is different, though. Good luck with it.

PeggyM

Peggy...

Glad to hear you're not having any sleeping problems. What times do you take your two doses?

Laurel

I've been taking Natto daily for 3 years from Allergy Research group. No problems.

DrZ

I just priced the 72 mg nattokinase soft gels in Vancouver, B.C. (Finlandia Pharmacy) and they are CDN$96 for 90 capsules. Does anyone know of a cheaper source (without Vitamin K)?

Thanks,
Doug Symonds

Not a rigid schedule since i avoid having a schedule, a reaction to having worked all my life and now enjoying retirement. First dose well before breakfast, second dose at least a half hour after supper, as per instructions on bottle. Have not noticed any effect as yet except a mild drop in bp. If that trend continues i hope to be able to drop my lisinopril, or at least reduce the dose. Lisinopril has no bad effects that i know of, and is reputed to have several good effects on heart health, but i have no health insurance and would rather use something i can get without a prescription.

PeggyM

I have been taking Natto for several months and have had no problem with sleeping. However I just take one capsule in the am. The brand I use is NSI Nattokinase 100mg (2000 FU) 90 caps. I buy them from Vitacost.com for 34.95 per bottle (90 caps) or 3 month supply. Does anybody know anything about this brand?

Gordon

Laurel - I've been taking NK for almost a year and have no sleep problems.

Remember, it's the nightly dose that is the critical one because of the PAI-1 factor I mentioned in the survey. We are most at risk for developing a clot in the wee hours or early am 8 - 9.

My recently acquired audio tape says it is okay to take it with food and the half life is between 8 and 12 hours....so possibly, if you counted back to something in between - like 10 hours and ate a snack with it, you might not have the problems you are experiencing. I would, however, choose to take the Allergy Research Product, though, because that's the one Dr. Holsworth says is okay to take with meals...in fact he encourages it.

Jackie

Hi All,
Just checked online to see about purchasing natto. It is possible- see below- but beware as this brand at least contains MSG.

Lynn

Natto - 3 pack 019259 (3units)
Genki Natto Konbu, Price $26.55 includes overnight shipping
Net wt 4.2 oz (120g) per pack, Total wt 12.6 oz (360g) 3 packs, each pack contains 3 cups.

In Stock Price Qty
Y $30.53

Detailed Description

Natto is fermented soybeans which has been a traditional Japanese staple for thousands of years. It is highly digestible and a nutritious superfood rich in vegetable protein.

Natto has a certain characteristic taste and smell. It is notorious for it's nutty flavor, disturbing aroma and stickiness. Its medical benefits are now widely recognized. Some of the benefits of Natto are the prevention of heart attacks, strokes, cancer, osteoporosis, obesity, and intestinal disease.

Natto lasts as long as it is frozen, but once it becomes thawed Natto should be kept refrigerated and consumed within a few weeks.

Natto is usually eaten with rice. The most popular way to prepare Natto is:

Stir Natto in a bowl. Stir fast but do not mash.
Pour packages of sauce and mix.
Put this on steamed rice and enjoy.
You can also eat Natto with miso soup.

NUTRITION FACTS

Serving Size: 1 pack (40g)
Serving per Container: approx 3

INGREDIENTS
Soy bean, soy sauce (water, soy bean, wheat, salt), sugar, high fructose corn syrup, salt, extract (bonito, seaweed), MSG, seaweed, vinegar, bonito

Percent Daily Values (DV) are based on a 2,000 calorie diet.

Hi Lynn,

I started on Natto yesterday. I went to my local Jap/Korean food store and from the freezer section bought a 3 pack of natto (150gm per pack) for $4.20 Aust. (1 Australian dollar is about 80 cents US). Your 3 pack for $26.55 sounds a bit overpriced? Have you tried locally? From what I have gathered it is freely available in most Asian food stores, be it Jap, Korean or Chinese.

The natto I purchased comes with flavour enhancers such as soy sauce and bonito extract. These were wrapped separately so I discarded them (high salt etc. etc.) and just ate the natto as is.

First 2 spoonfuls I dry-retched but after that got use to the stuff. I might try it with a dash of low salt soy sauce or sweet

chilli sauce just to take the "edge" of it. I am not as sensitive to preservatives as most afibbers so can experiment a bit. One other thing, my family laughed at me and treat natto with utter contempt and disgust. Especially the smell! So be warned!!!!

Dean

Hi Dean,

Would you be able to give me the details (phone no) of where you bought natto? I live on the Sunshine Coast - Queensland and I haven't been able to find any natto around here. I looked up Japanese food stores in Brisbane in the Yellow Pages - but the three that I 'phoned seemed to have closed down. They may be able to put me onto somewhere around here that I can try.
Thanks,

Maureen

Hi Maureen,
Try these places:

Brisbane Area
J-Top's
(07) 3870 8800
165 Moggill Road, Taringa, 4068

Japan Mart
(07) 3878 7611
8 Station Road, Indooroopilly, 4068

Fuji Mart
(07) 5597 2822
Shop 8, Benowa Gardens Shopping
Centre, Ashmore Road, Benowa, 4217

Also try Korean and Chinese food stores. Natto is in the freezer section.

The Asian store keepers can't understand our pronunciation of the word n a t t o so are liable to say "no, we don't stock it" so also mention that it is fermented soy bean, then they realise what we are after.

David S in Brisbane is also after natto.
Cheers

Dean

Hi Lynn and all... couple of comments about eating natto, the food.

It should be organic and clearly marked that it is produced from non GM soy.

Second.... natto is very high in vitamin K .... I'm not sure that afibbers should be thinking it's good to consume a lot of vitamin K.

The enzyme works on stimulating the body's own anti-clotting enzymes and so helps prevent clotting and in theory should be great, but someone needs to determine if afibbers are safe in taking it.

Now, if you have no AF like Lynn and Dean... that's different...but I'd be very cautious about the food until we find out for sure if it is okay to take.

I know that people on Coumadin cannot consume the natto (food) because of the risk of clotting.

Last, I'm not sure if freezing destroys the enzyme or not. That might be a consideration.

I wish I could locate it here to try. Lynn, I'm not about to pay $26 for a 99- cent a package product..... and I would not want the MSG or the high fructose corn syrup. That product you mention isn't "pure" natto.

Just some thoughts while we're learning.

Jackie

Hi Jackie,

The reason I am trying natto is not only its anti clotting power but also for fibber (supply's third of daily requirements) and Vitamin B12 and K . Also for my GERD (helps digestion) and bowels. I have low stomach acid because of PPI's so will I absorb more of the good things from Natto?

The corn syrup (dried), MSG etc are in the SEPARATE satchels of my natto. The natto comes in square plastic foam containers (like McDonalds hamburgers used to be) and the satchels with the sauces are INSIDE the foam containers. I just throw out the satchels leaving only the raw natto left. MSG does not affect me as much as other afibbers.

As for GM modified it is imported from Japan so aren't they anti GM foods? I eat so many "hidden" GM foods now I frankly don't care anymore. I would go mad trying to weed out the GM foods from my diet. This horse has well and truly bolted……why upset yourself further?

I don't mind being a guinea pig for this either so will keep you informed.

Also how often should it be consumed? Daily or say 4 times a week?

Thanks for all you research on this, you are wonderful.

Dean

Dean - I'm winging this a bit from memory and I need to replay the tapes again....

One thing I know for sure.. low stomach acid makes it very difficult to absorb nutrients. So you are thinking in reverse with your reasoning.

Vitamin K may or may not be an issue for you. Depends on what your levels are of.... C-reactive Protein, Ferritin, Fibrinogen, Homocysteine...
We all need some for the natural clotting mechanism. People with highly viscous or (thick) blood do not need and should not have extra K. Afibbers are in this group. However, none of the experts I've read discuss AF, perse.

I'm glad you can toss away the seasoning...especially the HF Corn syrup...that's a killer in itself.

The reason I mention the non GM products is because the body doesn't really know how to respond to the GM foods. So while I understand your contempt for trying to selectively eat "pure" foods, you may be circumventing your intentions of doing good.... I mean you could be trying to eat foods that are good for you but thru genetic modification, provide bulk, not nutrients. This is the big argument for pro and con GM foods and why some countries don't want them

in their food sources. They just don't know how the body handles them. And studies aren't being done to find out. I agree. Foods are loaded with the GM ingredients.

