



Health Hunters

Newsletter *A service of the Riordan Clinic, co-founded in 1975 by Olive W. Garvey and Hugh D. Riordan.
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February is American Heart month;
see proceeding pages for more information!

Inside This Issue:

Ubiquinol and Your Heart	1
Ubiquinol and Your Heart	2
Letter from the Editor	2
Ubiquinol and Your Heart	3
Summarizing Your Supplements	4
Nutrition and Heart Disease	5
Patient Profile	5
Lunch and Lecture Series 2011	6
A Brief History of Valentine's Day	6
Heart Health Panel Special	6



Ubiquinol and Your Heart

by Dr. Ron Hunninghake

CoQ10, ubiquinone, and now... ubiquinol: these are the names of a 35-year-old nutrient. In this article, I hope to show you that the molecule that bears these various names is your heart's **most important nutrient!**

Actually, your heart's most important "nutrient" is oxygen. Take away oxygen and you are dead in three minutes! Oxygen makes up about 20% of the air we breathe. Because we breathe it, scientists don't actually consider it a nutrient. Nutrients are essential food substances - essential because our cells cannot synthesize these compounds.

There are, however, a few exceptions to this rule. Vitamin D is an essential nutrient that we get from food. However, our skin is able to make it when we are out in the midday sun's UV rays. Therefore, nutritional scientists refer to vitamin D as a "conditionally essential nutrient."

This brings us back to the main character of this story: CoQ10. Our livers can make this multi-named nutrient. Unfortunately, this amount alone is often insufficient to allow our cells to produce energy.

Because your heart beats about 100,000 times a day, it is your body's most "energy-needy" organ. Your heart's health is directly related to its ability to generate cellular energy.

As you might now surmise, CoQ10 is crucial for energy production. How this happens will also explain the difference between the two main scientific names of CoQ10: ubiquinone and ubiquinol.





Letter from the Editor:

by Amanda Hawkinson

Valentine's Day is just around the corner; and as I am writing this, heart decorations and various chocolates are flying off convenience store shelves. This holiday combines the wonderful essence of love, hearts, and (my favorite) chocolate. February, however, is an important month for another reason. It is National Heart Health Month.

Did you know that in under a minute, your heart can pump blood to every cell in your body? Over the course of a day, about 100,000 heart beats shuttle 2,000 gallons of oxygen-rich blood many times through about 60,000 miles of branching blood vessels that link together the cells of our organs and body parts. That's a hefty job for a fist-sized muscle and it is hard to keep up with your body's demand if your heart isn't healthy.

In honor of National Heart Health Month, this issue of the Health Hunters Newsletter is dedicated to informing you on how you can reduce your risk of heart disease and maintain a healthy heart. Discover the "energizer bunny" nutrient, ubiquinol, in Dr. Ron Hunninghake's article "Ubiquinol and Your Heart". Learn what role certain nutrients play in keeping your heart healthy in the article "Lowering Your Risk of Heart Disease". Make your reservation today for our February 17th lunch and lecture, "Nutrition and Heart Health", with special guest speaker Dr. Joseph Galichia.

From the bottom of my heart, thank you for reading the Health Hunters Newsletter each month. Here is to healthy hearts, a very happy Valentine's Day, and well...chocolate!

Please feel free to e-mail me at anytime with questions, comments, and concerns

(neweditor@riordanclinic.org).

Amanda Hawkinson
Editor

(Ubiquinol and Your Heart - cont. from page 1)

CoQ10 is an electron transport molecule. It shuttles the energetically charged electron of oxygen into the cell's mitochondria where glucose and fatty acids are biochemically oxidized into the energy that literally powers "the heart beat of life!"

Oxidation is a "double-edged sword." Oxidation is needed to burn calories in order to generate energy. However, this "burning" can do damage to our cellular structures and cause premature aging and disease of our hearts.

What our heart cells need is a molecule that both transports electrons AND regulates oxidation. This is precisely CoQ10's role in the heart.

To better understand this fine balance, consider what happens when you cut open a fresh apple: if on one side you squeeze lemon juice and the other side you just leave open to the air. In a short time, the unprotected side will turn brown (due to oxidation) and will start to go bad. The keyword here is "unprotected."

How does the lemon juice prevent the oxygen in the air from oxidizing the raw and exposed apple half? Lemon juice contains vitamin C and other phytonutrient anti-oxidants. These are naturally occurring molecules that protect our cells (and the cells of the apple) from the damaging effects of oxygen.



