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Busting an Iron-Clad Myth

"The times they are a-changing"...again. Over the past few years a huge change has taken place in the way medical studies are conducted. For the longest time there was a great disparity between the number of women involved in studies and the number of men included in similar studies. For decades it seems like most medical studies focused on men. During the latter part of the 20th century, the women's rights movement and demand for equality (along with a growing awareness that women aren't just small men) changed all of that, which was a good thing. In one aspect, however, it appears the pendulum may have swung too far. To a large extent, particularly when it comes to prevention, men may be getting the short end of the stick.

The latest figures available (from 2004) show that the average life expectancy in this country is 77.9 years. White females averaged around 80.5 years, while white males averaged about 75.4 years—fully five years less. (For blacks, both male and female individuals average about five years less than whites.)

Over decades, there seems to be a consistent five-year difference in life expectancy between males and females. It's been established that part of the difference stems from more risky behavior on the part of men. But when you take a closer look, it becomes apparent that other factors contribute as well. One of these is the trend I talked about earlier: the increased emphasis being placed on women's health.

Issues such as breast cancer have taken center stage, while corresponding men's issues such as prostate cancer receive relatively little attention. You just don't see any colored ribbons or "run for the cure" events to highlight the issue of prostate cancer. In 1991 Congress even created the Office on Women's Health within the US Department of Health and Human Services. No such office yet exists for men.

Also, there really isn't any medical specialty dedicated to male health. Women often discover any health problems or concerns through visits to a gynecologist. Studies have shown that periodic examinations by obstetricians and, particularly, gynecologists often reveal the beginning signs of high blood pressure, diabetes, cancer, and heart disease. These are the same leading causes of death in men, ones that often go undiagnosed—at least until serious damage has been done. Men have a well-known tendency to shun regular checkups and go to a doctor only once a problem has progressed to a point where it simply becomes too serious to ignore.

Find the Cause, Fix the Problem

Keep in mind that, as important as it is, the diagnosis of a problem is only the first step. Once an accurate diagnosis has been made, the form of treatment one chooses can determine his or her ultimate longevity. Treating a symptom without addressing the underlying cause has been the Achilles' heel of modern medicine. Masking the symptoms doesn't make a problem go away. It only leads to additional and oftentimes more serious problems down the road. Having said all of this, it's a no-brainer that taking steps to prevent health problems is the ultimate solution—and prevention is where our health care system falls short with both men and women.

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

After taking a closer look at the difference in mortality between men and women, and factoring out accidents from risky behavior, some researchers now believe there is a simple explanation for the discrepancy. If they're correct, it may give us an inexpensive, effective foundation for preventing a long list of diseases, as well as a possible way to reverse many of these problems.

The basic premise is that excess iron is the underlying culprit. Before anyone gets the impression that iron is harmful and dangerous, it's important to realize that iron is essential for life. But I guess you could say it's a double-edged sword. I won't get into too much detail about this, but a little explanation may help you understand why it can be important to control iron levels in your body.

A Little Is Good, But More Isn't Better

Iron is an essential part of hemoglobin, the molecule that carries oxygen in your bloodstream. This compound consists of two parts: the heme portion and the globin. The heme portion contains iron, which grabs onto oxygen as the blood passes through the lungs and then releases oxygen later to the cells. (The globin portion of hemoglobin is a protein that protects the heme.)

Atoms of iron tend to lose or gain electrons rather easily. This characteristic is what makes the metal necessary but dangerous. Iron is constantly gaining and losing electrons as it moves oxygen around, and, in the process, highly reactive free radicals are formed. Excess iron—or probably more accurately the inability of your body to stop the oxidation of iron (i.e., free radical formation)—is the actual cause of problems. In simple terms, more iron results in more free radicals, leading to more damage, causing more disease.

The dangers of an acute overdose of iron are well-known. Early signs are diarrhea and the vomiting of blood, from damage to the GI tract. Excess iron also damages mitochondria in individual cells, leading to potentially fatal liver damage. (This is the primary reason iron supplements now come packaged in child-proof containers or in single-dose packaging such as blister-packs. At one time, iron was the number-one cause of poisoning in children under age 6.) It's only relatively recently that we have a wider awareness of the problem of chronic overexposure.