As for consumption...again.... I'm not a natto (food) expert.... I'll refer to my notes and the tape. I believe I indicated in the NK Summary that six tablespoons a day was equivalent to a dose. If I learn differently with these new tapes, I'll post it.

I'm glad you are willing to be a guinea pig and hope you keep a little journal or diary about your intake, experiences, etc....so that we can include it down the line after those of us who are volunteering to be experiments of one... can offer some collective testimonials... good and bad about what the pill or the food offers for us.

Thanks and good luck. Dr. Holsworth keeps saying as he laughs...on the tape...."it's an acquired taste"...so if you are managing to eat it, good for you. I like weird things and I'd really like to try it.

Jackie

Dean
Thanks for the addresses in Brisbane. Two of those I have already tried - and got no response from the phone numbers. I see on another posting that you have given another address. I'll try that - thanks for your help.

Maureen

The most important issue for active afibbers remains the vitamin K content and the fact that natto (food) contains loads of vitamin K (which assists with the clotting mechanism).

This could be a contraindication for afibbers to use. My gut instinct is that active afibbers should not use the food.

My survey was only on the nattokinase (enzyme)...the product extracted, studied and tested. I mentioned the food as a matter of information because of the history.

I found no studies or references to using the food to help reduce clotting in afibbers...to the contrary, I commented that if nattokinase (the enzyme product) is combined with warfarin (Coumadin)...then the physician who supervises this must check with the manufacturer to make sure that all traces of vitamin K have been removed because of the risk of possible clot formation.

I want to go on record as stating that I am not recommending the food for active afibbers.

People who are jumping on the natto (food) bandwagon are taking the information in the Nattokinase Interim Survey out of context and it could be dangerous.

Be forewarned. The enzyme is safe and recommended.

Jackie

LEF sells a product which includes 10 mg of Vitamin K, with a warning directed (if I remember correctly) only at patients on prescription blood thinners. I would wonder why active afibbers not on blood-thinners should be concerned by Vitamin K in natto, when we're not warned not to eat green vegetables which also contain lots of K.

According to LEF, K can help prevent damaging calcium deposits in joints, blood vessels, and heart valves.

Bill

Today I wondered whether someone with a normal INR (somewhere around 1) who is not on Coumadin should be concerned about eating large amounts of high vitamin K veggies?

Would that thicken the blood and make an individual more susceptible to blood clots?

Isabelle

If eating vegetables could be dangerous, vegetarians would have more blood clots than us carnivores, and that is not true.

PeggyM

These are the questions I'm trying to which I'm seeking answers....

Vegetarians don't have the problems with inflammatory prostaglandins and cytokines coming from meat proteins... Anyone on a paleo diet is going to be generating some of these... and why the intake over-abundance of Omega 3's is so important...to keep inflammation levels low.

Remember, it is the inflammatory process that causes all cardiovascular problems.

From my limited knowledge in the area of vitamin K, I know the body needs normal amounts from food for the natural clotting mechanism which is protective to us when we have trauma...or we'd all bleed to death.

Adding K2 seems to be a new trend regarding bone health and LEF is pushing that. However, afibbers are special people with special considerations and I don't think any of us should consider taking any form of additional vitamin K unless advised by the cardiologist.

If I can find definitive guidelines.... you can be sure I'll be posting it immediately. In the meantime, I issued this disclaimer because we just don't know. In the reams of paper I've sorted through on NK, I've not seen one reference about the advantage for afibbers to use NK (although it surely is one) and therefore, I'm not at all sure a blanket statement about substituting natto (food) for the enzyme preparation NK, is advised or safe.

It's better to err on the side of caution.

There is nothing to indicate eating copious amounts of vegetables is contraindicated for anyone. Even those on Coumadin can do it as long as it is done consistently. We can't do without the nutrients in veggies. The problem comes up when trying to stabilize dosing. Lynn ate all her veggies and maintained her INR but she weighed everything down to the last leaf of spinach consumed so that her INR would be consistent.

My normal INR runs about 1.5 to 1.6. Remember, the action of NK is not reflected in an INR reading. It is suggested that watching protime when transitioning from Coumadin to NK or combining the two is appropriate...but only for the Coumadin dosing. My protime is always at the high end of the range and that's because of the other natural products I consume such as fish oils.

As said in the NK Interim Survey, the only measurement of whether NK is working in the body is by the measurement of the fibrin degradation products.

Jackie

Jackie and all,

Here is the only source of Natto I can find here in the UK:

http://www.healthy.co.uk/products/nattotabs.html

Does this product look OK to you Jackie? I cannot ascertain whether or the not the tabs are enteric coated, but having bought a small 10 pack to look at , they appear to be a hard tablet as opposed to a soft gel or the like. I seem to remember that they should be enteric-coated to be of any use (i.e. not destroyed in the stomach but instead passing through unscathed to be then absorbed in the intestines)?

Thanks,

Mike F.

Mike,

I bought my original bottle of nattokinase [Allergy Research]from www.nutricentre.com in London.

The next one [wobenzyme] from iherb which was a lot cheaper even with postage.

When I last looked on the iherb site I thought the postage rates had increased and their postage method changed to one which will attract a UK customs charge.

As I don't need any yet I haven't pursued it further.

Joyce

Mike- when you use the term, Natto, you refer to the food item.

I presume you mean the enzyme product, Nattokinase.

I think Joyce has helpfully answered your question, but I'd like to add some comments. I'll check out the URL you give.

When we don't know anything about the brand, it's difficult to say whether the product is pure, assayed or will be effective. We know the reliable brands to be the Allergy Research and the NK product from Wobenzym.....unless something surfaces about the impurities of raw materials mentioned in another post.

Based on what I've just posted in the other NK thread... I'd go with Allergy Research since their product is tested and used by Dr. Holsworth in his clinical trials - the one with which he's seeing the results and you don't have to worry about the enteric coating issue with it nor do you have to take it separate from meals. These are capsules.

I'm currently taking the Wobenzym product (by Naturally Vitamins) which is enteric coated tablets but plan to switch when I need to reorder....just to see if I notice a difference. Most likely, there is nothing inadequate with the Naturally Vitamins since both Erling and I have noted significant, positive results.

Just remember, the important issue is blood viscosity and the most important dose is at night. Active afibbers should not be consuming less than 2,000 FU as indicated by the label equivalency. If you can't determine fibrinolytic activity, then don't buy the product.

I'll get back after I check the URL.

Jackie

Mike - I've just looked at the URL for the product you mention. It appears to be okay. From what I understand, the enzymes offered by Japan are cultured and produced in such a way that you don't have to worry about the enteric coating.

Now all you have to do is determine the FU activity - fibrinolytic unit to reach the maintenance dose of 2,000 FU daily.

If it is easiest to purchase those, I'd go ahead. Most likely, this product is another name for the Flite Tabs brand.... hence the small quantity in one box. The company here in the US offering Flite Tabs offers 8 capsules but if you want a larger supply, then they offer it as "Nattokinase.: Probably the same company or an affiliate, changing names because of marketing, or other corporate structures. I think most of the enzymes in Japan all come from the same source which is tied in with Dr. Sumi's research group and the enzyme firm he organized.

Hope this helps.
Jackie

Hi Guy's,

The importer for Aussie is Japan Food Corp (Aust.) P/L at Building D1, Woodcock Place, 16 Mars Rd, Lane Cove NSW 2066. (no phone number).

Pack is labelled Yamada Foods - JONA and comes in a 3 pack at 50 g per each from the freezer section. There are several "flavours". The Red colour (have already tried but without the sauce) @ $4.20 is the normal flavoured one and the Green coloured pack is the organic variety @$3.50 is cheaper. (strange, organic is cheaper). I have just purchased the organic to try. The sauce with all the "bad stuff" comes separately so can be thrown out.

Jackie says that 6 tablespoons is a normal daily dose but there would only be 3 tablespoons in each of the 50g packs.

As it is frozen Jackie is not sure if the enzyme is still active and will find out for us.