CoQ10 is a fat-soluble antioxidant found in ALL fat-containing structures of ALL cells; it is ubiquitous ... which means that it is "everywhere" in the body. CoQ10 occurs in two forms: the one that has lost an electron is ubiquinone. This is the oxidized form of CoQ10. The reduced form of CoQ10 (which has regained its electron) is ubiquinol.

Fortunately, every cell has the ability to recharge the oxidized ubiquinone back to the more energetic ubiquinol by adding an electron back to its original structure. As youngsters, this ability allows us to run and play all day!

Research has shown that around age 20, our cells begin to lose their ability to refresh oxidized molecules like ubiquinone. It's almost as if the molecules themselves begin to ... well ... age! This is due to a weakening of the cell's mitochondria to perform the efficient transfer of electrons. Excessive oxidation damages and slows this key life process.

By age 40, there are measurable declines in CoQ10 in the heart and other oxygen-hungry organs like your brain, gut, and muscles. Oxidation begins to cause serious damage, degeneration, and frank disease. Heart failure is but one major example.

Both forms of CoQ10 are needed to properly shuttle electrons between crucial energy-producing bio-reactions in your cells. In youth, ubiquinone picks up the electrons, and ubiquinol drops them off. With aging, the process lags.

Of the two forms of CoQ10, ubiquinol is the more energetic form. Prior to the discovery of ubiquinol, the old oxidized ubiquinone first had to be "recharged" by the cell's mitochondria. Since that process slows as we age, having the "fully charged" molecule ubiquinol, ready to go into action is an important advantage.

(Cont. on page 3)

The older, oxidized CoQ10 has a bit of a checkered past in the research field. It has been shown to:

- Help heart failure ... but only sometimes;
- Slow Parkinson's ... but only at very high and expensive doses;
- Treat asthma ... but only inconsistently;
- Protect the heart of many chemotherapy patients who are receiving cardiotoxic adriamycin ... but not always.

Did You Know?

The heart weighs less than one pound and is made up almost entirely of muscle. It is strong enough to lift approximately 3,000 pounds – roughly the weight of a compact car.

Laughing can be a great workout for your heart. Whenever you laugh, the blood flow in your heart is increased for up to 45 minutes, which in turn improves your heart health.

To avoid heart disease, get moving. The risk of heart disease doubles in inactive people versus people who get regular exercise. Aerobic activity, like running, swimming and biking, are the best choices for cutting your risk of heart disease.

There is a reason the heart is associated with love and emotion. The ancient Egyptians believed that both intelligence and emotion were based in the heart, while the Chinese believed that the heart was the source of happiness.

So, if you are in the “over-the-40s-hill” club, you may have some heart cells that need an “energizer bunny” form of CoQ10 – ubiquinol!

Why is this? More recent studies of CoQ10 suggest that circulating plasma levels of the older, oxidized form may have been too low in these earlier studies to show a consistent clinical benefit.

Enter ubiquinol, to which Cleveland Clinic cardiologists have ascribed up to five-to-seven times the potency of ubiquinone in older patients! Patients being treated there for advanced heart failure have responded much better to ubiquinol than to the old CoQ10. CoQ10 comes from three sources:

1. Synthesis in the liver 2. Food 3. Supplementation.

Synthesis: Your body makes some of the ubiquinol you need to be healthy (unless you are over 40 or if you are taking a cholesterol-lowering statin drug ... then this supply can be compromised.)

Food: You get additional ubiquinol from your food (unless you get less than 80% of your diet from whole, fresh foods.)

Supplementation: Many people try to guess their optimal dose of CoQ10. Here at Riordan Clinic, we advocate the scientifically valid method of measuring your level of CoQ10. If low, you can target your supplementation with ubiquinol. (Our Heart Health Panel has CoQ10 included as one of the key nutrients we suggest measuring.)

Heart health depends on a healthy team of nutrients at the cellular level ... your team depends upon a well-rounded whole foods diet ... which depends on your knowledgeable choices. If you don't know for sure whether or not you've chosen well ... measure nutrient members of the team!

The key to heart health is YOU.

You are responsible for all the elements that go into owning and caring for a healthy heart:

- Fresh, colorful foods, rich in natural antioxidants;
- Control of systemic inflammation (know your CRP level);
- Adequate micronutrient support of metabolic pathways (such as the monitoring of homocysteine, Lp(a), HDL, triglycerides, Hba1c, fibrinogen and other risk markers;)
- Moderate aerobic exercise, strength training, stretching;
- Proper body fat composition (keeping your visceral fat levels low);
- Keeping your close relationships healthy and relatively stress-free

... all of these elements go into maintaining a healthy heart.