Your Body's Iron Cycle

Most of the iron absorbed by your body is utilized in the production of red blood cells, more specifically the hemoglobin molecules in red blood cells. In fact, of the 3 to 4 grams of iron in your body, roughly 2.5 grams is contained in the hemoglobin of red blood cells. Another 400 mg is used in various cells, such as muscle cells (myoglobin), to store oxygen and perform other functions.

In the early part of life, the volume of red blood cells is constantly expanding, and it's rare to have an excess of iron. If you notice children who are pale, sickly, fatigued, and/or experience cold hands and feet, there's a good chance they are iron-deficient or anemic. All the conditions that are related to a lack of oxygen during the childhood years could easily be symptoms of an iron deficiency. I suspect that many cases of attention deficit disorder (ADD) are iron-related. It's easy to see how concentration would be difficult without adequate oxygen-carrying capacity.

Under normal circumstances, as we mature our red blood cell volume stabilizes and our need for iron goes down. And while our need may drop, our consumption generally remains the same—which can lead to excessive iron stores. Getting back to the difference between the sexes, in females this typically isn't a problem.

Each month during the menstrual cycle, a woman loses somewhere between 20 and 80 mL of blood. This results in an iron loss of 11 to 22 mg of iron. This is nature's way of temporarily preventing an iron excess in females. Granted, along with the temporary iron loss, it's not unusual for women to experience more fatigue, brain fog, and weakness. The trade-off, however, appears to be linked to the extra 5 years of life they enjoy over men. (Plus they have the added benefit of always having a legitimate excuse for memory failure and being "too tired"…just kidding, Sweetheart.)

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(Keep in mind, as you read this, that several pharmaceutical companies are just starting to promote the use of prescription hormones to eliminate menstrual periods in women. The sales pitch claims women can now choose whether or not they want to have a period. By stopping their periods, pharmaceutical companies claim, women can *safely* avoid all the hassles and side effects like cramping, fluid retention, and mood swings. They also claim there are no known side effects or harm caused. I have serious doubts about that. I think any action that significantly increases your risk of infections, heart disease, diabetes, cancer, neurodegenerative disorders like Alzheimer's and Parkinson's, and/or shortens your life by an average of five years is very dangerous.)

Men's Greater Risk

Men obviously don't experience this monthly blood (and iron) loss. The male body doesn't have any mechanism to routinely remove excess iron. As a result, men quickly begin to accumulate additional iron stores.

Studies have shown that iron levels begin to rise very sharply in men toward the end of their adolescent growth spurt in their late teens, and reach maximum levels between the ages of 30 and 39. Iron levels then remain fairly constant until about age 70, when they begin to decline somewhat. The situation in women is much different.

The iron level in women remains low until after about age 50. At that point it shoots up rapidly, much as in males 30 years younger. Even so, for most of her life a woman's maximum iron level is only about two-thirds that of a man of comparable age. By about age 90 the iron levels of white men and women begin to converge.

The changes in iron levels of Hispanic males and females follows pretty much the same pattern as in white males and females. Blacks pretty much follow the same pattern, but the overall rise is greater for both black men and women when compared to the other races. Also, once iron levels level out in black males, they don't begin the characteristic decline like the other races. One study found that overall iron levels were approximately 7 to 8 percent greater for blacks than for whites and Hispanics, and these differences remained throughout the second half of life. This may help explain their increased risk of diabetes, cardiovascular disease, et cetera, and their reduced life expectancy compared to whites and Hispanics. (*Am Heart J 00;140:98–104*)

When you look at the data above, it's not hard to see that iron levels seem to track the same pattern seen with the incidence of cardiovascular disease, diabetes, and many cancers being experienced in our society.

Metal, not Menopause

For the longest time, it was thought that estrogen provided women an extra measure of protection against cardiovascular disease. Their risk is relatively low compared to men until they reach menopause, roughly around age 50. Now research discounts the hormone connection, and gives additional support to the idea that lower iron levels are involved. (*N Engl J Med 03;348(19):1835–1837*) (*Arterioscler Thromb 94;14:857–861*)

This isn't a new theory. A pathologist named Jerome Sullivan noticed the link between the different iron levels in the sexes and their heart attack rates over 25 years ago. From his personal observations, and the work of others, he proposed that excess iron explained the age-related delay in the incidence of heart attacks in women until after menopause. In 1981, he suggested that regular phlebotomy (blood removal) could be used to test the idea and, if proven correct, be used as a preventive therapy. (*Lancet 81;1(8233):1293–1294*) (*Circulation 92;86:1036–1037*)

Not many people took notice of Sullivan's proposed therapy at the time. Since then, however, several studies have shown he was on the right track.

