

The use of endothelial progenitor cells as a marker of cardiovascular risk

by Nina Mikirova, Ph.D.

All blood vessels are lined with endothelial cells; the layer being called the endothelium. Both blood and lymphatic capillaries are composed of a single layer of endothelial cells. They form flat, pavement-like patterns on the inside of the vessels, and at the junctions between cells there are overlapping regions, which help to seal the vessel.

These extraordinary cells were once considered to be simple lining cells with very few functional roles, other than to keep cells within the blood from leaking out of the vessels. However, for some years research on endothelial cells has revealed that they have an amazing array of functional and adaptive qualities. These cells reduce friction, allowing the blood to be pumped farther. Endothelial cells are selective filters, which regulate the passage of gases, fluid, and various molecules across their cell membranes.

Moreover, endothelial cells are the key determinants of health and disease in blood vessels and play a major role in arterial disease. Although the incidence of death from arterial disease is decreasing (due to better education, diet, smoking reduction, and life-style changes), it is still a major health problem. Endothelial cells play a crucial role in the initiation of this condition. It has long been realized that endothelial cells become “injured,” either physically by abrasion or toxic insult (such as from nicotine), and large molecules, which are normally confined to the blood, are allowed to escape through the endothelium and become lodged in the smooth muscle cells in the arterial

wall. Macrophages also pass through and accumulate fat (lipid and cholesterol) deposits. The most common name for this disease is atherosclerosis. This process is very slow, but there is a gradual accumulation of this fatty and fibrous material, which not only makes the normally elastic artery hard (sclerotic), but the deposits, known as “plaques,” may encroach on the arterial lumen and cause turbulent blood flow.

Thus, the complete regeneration of injured blood vessels is of particular importance. This endothelial repair may occur by migration and proliferation of surrounding mature endothelial cells. However, the mature endothelial cells are terminally differentiated cells with a low proliferative potential, and their capacity to substitute damaged endothelial cells and to create new vessels is relatively limited.

Endothelial repair obviously needs the support of other cells. Accumulating evidence in past years indicates that peripheral blood of adults contains bone marrow-derived progenitor cells. These precursor cells have the potential to differentiate into mature endothelial cells and were termed endothelial progenitor cells (EPCs).

As endothelial progenitor cells are originally derived from the bone marrow, it is thought that various growth factors and hormones cause them to be mobilized from the bone marrow and into the peripheral blood circulation, where they ultimately are recruited to


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Calorie restriction reduces fat cell size and chronic disease risk

Reducing the amount of calories you take in on a daily basis does not reduce the number of fat cells in your body, but it does reduce the size of the fat cells, according to Krista Varady and Marc Hellerstein in a review of studies that appeared in *Nutrition Reviews*.

In their review, they looked at human and animal studies. They found that, “Calorie restriction regimens have received considerable attention, in part because of their ability to reduce chronic disease and extend life span in experimental animals.”

They concluded that, 1. A calorie restriction diet may lead to net loss from the fat cell size; 2. Net loss from fat cell size would result in a decrease in body fat; and 3. Less body fat may reduce the secretion of pro-inflammatory causes.

If you are overweight, reducing the number of calories you eat by 20% to 40% will reduce inflammation as well as help reduce your weight. 

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Health Hunter Newsletter is published as a service 10 times a year by the Olive W. Garvey Center for Healing Arts, a division of The Center for the Improvement of Human Functioning International (CIHFI), a non-profit organization. A Basic membership is \$25 for one year, \$35 for outside the U.S. A Premium membership is \$57 for 1 year, \$67 for outside the U.S. To join, see the order form on page 7 of this issue. (Prices good through 2008.)

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Nutritional Medicine

by Rebecca K. Kirby, M.D., M.S., R.D.

The sunshine vitamin: are we getting enough?

The answer to that question is no. After this long winter with little sunshine, especially here in Kansas, most of us now have inadequate levels of the sunshine vitamin, vitamin D. Even if you live in a more southern latitude, smog, cloud cover, and the angled winter sun limit vitamin D synthesis in the skin. There was a reason your mother gave you cod liver oil in the wintertime; cod liver oil is a potent source of vitamin D (also vitamin A and omega-3 fatty acids). Wearing sunscreen prevents you from being able to make vitamin D since the purpose of sunscreen is to protect you from ultraviolet light. If you have darker skin, that will also interfere with your absorption of ultraviolet light for making vitamin D.