Best of luck with the taste test - a real experience!

Dean

Thanks Dean, looking forward to the taste test. I've been trying to source the nattokinase enzyme (not the food) in Australia, but without success. Any suggestions?

Regards,
Michael

Dean - Thank you for that address.

Michael - I too have been trying to find NK in Australia and have made enquiries all over the place - to no avail. I now get it from the States.

Maureen

Does nattokinase interact with other drugs?

My Electrophysiologist wants me to start propafenone and a baby aspirin and stop taking the nattokinase. He doesn't know anything about NK so he wants to stay away from it.

Are his objections groundless?

Adrian

Adrian - in my opinion - yes. There are many more side effects to aspirin than NK....and they each work on different portions of the clotting mechanisms.

If you continue to take NK - then don't take the aspirin. However, he won't be able to "tell" by your blood tests...so you can just do your own thing...or do as he says. Up to you.

There is no good reason other than he doesn't know anything about it for you not to be taking NK.

Jackie

Hi Jackie,

I was just looking at a Mercola page and came across this item re vit K (Not K as in potassium) can you comment or dig some of your references/tapes up re this to natto the food? As I/we would like to pursue the “food” angle re the benefits as stated by Mercola. I know that the product/brand would be different in the US but that would be up to me/us to pursue the GM and organic origins in our market place.

I just copy/pasted this bit from Mercola web page:

That said, he does suggest in articles throughout Mercola.com that some supplements may be necessary for many people, such as Vitamin K http://www.mercola.com/forms/vitamink.htm, which is therefore the one supplement offered in his store http://www.mercola.com/forms/vitamink.htm. He explains:

Vitamin K is commonly found in dark green leafy vegetables like collard greens and spinach that most people do not consume enough of. It is found in its highest concentrations in fermented foods like natto, a fermented soy product that has been a staple food of eastern Japan for over 1,000 years but that has not generally caught on with the Western palate. Research has shown a very significant correlation between the consumption of vitamin K through these foods and a reduction in bone fractures, heart problems, and more.

While many Americans are not even getting the Recommend Dietary Allowance (RDA) of vitamin K, there is significant evidence http://www.mercola.com/2003/may/14/vitamin_k.htm that the RDA is too low. What’s more, vitamin K is not easily absorbed by the body, and so the levels found in foods are not all being taken in by the body -- taking the vitamin K supplement I offer http://www.mercola.com/forms/vitamink.htm with meals that include fat is highly recommended.

When doing your own "due diligence" to research a supplement, it's obviously worthwhile to obtain third-party information about the product, such as the research and evidence offered for Vitamin K above, versus just being inspired by the claims on the product package or advertisement. A host of other supplements may be necessary for those with certain conditions, and it’s worth searching this site by inputting the name of whatever condition you are interested in to find more information.

Thanks as always, you a family have a happy Easter,
David S vlaf 67 yy

Hello, all, this is an update on the result of my nattokinase experiment. I am about three-fourths the way thru the first bottle, and am noticing a clear bp lowering effect.

As you may recall, i have previously to this been relying on bedtime aspirin for bp lowering, and having good success with it. Anybody curious about this can find it in the archives, search using bedtime aspirin as a search term. Some little time back i added 5 mg lisinopril to that, taken in the morning, so as to control the 2-3 pm lesser bp surge, and was well satisfied with this combination.

Thought i ought not to take aspirin and nattokinase together, so i discontinued the aspirin and went back to 10mg lisinopril taken at bedtime so as to minimize the early morning bp surge. Several days ago i began to get real low readings on my home bp machine, so i went to 5 mg lisinopril at bedtime. In a few days that too began to produce quite low readings, so i tried omitting the lisinopril altogether.

The last dose of lisinopril was taken 3/26, Saturday night. Monday and today, the highest reading i have gotten was 133/78, Monday morning at 4:15 am, right after getting out of bed. Averaging all of Monday's readings together, the average was 115/74. This morning at 4:29 am, the reading was 125/71. Averaging yesterday and today together gives 116/73. This seems pretty good to me for as fat as i am and as inactive as i am.

Will keep you posted on further developments.

PeggyM

Hi Jackie,

It's lunchtime in Aussie and just had my 3rd batch of natto. Have been away for Easter and forgot to take my natto so had to start again. I'm now use to the taste but lunch is definitely the best time to eat it. Too hard to stomach in the morning. A couple of questions:

-You said "The most important issue for active afibbers remains the vitamin K content and the fact that natto (food) contains loads of vitamin K (which assists with the clotting mechanism)".- I am confused here. Is natto, the food, an anti-clotting agent or encourages clotting? I thought nattokinase was an anti-clotting agent? Can you clarify please?

-I am eating 50g (3 tablespoons) about 5 times a week. Surely this is not damaging? After all the Japs have been eating it for 1,000 years.

-Have had no PAC's on every day I have consumed natto so far. It has really quietened my digestive system. No stomach "growling" or gas! This is what I am mainly taking it for.

Thanks in advanced.
Dean

Dean – First – hope your Easter holiday was pleasant.

I'm certainly happy to hear the natto food is palatable for you and it seems to be making a difference or is at least compatible with your stomach situation. The enzymatic reaction in fermented foods is said to be the very beneficial.

Now… I'm working to get to the bottom of this confusing issue regarding natto/ nattokinase and the vitamin K issue. I agree this is confusing.

People who have to worry about or are at risk of abnormal clotting or hypercoagulation, do not need extra vitamin K. In fact, those people on Coumadin very definitely cannot have any vitamin K.

This refers to people with diabetes, uncontrolled hypertension, previous heart attack, stroke, those with the genetic defect in Leiden V factor, , some pregnant women and, obviously….active afibbers.

The food is very high in vitamin K… and yes, it has been consumed in Asian cultures, especially, Japan, for over a thousand years. My understanding, after reading the history and other data, is that because of the properties of natto food, people consuming it have the benefit of enzymes and especially the nattokinase that is present in the natto food when a substantial amount is consumed regularly.

This enzyme is efficiently cleans out their blood vessels and keeping them free of atherosclerotic plaque and excess fibrin which means the blood viscosity is low…and historically, these people have a low incidence of cardiovascular disease. I have not seen any references to the prevalence of atrial fibrillation in this population. So the populations eating it for thousands of years, already have a built-in mechanism or a natural anti-clotting mechanism enhanced by the ingestion of natto, the food. We could say, they are a low-risk population, or were until they became victims of the Western way of eating…fast food etc.

When commercially isolating and preparing the enzyme for use as a medical food, the vitamin K is removed. Some manufacturers are not as careful and some nattokinase will still have some amounts of vitamin K. For this reason, Dr. Holsworth, who is the leading researcher on nattokinase, cautions physicians and others who take NK in a supplement form, that they should verify with the manufacturer that the end-product is pure and assayed to contain no impurities, bacterial contamination or vitamin K. Vitamin K in nattokinase is considered an impurity, according to Dr. Holsworth.

This would mean to me that the low-risk population can consume the food, natto, and gain health benefits, but populations who have a propensity or tendency or are in a risk group for developing clots, should not consume anything food or pills that contains vitamin K.

Once I receive a response from one of the experts to verify this, I'll be posting it. In the meantime, I am repeating my cautionary note that anyone with active AF should not use the food and should not take any supplement that contains vitamin K.

As I mentioned in another recent BB post, every afibber should know their levels of
C-reactive Protein
Homocysteine
Ferritin
Fibrinogen
Lipoprotein(a)
Hemoglobin A1C

…and if these levels are all within acceptable limits, then they most likely are at lower risk of cardiovascular disease and risks of clotting. But, because inflammation and high blood viscosity are seen as chief culprits in clot formation, it is important to know where you stand with these numbers. They are recognized as the current and most important markers. Cholesterol is taking a back seat to these markers. This is not new news. It's been recognized in holistic circles for years. [But the focus has been on statins to lower cholesterol...and indeed it has not decreased either the risk of CV disease or heart attacks - in fact many heart attack victims have low cholesterol...and many older patients with higher cholesterol are not having heart attacks.]

Know your numbers and then proceed accordingly…if there is little risk, then most likely, the vitamin K in the natto food would not be harmful. However, I have no official position on that at this time from anything I read to date.