Drawing Blood, Drawing Conclusions

Phlebotomy of healthy males has been shown to increase levels of the "good" HDL cholesterol, apolipoprotein A, cysteine, nitric oxide, and retinal. It also makes the LDL form of cholesterol less susceptible to oxidation and decreases the levels of oxidized fats. All of these factors have been shown to lower the risk of cardiovascular disease, heart attack, and stroke.

Phlebotomies have also proved to be helpful in controlling blood sugar in diabetic patients. Reducing iron levels in diabetics has been shown to reduce insulin resistance and decrease levels of glucose, triglycerides, fibrinogen, and LDL cholesterol while elevating HDL cholesterol. (*Diabetes 02;51:1000–1004*) (*Ann N Y Acad Sci 02;976:342–351*) (*Metabolism 94;43:614–620*)

There are other diseases where reducing iron levels may be beneficial. For example, higher iron levels also increase the risk of certain cancers. (*Int J Cancer 94;56:364–369*) (*J Natl Cancer Inst 94;86:455–460*)

It's well established that cancer cells thrive on iron. One of the best examples is leukemia cells. They contain more than a thousand times more iron than normal cells, one of the highest levels among cancer cells.

Surprisingly, however, not much research has been focused in this direction. Studying the relationship between iron levels and various diseases presents some special problems. Normally one could compare a

specific population or society known to have low levels of a mineral or nutrient to another that has normal or higher levels. For example, if we wanted to see if a higher consumption of fish oil in the diet was beneficial, we could compare a segment of the population that abstained from fish to that of the Japanese culture, which regularly consumes fish. In the case of iron, however, there is no naturally occurring population or society with across-the-board lower iron levels.

Using dietary surveys isn't of much use, for two reasons. First, determining iron intake is difficult because so many processed foods are now fortified with iron. Second, absorption rates vary widely from person to person. The only alternative is clinical trials that involve reducing iron levels through phlebotomy, iron chelation, or strict diets—and each of these would have to be performed for years to accurately determine the effects of excess iron.

Possibly the biggest problem, once again, involves money. Nobody wants to fund such long-term studies when there is little, if any, chance of recouping their money through patents or product sales.

Measuring Iron Levels

I'm convinced at this point that one should take action now, and not wait another 10, 15, or 20 years hoping additional research will be done. This is another situation where there's no downside, and the potential long-term benefits could be five or more additional years of life and the prevention of several severely debilitating diseases.

Before doing anything, however, it would be wise to know your current iron level. This can easily be done with a standard blood test known as the serum ferritin determination.

As iron increases in the body, cells respond by producing more of the protein ferritin, which binds and stores iron to help limit its toxic effects. Ferritin is effective, but only within certain limits. As the level of iron continues to increase, ferritin's ability to detoxify it begins to diminish. Under most circumstances, your ferritin level is a very good indicator of iron stores within the body. The higher the ferritin level, the higher your iron stores.

(Ferritin levels are easy to interpret. It's always nice to have the guidance of a physician, though, because ferritin can increase due to a few other things as well: during certain disease processes, including malignancy and infections; and from tissue damage that can occur following trauma or surgery. In these circumstances, ferritin levels may be elevated without one having excess iron stores, and additional tests may be necessary.)

The accepted range for ferritin varies a great deal. Most laboratories consider anything between 15 and 300 nanograms per milliliter (ng/mL) to be "normal." That represents a 20-fold spread, which is greater than any other blood measurement.