It takes only 10 to 15 minutes of noonday sun (between 11 a.m. to 1 p.m.) for making vitamin D through the skin. For consumption of vitamin D, besides cod liver oil, other sources include salmon, herring, sardines, and tuna. There are also foods that are fortified with vitamin D, like milk, yogurt,

soymilk, some cereals, and orange juice. These products should be fortified with vitamin D3 (cholecalciferol) *not* D2 or ergocalciferol, which does not have the same properties.

Besides the importance of vitamin D in preventing rickets, vitamin D has been found to be important in many other tissues. There are more than 50 genes in body tissues that are regulated by vitamin D. It is important in muscle strength and balance, in modulating the immune system, and reducing cancer risk. Studies have also found benefits with vitamin D and depression, skin disorders, periodontal disease, blood pressure regulation, and arthritis. As the understanding of the function of vitamin D in the body continues to expand, there may be additional health-providing benefits discovered.

Consider having your vitamin D level measured and improve your levels for better health. ^{HU}

For more information on vitamin D, visit the Mabee library or the Gift of Health where Dr. Kirby's lecture entitled "Are You Getting Enough Vitamin D?" is available.

Cardiovascular risk—Cont'd from page 1
regions where they are needed.

Circulating endothelial progenitor cells are involved in the repair process of the endothelium after endothelial-cell injury in myocardial ischemia, angina, and other stressful situations. Physiological variations in the number of EPCs have been recently described. For example, physical training enhances the number of circulating EPCs. Several studies have described the influence of various pathological conditions and some drugs and growth factors on the number of EPCs. The numbers of circulating EPCs and their activity have been reported to be reduced in patients with risk factors for ischemic cardiovascular disease. EPCs from patients with diabetes mellitus type II were characterized by a decreased proliferation capacity and reduction to form capillary tubes. In contrast, acute myocardial infarction was associated with a rapid increase of EPCs in the circulation. Vascular trauma also induces a rapid transient mobilization of EPCs.

Last year there were several clinical trials to use EPCs for the treatment of patients suffering from vascular diseases. These trials focused on the safety and efficiency of the administered EPCs in patients with cardiac disorder. Recent studies demonstrate that implantation of a patient's progenitor cells after acute myocardial infarction appears to limit post-infarctional damage. For example, the study titled "The Transplantation of Progenitor Cells and Regeneration Enhancement in Acute Myocardial Infarction" involved the delivery of circulating endothelial progenitor cells or bone marrow cells directly into coronary arteries after the infarction in patients with acute myocardial infarction. At four months, transplantation of progenitor cells resulted in an improved regional wall motion in the infarct zone. However, the exact mechanisms mediating the improvement of heart function, as well as the survival and distribution

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infused progenitor cells, remain open.

By the time heart problems are detected, the underlying cause, such as atherosclerosis, is usually quite advanced, having progressed for decades. Some biomarkers are thought to offer a more detailed risk of cardiovascular disease. Currently, biomarkers, which may reflect a high risk of cardiovascular disease, include high fibrinogen blood concentration, elevated homocysteine, elevated blood levels of asymmetric dimethylarginine, high inflammation as measured by C-reactive protein, and others.

As EPCs play an important role in the regeneration of ischemic and damaged tissue via repairing the endothelium in the injured vessels, it was demonstrated that a reduced number of EPCs predicts future cardiovascular events and proposed that a low number of these cells reflects the impaired repair capacity. Circulating EPCs are believed to be depleted by standard cardiovascular risk factors and unfavorable life-style.

Based on the assumption that the number and the functional characteristics of EPCs may be successfully used as a diagnostic tool and prognostic marker of vascular disease, here at The Center I developed a diagnostic tool for evaluation of the cardiovascular risk and severity of peripheral atherosclerosis based on the number and activity of circulating endothelial progenitor cells. In this study, the level of endothelial progenitor cells in the blood of people with low and high risk factors was measured to see if there is a relationship between these cells and cardiovascular risk factors such as smoking, high cholesterol level, high blood pressure, diabetes, and age. Results of our test were compared with the conventional risk factor score, Framingham-based scoring system, which is based on the same risk factors for atherosclerosis.

