Alternatives®
FOR THE HEALTH-CONSCIOUS INDIVIDUAL
December 2009 Volume 13, No. 6


Dr. David G. Williams

Busting a Fish Oil Myth

Every time you turn around, it seems, there's more good news about the benefits of omega-3 fatty acids and fish oil. Still, there are a lot of myths about fish oil that need to be put to rest.

One is that fish oil is supposedly dangerous when combined with prescription blood thinners. A reader, Karen M., wrote me to say that her doctor is aware of fish oil's heart-related benefits, but he's concerned that taking fish oil might make her blood "too thin." The doctor also told Karen's mother not to take fish oil at all because she's taking Coumadin (warfarin).

Fortunately for both Karen and her mother, their doctor is mistaken. Everyone talks about the "blood thinning" attributes of fish oil supplements, but it's really a more complex mechanism than simply thinning the blood. Again, at the risk of oversimplifying the matter, warfarin, Plavix, and aspirin inhibit the activity of platelets. As you'll recall, platelets are the blood cells that clump together within a fibrin network to form a clot when the body needs to stop bleeding. Using these drugs decreases your blood's ability to clot under any circumstance, which, in turn, allows the blood to continue flowing—or, in layman's terms, "thins the blood."

Although I'm not sure the exact mechanism is fully understood, fish oil works a little differently. Instead of indiscriminately inhibiting all blood clotting, fish oil appears to inhibit *abnormal* clotting.

One recent study involved a group of 364 cardiovascular patients in which half were taking fish oil along with 150 mg of aspirin and 75 mg of clopidogrel (Plavix), and the other half were taking the same medications without the fish oil.

After 33 months of monitoring, the researchers found there was no excessive bleeding in those using the medications and the fish oil compared to those not using the fish oil. In fact, although the number was small, they found more abnormal bleeding episodes in those not taking the fish oil supplements.

The researchers concluded that high-dose fish oil supplementation is safe when used in combination with blood-thinning drugs like aspirin and clopidogrel. (*Am J Cardiol 09;104:1052–1054*)

What makes this study even more significant is that the amount of fish oil being used was an average of 3 grams a day. For most people this represents a good preventive daily intake.

Determining what represents the ideal daily amount of fish oil for an individual, however, isn't that simple without actually testing. How much fish oil you should take depends on several factors.

One obvious factor is your diet. The amount of fish, chia, flaxseed, and other omega-3 fatty acid–rich foods in your diet makes a difference. And, if the fats in your diet consist predominantly of polyunsaturated fats that are mainly omega-6 fats, the existing ratio of omega-3 to omega-6 fats in your body can be way out of balance and take months to reverse.

In This Issue

You will observe with concern how long a useful truth may be known, and exist, before it is generally received and practiced on. — Benjamin Franklin

As I've discussed on numerous occasions, the ratio of omega-6 fatty acid to omega-3 fatty acid consumption in this country is something like 20:1. Exactly what the proper ratio should be depends on the individual. Ideally, you'd want to get your ratio somewhere in the area of 2:1 or even 1:1. Personally, I think that would be very difficult to do unless you live in the Arctic and live on a diet of seals and seafood. A more realistic, and still very healthy, goal would be more in the range of 4:1.

Higher amounts of omega-6 fatty acids (primarily from commercial vegetable oils such as sunflower, corn, and soy oils) are associated not only with higher rates of cardiovascular disease, but also with inflammation, depression, impaired immune response, and other problems. We know that supplementing with omega-3 fish oil alone can reduce the incidence of heart attack by 28 percent and sudden cardiac death by 45 percent.

The Right Fat Cuts Cardiac Risk

One of the best methods of determining your ideal intake of omega-3s or fish oil is to test the percentage of omega-3 fatty acids in your red blood cells. (*Prev Med 04;39:212–220*) (*Atherosclerosis 08;197:821–828*)

Researchers at Hanyang University in Seoul, South Korea, have found that the type of fat content in your red blood cell membranes is more accurate at predicting a heart attack than the combination of the factors we use now such as cholesterol values, age, sex, the presence of high blood pressure or diabetes, and smoking status. (*Br J Nutr 09;102:1355–1361*)

It won't be any surprise to learn that higher levels of omega-3 fatty acids in the red blood cell membranes resulted in fewer heart attacks.