Ubiquinol is the empowered electron shuttle molecule that coordinates oxygen utilization and satisfies cellular respiration, leading to energy production and quality maintenance of life processes.

By the same token, ubiquinol gives rise to ubiquinone, which serves as the antioxidant that prevents premature loss of function, immune dysfunction, membrane dysfunction, aging, degeneration and death.

If you are over 40 and want to keep your heart both energetic and well, consider ubiquinol as your preferred form of CoQ10.

If you want to learn more about this topic, pick up a copy of my Basic Health Series book – Energy Boosting Supplements. Or schedule an appointment with a Riordan Clinic physician today to find out how ubiquinol can help you.

Stop by our
Supplement Store
today and receive
15% OFF

all Coenzyme Q10 items, Ubiquinol,
ProEFA, HeartGems, and Cardirite in
honor of National Heart Health Month!

Offer good through 2/28/2011.

Coenzyme Q10



Ubiquinol



ProEFA



HeartGems



Cardirite



Summarizing Your Supplements- Essential Fatty Acids



by Penny Lasater

What substances are required by the body for good heart health but are NOT produced by the body? Discovered in 1923, and originally known as Vitamin F, they are the ever important essential fatty acids (EFAs), which include-- Omega 3 fatty acid (also known as alpha linoleic acid) and Omega 6 fatty acid (also known as linoleic acid).

EFAs help to prevent stroke and heart disease by assisting in the reduction of 'bad' cholesterol and triglycerides, while increasing the 'good' HDL in the blood profile. Because EFA's must be ingested from external sources, it is important to identify food sources that are rich in EFA's. The typical American diet results in the consumption of far more Omega-6-rich foods and fewer Omega-3-rich foods; some studies suggest that the ratio is 30:1. Depending on your diet, this means that few people need to do anything to increase their Omega 6 intake but almost everyone needs help with their Omega 3 intake. By consciously making food choices that are high in Omega 3, you can work towards balancing the ratio of Omega 3 to Omega 6.

In addition to a diet that is high in Omega 3 food sources, you can choose to take nutritional supplements. The American Heart Association recommends that people with high triglycerides take an Omega 3 fatty acid supplement with 2000 to 4000 mg of EPA and DHA. If you are interested in learning more about how EFAs can improve your health and well-being, make an appointment with a Riordan Clinic doctor today.

Omega-3 Rich Foods

- Atlantic salmon and other fatty fish

- Cold-water fish, including herring, sardines

- Atlantic halibut

- Bluefish

- Tuna

- Atlantic mackerel

- Wild game, including venison and buffalo

- Flaxseed oil

- Walnuts

- Leafy greens

- Hemp seed oil

- Purslane

February Smoothie Special!



Strawberry Sweetheart Smoothie

For February, in honor of Valentine's Day and American Heart Month, the café will be featuring the "Strawberry Sweetheart Smoothie." Made with fresh and tasty strawberries, bananas, and avocado this delicious treat is good for your heart. You'll love it; come by and try one today!

12 oz. **\$3.99** | 16 oz. **\$4.99**

Patient Profile

By Carey West

In March of 2010, a patient came to the clinic with the diagnosis of a 50% blockage in one of her carotid arteries. This concerned her and her family because she is an active 65-year-old professional business woman who enjoys traveling and spending time with her grandchildren. She feared that if she did not receive treatment, she would be unable to continue her day-to-day activities.

In addition to her primary concern of a 50% carotid artery blockage, her other health concerns included: irritable bowel syndrome (IBS), anxiety, boarder-line low bone density, and a history of mitrovalve prolapse. After an extensive consultation with the patient, the doctor ordered the following laboratory tests: C - reactive protein, Thyroid Panel, Celiac Panel, Complete Metabolic Panel, Complete Blood Count, and Lipid Profile.

Her lab work revealed elevated cholesterol levels. Based on this, the doctor recommended that she increase her exercise, reduce her intake of red meat, and increase the amount of fish in her diet. She also began doing weekly chelation infusions to help reduce calcium build-up in her artery and to prevent further occlusion in other arteries. She began a supplement regimen to further assist in lowering her cholesterol, managing her IBS, and promoting better bone health.