Our diagnostic procedure demonstrated a decreased number of repairing cells in circulation with the increasing of the level of cardiovascular risk factors.

We hope that our research of endothelial cells will help with a more detailed understanding of their function, and in the future the estimation of the number and functional ability of endothelial progenitor cells will be used as a diagnostic tool for vascular diseases. [H]

HEALTH HUNTERS AT HOME



Headaches: a common complaint with complicated causes

by Dr. James A. Jackson

“I suffered from severe migraine headaches for years. In some cases, the headache became incapacitating, painful episodes, usually preceded by an aura of shimmering areas in my vision. Often the pain would come with an extreme sensitivity to light and my central vision would disappear. When conversing with someone, I would have to tilt my head and look out the side of one eye to see the person I was talking with.” These are the words of Dr. Hugh Riordan as written in the *Journal of Orthomolecular Medicine* in 1999. Using one of the protocols established at The Center, Dr. Riordan found that he was very sensitive to chocolate. After eliminating it from his diet and correcting some low nutrients, he was free from headaches for decades. Chocolate, as well as other common foods, are known “triggers” for migraines.

Unfortunately, a lot of headache cures are not that simple, although allergies are a common cause of headaches, especially in children. Headaches are common in all countries of the world and have been described in writings from the Bible, ancient Greece, Rome, India, China, Egypt, etc.

Each year in the U.S. as many as 45 million people have chronic, severe, disabling headaches that result in more than 8 million doctor visits. Migraine sufferers lose more than 157 million workdays, with a financial cost of about \$15 billion each year. Nearly 90% of men and 95% of women suffer from headaches. Headaches can plague young children and even babies.

There are four main types of headaches. About 90% are the primary type: tension, migraine, and cluster headaches. Ten percent are secondary types caused by illness and/or tumors.

Tension headaches are the most common type. They affect about 80% of Americans and occur frequently in children between 9 and 12 years of age. They are the result of tension in the muscles of the shoulders and neck. The pain is mild to moderate and is usually described as a “tight band” around the

head. Tension headache sufferers tend to hold more anger inside, and tension headaches are often associated with stress and fatigue.

Migraine headaches are the next most common. Migraines affect about 30 million Americans (that we know of). They are classified as vascular type (blood vessels involved) and affect about three times more women than men. About 70 to 80% of patients have a family history of migraines. If one parent has migraines, the child will have a 50% chance of having migraines. If both parents have migraines, the child will have a 70% chance of migraines.

Many things may “trigger” or start a migraine. Some of these include missing or delaying a meal, medications causing a swelling of blood vessels, alteration of sleep/wake cycle, bright lights, sunlight, fluorescent lights, and movie viewing. Other triggers are foods containing dyes and additives, chocolate, aspartame, caffeine, pizza, aged cheese, nuts, bananas, yogurt, alcohol, excessive noise, stress, and underlying depression. Fatigue, menses, other hormone changes, changes in altitude, and even strong odors also may trigger migraines.

Cluster headaches may cause severe pain in a susceptible individual. They have been recognized for over 100 years and occur more in women. The name “cluster” comes from the time period of the onset. In 85% of cases they occur the same hour each day and “cluster” for a certain time period. It is a one-sided headache with no genetic involvement. One trigger to these headaches is sensitivity to alcohol. An attack may occur 5 to 45 minutes after drinking a single cocktail. Many are triggered by food allergies, and all sufferers should be checked for allergies and eliminate those foods from the diet.

In recently reviewing the article published in 1999 (mentioned above) in preparation for a lunch and lecture on headaches, I found little that has changed, except for probably more headaches. [H]

INFORMATION WORTH KNOWING

by Marilyn Landreth, M.A.

How do you think of stress? Do you think it is primarily a psychological response to the circumstances of your life? Have you ever thought that the stress hormones can be a response to internal inflammation that is causing the stress hormones to course through your body? Richard Weinstein, D.C. says, "the hormone that our body secretes in times of stress is the same hormone it uses to resolve inflammation." In his book, *The Stress Effect: Discover the Connection Between Stress and Illness and Reclaim Your Health*, he looks at all the components of stress. Dr. Weinstein uses a holistic model to resolve stress and its effects. He believes that three components of stress are structural, chemical, and psychological and uses proven natural remedies to end the cycle of stress – inflammation – illness. Dr. Weinstein's book is thought-provoking and interesting. The questions this month are taken from his book.