- 92 percent of heart attack patients fell into the group with the lowest levels of omega-3 fats, while only 32 percent of those without heart attacks did.
- Trans fat was one of the biggest killers. 96 percent of heart attack patients had high levels of trans fatty acids, compared to only 34 percent of those who had not experienced a heart attack.
- 62 percent of heart attack patients also fell into the group having the highest levels of arachidonic acid (AA). This essential omega-6 fatty acid is necessary for repair and growth of muscle tissue and proper brain function. The problem seems to arise when there's excess AA and not enough omega-3 fatty acids to counterbalance it. Too much AA can lead to the production of immune system compounds that promote pain and inflammation. Again, this becomes less of a problem when there is an abundance of omega-3 fatty acids in the diet.
- 96 percent of heart attack patients fell into the group with the lowest levels of alpha-linolenic acid, compared to only 34 percent of those who had not had a heart attack. What's even more telling is that not one of those heart attack patients was in the highest category for alpha-linolenic acid (ALA)—the type of omega-3 fatty acid that is found in plants (walnuts, flaxseed, and chia; 60 percent of the oil in chia seed is ALA). ALA can be converted by your body into EPA and, to a lesser extent, DHA—the same fatty acids in fish oil.

In a nutshell, doctors will soon be able to analyze the types of fats you're eating simply by looking at the types and amounts of different fats in the membranes of your red blood cells. If they consist of more omega-3 fats, then you're on the right track. If they are full of trans fatty acids (from margarine, shortening, deep-fried foods, processed foods) and/or an overabundance of arachidonic acid (commercial vegetable oils) you're headed for serious problems…guaranteed.

How to Measure Your Risk

Research has found that the average daily consumption of omega-3 fatty acids in this country is about 150 mg. This results in only 2.5 to 3.0 percent omega-3 fatty acid content in red blood cells (the omega-3 index).

Based on the latest research, an omega-3 index lower than 4 percent places one in the high-risk category for heart attack and sudden cardiac death, 4 to 8 percent places one in the intermediate-risk category, and an index above 8 percent falls into the low-risk category.

ALTERNATIVES. **Author: Dr. David Williams; Editor: Bill Todd**
ISSN# 0893-5025. Published monthly for $69.99/yr. by Mountain Home Publishing at 7811 Montrose Road, Potomac, MD 20854. Editorial Office: 7811 Montrose Road, Potomac, MD 20854. Periodicals postage paid at Rockville, MD and at additional mailing offices.

POSTMASTER: Send address changes to *Alternatives*, PO Box 3262, Lancaster, PA 17604-3262.

One study compared the omega-3 index in men living in Pittsburgh, Pennsylvania to men living in Japan. Not surprisingly, those with the lowest omega-3 levels also had the most severe plaque accumulation in the carotid and coronary arteries.

Individuals with an omega-3 index of 3.3 percent are at ten times the risk of sudden cardiac death when compared to those having an index of 7 percent. Based on the latest information, our goal should be an index of about 9 to 10 percent—which could significantly lower the risk of both heart attack and sudden cardiac death. (Sudden cardiac death in Japan, where the average omega-3 index is around 8.5 percent, is very rare.) (*In Vivo 08;22:131–135*) (*N Engl J Med 02;346:1113–1118*) (*JAMA 95;274:1363–1367*)

The test is somewhat expensive, around $130, and not yet widely available. If it isn't offered by a laboratory in your area, there is a test kit that allows you to collect a very small amount of blood through a home finger stick, send in the samples, and have the results sent directly to you. This test will provide you with your omega-3 index, a benchmark upon which you can determine your individual need for omega-3 fatty acids in your diet or supplement program. It can be particularly helpful for someone trying to treat or reverse existing cardiovascular problems.