Travel at your own risk if you are going to use natto food. I would not use it if there is active AF going on. The pure enzyme product will be the most beneficial in that case.

I understand the reasons for using the food in Australia…and perhaps other countries with restrictions, as well. But for now, only those people who do not have active AF should consider eating the natto food, unless their doctor tells them it is safe.

I'm sorry not to be able to give you conclusive evidence one way or the other. I'm currently compiling part II of the NK

Survey so stay tuned for that and more current information.

Best regards,
Jackie

Hi Jackie,

Thanks for the detailed reply. A couple of observations here:

- Regarding Vitamin K and Dr Mercola's statements above. Being on the average Western diet and not liking fruit I would most certainly not be receiving my daily Vitamin K allowance so with the 50g of Natto daily(half the normal dose I believe) I don't think overdosing is an issue. On the contrary, I would now be getting close to where Vitamin K consumption should be. It seems maybe natto the enzyme acts in concert with Vitamin K to thin the blood and make the cell walls "slippery" so they don't clot together? This is the paradox of it.

--Natto the food "fills you up" very quickly. One serving and a banana does me for lunch. This feeling of "fullness" stops you from gorging excess food so it is a wonderful weigh reducing meal! Maybe why the Japs are so skinny as well. It satisfies your hunger.

-The stickiness of natto is like when you glue two things together and half way through the drying time you separate them. The sticky stuff of natto is the actual natto enzyme.

-I have noted your warnings but hey, somebody has to be a guinea pig. As my afib is "under control" and I have no underlying heart disease I will continue the natto experiment. It is such a strange food it has me fascinated. I like trying weird foods too.

You picked a fascinating piece of food to study.

Thanks
Dean

Prevention of Heart Attacks, Strokes and Senility

Pyrazine is an enzyme that gives natto its distinctive smell. It prevents blood from clotting. Nattokinase is another kind of enzyme discovered by Dr. Hiroyuki Sumi, now a professor at Kurashiki Art Science University, during his research in 1990 at Chicago University. As its name implies it is produced by the natto fermentation process, and is contained in natto's sticky part. It is very powerful agent that dissolves blood clots. Blood clots obstruct the flow of blood, leading to heart attacks, strokes and senility among other diseases. It is said that 60 percent of cause for senility among Japanese elders is due to blood clots in their brain.

Therefore natto, with pyrazine preventing blood clotting and nattokinase dissolving it once it forms, is very powerful natural medicine preventing and possibly treating brain infarction, cardiac infarction and brain apoplexy. An enzyme called urokinase, extracted from urine, is being used as a drug to dissolve blood clots, costing 20,000 yen (about US$200) per dose, but it only lasts for about 30 minutes. In contrast, just 100g of natto give the same effectiveness at a fraction of cost (about US$1). Moreover, once absorbed in our body, nattokinase continues to be effective for about 8 hours possibly because it has fewer detrimental side effects than urokinase.

Natto has been a staple food in the Japanese diet for a very long period of time; at least 1,000 years. It is popular among the people who live in the eastern part of Japan. The recent per capita consumption of natto in Japan is about 2 kg annually. Natto has not been known for any negative side effects so far. It is also not particularly known as allergen. Those who are taking warfarin for preventing blood clots and heart disease, however, are advised not to eat natto because of its high content of the Vitamin K may impedes warfarin's effectiveness. In Japan advising patients not to eat Vitamin K rich food such as cabbage and chlorella while under warfarin medication is a standard practice. Vitamin K tends to congeal blood. Natto is very rich in Vitamin K as well as pyrazine and nattokinase that prevents or dissolves

blood clots. So natto has contradicting medicinal properties. One explanation for why our body takes so long to neutralize nattokinase without being negatively affected is that it is not "foreign" to our body. If that is the case, our body may be able to selectively use Vitamin K for congealing blood, and pyrazine and nattokinase for preventing or dissolving blood clots as necessary. That may explain the reason there is no report of natto causing uncontrolled bleeding.

Some doctors in Japan started prescribing natto instead of warfarin on an experimental basis. Some patients with retinal-vein-blockage-disease, a disease causing blood clots to occur in retinal veins and hemorrhaging in the retina were instructed to eat natto twice a week, and had very positive results. (Yuhobika, March 1998 issue)
Professor Hiroyuki Sumi says brain infarction and myocardial infarction tend to occur around 10:00am on Monday mornings. So he says the most effective time to eat natto is during the Sunday supper. Since nattokinase enzyme is sensitive to heat and loses its effectiveness above 70 degrees C, eating raw natto gives the best protection.
Lecithin and linoleic acid, rich in soybeans, purify the blood. Soybeans' protein preserves the elasticity of blood vessels, and prevents coronary heart disease, brain apoplexy and high blood pressure as a result. It follows that if natto, which is made from soybeans, is eaten as a staple food, these typical adult diseases may be prevented or improved.

Harvard University's 1989 research on 20,000 male American doctors concluded that one aspirin a day reduces heart failure due to blot clotting by 44 percent. However, recent research says that eating soybean products every day has the same effect. Aspirin tends to make blood easily soluble, and it is known to cause bleeding even from a healthy stomach. I would tend to think it is not a good idea to take such drug everyday even the mainstream medical authority recommend it. According to a Japanese joint research by the Ministry of Health and Gifu Medical University on 1,242 male and 3,596 female subjects from Takayama City's 31, 000 residents, the more the subjects eat soybean products, the lower their cholesterol levels.

Improvement in Digestion and Prevention of Intestinal Disorders

Under good conditions, natto bacteria can double in 30 minutes, producing various enzymes that help digestion. They breakdown soybeans nutrients that are difficult for humans to digest. These enzymes include protease that breaks down protein into amino acids; amylase that converts complex carbohydrates into glucose; lipase breaks down neutral fat into glycerin and fatty acids; cellulase breaks down fibers into simpler carbohydrates. Others are urease, peroxidase, catalase and pectinase.

Most of the bacteria beneficial to the intestines such as bifidus are killed in the stomach by the acid before they reach the intestines if taken orally. But natto bacteria are able to survive the journey and reproduce in the intestines where they aid digestion. A large amount of cellulose present in soybeans, which in combination with oligosaccharide the natto bacteria produce, help beneficial microbes such as bifidus to reproduce. The dietary fibers also help getting rid of waste materials and carcinogens. But modern Japanese eat an average dietary fiber of 17g a day that is falling short of the recommended amount of between 20 and 25g. One hundred grams of natto contains seven grams of dietary fibers.

Anti-aging Effects and Prevention of Obesity

Lecithin acts as an surfactant. It is found in high quality conscientious natural cosmetic products. It balances fat and water in skin cells and on the skin surface. It is said that Japanese women's smoother and softer skin compared to that of Europeans and Americans is due to their higher consumption of soybeans and other foods that are high in lecithin. Lecithin strongly emulsifies the surplus cholesterol in blood and on blood vessel walls and help expels it from our body. Soybeans contain 18 percent of the fat. However, 85 percent of the fat is essential unsaturated fatty acid called linol acid and linolin acid. Linol acid accounts for between 50 and 60 percent that is characteristic to soybeans. Linol acid and linolin acid both also have the similar function as lecithin; therefore, it is said that soybeans prevent the aging of blood vessels and strengthen them. They also prevent high blood pressure caused by hardening of the arteries and obesity by reducing body fat.

Soybean protein also curbs the accumulation of body fat by heightening the activity of the thyroid gland hormone that in turn accelerates the burning of fat. In addition, the inflavin and flavonoid present in soybeans have a similar nature to female hormones. Therefore eating one package of tofu daily is recommended for the American women approaching menopause, instead of using hormonal drugs with adverse side effects. Natto is rich in Vitamin E and

other forms of vitamins. Vitamin E is anti-oxidant and aids circulation of blood in the periphery vessels. Therefore, it prevents skin from damage and keeps it young.