1 Chemical refers to, among other things, the balance of hormones and neurotransmitters. Included in this is the function of the adrenal glands. One problem with the adrenals is they can seem to be responding well to treatment and then they will _____.

- a. restart
- b. rebound
- c. shut down
- d. speed up

2 By nighttime, cortisol levels should be very low. If they are abnormally high, they will trigger a state of alertness. One serious symptom that suggests a cortisol imbalance is _____.

- a. low sugar levels
- b. rapid heartbeat
- c. insomnia
- d. drowsiness

3 Through the seminars that Dr. Weinstein attended and the reading he did, he found out that all adrenal problems have their basis in psychological stress.

- a. True
- b. False

4 The hormonal system works on a negative feedback loop. The system initiates specific chemicals to produce reactions, and when we get enough of that chemical the system triggers it to shut off. This is called _____.

- a. homeostasis
- b. photosynthesis

- c. catabolism
- d. catechism

5 Although it may sound counter-intuitive, cortisol affects _____ in several ways. It stabilizes the membranes of the cells and reduces permeability of the small blood vessels.

- a. insomnia
- b. influenza
- c. inflammation
- d. insulin

6 Recent research has indicated how serious inflammation can be. Many Americans have a normal cholesterol but have high levels of inflammation, putting them at risk for heart attacks and strokes.

- a. True
- b. False

7 Most Americans want fast relief from pain caused by arthritis, a pulled muscle, or getting injured in an accident so they take nonsteroidal anti-inflammatory drugs (NSAIDs). NSAIDs are one of the most commonly used classes of medication. It is estimated that _____ million people take NSAIDs daily.

- a. one
- b. ten
- c. thirty
- d. fifty

Test of the Month

by Dr. James A. Jackson,
Director, Bio-Center Laboratory


Fatty acid profile

Fatty acids are essential for all life forms. Humans cannot make two fatty acids—linoleic (LA), an omega-6 fatty acid, and alpha linolenic (ALA), an omega-3 fatty acid. These must be obtained from the diet or as supplements.

What do fatty acids do, you may wonder? Fats have twice the energy as carbohydrates or proteins. They make up part of the covering of nerves, construct membranes, create electrical potentials, or move electrons, just to name a few of the functions of fatty acids and fats.

Why does the doctor order this test? Inflammation, CHD, cancer, diabetes, MS, arthritis, autism, or other mental disorders may result from a deficiency of ALA or LA. An imbalance of omega-6 to omega-3 could cause an increase in arachidonic acid resulting in the production of the inflammatory prostaglandin E2. It also causes platelets to stick together and kidneys to retain salt and water (high blood pressure, water retention). Also skin problems, hair loss, failing of wounds to heal, dry skin, sterility in males, and liver and kidney degeneration may occur in the absence of some fatty acids. A prolonged deficiency of fatty acids results in death.

Fatty acid profile consists of 11 different fatty acids plus a trans-fatty acid. There are several ratios and total fatty acids of each group, a total profile of 17 different results. One important profile is the omega-6 to omega-3 ratio. The ancestral diet had an omega-6 to omega-3 ratio of about 1 to 1. A typical omnivorous diet (meat and vegetables) has a ratio of about 4 to 1. The Western diet (U.S.), with all the fried fatty foods, has a ratio of 24 to 1.

Fatty acid profile gives a lot of information about the status of many organ systems in your body. It is ordered frequently by The Center's physicians and has helped many patients get back on the road to good health. 

• FOR ANSWERS, SEE PAGE 7 •

The Center wildlife sanctuary - part 1

by Gary Branum, Ph.D.

As you drive onto The Center grounds you may have noticed the small blue sign along the driveway that says "Wildlife Sanctuary." Have you ever wondered about that? If you have, here is a little bit of information.

The Center complex has more than 90 acres, of which about half is considered to be part of the sanctuary. This includes all of the undeveloped area along Chisholm Creek, around the ponds, and behind the garden, as well as the open area between the complex and Hillside Avenue.

The guiding operating principle for the wildlife sanctuary is that The Center makes no effort to control animal species or populations, with the exception of domestic animals like dogs. We have decided to live with the animals instead of trying to eliminate them. The result is that as you walk around The Center grounds (watch out for poison ivy!!) you may see cute, cuddly animals and you might also see animals you don't particularly like. The animals are all shy and reclusive and are not threatening to humans.