Studies have shown that ferritin levels average around 150 ng/mL in middle-aged men and 100 ng/mL for women. These are the average values taken from what are considered normal, healthy individuals, but keep in mind that the damage from chronic exposure to excess iron isn't always evident until years, if not decades, later. In other words, younger individuals may still appear healthy, even if they have toxic levels of iron. More than likely they won't experience the ill effects of chronic excess iron exposure for several years or maybe even decades. (*Am Heart J 00;140:98–104*) (*Am Heart J 00;139:337–345*)

The threshold level at which the risk for disease begins to increase hasn't yet been defined. However, from the research I've studied, the optimal ferritin level appears to be somewhere in the range of 15 to 50 ng/mL. A normal upper limit of 50 ng/mL would be in line with that of children and premenopausal women. No research has shown that levels over 50 ng/mL are physiologically necessary or even beneficial. (*Circulation 97;96:3300–3307*)

Reducing Iron Levels

What we're really talking about is minimizing the damage caused by the oxidation of iron. The first step that comes to mind is obviously to reduce the amount of iron in the body. But remember that most of the damage occurs from chronic exposure to iron. In other words, the greatest benefits from reducing iron levels occur when it is done earlier in life. A study just released by Dr. Leo Zacharski illustrates this point.

Dr. Zacharski is one of the leading researchers and proponents of iron reduction therapy. He just published the results of a six-year Veterans Affairs study involving 1,277 men and postmenopausal women, ages 43 to 87, suffering from peripheral arterial disease—a known risk factor for future heart attack and stroke. (*JAMA 07;297(6):603–610*)

Part of the group served as controls and had no reduction in their iron levels. The other group underwent iron reduction by phlebotomy (defined volumes of blood were removed at six-month intervals). Blood levels were calculated to avoid iron deficiency.

At the end of the study the researchers found that for those individuals ages 43 to 61, lowering iron levels could have a dramatic effect on their mortality. Compared to the controls, the iron-reduction group experienced 54

percent fewer deaths from all causes and 57 percent fewer deaths occurring after non-fatal heart attacks and strokes. It was also noted that removing iron provided smokers a noticeable degree of protection against the negative effects of tobacco.

This latest study supports the idea that many of the problems associated with excessive iron develop over a period of years. This is typical of problems like cardiovascular disease, type 2 diabetes, and many forms of cancer. (*JAMA 04;291:711–717*)

This isn't to say that if you're over 60 you shouldn't take steps to reduce your iron stores. Continued exposure can only make problems worse and make it more difficult to turn a health situation around.

There are steps everyone should take to minimize the damage from excess iron, and ways to safely and effectively reduce the buildup of iron in your cells. But before you do anything to reduce iron levels, it's important, as I mentioned earlier, to know the iron level in your body.

Public Service Gives Personal Benefit

One of the quickest, safest and least expensive ways to lower iron stores is through regular blood donation. It's phlebotomy with a bonus. You help yourself and others at the same time…one unit of blood can save the lives of three people. After donation, the blood is separated into its three main components—red cells, platelets, and plasma—and the three parts are often given to three different people.

(As an aside, you may remember that I wrote in *Alternatives* Vol. 11, No. 20 about the dangers of blood transfusion. As I said at the time, though, in some circumstances people do need blood—and any health concerns are limited to the recipient, not the donor.)

Men have about 12 pints of blood and women 10. Donating one unit (or pint) reduces your blood volume by only 10 percent or less. Granted, it does temporarily reduce your oxygen-carrying capacity by the same percent, but your body automatically increases the heart rate during exertion to compensate. Your body also replaces the lost fluid volume within 48 hours and the lost hemoglobin is replaced within a week to 10 days.

In the above VA study, one unit of blood was donated every six months and cardiovascular benefits were seen in younger (ages 43 to 61) men and women. Earlier studies, however, have only shown cardiovascular benefits in men and not in postmenopausal women (or in smokers) who donate blood. One Finnish study found that men who donated a single unit of blood within the preceding three-year period experienced a 30 percent reduced risk for cardiovascular events such as heart attack, bypass surgery, and stroke compared to non-donors. (*Brit Med J 97;(314):793–794*)

There are concerns with many of these earlier studies, because they are observational studies. They don't take into account the possibility that blood donors might be more health-conscious, exercise more, et cetera, and may already have a lower risk of cardiovascular disease than non-donors.

I think blood donation in itself is a wonderful act and, based on the research, I think most non-smoking males younger than age 60 could reduce their risk of cardiovascular events by donating a unit at least once or twice a year. This would be particularly true of black males and possibly even postmenopausal black women.

And although the research doesn't yet support it, I suspect that even older males could benefit in other ways by donating a unit of blood per year. (As a comparison, the blood a woman loses during her menstrual cycles works out to about one pint or unit of blood a year. There's also very significant blood loss during pregnancy and childbirth.)