The Omega 3 Index Home Blood Test kit can be ordered directly from Gene Smart off their Web site at *www.genesmart.com*, or by calling 888-571-0112.

In the next few years we're going to be hearing a lot more about tests being developed to study the fatty acid profiles of red blood cells, like the one above. There's already enough research out there, if you dig deep enough, that gives a very clear picture about how avoiding the wrong kinds of fats can help you prevent a heart attack.

Whatever you do, however, don't wait until this type of testing becomes routine. It may be a while. Even if you decide not to get the Gene Smart test now, you can't go wrong by improving the balance of your intake of fatty acids. Doctors will eventually catch on. Once that happens, they'll have to start prescribing fish oil supplements and a change of diet instead of testing for cholesterol and then prescribing statin drugs. I think the pharmaceutical industry will be fighting this tooth and nail.

Fish Oil Fights Inflammation, Too

Before I leave the topic, there's one more recently discovered feature of fish oil that you should know about. Researchers at the University of London have found that the DHA component of fish is converted by our bodies into a powerful anti-inflammatory compound called resolvin D2. This is a member of a newly described class of compounds involved in what's called *catabasis*, or the decline of a disease. (Why the choice is to talk about the "decline of a disease" rather than the "recovery of a patient" I'll never know. I do think it says a lot about the mindset of too many doctors nowadays.) And, unlike anti-inflammatory drugs, resolvin D2 reduces inflammation without suppressing the immune system. (*Nature 09;461:1287–1291*)

Resolvin D2 was found to be extremely powerful—just a small amount can have a very profound effect. Now that the compound has been isolated, it's highly likely that the pharmaceutical companies will begin efforts to synthesize it so it can be tested and marketed as a drug to treat arthritis and other inflammatory problems.

This only gives more credibility to the idea of using fish oil to treat inflammation. Looking at the bigger picture, I suspect we'll find other anti-inflammatory compounds in many of the other omega-3 oils as well. It's a shame the public isn't aware of the inflammation and diseases running rampant today that are a direct result of our overconsumption of omega-6 fatty acids in relation to omega-3 fatty acids.

Giving Gallstones the Boot

Your ability to digest fats has a significant impact on your health. If your gallbladder has been removed, or you're deficient in digestive enzymes, then properly digesting any fat, good or bad, becomes more difficult. In the previous article, I wrote about the beneficial effects of omega-3 fats in your diet—but if those fats aren't digested properly, they won't do you much good. This is one of the primary reasons that I strongly recommend bile supplements be taken by anyone who has had their gallbladder removed. (I think the problem is so prevalent that I include a form of bile in my Daily Advantage formula.) Eating the best diet and taking the best supplements can be a waste of time if your body is unable to assimilate them.

Over the years, numerous readers have asked me what they should do if they've had their gallbladder removed. If you no longer have your gallbladder, and you're a new reader of *Alternatives*, or the concept of using bile-containing digestive enzymes isn't something you're aware of, I urge you to read my past articles. It could be one of the most important things you can do for your health. It can save you from a long list of health problems and a premature death. [*Editor's note: All the details on your gallbladder and bile, including their essential role in your*

continued good health, can be found in the Subscriber Section of the Alternatives *Web site,* www.drdavidwilliams.com.]

As I've written many times before, your gallbladder is an essential component of your digestive system. It's unfortunate that many physicians seem to regard it as sort of a spare part, and recommend removing the gallbladder at the first sign of difficulty with the organ.

The How of Gallstones

For most individuals with gallbladder disease, the problem is gallstones. Most commonly, these develop when there's an excess of cholesterol in the bile. The cholesterol combines to form crystals of cholesterol monohydrate, which then clump together as stones. Gallstones can be quite large, up to an inch in diameter. On their own they don't cause any trouble unless one blocks the bile duct that empties into the small intestine.

In many individuals who have gallstones, there are no symptoms, but when symptoms do appear they're very noticeable: a sharp pain in the upper right abdomen, often accompanied by nausea and by pain that radiates to the area of the right shoulder and shoulder blade.