Here are a few of the wildlife species that have been seen on the grounds and that you might encounter.

The largest animals are 8 to 12 deer that live in the woods and can frequently be seen grazing in the open field near Hillside early in the morning. Smaller mammals include rabbits, voles, raccoons, opossums, and gophers, and, of course, any semi-rural setting has field mice. There have also been one or two sightings of badgers and bobcats.

As you walk along the Gratitude Trail, you'll notice a pile of branches next to the trail on the north side of the big pond. That's home to a family of muskrat and you can sometimes see them swimming in the pond.

In the next issue of *Health Hunter*, we'll continue our wildlife tour with birds, reptiles, and amphibians, as well as a discussion of how the animals impact the operations at The Center. In the meantime, as you move about the grounds keep your eyes open. If you see wildlife, we would appreciate hearing about it. You can tell any staff member or e-mail nball@brightspot.org. [H]

Herbal History

by Chad A. Krier, N.D., D.C.

Gymnema sylvestre

Gymnema liquid extract is an Indian herbal that shows great promise in promoting glucose regulation. Gymnema leaves have shown the ability to increase insulin secretion. Gymnema has shown the ability to reduce blood sugar when it is elevated while having no effect when levels of glucose are normal. Hence, it may work well in diabetics but will not drop sugar levels too low in someone with normal glucose levels. Further, it increases enzymes which facilitate the insulin-independent utilization of glucose. It has also been shown to have insulin stabilizing properties by reducing hyperinsulinemia following a loading glucose infusion.

In an animal study, the use of Gymnema showed some pancreatic regeneration in diabetic animals. In human studies, insulin-dependent diabetics taking Gymnema reduced their insulin requirements and fasting blood glucose, glycosylated hemoglobin, and glycosyl-

ated plasma protein levels after using 400 mg/day of a water soluble acidic fraction of the ethanol extract.

Gymnema contains chemicals called saponins that can inhibit the reabsorption of bile acids in the intestine and thus lower cholesterol and triglycerides.

Gymnema also contains certain acids that have anti-sweet activity in the taste receptors of the mouth. The constituent Gurmarin binds to taste receptor proteins, blocking the sweet taste by selectively anesthetizing sweet taste buds for up to several hours. Appetite can be decreased for up to 90 minutes after the sweet-numbing effect.

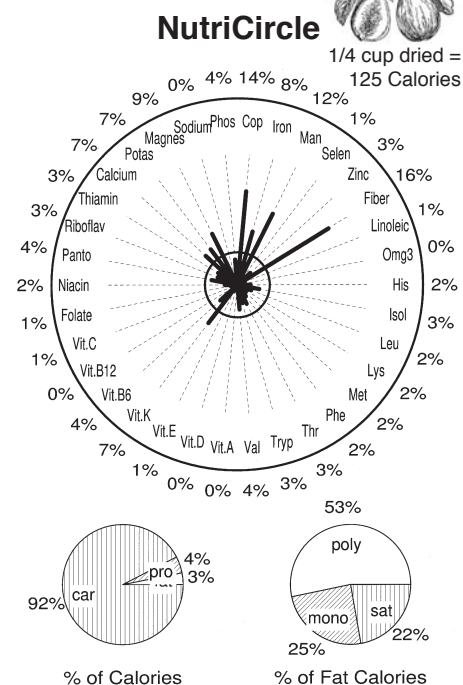
Gymnema needs to be taken over a long period of time to have significant effects on blood sugar management. It may be wise to take it for 7 or 8 days and then take a break for 2 days to maintain its effects on the sweet taste buds. I generally recommend taking ½ teaspoon of the liquid extract 3-4 times daily. [H]

Food of the Month

by Donald R. Davis, Ph.D.



FIG "fruit" is actually a nearly closed pouch containing many small flowers and seeds of the common fig tree. The invisible flowers are pollinated by tiny wasps that enter the small opening in the pouch. Figs are usually dried or processed, as the fresh fruit does not ship or keep well. Fig Newtons are a popular cookie containing fig jam, invented in 1891. One-quarter cup dried figs (shown here) contains 7% to 16% of the RDAs for calcium, potassium, magnesium, fiber, vitamin K, and three trace minerals. Figs also contain abundant antioxidant polyphenols and flavonoids, but little protein or fat. Fresh figs have more of some vitamins.