Donating one unit of blood (a pint or about 500 mL) will lower the ferritin level by about 50 ng/mL, and ferritin will stay below the pre-donation level for up to six months. The iron lost from donating two or three units a year is roughly the same amount of excess iron an individual absorbs each year.

I think that in the not-too-distant future we'll see routine blood donation or phlebotomy being used to specifically reduce iron storage and accumulation. It becomes a win/win situation for everyone. The donor increases the quality and length of their life. The recipient receives the gift of life. And our society sees an overall reduction in health care costs.

I'm aware that certain individuals are not able to donate blood. In recent years, blood collection organizations such as the American Red Cross have become increasingly strict about who can and who can't donate. The use of certain medications, current illness, and recent travel to particular areas are all reasons for deferral.

In that case, phlebotomy is a good option. Most physicians and other practitioners can perform the procedure right in their office.

Other Choices for Iron Reduction

There are other direct methods of removing iron stores from the body, but they are more expensive than blood donation.

Intravenous administration of the mineral chelator EDTA is one method. It requires numerous treatments to be effective. Chelation therapy is usually not covered by insurance, and can cost as much as $4,000 to $5,000. (Over the years there have been a number of oral EDTA products on the market. I don't think they're particularly effective. If you choose EDTA chelation, IV administration is the way to go.)

There's also the prescription drug desferrioxamine (also known as deferoxamine), but it also comes with a cost and potential side effects. And convincing your doctor to order either phlebotomy or the drug can be a challenge, especially if your ferritin levels are within the accepted "normal" range.

There's a little-known natural chelating product that may one day replace both EDTA and desferrioxamine. It's safe, available over the counter, and very inexpensive. It's practically unheard of in this country, but it has been used extensively in Japan for years.

IP6 is an excellent natural product normally used to boost immune function—but it also works very well at chelating iron. The primary ingredient is phytic acid, also known as inositol hexaphosphate. The compound is a natural supplement extracted from rice bran. The sole worldwide manufacturer of IP6 is Tsuno Food Industrial Company of Wakayama, Japan. The product is sold under various labels in this country, but regardless of the brand it still comes from this same company—so this is one product you can shop for on the basis of price. In other words, buy the least expensive brand.

A month's supply normally sells for less than $10. Like cilantro, IP6 is another "poor man's chelation therapy." [*Editor's note: For a summary of Dr. Williams' other recommendations on chelation over the years, visit the* Alternatives *Subscriber Center at* www.drdavidwilliams.com.] Jarrow and Source Naturals are just a couple of the companies that market IP6 under their label. It will be very easy to find IP6 at your local health food store or from a mail order or Internet supplier.

IP6 enters the bloodstream and chelates various minerals, including iron, copper (another active producer of free radicals), calcium, and heavy metals like lead, cadmium, and mercury. The minerals and heavy metals are then excreted from the body through the urinary tract. IP6 doesn't remove necessary electrolytes—minerals like sodium, potassium, and magnesium—so you don't have to be concerned about stressing or causing damage to the heart muscle.

The compound is extremely safe and actually found naturally in practically every cell in the body. Being a chelating agent, however, it should not be taken on a continuous basis as it could lead to iron-deficiency anemia or a calcium deficiency. (*J Agric Food Chem 99;47(11):4714–4717*) (*Lancet 87;2(8560):664–666*)

The generally recommended dosage is 1,000 to 2,000 mg of IP6 a day for 30 to 60 days. It should be taken between meals on an empty stomach.

(Pregnant women, children, and anyone who's anemic should not take the supplement. Although it's not 100 percent accurate, one of the tell-tale signs of anemia is usually cold hands and feet. These individuals obviously need higher amounts of iron and/or calcium rather than having it removed from their system.)

I consider one month's use of IP6 each year an excellent way to help cleanse the body of iron, toxic metals, and calcium deposits.

Another little known use for IP6 has to do with kidney stones. Research also suggests its calcium removal properties can help both prevent and remove kidney stones. And it's possible that it may be beneficial at removing calcium deposits in blood vessels. Hopefully we'll see more research in that area in the near future. (*Scand J Urol Nephrol 00;34(3):162–164*) [*Editor's note: See Vol. 3, No. 7 for more on the use of phytic acid to fight kidney stones.*]

The germ in whole grain and whole grain flours contains phytic acid, the same iron-binding compound in the product IP6. Unfortunately, however, when yeast is added to the flour and fermented (which allows the bread to rise), the phytic acid is destroyed. The best breads to reduce iron levels are those prepared without yeast, also referred to as unleavened, unraised, or flat breads.