Antibiotic effect

Natto bacteria has an anti-bacterial effect on pathogens such as typhoid bacilli and amoebicdysentry and 0-157 (Enterohemorrhagic Escherichia coli:EHEC) that causes Hamburger disease. Dipicolinic acid which natto bacteria produce has also been proven to be an anti-bacteria agent according to a Japanese research. In tests done by Nagano Prefecture Public Health Research Facility, 30,000 parts of 0-157 E-coli were reduced to less than 40 parts by natto extract.

Long time ago when there were no anti-biotic, natto was used as one kind of "medicine" against the infection of dysentery, typhus and other intestinal disease. In 1936, in a pre-war Japanese Imperial Naval research, Naval Medical Lieutenant Arima Genkai conducted the "Experimental Natto Research on its Anti-Dysentery Effect." His thesis confirmed natto's anti-bacterial effect. He stated "natto eliminated para-typhus bacteria excretion in a short period of time from a patient who did not respond to all other treatments for five months." (Naval Medical Journal, University of Hokkaido Medical Journal 1936-1938)

A Japanese research on the bacillus bacteria family, of which natto bacteria is a member, found they produce a number of anti-biotic such as bacitracin, polymyxin and urethin. (Japan Journal of Bacteriology 1980) The spores of Natto bacteria inoculating in the small intestine, and suppressing disease-causing pathogens such salmonella bacteria has been know in Japan for long time. (Ozawa Kyousuke, Eisei Gijutsu Kai Publication, 1983, Okayama Prefecture University Assistant Professor /Kurashiki Art & Science University Professor Dr. Sumi Hiroyuki, living Okayama Number 595)

According to a survey conducted in 1996 after the mass-infection of the 0-157 virus occurred at a Gifu City elementary school, which focused on the relationship between the infection of 0-157 and lifestyle and eating habits, students who occasionally, that is between one to three times per week, ate natto and students who ate absolutely no natto had a much higher likelihood of catching the O-157 disease than those who ate natto more than three times a week.

Dean - thanks for your report and interest in natto food.

I have an article or a study coming to me by snail mail that states that vitamin K2 does not have clotting properties. This would seem to mean that eating natto food is safe for active afibbers. That said, the audio tape I have by Dr. Holsworth, implicitly states people on Coumadin should not use a product that has not had the K2 removed, due to the possibility of forming a clot. I've also written to him for clarification. If I am fortunate enough to receive a response, we should have ample data to put our minds at ease.

Meantime, you are a great resource for the practical experience - a clinical study of one - and I hope you will continue to post your observations from eating this medical food.

From the other post, it appears to have far reaching therapeutic benefits.

Thanks again for your input.

Jackie

David - Thanks for this - I have read it and it adds to the confusion which I now believe may be clarified. See my post today to Dean...

It would appear that vitamin K 2 - of which natto has high content - does not form clots and is indeed healthy for bones and blood vessels.

What remains unclear to me is why the producers of the enzyme remove all traces of vitamin K... perhaps there is both K1 and K2 in the food.

Apparently, it is because of the ability to combine NK with Coumadin when under a doctor's supervision...and they don't want to risk any outside influence from any form of vitamin K.

Dr. Holsworth says that vitamin K in the enzyme form is considered an impurity...and only the purified, certified form should be recommended and used by physicians planning combined dosing - NK and Coumadin.

As I mentioned to Dean... I've written two experts for opinions/clarification and if I am fortunate enough to receive answers, I'll be writing it all up in final form.... I have other clarifications to post as well...so stay tuned.

Meanwhile, it looks as if the food natto is okay for afibbers to use..that's good news in that it also has other health benefits..thanks to Dean's report... and is certainly very economical.

Best to you, too, David.

Jackie

Jackie,

Thanks for the good information about Vitamin K2. I was beginning to become a little apprehensive about eating sticking with the natto because of this.

Have now found a way to make natto a little more appetising by adding 2 drops of low sodium soy sauce (yes, I know, probably contains GM modified foods!). Seems to take the stickiness out of the natto too. Will report regularly on my progress.

Dean

Dean - the issue with soy sauce for some people is that there is MSG in it... the processing of the soybeans, I believe...If it doesn't bother you, then the only issue you have to be concerned with is the glutamate and brain issues. Taken in small doses hopefully isn't a problem. Many people consume a very large quantity of soy sauce as part of their diet.

I wouldn't worry about the GM in the soy sauce... a larger concern is with the soybeans themselves for many reasons. If you have a choice, then opt for organic which should mean they are non-GM.

I'll be interested in your ongoing experimentation.

Jackie

Have posted to the regular bb about BP rising once more so that I had to resume BP medication. Here is the link:

http://www.afibbers.com/forum/read.php?f=6&i=7370&t=7370#reply_7370

PeggyM

Peggy - it could be just too soon.... how long have you been on BP meds?
Just continue to monitor and continue dosing with both the meds and NK.
We are all experiments of one.

Jackie

Natto and vitamin K2 – there's more to this than anti-clotting

Initially, I was concerned over the use of the soybean curd, natto, and the vitamin K content. I have received some helpful information in alleviating the concern; I'm awaiting final clarification from another source, but for now, following is what I've learned. Thanks to Dr. Wong who provided me with this K2 article.

The food, natto, is very high in vitamin K2. Vitamin K1 (phylloquinone) is involved in the clotting mechanism. Vitamin K2 (menaquinone or MK-7) is not involved in blood clotting and in fact, is helpful in reducing the incidence of osteoporosis and reducing calcification in arteries. This property is covered in a later section.

The use of the word, natto, throughout this post indicates the food or fermented soybean curd. [The term NK, stands for nattokinase the enzyme found in the curd and also that which is isolated and purified to be used in supplement form.]

From studies aimed at influencing bone building, especially in osteoporosis, vitamin K2 was studied for 5 years to determine fracture and mortality rate in men and women age 60 and older, and out of these studies, came evidence that K2 was not a safety issue with hypercoagulation for people who were not taking anticoagulant therapy (warfarin/Coumadin).

1) From a large number of clinical trials using dosages in excess of 40 mg/day, there were no reports of side effects associated with any type of hypercoagulable state. Both animal and clinical studies support the conclusion that vitamin K2 has no abnormal hemostatic activity.

2) Rats given a dose of 250mg/kg body weight/day for 10 days resulted in no appreciable change in blood coagulation characteristics or platelet aggregation.

3) 29 elderly, osteoporotic patients given K2 (15 mg three times daily) 30 minutes post meals for 12 weeks and monitored for any chance in hemostatic balance showed all hemostatic markers remained within normal range.

4) In another study examining the effects of K2 (45 mg/day) and D3 (1 mcg/day) on Bone Mineral Density (BMD) in postmenopausal women found increases in both coagulation and fibrinolysis were noted, but remained with normal range and in balance with no adverse reactions observed.

5) It should be noted that the anticoagulant effect of warfarin, functioning by its interference with the clotting effect of vitamin K, can be offset with as little as 1 mg. of vitamin K. Therefore, the use of vitamin K is contraindicated in people on anticoagulant therapy.

Resource:
Items, 1 – 5 reported in a an article
"Vitamin K2 in Bone Metabolism and Osteoporosis" by Steven M. Plaza, ND, Lac, and Davis W. Lamson, MS, ND. and published in Alternative Medicine Review, Volume 10, No. 1, 2005.

Nattokinase and vitamin K content

Some nattokinase tablets or capsules are completely purified of vitamin K. These are the enzymes Dr. Holsworth endorses through Allergy Research Group identified as NSK-II capsules with NSK-SD @ 20,000 FU/gram. Also that which is endorsed by Dr. Sumi, who works with his own company, Japan BioScience as well as World Nutrition – their product is NattoVita.

Dr. Holsworth says that people taking Coumadin can take these pure versions of nattokinase because it only works on

the plasminogen system which is a separate and independent pathway to the formation of the thrombus compared to Coumadin which acts on the coagulation cascade. However, he emphasizes that patients must be supervised by their physicians to either combine dosing or transition from Coumadin to nattokinase alone. The reason both vitamin K1 and K2 are removed from his preference of product is for safety in combining doses. There is a specific patent for removing the vitamin K so it is doctor proof.