The length of each bar shows the amount of one nutrient. If a bar extends out to the inner circle, the food has enough of that nutrient to match the calories it contains. The numbers show nutrient amounts in RDAs per serving shown. The pie charts show the sources of calories (left) and the types of fat (right). [H]

Mental Medicine

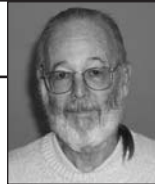
by Marilyn Landreth, M.A.

A new beginning

The founder of The Center, Dr. Hugh Riordan, did not believe in the retirement concept. He thought that people were just beginning to come into their own at age 65, so he encouraged employees to work as long as they felt they were contributing. At 65, *Health Hunter Newsletter* editor, Richard Lewis, seemed to echo George Burns who said, "Retirement at 65 is ridiculous. When I was 65 I still had pimples."


Twenty-three years ago Richard came to The Center and gradually found his niche. We worked together on the Lunch and Lectures, and through listening to all the great speakers, especially Dr. Riordan, he learned how important The Center's message was. He sifted through speeches, research material, and experience in the Olive W. Garvey Center for Healing Arts clinic to promote The Center's message as editor of *Health Hunter Newsletter* for over 21 years.

Richard's love of The Center came second to his love of his family. His wife



Jacquelyn and daughter Alison have always had first call on his time and affection. Now, well over retirement age, Richard has decided, very reluctantly, that it is time to slow down and relax. He is going to see if Gene Perret was correct when he said, "Retirement is wonderful. It's doing nothing without worrying about getting caught at it."

Actually, we know that he will be experiencing life as Hartman Jule did when he said, "Retirement has been a discovery of beauty for me. I never had the time before to notice the beauty of my grandkids, my wife, the tree outside my very own front door. And, the beauty of time itself."

It has been a privilege to work with this gentle man and see how his caring, compassion, and a way with words have had a profound impact on the people around him. We will miss hearing your booming laughter and bad word puns. Enjoy your retirement, Richard. You've earned it. 

Case of the month


A 73-year-old retired farmer came to The Center in April of this year with myositis and kidney stones. He also had swollen fingers on both hands. He just wasn't getting rid of toxins in his body.

He saw Ron Hunninghake, M.D., first. While Dr. Hunninghake was taking an extensive history, the retired farmer said that his right hand swelled up first, then his left hand, followed by muscle pain in his shoulders, biceps, and finally in his legs. He now has to have help getting up from a chair. He said that he was exposed to Ramrod herbicide starting 40 years ago.

Dr. Hunninghake suggested that he should have laboratory work done, including a complete vitamin analysis, B vitamins and vitamin D, the trace minerals copper and zinc, along with a magnesium to calcium ratio, and a cytotoxic food sensitivity test, all done with blood. In the urine, Dr. Hunninghake suggested he have a pre and post chelation test, a urinalysis, and urine vitamin C tests, among others. Dr. Hunninghake also suggested a vitamin C infusion, a diagnostic chelation, and taking hydrocortisone tablets, along with instructions on how to taper off the hydrocortisone.

Dr. Chad Krier suggested that he avoid the dairy products (milk, cheese, and butter) because of the results of his cytotoxic food sensitivity test. He also suggested that he take three herbal products and vitamin B6. He did all of these.

He came back in May to see Dr. Krier who suggested he retest his CRP, H Pylori, and Complete Blood Count and that various chiropractic treatments should be done. He repeated these chiropractic treatments when he came for his June appointment.

When he came for his appointment in June, he came through the clinical area door saying, "Look at this, look at this." He was easily flexing his fingers with great speed. The fingers were close to normal size. He was doing quite well with both his medical treatment and his chiropractic treatment from both Dr. Hunninghake and Dr. Krier. 

CENTER UPDATE

Oxidized LDL cholesterol & metabolic syndrome

If a person has metabolic syndrome, he/she is at increased risk of developing type 2 diabetes and coronary heart disease, according to a research paper in a recent issue of *The Journal of the American Medical Association*. Oxidized low-density lipoprotein (LDL) seems to go hand in hand with metabolic syndrome.