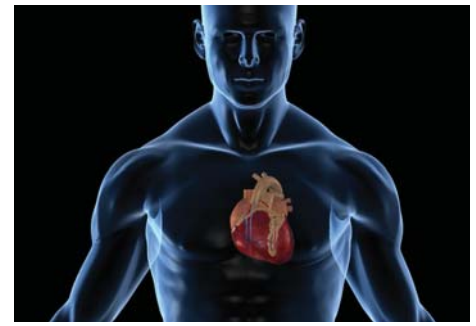
At the patient's most recent check-up in December, the doctor was able to reduce her chelation therapy to monthly visits. Most importantly, the patient reported that she has experienced fewer symptoms of IBS, and her sleeping patterns have improved. She continues to work, travel, spend time with her family and has noticed that her overall health is better. By following the doctor's recommendations, including lifestyle changes and nutritional supplementation, the patients' cholesterol levels are also significantly better!

She returns to the clinic monthly for chelation therapy and will see the doctor again in April. All indications are she will continue to thrive and enjoy her active lifestyle. By making just a few adjustments, she is on the path to better health and well-being.

Nutrition and Heart Disease

by Nina Mikirova, Senior Medical Researcher

Heart disease is the leading cause of the death in the United States. However, everyone can take steps to reduce their chance of developing the disease. How? By preventing or controlling behaviors and conditions known to increase its risk. These "risk factors" come in two types — those that you can change (smoking, weight, and high blood pressure/cholesterol) and those you can't (age and family history). Luckily for us there are things we can do. Research has shown that an increasing number of heart disease cases are caused by poor nutrition. We have control of this.



To function well our cells need an adequate amount of essential nutrients. A diverse diet of whole foods is a prerequisite of optimal health. By changing your overall-eating habits, you can not only prevent and control high blood pressure and high cholesterol but take control of your weight as well.

What follows are some dietary choices that will help you achieve better heart health.

Carbohydrates from whole grains (oat, barley, quinoa), legumes (soy beans, lentils) and vegetables are the clean fuel for the body and heart. Soluble fiber in legumes, whole grains, fruits, and vegetables bind with dietary fat and cholesterol and prevent their assimilation in the bloodstream.

Proteins are your body's building blocks. In a heart-healthy diet, proteins from plants like legumes, nuts, and seeds, as well as fish should be the main proteins consumed. Because a high animal protein intake can promote vascular disorders through oxidation of cells, it should be limited and focused primarily on lean cuts of meat.

Essential fatty acids are important to the heart, cells, neurotransmitters, and hormone production. It is important to be selective when choosing what we eat. Unprocessed marine-and-plant-derived (cold water fish, olives, peanuts, avocado) polyunsaturated and monounsaturated fatty acids (omega-3-6- and -9) minimize inflammation and the incidence of heart disease by raising "good" cholesterol and reducing "bad" cholesterol and platelet aggregation.

Vitamin C deficiency is associated with a higher incidence of cardiovascular disease. Adequate intake of the nutrient from fresh fruit, especially citrus (grapefruit has blood-thinning properties), kiwi, and berries, and vegetables like the cabbage family, tomatoes, and leafy greens reduce blood platelet clumping as well as help dilate blood vessels, increase HDL, and decrease triglyceride levels.

Adequate vitamin E intake (unrefined vegetable, seed, and nut oils, almonds, beans, peas, whole grains, wheat germ, tuna, sardines, salmon, sweet potatoes) can improve heart hygiene and reduce the risk of angina and sudden cardiac death.

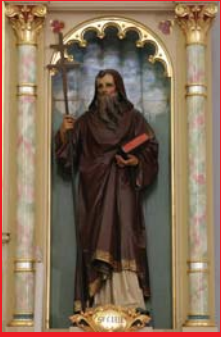
B vitamins play an essential role in maintaining the efficiency of heart functions. High intake of vitamin B3 or niacin (from mushrooms, chicken, salmon, asparagus, cabbage family, lamb, turkey, tomato, squash, and whole wheat) gives the multiple benefits of reducing LDL ("bad" cholesterol) and triglyceride levels and raising HDL ("good" cholesterol).

Vitamin D is necessary for the adequate absorption and action of calcium needed for building bones; otherwise calcium builds up in the arteries, causing plaque deposits. Because very few dietary supplements carry vitamin D (salmon, tuna, cod, and their oils, oysters, sardines, eggs, shrimps, shiitake mushrooms, and cottage cheese), exposure to sunlight is very important. The sun's ultraviolet rays are synthesized by the skin to make the vitamin. Fifteen minutes a day of direct sunlight are required to prevent a deficiency of the nutrient.