Even a Blind Pig Can Find an Acorn

All of the techniques and procedures I've mentioned thus far are utilized to specifically lower iron levels. When you take a closer look at the latest longevity "breakthroughs" and "anti-aging" suggestions, many of their benefits can be linked to their effects on iron levels or activity.

Aspirin is used by millions of people on a daily basis in an attempt to prevent everything from heart problems to various forms of cancer. Many of aspirin's benefits have been attributed to its anti-inflammatory actions. After taking a closer look at the research, I found that one of the effects of aspirin is to increase ferritin production. As you recall, ferritin attaches to extra iron for storage and helps limit its toxic effects. Aspirin's ability to produce additional ferritin helps limit the damage it causes—which, in turn, lessens the risk of cardiovascular disease and cancer. (*Circ Res 98;82(9):1016–1020*)

Aspirin also causes bleeding in the gastrointestinal tract. I suspect this chronic bleeding and subsequent iron loss, which often goes undetected, accounts for many of aspirin's reported benefits. Personally, I don't relish the thought of self-induced internal bleeding, and I think that the side effects of aspirin—including retinal bleeding and asthma—very often outweigh its benefits. There are better and safer methods of controlling inflammation and reducing iron stores.

More Goodness From the Grape

Another anti-aging tool I've discussed and recommended is the extract from grape skins and grapevines called resveratrol. Recent research has suggested that, to a large degree, resveratrol produces the same benefits as calorie-restricted diets—the only proven method to slow the aging process. Both highly calorie-restricted diets and resveratrol influence iron levels and/or activity.

To date, calorie restriction has been studied extensively only in fruit flies and mice, and to a lesser degree in monkeys. In every case, however, it has been found that the amount of food consumed by these insects and animals was directly related to the level of iron in their tissues. The rate of age-related iron accumulation has been directly related to the life span of these species. And much like in humans, the accumulation of iron didn't occur until after the animals reached their mature state.

Resveratrol can provide the benefits of a very low–calorie diet without the hassle. It may do so by controlling the activity of iron. Although resveratrol doesn't chelate iron or reduce iron stores, *resveratrol has been shown to be one of the strongest antioxidants ever discovered for protecting against iron-induced free radicals*. (*Free Radic Res 00;33(1):105–114*)

Red wine, as you know, has also been associated with having anti-aging properties. This is partly due to its resveratrol content. To get the amount of resveratrol shown to be effective, 25 mg daily, you'd need to drink several glasses of red wine. A better solution may be to try a resveratrol supplement, such as Resvert from Supplement Spot Nutrients at *www.supplementspot.com* or 877-205-0040; Longevinex from Resveratrol Partners at *www.longevinex.com* or 866-405-4000; or Resveravine from Mountain Home Nutritionals, *www.drdavidwilliams.com* or 800-888-1415.

Wine also contains various tannins and pigments (like the bioflavonoid quercetin) that bind and neutralize iron. It's these iron-binding pigments that contribute to many of the health benefits of other foods and drinks as well.

Coffee also contains iron-binding pigments that can reduce iron absorption by as much as 35 percent. And the bioflavonoid in green tea called catechin has been shown to reduce iron absorption by over 60 percent. (*Hum Nutr Appl Nutr 82; 36(2):116–123*)

It's often the same pigments or bioflavonoids that give food their color that also help control iron toxicity and improve our overall health and longevity. This supports the idea of having a varied diet that includes lots of different colorful vegetables, fruits, berries, et cetera.

Yet More Choices

Curcumin, a component of turmeric and one of the primary ingredients in curry power, just also happens to be a chelator of iron (and copper). This may provide another clue as to why Indians have such a low incidence of Alzheimer's disease. I still feel strongly that turmeric is one of the best health bargains of all time. For just pennies a day it protects against dozens of diseases—and one of the ways it does so is by removing excess iron stores. As little as 250 to 500 mg per day is enough to give you the benefits. (*J Alzheimers Dis 04;6(4):367–377*)

Recently, the Linus Pauling Institute studied the effects of lipoic acid on iron. Their animal studies confirmed what numerous other researchers have found in the past. Older rats had a 50 percent increase in total iron content in their brain cortex when compared to younger rats. In addition to the age-related iron accumulation, the older rats also had 27 percent less vitamin C and an increase in oxidized glutathione.