Inspections at autopsy have shown that as many as 20 percent of women over age 40 have gallstones, and 8 percent of men. The other risk factors are also relatively well-known: increasing age, obesity, and diabetes also increase a person's chances of developing a gallstone. A diet that's high in fat and/or low in fiber can also lead to gallstones. For a woman, both pregnancy and the use of birth control medications increase her risk.

According to researchers at the University Hospital Ulm in Germany, simply taking a little extra vitamin C daily can cut your risk of gallstones by nearly half. In an observational study of 2,129 patients, 4.7 percent of the participants that took vitamin C regularly developed gallstones. In the group that didn't take extra vitamin C, gallstones developed in 8.2 percent of the patients. (*BMC Gastroenterol 09;9:74*)

Because this study involved dietary recall, in which subjects simply told the researchers whether they had taken vitamin C supplements, the exact amount needed to reduce your risk didn't come out here. The participants could have been taking anywhere from 500 mg to 5,000 mg daily. My usual recommendation of an additional 1,000 to 2,000 mg of C daily seems like it should be enough.

It's been known for a while now that vitamin C is a factor in the conversion of cholesterol into bile acids in the liver. Earlier experiments with guinea pigs (the only other mammal that doesn't make its own vitamin C, and so needs to get it from the diet) showed that depriving the animals of vitamin C greatly increased their formation of gallstones, and that replacing the C brought gallstone formation to a halt.

Interestingly, given what we know about gallstone formation, in the study above an increased total cholesterol level also reduced a person's risk of developing the condition. An increase of 20 percent in total cholesterol level reduced the risk by more than a third. As I said earlier, and have said many other times as well, cholesterol on its own isn't a problem. It's what happens to the cholesterol that generates the health conditions you hear about, including heart disease—and gallstones.

One other protective factor noted in the study was regular leisure-time physical activity, which also reduced the risk by a third. While the study report didn't say exactly how much activity it would take to reach this effect, I'd suggest following the recommendations I've made before of 20–30 minutes of moderate activity at least four times a week.

If the problems with fat digestion aren't enough to dissuade you from having your gallbladder removed, here's something else to think about. A relatively common event (in up to 40 percent of laparoscopic surgeries) is perforation of the gallbladder as it's being removed from the body. In up to a third of these cases, gallstones are "spilled" out into the abdominal cavity, where they can create all sorts of havoc. Complications can show up many years later, and range from sinusitis to "erosion" (the stones migrate out of the body through the skin). The wandering stones can even cause symptoms that mimic other abdominal conditions such as appendicitis and cancer.

Avoiding Harmful Therapy for Prostate Cancer

The subject of prostate health seems to be in the news quite a bit lately. In recent months I've written about testing for prostate cancer, and red clover to deal with an enlarged prostate. It seems like every day we're learning more and more about prostate cancer and the best options for treating the disease. In the article about testing, I discussed the various problems with the PSA test and how it can lead to excessive and very often unnecessary treatment. A new study has now found that for men with a history of serious heart problems, treating prostate cancer with hormone therapy might not be the safest option. [*Editor's note: The August 2009 issue, with the full story on testing for*

(Prostate *continued on page 47*)

NEWS TO USE FROM AROUND THE WORLD

The Body's Sense of Timing

Researchers at the University of Extremadura in Spain discovered that the composition of breast milk varies depending on the time of day.

While analyzing breast milk, researchers discovered that certain naturally occurring chemicals that induce sleepiness are more concentrated in milk that's expressed at night, while other components that excite an infant's nervous system are more plentiful in daytime milk. The mother's body innately adds compounds to the milk that will help the baby sleep or wake, as appropriate. At other times during the day, these compounds are present only in very small amounts. *(Nutr Neurosci 09;12:2 DOI:10.1179/147683009X388922)*

This information is particularly useful for mothers who express their milk and store it for later use. Based on this information, milk should be given about the same time of day that it was expressed.