Folic acid. Daily uptake of 0.8 mg of folic acid could possibly reduce the risk of coronary heart disease by 16% and the risk of stroke by 24%. Flavonoids, compounds that occur in a variety of foods such as tea, onions and apples, could also reduce the risk of coronary heart disease

Increasing dietary potassium while decreasing sodium is important to keep cells in nutritional balance and to normalize blood pressure. High salt (sodium) intake has been linked to high blood pressure, a major risk factor for stroke and coronary heart disease. There is evidence that a reduction in the daily intake of sodium (to less than 5 g per day) leads to a reduction in the number of deaths resulting from coronary heart disease.

The Riordan Clinic recognizes the importance of nutrition as it relates to heart health. One option to better understand the levels of these key vitamins/nutrients in the body is a self-ordered Heart Health Panel blood test. The results of the panel will provide detailed information about the levels of these key nutrients in your body and provide a guide to help you make impactful changes via food choices and oral supplementation. Whatever you choose to do, take control of your heart health in 2011.



A Brief History of Valentine's Day

By Amanda Hawkinson

Valentine's Day is a mishmash of traditions, beliefs, and celebrations that have come to us from a distant past. The story goes back to 2nd Century A.D. when Christians were persecuted by the Roman government. During this time Christian marriages and other ceremonies were absolutely forbidden. Because he so fervently believed in love and marriage, Saint Valentine performed marriage ceremonies, placing his allegiance to God before the government in Rome. He was soon caught and punished for his "crime."

Today we celebrate the holiday on February 14th because it was upon this day that Saint Valentine was supposed to have been executed. It was a strange thing to happen to a priest who fervently believed in doing what he thought was right, helping couples to consecrate their love.

Today we enjoy cards, flowers and chocolate as expressions of love which, is much preferred to the ending that Saint Valentine met.

Lunch and Lecture Series 2011

Nutrition and Heart Health



Presented by:

Joseph P. Galichia, M.D., F.A.C.C.

Thursday, February 17, 2011

12:00 pm to 1:00 pm

Your heart beats about 100,000 times in one day and about 35 million times in a year. During an average lifetime, the human heart will beat more than 2.5 billion times. What does it take to keep this strong, hard-working muscle healthy?

Dr. Joseph Galichia, President and founder of Galichia Medical Group, P.A, in Wichita, Kansas, will be our Lunch & Lecture speaker on February 17 to discuss the role of nutrition in preventing heart disease and achieving a healthy heart.

Joseph P. Galichia, M.D., F.A.C.C., is an internationally recognized pioneer in the field of interventional cardiology. He is a native Kansan who has studied medicine in the United States, Germany, England, Sweden, and Switzerland. After early studies in Germany, Galichia brought his training to the U.S., becoming one of the earliest physicians to perform angioplasty in America. With an eye to the future, he built the first free-standing outpatient catheterization laboratory in the world. Over the past 30 years, Galichia has lectured extensively, and trained physicians throughout the world.

Heart disease is the leading cause of death in the United States. Don't become a victim of this troubling statistic. Join us and learn more about protecting your heart.

**For reservations: call 316.927.4723 or email us at reservations@riordanclinic.org
Cost: \$15 - Lunch is included.**

Heart Health Panel

According to the Centers for Disease Control and Prevention (CDC), heart disease is the leading cause of death for both men and women. February is designated as American Heart Month and is intended to raise awareness about heart disease and to increase knowledge about prevention. Educate yourself on the dangers of heart disease! To have your levels measured at a substantially reduced price, call 316-684-7784 to schedule an appointment. This special is available from Feb. 1, 2011 – Feb. 28, 2011.

Do you have a family history of heart disease or are you concerned about your cardiac health? Cardiac health is more than just cholesterol. Our Heart Health Panel measures 20 different nutrient factors that impact heart health. The results can provide a guide to the supplements that are needed to help optimize your heart health.

20 Tests Included:

- | | |
|--------------------|---|
| 1. Vitamin A | 11. Red Blood Cell Magnesium |
| 2. Vitamin C | 12. Red Blood Cell Selenium |
| 3. Vitamin E | 13. LIPID PANEL Cholesterol |
| 4. Vitamin B5 | 14. Triglycerides |
| 5. Vitamin D | 15. HDL (High-Density Lipoprotein) |
| 6. Homocysteine | 16. LDL (Low-Density Lipoprotein) |
| 7. CoQ10 | 17. Very Low Density Lipoprotein (VLDL) |
| 8. Lipoprotein (a) | 18. Cholesterol to HDL Ratio |
| 9. Lycopene | 19. LDL to HDL Ratio |
| 10. CRP-hs | 20. Urine Vitamin C |



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Research Questions Role of Saturated Fats in Cardiovascular Diseases

Two new reports question the long-held belief that saturated fats are a major cause of cardiovascular diseases. The research instead points to refined carbohydrates as a more likely contributing factor in heart disease and stroke.