Dr. Garry Gordon, is in favor of supplementing with vitamin K2 as a way to improve bone and vascular health – He says it is unfortunate that all the vitamin K2 is removed from nattokinase because of the health benefits…. He says with the use of vitamin K2, we will see less fractures in patients as they age and less calcification of their arteries. He tells doctors to switch every patient worried about osteoporosis from the ridiculous idea of just taking calcium as in Tums to something that makes physiological sense,….equal parts Calcium and Magnesium, since we do not want to further calcify their arteries. Vitamin D3 is also a necessary component of any bone building plan.

Published on Dr. Gordon's web site is an article by Dr. Holsworth… titled: "K2 – A simple way to Improve Bone and Vascular Health."

Here's most of the article http://www.gordonresearch.com/answers/vitamin k2_and_nattokinase.html

K2 A SIMPLE WAY TO IMPROVE BONE AND VASCULAR HEALTH
By Dr. Ralph E. Holsworth, Jr, D.O.

INTRODUCTION
Vitamin K exists in two natural forms, K1 and K2. All K vitamins are fat-soluble micronutrients. Vitamin K2 enables an enzyme (carboxylase) to change an amino acid (Gla) into specific proteins (osteocalcin and matrix Gla-protein). These specialized Gla-proteins produced in the bone (cartilage) and blood vessels bind calcium and direct the occurrence of calcium throughout the body. Therefore, Vitamin K2 (a.k.a., menaquinone-7) via these Gla-proteins regulates mineralization of bone and prevents calcification of blood vessels.

In 1929, Danish scientist, Dr. Henrik Dam discovered Vitamin K. The Danish meaning literally means "Koagulation" vitamins essential for proper blood clotting. In 1984, scientists reported patients with osteoporotic fractures had circulating Vitamin K levels which were 70% lower than age- and sex-matched control group (1)in bone and the decreased incidence of bone fractures in elderly patients. In the Rotterdam study, clinical analysis of 4,500 patients showed a correlation between long-term Vitamin K2 (menaquinone-7) intake and the lower incidence of aortic calcification (2).
In contrast to Vitamin K1, Vitamin K2 does not concentrate in the liver. Vitamin K2 works primarily outside of the liver (extrahepatic) in the bone and blood vessels. The richest natural source of Vitamin K2 is derived from a Japanese folk medicinal food called Natto.

VITAMIN K AND BONE HEALTH
Low Vitamin K Intake As A Risk Factor for Osteoporosis
In 1984, scientists reported patients with osteoporotic fractures had circulating Vitamin K levels which were 70% lower than an age- and sex-matched control group (1). These data were later confirmed showing that low blood level of vitamin K is also associated with loss bone mineral density, which independently is a risk factor for fracture (10-12). The beneficial effect of Vitamin K2 is related to the carboxylation of matrix-Gla Protein (MGP). Similar to another protein called osteoclacin that determines the mineralization and placement of calcium into bone. Studies show that Vitamin K1 is not as effective as Vitamin K2 for the prevention of bone loss. It was shown in the rat model vitamin K2 prevented calcification, whereas vitamin K1 had little effect (5).

Vitamin K2 supplementation is one way of insuring that arteries and bones receive sufficient amounts of Vitamin K2 to prevent osteoporosis and cardiovascular disease, respectively.

VITAMIN K AND VASCULAR HEALTH
Low Vitamin K Intake as a Risk Factor for Cardiovascular Disease
In the Rotterdam study, clinical analysis of 4,500 patients showed a correlation between long-term Vitamin K2 (menaquinone-7) intake and the lower incidence of aortic calcification (2). For vitamin K1 the observed associations

were weaker, which is consistent from Schurgers et al., suggesting preferential uptake of K2 by the blood vessel wall. The beneficial effect of Vitamin K2 is related to the carboxylation of matrix-Gla Protein (MGP).

Arteries without atherosclerosis (plaque) have 20-50 fold increase in Vitamin K2 concentration than arteries with plaque in the same human body (8). Arteries were found to be more flexible and elastic than other arteries without Vitamin K2.

Arteries without atherosclerosis (plaque) have 20-50 fold increase in Vitamin K2 concentration than arteries with plaque in the same human body (8). Arteries were found to be more flexible and elastic than other arteries without Vitamin K2. Arteries in children are very flexible and stretch with sporadic increases in blood pressures but return to their initial form after the stress. This ability of the artery to stretch and "bounce back into shape" is called compliance. As we age, arteries begin to resemble the mineral deposits in old water pipes, becoming stiff and hard. Increased blood pressure as we grow older may reflect the lowering of compliance of our blood vessels. Our vessels thicken with calcium and other oxidized fats gradually narrowing the channels and restricting blood flow. The increased pressure on the narrowing patency, creates a "back pressure" which increases our blood pressure and the work of the heart. Eventually, the heart tires on the increased work and begins to fail. This failure is called "congestive heart failure."

Vitamin K2 supplementation is one way of insuring that arteries and bones receive sufficient amounts of Vitamin K2 to prevent osteoporosis and cardiovascular disease, respectively.

KEY POINTS

• ABSORPTION - You only get what you absorb and with only a 10% absorption of Vitamin K1 from vegetables, you are receiving "pennies on the dollars."

• PREVENTION OF ATHEROSCLEROSIS - Vitamin K2 suppresses the progress of atherosclerotic plaques, intima thickening and pulmonary atherosclerosis (3). Populations that consume higher levels of vitamin K2 have fewer cardiovascular related health issues, and research comparing healthy artery walls to artery walls with high calcification have 20-30 times higher vitamin K2 concentrations (4).

• PREVENTION OF BONE LOSS/FRACTURES - Studies show that Vitamin K1 is not as effective as Vitamin K2 for the prevention of bone loss. It was shown in the rat model vitamin K2 prevented calcification, whereas vitamin K1 had little effect (5).

SUPPLEMENT RECOMMENDATIONS: Benefits for bone and vascular health are in the order of 100 micrograms per day of supplemental Vitamin K2 (8).

TO PREVENT POTENTIAL INTERFERENCE WITH ORAL ANTICOAGULANTS, SUPPLEMENTAL OVER-THE-COUNTER (OTC) VITAMIN K SUPPLEMENTS (either K1 or K2) SHOULD NOT EXCEED A DAILY DOSE OF 100 MICROGRAMS PER DAY

References at this website: http://www.gordonresearch.com/answers/vitamin k2_and_nattokinase.html

Dr. Sumi on Natto:

Recently, the incidence of thrombosis, such as myocardial infarction and cerebral infarction, is increasing among the Japanese due to the westernization of their diet. Natto, which has been popular in Japan for a long time, is receiving much attention as a food that lyses thrombus. Throughout the world, there is growing interest in the fact that natto contains both a fibrinolytic enzyme ' nattokinase 'and Vitamin K2, which appear to contribute to the longevity of the Japanese. We interviewed Prof. Hiroyuki Sumi, also known as 'Dr.Natto,' about the usefulness of natto.

What are the functions of nattokinase and Vitamin K2, which are contained in natto?

Dr. Sumi: It is said that natto became a popular food in the Edo period, and that the voice of natto sellers was constantly heard in the city of Edo. Regarding the effects of natto, there are many anecdotes concerning its efficacy for

stomach ache, and flu, and for helping women give a birth. This is because natto has a high nutritive value and is easy for the body to absorb. In addition, natto has an antibacterial effect. In the old days, food poisoning was very common, and people used natto in order to prevent cholera, typhoid and dysentery.

Natto is highly antibacterial, and also contains di-picolinic acid, which suppresses O-157.

In a food dictionary of the Edo period, it is written that natto neutralizes poisons and stimulates the appetite. Neutralize poisons refers to an antibacterial effect. Recently, it has been found that natto contains di-picolinic acid, which suppresses O-157, and that natto has an antibiotic effect. Natto suppresses the growth of harmful bacteria while encouraging the growth of beneficial bacteria such as lactobacillus.

The best-known component of natto is nattokinase, an enzyme that lyses thrombus. Recently, the Japanese diet has come to resemble the American one, and consequently, the incidence of thrombosis in Japan has increased. The incidence of thrombosis in the heart and brain is higher than that of cancer, if myocardial infarction and cerebral infarction are included in the total.

Natto has attracted attention as a food that helps to prevent senile dementia, which is one type of thrombosis, because nattokinase lyses thrombus for a very long time when eaten directly instead of taken by injection.