Our bodies operate on a circadian or 24-hour internal clock that has profound connections to hormonal, biochemical, psychological, and behavioral processes. When you consider just how amazing the human body is, it only makes sense that a mother's milk would help keep her child's rhythm in balance.

Is Cleanliness Next to Godliness?

PROVO, UTAH—Every day we read about new research testing subtle techniques that can influence our mood, conduct, buying habits, et cetera. It's an area of science that has fascinated man for centuries. Monks have used incense to help elicit a feeling of peace and tranquility. Essential oils, like that from lavender, have been used to help with relaxation and sleep. Realtors and home sellers have found that the smell of baking cookies triggers pleasant memories in buyers and increases home sales. The smell of peppermint increases test scores in students. Citrus during studying improves recall. The smell of cinnamon enables patients to remain calm and relaxed longer while undergoing CAT scans.

One of the latest findings in this area, from Brigham Young University, reveals that people are far more fair and generous when exposed to clean-smelling rooms than when exposed to normal-smelling rooms.

Participants in this recent study were engaged in several tasks, with the only difference being that they were conducted in either unscented rooms or in rooms that had been freshly spritzed with citrus-scented Windex.

The difference in their actions was remarkable.

The research consisted of two experiments. The first involved trust. The participants each had a partner, and the idea was that anything the partners received would be shared equally. One of the partners was given $12 cash without the amount being known to the other partner. The one with the cash could decide what to do with the money without any reservations. The average amount of cash given back by the people in the unscented room was $2.81. The people in the Windex-spritzed room gave back an average of $5.33.

The second experiment involved charitable behavior. The participants were asked to indicate their interest in volunteering for Habitat for Humanity and their interest in donating money to the cause.

When those in the Windex-spritzed room were asked about their interest in volunteering, their responses averaged 4.21 (on a 7-point scale), compared to only 3.29 in the unscented room. And 22 percent of those in the Windex-spritzed room offered to donate funds, compared to only 6 percent in the unscented room.

Keep in mind that follow-up questioning in all of the situations revealed that none of the participants noticed the Windex scent in the room.

Common Sense About Your Senses

We're bombarded daily with subliminal and subtle messages by retailers, politicians, and marketers in all forms, trying to influence our behavior. Some techniques are obvious, while many others go unnoticed. Like the Windex above, many are related to smell.

In primitive times, the sense of smell was one of our most important survival tools. Through smell one could detect impending danger such as fire or an approaching predator. Rancidity or poisonous food could be detected with smell. And, as I've explained in the past, even the selection of a compatible companion is greatly improved through smell.

It would be wise to start paying more attention to the smells around us. It's no coincidence that the Williams-Sonoma store at your local mall is baking fresh cookies when you walk in. Studies have shown you feel more at home, linger longer, and spend more. You respond similarly when you smell the cologne sprayed on every item of clothing in Abercrombie and Fitch stores, the cinnamon candles burning at Pier One, or the popcorn at the local movie theater.

I guess it shouldn't come as any surprise, but using smells to influence behavior these days often revolves around the idea of trying to separate you from your money. Whether it's right or wrong isn't the point. As you shop for the holidays, shake hands with or listen to the politicians leading up to elections, evaluate pleas from the various charities, wander through the grocery store, talk to a potential mate, et cetera, do more than just keep your eyes wide open. Pay a little attention to your other god-given senses, particularly your sense of smell.

Simple Solution for Kidney Stones

Question: I have a recurring problem with kidney stones. I read your article on using lemonade, and I did that for a while. It's not always available, though, and, honestly, I got tired of drinking it day after day. Is there an easier solution?

—Jeff M.
Houston, Texas

Answer: If lemonade works for you, then most likely you are forming calcium stones. These generally form in individuals who have too little citrate in the urine. (Uric acid stones and cystine stones tend to form when the urine is too acidic. The pH should be kept somewhere between 6.0 and 7.0. Anything on either side of this range can increase the chance of stone formation.)