They supplemented both young and old rats with high levels of lipoic acid for two weeks (the equivalent of a 150-pound person taking 3,400 mg a day). The iron levels in the young rats didn't change, but the levels in the old rats fell to the same levels found in young rats. There was also a 30 percent increase in vitamin C levels in the older rats, along with an increase in reduced glutathione.

Watch for Iron Boosters

Speaking of vitamin C, it's important to remember it significantly increases iron absorption. In fact, orange juice, due to its vitamin C content, increases iron absorption by as much as 85 percent. I wouldn't, however, avoid foods high in vitamin C or vitamin C supplements, since the known benefits far outweigh any possible increase in iron levels. You might want to avoid drinking orange juice or taking the supplement with heavy meat meals.

Pure alcohol increases iron absorption by a factor of three (which may help explain why Geritol, once promoted as being good for "iron-poor blood," is about

12 percent alcohol). Milk and beer have no effect. And wine increases iron absorption only slightly, probably due to the high concentration of tannins and iron-binding pigments we discussed earlier. Clearly what you drink with a meal has a significant influence on the amount of iron absorbed. (*Hum Nutr Appl Nutr 82;36(2):116–123*)

The Different Types of Iron

Iron, by the way, is found in two forms, heme and non-heme iron. Heme iron makes up about 40 percent of the iron in meat, poultry, and fish, and is well absorbed (30–50 percent availability). Non-heme iron makes up 60 percent of the iron in animal tissue and all the iron in plants (vegetables, fruits, grains, nuts) and is less well absorbed (5 percent availability). This difference in absorption is one reason vegetarians are at higher risk of anemia. Even when they eat plenty of high-iron foods such as dark leafy greens, the iron isn't absorbed well.

Meat isn't necessarily a problem. It keeps us from becoming anemic. The key is to vary the diet with plenty of fruits and vegetables and occasional meatless meals. This is one of the problems I have with Atkins-type diets. Granted, they do promote weight loss and improve several blood markers related to heart disease. With such a strong emphasis on meat products, however, it makes one wonder about the potential problems of excess iron stores later down the road.

The Jury's Still Out, But the Verdict Is In

The overall effects of iron accumulation are still under investigation. I'd be the first to admit that we don't yet have the full story. But the writing is on the wall. Enough evidence is there to know that excess iron increases the risk of cardiovascular disease, heart attack, stroke, diabetes, cancer, neurodegenerative diseases like Alzheimer's and others, infections, and numerous other problems generally associated with aging. And we now know several ways to safely, effectively, and inexpensively lower excess iron levels. I can see no downside to doing so, and the research continues to support the idea that the sooner one starts the greater the benefits.

I would highly recommend taking the steps I mentioned above, starting with the guidance of your doctor and the proper blood test to establish a starting point:

- Use iron supplements only if you're anemic.
- Avoid taking high doses of vitamin C with meals or foods that are high in iron.
- Eat a varied diet with plenty of colorful vegetables and fruits.
- Don't eat meat with every meal.
- Avoid iron-fortified processed foods and cereals. For example, a bowl of Total cereal from General Mills contains 18 grams of iron per serving, 100 percent of the stated daily requirement. A better choice would be one like Rice Crunch-Ems from Health Valley which contains only 6 percent of the daily requirement. Read the labels for iron content.
- Consider adding one or more of the supplements mentioned earlier to your regimen, if you haven't already done so.
- Consider donating blood once or twice a year, if you're qualified to be a donor and your ferritin level doesn't drop too low. Every study that I've seen has shown that frequent blood donors (two units a year) use less blood pressure and cholesterol medication, have fewer weight problems, reduce their coronary risk, and live longer. If donating is not for you, as least monitor your ferritin level a couple of times a year and adjust that level to the range discussed earlier using one of the other ways I've outlined.

If the research money were there, I have no doubt you'd be reading about iron reduction therapy being the next great breakthrough in anti-aging and disease prevention. But the research money isn't there and I don't know when or even if it ever will be. So the general public will once again be left in the dark concerning this simple life-extending technique. *Alternatives* readers won't be. And, if you pass this information along, neither will your loved ones.

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.
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