Vitamin K2 in natto is essential for preventing osteoporosis.

Natto contains another useful component, named Vitamin K2. It is said that 60% of women over the age of 60 suffer from osteoporosis, which Vitamin K2 helps to prevent. In order to maintain healthy bones, a number of studies suggest that it is important to obtain Calcium and Vitamin D from milk.

Recently, however, it was found that a protein named osteocalcin acts as a kind of glue that helps to incorporate Calcium into the bones, and that Vitamin K2 is necessary in order to produce this protein. Furthermore, according to the results of recent epidemiological research, the amount of Vitamin K2 in the body of people who suffer from osteoporosis is decreasing compared with that of healthy people.

Obtaining sufficient Vitamin K2 is not a problem for healthy people, because they have a colon bacillus that is constantly producing Vitamin K2 in the alimentary canal. However, when people become older, or take medicine containing antibiotics, this bacillus weakens and produces less Vitamin K2.

It is becoming clear that Vitamin K2 produced by this bacterium is closely connected with the prevention of osteoporosis, and the Ministry of Health and Welfare has approved Vitamin K2 as a medicine for osteoporosis. Unlike natto, yeast, a lactobacillus, and Koji do not contain Vitamin K2 that comes from a bacterium. Bacillus natto is a unique bacterium throughout the world, and moreover people can ingest it in the raw. Therefore, natto is receiving considerable attention as the only food that contains Vitamin K2 from a bacterium.

Vitamin K2 has the chemical name menaquinone 7. At present, Vitamin K1, or menaquinone 4, is synthesized for use in the medicines approved by the Ministry of Health and Welfare. When the components of blood are analyzed, one vitamin that is found more often in healthy people than in osteoporotic people is menaquinone 7.

A lack of menaquinone 7 causes osteoporosis. Because Bacillus natto produces menaquinone 7, eating natto helps to prevent osteoporosis. It is important to obtain the fundamental components of bones by consuming milk and Shiitake mushrooms, but Vitamin K2 is also necessary.

Menaquinone 7 has only recently appeared in the analysis data of the Science and Technology agency, and samples are not on sale yet.
It is possible to obtain enough vitamin K2 from one packet (100 g) of natto.

One hundred grams of natto contains approximately 1,000ƒÊg of menaquinone 7.

A normal person is supposed to consume 1ƒÊg per 1 kg of body weight each day, which means that a person of 60 kg should consume 60ƒÊg of menaquinone 7. Therefore, 10 g of natto supplies enough menaquinone for one day. If the

colon bacillus is weakened, a packet of natto supplies a sufficient amount of menaquinone 7.

The level of menaquinone 7 in the blood was measured for people in Tokyo, Osaka and London. People in the Kansai area (Osaka) have only half the amount of menaquinone 7 compared to people in the Kanto area (Tokyo). This is because people in the Kansai area eat natto less frequently. Of course, people in London have even less menaquinone 7.

Recent epidemiological research has shown that people who regularly eat natto have a large amount of menaquinone 7 in their blood. This fact was also approved systematically. Therefore, there is scientific evidence that eating natto helps to prevent osteoporosis. In addition, an isophrabon compound is one of the antioxidants in natto. A packet of natto provides 50 mg of isophrabon, which is the minimum amount recommended in the US for the prevention of cancer.

In the US, the incidence of prostate cancer is 15 times that in Japan, and natto is also being examined with regard to the prevention of prostate cancer and breast cancer. Moreover, isophrabon has the same effect as a type of female hormone, and it is said that the female hormone of soybeans influences that of human beings.

As regards antioxidative activity, fermented soybeans have about four times the activity of unfermented soybeans. This is because Bacillus natto produces a specific antioxidant. The nature of this antioxidant has not yet been clarified.

As a result of attempts to make natto more palatable, the amount of its effective components decreased.

Extremely undeveloped natto has been increasing as a result of attempts to make natto more palatable, especially for people in the Kansai area in Japan. Such natto has a weaker odor and is less sticky. When the US authorities occupied Japan in 1945, they prohibited the sale of natto because they thought that cholera and typhoid were often caused by such a rotten food. Since then, about three types of purely cultured bacillus have been used to make natto. As a result, natto became tastier and safer, but on the other hand, the amount of the anti-bacterial material, Vitamin K2, and nattokinase decreased. Comparing a 1936 report on the components of natto and its activity with current data, it is found that the anti-bacterial component has dramatically decreased.

Natto seems to set to become popular as an ideal food throughout the world, doesn't it

Dr. Sumi: Natto is compatible with the bacteria in the Japanese body, and conversely, Japanese people seem to need the bacterium from Bacillus natto in order to keep their digestive system in good condition. Natto contains between one million and one billion active bacteria per 1 g. Bacillus natto is a medicine approved by the Ministry of Health and Welfare, and a stomach medicine containing Bacillus natto is available. Natto has been utilized as a natural medicine for many years.
Natto has attracted great interest throughout the world as a food that increases longevity.

Soybeans are known as vegetable cheese abroad, and dried natto, which was developed about ten years ago, is used by JAL for in-flight meals and as a snack with beer. An international conference on the prevention of disease using soybeans has been held in the US, where there is currently a big natto boom. Because Japan has the highest average longevity in the world, people in the USA are interested in this mysterious food natto, which is not eaten outside Japan. The first time natto was mentioned in an English academic journal was in 1896. Since then, more than a century has passed, and natto has attracted interest all over the world as a food for promoting longevity.
Resource: http://www.jafra.gr.jp/eng/interview-sumi.html

Last - Deficiencies of both vitamin K2 and vitamin D from various disease conditions, contribute to bone loss (osteoporosis)

Glossary – osteoblasts – bone forming cells – (B for building)
Osteoclasts – break down bone cells; bones are constantly remodeling breaking down and rebuilding. The obvious trouble comes in when this process is weighted more for breaking down than building.

Consider these observations in the Vitamin K2 in Bone Metabolism and Osteoporosis article by Drs. Plaza and

Lamson….

Vitamin K's are lipid (fat) soluble; therefore fat malabsorption may create a deficiency.

Celiac disease – recent reviews show celiac disease is common (1 in 166) and is considered in the etiology of osteoporosis due to malabsorption of necessary bone factors including vitamin K.

Long-Term use of Warfarin - Documentation is plentiful illustrating the importance of vitamin K in bone maintenance. Its importance is easily evidenced by the osteoporosis and fractures resulting from long-term use warfarin – Coumadin – which inhibits the bond-building effect of vitamin K.

Osteopenia – Rat studies indicated oral administration of vit K2 was found to reduce loss of trabecular bone, prevent osteoblast dysfunction and increase bone formation. And in cases of osteopenia due to over-expression of granulocyte colony-stimulating factor (GCSF) which causes osteopenia and increased osteoclast number with acceleration of bone resorption.

Osteopenia in stroke patients and skeletal unloading -

Stroke victims are often immobilized, leading to significant loss of BMD. K2 helps slow down the loss. Skeletal unloading is a serious consequence of prolonged bedridden states and leads to pathologic fractures. Symptoms of skeletal unloading are also observed in astronauts due to the microgravity environment. K2 effectively prevented significant loss of BMD.

Vitamin K2 found to be preventive in cases of bone loss from:

-post-menopause – studies indicate best result with both vitamin D3 and K2.
- use of corticosteroids (Prednisolone),
-use of Phenytoin – anti-epileptic drug
- Parkinson's disease… related in part to vitamin D deficiency and immobilization of this population. High serum calcium in this case suppresses D3.
-Use of leuprolide for endometriosis, leiomyomas and prostate cancer all seem to show a moderate reduction in BMD. K2 and D3 resulted in partial prevention typically observed.
-Biliary Cirrhosis – patients experience osteodystrophy and increased fracture rate and fat malabsorption that results in deficiencies of both D and K. Serum K levels found to be low in this population. K2 helped in treatment of this bone loss.
Anorexia… eating disorder associated with pronounced weight loss, osteopenia and osteoporosis affecting 1% of US females. Treatment with K2 showed significantly slower decrease in BMD.