Lemonade increases urinary citrate levels. Citrate attaches to the calcium in the urine and carries it out of the body. (Keeping urinary citrate levels above 600 mg per day will help prevent calcium stone formation.)

If lemonade for some reason is a problem, then you can take the supplement potassium citrate. It's readily available and inexpensive. Natural Factors is a reliable brand. You can find 90-count bottles for less than $5 at online retailers such as *www.iherb.com*.

If you're taking potassium-sparing diuretics (generally used to treat high blood pressure), you'll have to talk with your doctor before adding a potassium supplement. I wouldn't recommend using any of the liquid forms since they can cause nausea, gas, or diarrhea in some people. I'd use the capsules instead, and taking them with meals avoids most problems.

The amount of potassium citrate you need can be determined by what it takes to keep the citrate levels and pH in the ranges I've mentioned above. Urine pH levels can be assessed by using simple strips of pH paper, available at any pet store that sells aquarium supplies. Use them just the way you'd imagine. Citrate levels can be determined by a simple urine test, so you'll need to work with your doctor on that.

One of the tried and true remedies for preventing kidney stones has been around for years. Rarely have I seen it not work. I first heard about it from Dr. Jonathan Wright of the Tahoma Clinic in Washington State.

He recommends 300 mg of magnesium citrate, 100 mg of vitamin B6, and 3 teaspoons of rice bran every day. Check your multivitamin for the above amounts to determine just how much more you need to add. The rice bran is dirt cheap. Last time I checked, a 20-ounce bag from Now Foods was selling on the Internet for just over $2 plus shipping. It should also be available in most health food stores.

The Margarine vs. Butter Battle

Question: I know in the past you've always promoted the use of butter over margarine. You called margarine "liquid plastic." If I'm correct you didn't like margarine because it was made by hydrogenation (bubbling hydrogen through the oil) and this created trans fatty acids. Is that correct?

Now that most margarines are made differently and their trans fatty acid content has been reduced or eliminated altogether, do you still prefer butter? Margarine is a lot less expensive, and many products have the added benefit of lowering cholesterol.

—Troy V.
Palo Alto, California

Answer: It's true that many margarine producers have changed their production technique from hydrogenation to what's called interesterification. This technique uses high temperatures and pressure and enzymes to transform the vegetable oils into a solid. What are the long-term effects of eating this stuff? I don't know, and I don't think anyone else has a clue either at this point. I would bet that, just like what happened with margarine, we'll discover years down the road that it is detrimental to our health.

Some of the short-term effects are known, however, and it's not a pretty picture. As I reported back in 2007, a study done in Malaysia showed that consuming interesterified fats impaired glucose metabolism and had a negative effect on the beneficial HDL cholesterol. I can't imagine that the long-term effects will be any less unpleasant.

We eat fats so our body can use them as building blocks to make cell walls, nerve tissue, organs, hormones, et cetera. If you supply it with chemically altered fats, which have never been part of the natural food supply, it has no choice but to use those. Can anyone really believe that doing this will turn out well in the end?

(For my more technically minded readers, fatty acids in nature occur as triglycerides. That is, three fatty acid molecules are hooked together to one molecule of glycerol. Interesterification involves breaking the fatty acids off of the glycerol, and putting them back together in more "convenient" arrangements.)

As for any cholesterol-lowering properties, it's never been proven that lowering cholesterol actually improves your overall health. Gasoline may lower cholesterol levels, but I'm not going to drink it. Statins lower cholesterol, but I wouldn't take them either.

Butter's Benign; Margarine's Murder

I have yet to see any study that shows the consumption of butter (or even nuts, for that matter) increases the risk of cardiovascular disease.

Part of the famous Framingham Study involved looking at the effects of eating margarine or butter and what influence it might have on the risk of developing coronary heart disease (CHD). They found the consumption of butter had no association with CHD. In fact, the risk of heart disease was actually slightly lower when butter consumption increased. On the flip side, margarine did increase the risk of developing CHD.