LDL is not found completely oxidized in the body. First, the blood is usually rich in antioxidants. Secondly, if the LDL were highly oxidized, these particles would be rapidly cleared when the blood circulates through the liver.

Since small, dense LDL contains smaller amounts of antioxidants, the LDL is more prone to oxidation. No study, the researchers said, looked at the relationship between oxidized LDL and the development of metabolic syndrome.

"This population-based study showed that oxidized LDL, a marker

of oxidative stress specific to LDL particles, was significantly associated with the incidence of metabolic syndrome. In particular, oxidized LDL was associated with 2 of the 3 metabolic syndrome factors," wrote Paul Holvoet, Ph.D., and colleagues.

These two factors are "(1) the central metabolic factor comprising obesity and hypertriglyceridemia and (2) the glucose factor...Oxidized LDL was not associated with elevated blood pressure or HDL [high-density lipoprotein]," they added.

It isn't possible to tell whether oxidized LDL is a marker for the development of metabolic syndrome. "However, the strong association of oxidized LDL with the incidence of metabolic syndrome is consistent with a causal role," the researchers said in their conclusion. 

Answers from page 4

- 1 b. If the cause of the cortisol imbalance is not found, the adrenals will “rebound,” restoring the imbalance.
- 2 c. Falling asleep easily but waking up at two or three o'clock in the morning and not being able to fall back asleep for a long time is a symptom of cortisol imbalance.
- 3 b. Again, he found that he needed to find the cause of the cortisol imbalance in order to restore health.
- 4 a. Homeostasis works kind of like the thermostat on a furnace. It turns on when the temperature falls below a specific number and turns off when that temperature is reached.
- 5 c. If you ever had poison ivy, you know that the treatment includes cortisone, which is pharmaceutically manufactured cortisol.
- 6 a. Dr. Weinstein believes that some inflammation is caused by overuse of nonsteroidal anti-inflammation drugs, caffeinated beverages, and alcohol.
- 7 c. Gastrointestinal inflammation related to NSAID therapy is the most prevalent category of adverse drug reactions. H

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THE STRESS EFFECT: Discover the Connection Between Stress and Disease and Reclaim Your Health
by Richard Weinstein, D.C.

You may be aware that when you are in a stressful situation you may develop a headache or a stomachache, but were you aware that an overload of the hormones that stress causes the body to produce can have more long term effects on your health? Dr. Weinstein’s book makes the connection between stress and many major diseases. Softcover. (\$14.95 HH price \$13.46)

THYROID SUPPORTERS
with Chad Krier, N.D., D.C.

Learn about the nutrient team approach for supporting healthy thyroid functioning. Herbal approaches for controlling thyroid medicine reactions are also discussed.

OXIDANTS & ANTIOXIDANTS: The Battle for Our Body

with James Jackson, MT(ASCP), Ph.D.
 Free radicals, or oxidants, are responsible for many diseases and may have a role in the aging process. This lecture explains what free radicals are, how they harm us, and how we can reduce their harmful effects.

SENSITIVITY TO FOODS: What’s Eating You?

with Rebecca Kirby, M.D., M.S., R.D.
 Having recurrent infections, fatigue, gas and bloating, headaches, skin rashes, weakness, hemorrhoids, poor memory, sinusitis, irritable bowel, canker sores, or bursitis? These are a few examples of what may be challenges to your immune system from eating foods to which you are sensitive. Dr. Kirby discusses reactions to foods. What’s on your plate?

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- 17 Healing and the Law of Attraction
- 24 The 7-Day Detox Vitality Enhancement
- 31 Avoid Mental Decline

August:

- 7 Slow Poisons—Protect Yourself from Endocrine Disruptors

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Reduce sodium, increase life expectancy

Large amounts of sodium, especially from salt (sodium chloride) are not good for you. “Reduced dietary sodium could dramatically improve the health of Canadians,” said Dr. Norm Campbell, along with his colleagues, of the Canadian Stroke Network.

By reducing the dietary sodium in Canada from the current consumption of 3,500 mg per day to an adequate level of 1,200 to 1,500 mg per day would cut major strokes by 10 to 20%, heart failure by 10 to 25%, and heart attacks by 3 to 7%, according to *Life Extension*.

This would work the same way in the United States. It will help to leave the saltshaker sitting on the table, unused.