CONCLUSION FROM THIS PUBLICATION

Bone formation and bone loss involves a complex array of nutrients and molecular signals. In vitro studies show vitamin K2 is far more active than K1 in both bone formation and reduction of bone loss. Human studies demonstrate the potential of vitamin K2 as a strategic intervention for osteoporosis. This treatment is already in general use outside the US at a typical dose of 45 mg. daily.

Studies confirm the effectiveness of vitamin K2 for decreased BMD from a variety of causes. Few if any multiple vitamin and mineral supplements contain vitamin K2. the authors recommend it be more widely supplemented as it has beneficial activity far beyond osteoporosis. Supplementation becomes even more important for those with a tendency to lipid malabsorption.

A normal prothrombin time is not an indication that enough vitamin K activity is present to maintain bone osteocalcin activity. Moderately high doses of vitamin K2 do not produce hypercoagulable or toxic states in humans, although the use of K2, like any vitamin K, is contraindicated in people taking warfarin (Coumadin).

The Experts:

William Wong, ND, PhD, Texas State Naturopathic Medical Association professional member, World Sports Medicine Hall of Fame member, a Classical Naturopath, a Ph.D. Exercise Physiologist, a Certified Athletic Trainer (AATA), a Certified Sports Medicine Trainer (ASMA), and a Health/Fitness Consultant. Dr. Wong has more than 23 years of professional experience in natural health, as applied to sports medicine and rehabilitation, with the last 12 devoted almost exclusively to chronic fatigue and fibromyalgia, and the use of systemic enzymes. Author of many books and web site host. Uses Vitalzym systemic enzymes in his practice.
Bio and photo at http://www.totalityofbeing.com/AboutUs.html
Home Page http://www.totalityofbeing.com/index.html
Dr. Wong consults with patients by phone call... you can reach him via his email on the website for an appointment.

Garry Gordon, MD, DO, MD(H) was director of his clinical practice and Gordon Research Institute in Payson, Arizona. He is a member of the Board of Medical Examiners for Alternative and Homeopathic Medicine in the State of Arizona, Director of Peer Review for chelation therapy for the State of Arizona and a member of the Board of Directors for the National Foundation for Alternative Medicine, and founder of the International College for the Advancement of Longevity Medicine (ICALM). He uses and lectures extensively about the beneficial use of systemic enzymes such as nattokinase, serrapeptase and other enzymes used to reduce inflammation. Currently, Dr. Gordon is full-time consultant for Longevity Plus, a nutritional supplement company located in Payson, Arizona. Bio/CV:
http://www.chelationtherapyonline.com/GarryGordon/ChelationResearch/p34.htm
Website: http://www.gordonresearch.com/ Longevity Plus: www.longevityplus.com
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Ralph E. Holsworth, Jr. DO, Lt. Commander, US Public Health Service, is a board-certified Osteopathic Family Medicine Physician. Has been practicing with emphasis in functional and integrative medicine for over five years. He has a specific interest in enzyme therapy for ten years and assisted in clinical and laboratory research. He serves on the medical staff of Mescalero Public Health Service Indian Hospital in Mescalero, New Mexico. Is establishing a protocol for physicians to combine warfarin and NK and has human studies underway. Endorses Allergy Research Group Nattokinase NSK-SD with Dr. Sumi and Japan BioScience product from Japan. He is identified as the leading researcher on nattokinase

Hiroyulki Sumi, MD, discoverer of nattokinase, 1980. Resides in Japan. Works with Japan Bio Science Laboratory Co., Ltd., Japan; consults with researchers in the US. Dr. Sumi was born in Nara prefecture, 1945. He received his MD in Medicine from Tokushima University. Dr. Sumi experienced overseas research personnel of the Ministry of Education, Science and Culture in Michael Rees Research Institute, Chicago. After experienced an assistant professor in the field of physiology in Miyazaki Medical College, Dr. Sumi has performed a professor in Department of Physiological Chemistry, College of Science & Industrial Technology, Kurashiki University of science and Arts. Besides he is a director of an extra-governmental organization, JTTAS and also popular as "Dr. Natto" among mass media. Dr. Sumi bio and photo http://www.jafra.gr.jp/eng/interview-sumi.html

Jackie

Hi Jackie,
Great research. This tallies with the info I have found on the web. I am eating 50g of natto a day and from reading the above post will stay on this amount for the time being. I think 100g a day is the average consumption amount the diehards in Japan.

My natto is organic and comes in 50g containers. As far as quality goes, it is really, really sticky so I think that is a sign it is the "proper" natto and not watered down for taste.

If you are going to try natto the food here is some natto etiquette!:

1. NEVER EVER kiss anyone for at least 2 hours after eating (unless you want to get rid of them forever!)

2. NEVER eat natto when working on your computer - I did, and the sticky fine spider webs have covered everything in sight with the natto smell – everybody's computer in the office is contaminated with the natto smell. I have been ostracised and barred from eating it in the office.

3. The natto smell and stickiness on your lips lasts for about 2 hours - be warned!

Happy natto eating!

Dean

Dean - thanks for the warning! If I ever locate some to try, I'll remember your words. :)

Also, good to know you have the unadulterated form.

I'll be interested in anything you discover along the way with this experiment.

I was also interested in the bacterial explanation for how it helps gut issues and thought of you and your initial comments regarding a seeming improvement.

So, apparently, natto provides many side benefits in addition to anti-clotting.

Jackie

Since posting the original thread on this K2 topic, I've discovered a huge disparity in dosing of K2 - thanks to Pierre.

The research reported in the study indicates 45 mg. a day was used to obtain results..... dosing here on any supplement recommendations is in micrograms... and is about 1 mcg. on the labels.

So, any attempts by people in the US, at least, are not going to be able to take 45 milligrams daily.

I'm going to write to authors of the study for clarification on dosage.

I'll let you know what I learn...if and when.

Sorry for the confusion. It looked straight forward until I began checking the supplement labels of products sold as K2 and the numbers weren't comparable.

Jackie

For all of you Natto aficionados, here is a site that tells you how to make your own.

http://www.gaia21.net/natto/natto.htm
http://www.gaia21.net/natto/making.htm

& bacteria:
http://www.gaia21.net/natto/suppliers.htm

I've not done it, but it looks interesting. Like any fermented food, you'd need to be careful not to get any "bad" bacteria in it during the process.

George

Does natto destroy Candida? I ask this as I am having such great success with the natto calming my digestive system. Stomach gas has reduced (and with it PAC's) and stools are.....well, what can I say?.....Perfect!
So far, I have been eating 50g natto daily for nearly 3 weeks and I have nothing but praise for the calming effect on my digestive system.

Continuing with the experiment.
Dean

Dean,
Purely out of interest are you a blood type A?

Joyce

Dean - I've not read that natto has that property...but I'll look a bit further....most likely, it is simply aiding complete digestion which you didn't have previously. That side benefit you are enjoying is truly good because when food is digested or broken down so it can be assimilated, you then can benefit from the nutrition intended.

The other factor, most likely, is that you are adding to beneficial bacteria in the GI tract...which also means complete breakdown of foods and rapid transit (elimination) which is the goal for a healthy gut.

I think it's just great that you've tried this and even greater, that you are aware of physical benefits....we know, too, that your blood is becoming naturally thin and your risk of stroke is diminishing with every bite of natto.

That's a very good thing.

Thanks for reporting on this.

Before this thread goes off the "air." I'm going to post just a bit more info I've learned about natto.... Hopefully, before Hans gets back and starts a new topic.

Be well,
Jackie

Hi Joyce,
No, I am blood type O.

Dean

Dean,

I had the reverse w/respect to digestion. I started w 50 grams natto and got unending gas. My wife has threatened to make me sleep elsewhere.

The whole family is grossed out when I eat it, especially the "strings" on it. I found natto OK, but the social part hasn't worked for me.

I've still got quite a few packages in the freezer but have stopped eating them for now to keep family harmony. I may try with a bunch of enzymes & see if that will make a difference.

George

Here is a link to the information I posted in the general forum on how to take enteric-coated enzymes.

http://www.afibbers.com/forum/read.php?f=6&i=8119&t=8119#reply_8119

PeggyM