Over a twenty-year period, the group eating the most margarine (five or more teaspoons a day) had 77 percent more heart attacks than those who didn't eat any margarine. Over the long haul, each additional teaspoon consumed per day increased the risk of developing heart disease by 10 percent. For example, consuming an average of one teaspoon of margarine a day increased the risk by 10 percent, two teaspoons a day increased it by 20 percent, et cetera. (*Epidemiology 97;8:122–123*)

Although this study was done when margarine was made using hydrogenation, as I said earlier I doubt interesterification will prove to be much, if any, better.

I'm sure butter would fare even better in test studies if the product was made from raw, unpasteurized cream, from grass-fed cattle. I certainly wish that type of product was commercially available in this country!

About the only thing I've found that comes close is a coconut oil/ghee mixture, available from Green Pasture Products. (Ghee is the oil part of butter, with the solids removed.) The ghee comes from cows that are 100 percent grass-fed, and the coconut oil is organic virgin oil. This product is suitable for use in all types of cooking. You can contact Green Pasture at *www.greenpasture.org* or 402-858-4818.

I won't say that this is the complete solution. Personally, I prefer the taste of butter, and most often use commercial butter to cook with. You're always going to be able to taste the coconut from the coconut/ghee mixture—which is pleasant from time to time, but not as a regular presence or in every dish.

(Prostate *continued from page 44*)

prostate health, is available in the Subscriber Center of the Alternatives *Web site*, www.drdavidwilliams.com.]

The effects of hormone therapy on a group of 5,077 men with localized or locally advanced prostate cancer was recently studied. All of the men received radiation treatment, and roughly 30 percent of them also received hormone therapy.

- Among 95 men who received hormone therapy and also had a history of heart problems, 25 died.
- Among the 161 men who had heart problems but didn't receive hormone therapy, only 18 died.
- Hormone treatment was linked to a 96 percent higher risk of death when there was a history of either congestive heart failure or a previous heart attack. (*JAMA 09;302:866–873*)

Hormone therapy is usually focused on suppressing testosterone production. Typical drugs used for this purpose include those that block testosterone receptors in the prostate and those that block the signals the body reads to produce more testosterone. In either case, the side effects include impotence and many of the same symptoms that women experience during menopause: hot flashes, fatigue, memory problems, depression, bone loss, and an increased risk of developing diabetes and cardiovascular problems. The study cited above used one drug from each category in each patient who received the hormone therapy.

Studies have repeatedly shown that testosterone plays a more far-reaching role than just increasing male libido. It's no coincidence that, in males, the increasing risk of heart disease that comes with age parallels the decline in testosterone levels. Lower testosterone levels have been directly linked to increased heart attack risk. One study of 11,000 men found that the group with the lowest testosterone levels had a 48 percent higher mortality rate when compared to those with the highest levels. In a European study, those with the highest levels also had 40 percent fewer deaths from heart attack and cancer.

When testosterone is suppressed in an effort to slow the growth of prostate cancer cells, it also results in a loss in the production of the blood vessel dilator nitric oxide, and in the protective effect testosterone has on preventing the formation of plaque in arteries. Insulin resistance also occurs, leading to pre-diabetes and/or diabetes and a dramatic increase in inflammation. All of these mechanisms help explain how testosterone-suppression therapy can be fatal for men with a history of heart disease.

There are no easy answers, and each case must obviously be evaluated differently. The research continues to support the idea that unless the prostate cancer is fast-growing and aggressive, more conservative treatment measures and even a "wait and watch" program is generally the best option.

A Prostate Program That Works

Some research that consistently seems to be overlooked in this area is primarily coming from Japan, and shows that vitamin K2 (not K1) can help reduce the

aggressiveness of cancer cells. (*Am J Clin Nutr 08;87:985–992*) (*J Bone Mineral Metab 00;18:216–222*)

Vitamin K2 has received a considerable amount of attention over the last several years in both the prevention and treatment of osteoporosis and heart disease. The vitamin helps with the proper distribution of calcium throughout the body. On one hand it can help stop the deposition of calcium in the arteries (a major component of artery-blocking plaque) and on the other hand it can prevent calcium from being removed from bones, which is a major problem in osteoporosis.

Food sources for vitamin K2 are somewhat limited to organ meats and egg yolks—which, unfortunately, are lacking in most diets these days. The richest source of vitamin K2 happens to be natto, the Japanese fermented soy condiment that I've written about in the past. It's rarely available in this country unless you happen to make your own. (I provided details and a recipe for doing so in the November 2002 issue of *Alternatives*, which can be found in the Subscriber Center of the *Alternatives* Web site, *www.drdavidwilliams.com*.)

You should also be aware that nattokinase supplements sold in this country have had their vitamin K2 removed. Nattokinase is very effective at breaking down fibrin or fibrous tissue, which is what the supplements are used for. Manufacturers remove the vitamin K2 in the products so they won't be contraindicated in patients who are taking the blood thinner warfarin. (If you take warfarin, check with your doctor before starting vitamin K2, because it actually helps with the blood clotting process—the opposite of warfarin.)

It's important to point out that there is also a vitamin K1 (also known as phylloquinone), which is natural but not effective for what we're talking about, and vitamin K3 (menadione), which is a synthetic form and also not recommended. You may see vitamin K2 referred to on product labels as menaquinone or menatetrenone.

To make matters just a little more confusing, there are several forms of vitamin K2. The most common form is known as MK-4. Another form that's been heavily researched is MK-7. (The difference between various forms is in the length of the side chain in the molecule.) From what I've seen, MK-7 looks to be the most active form by far. In addition, the longer side chain increases the amount of time it stays active in your body. For these reasons, I recommend that you look to the MK-7 form as a nutritional supplement.

A commonly recommended daily dosage for a vitamin K2 supplement in the MK-4 form is 1,000 *micro*grams. Even doses as small as 50 micrograms a day can be beneficial when it comes to preventing osteoporosis and cardiovascular disease. K2 is extremely safe, and in Japan prescriptions of 45 *milli*grams a day are commonly and safely used in osteoporosis. (Again, if you take warfarin, discuss with your doctor before taking K2.) Higher doses are also recommended when the vitamin is used to try and slow aggressive cancers such as prostate cancer. Daily doses of 15 to 45 mg are routinely recommended.

When using the MK-7 form however, much less is required. An amount of only 150 micrograms a day looks to be sufficient for substantial protection. One brand is Healthy Directions, available through the Healthy Living Network, at *www.healthylivingnetwork.com*.

The above study documented 268 cases of prostate cancer during an 8.6-year period. Of these, 113 were classified as advanced prostate cancer. When researchers analyzed the vitamin K2 intake of these patients, they discovered that an increased intake of the vitamin was associated with a 35 percent reduction in the risk of developing the disease. An even stronger association was discovered when only advanced prostate cancer was considered. Increased vitamin K2 intake reduced that risk by 63 percent. And keep in mind that even those with the highest intake didn't come close to the higher dosages of 45 mg that are being used now in Japan.

If you're looking for a way to reduce the risk of developing advanced or aggressive prostate cancer, vitamin K2 is certainly a viable and safe option.

Take care,

If you have questions or comments for Dr. Williams, please send them to the mail or e-mail addresses listed to the right. Of course, practical and ethical constraints prevent him from answering personal medical questions by mail or e-mail, but he'll answer as many as he can in the Mailbox section of *Alternatives*. For our part, we'll do our best to direct you to his issues, reports, and products related to the subject of your interest.

Here's how you can reach us:

- For Customer Service matters such as address changes, call **800-527-3044** or write to **custsvc@drdavidwilliams.com.**
- If you are a licensed health professional and would like to learn how to begin reselling MHN supplements to your patients, please e-mail practitionerinquiries@davidwilliamsmail.com.
- For back issues or reports, call **800-718-8293.**
- To sign a friend up for *Alternatives*, call **800-219-8591.**

E-mail us at: feedback@drdavidwilliams.com to ask a question or comment on this month's issue.