The articles, published in the *American Journal of Clinical Nutrition*, revisit a long-running controversy about the role of saturated fats in the development of cardiovascular diseases. The findings don't mean people have carte blanche to indulge in unreasonable amounts of saturated fat but, rather, that this type of fat may not be the dietary bogeyman long believed.

Both reports – one a study and the other a review of the scientific evidence – were directed by Ronald M. Krauss, MD, director of atherosclerosis research at the Children's Hospital Oakland Research Institute, a major medical research and treatment center in California.

In one of the reports, Krauss and his colleagues analyzed 21 published studies, which tracked 347,747 men and women from five to 23 years. During this time, 11,006 of the study's participants developed coronary heart disease or had a stroke.

His finding: People consuming the largest amounts of saturated fat in their diets did *not* have an increased risk of heart disease, stroke, or other types of cardiovascular disease.

Krauss wrote that there was "insufficient evidence" to conclude that saturated fat increases the risk of any form of cardiovascular disease. He did add, based on his findings, that "publication bias" tended to favor the publishing of articles linking saturated fat to cardiovascular disease.

In the second report, Krauss noted that higher carbohydrate intake, especially refined carbohydrates (e.g., sugary and starchy foods), increased levels of blood fats generally associated with heart disease, stroke, and cardiovascular disease risk.

Replacing saturated fat with carbohydrates tends to increase the small, dense form of low-density

lipoprotein (LDL) cholesterol, which is strongly associated with the risk of heart and other cardiovascular diseases.

"For a large proportion of the population...the effect of higher-carbohydrate diets, particularly those enriched in refined carbohydrates [sugars and processed starches], coupled with the rising incidence of overweight and obesity, creates a metabolic state that can favor a worsening of the atherogenic dyslipidemia that is characterized by elevated triglycerides, reduced HDL cholesterol, and increased concentrations of small, dense LDL particles," wrote Krauss.

He added that "there are few epidemiological or clinical trial data to support a benefit of replacing saturated fat with carbohydrate...given the differential effects of dietary saturated fats and carbohydrates...[people] should primarily emphasize the limitation of refined carbohydrate intakes and a reduction in excess adiposity."

References: Siri-Tarino PW, Sun Q, H FB, Krauss RM. Meta-analysis of prospective cohort studies evaluating the association of saturated fat with cardiovascular disease. *American Journal of Clinical Nutrition*, 2010;91:535-545. Siri-Tarino PW, Sun Q, H FB, Krauss RM. Saturated fat, carbohydrate, and cardiovascular disease. *American Journal of Clinical Nutrition*, 2010;91: 502-509. □

Boosting Intake of PUFA Fats from Plants Good for the Heart

An analysis of eight studies concludes that increasing intake of polyunsaturated fats (PUFAs), such as the omega-3 and omega-6 fats, and reducing consumption of saturated fats can significantly reduce the risk of coronary heart disease.

Dariusz Mozaffarian, MD, of the Harvard Medical School, and his colleagues searched the scientific literature on saturated fat and PUFAs. They eventually focusing on eight human studies in which the subjects increased their intake of PUFAs and

More research summaries on next page

reduced their saturated fat consumption.

They found that, among the 13,614 people in the studies, an increase in PUFA consumption quickly led to a 19 percent lower risk of heart disease.

However, the researchers acknowledged that they could not determine whether the lower risk of heart disease was related to the decrease in saturated fats, to the increase in PUFAs, or to a combination of both changes.

Mozaffarian did not investigate the effects of omega-9 fats, such as those found in olive oil.

Reference: Mozaffarian D, Micha R, Wallace S. Effects on coronary heart disease of increasing polyunsaturated fat in place of saturated fat: a systematic review and meta-analysis of randomized controlled trials. *PLoS Medicine*, 2010;7:e1000252. □

Perspectives

Confused About Dietary Fats?

It's easy to feel confused by the evidence linking dietary fats to either an increased or decreased risk of cardiovascular diseases. And it's all too easy to become fat phobic.

One thing is certain: three types of dietary fats are required for our biochemistry and well being: *polyunsaturated fats* (e.g., the omega-3s and omega-6s), *monounsaturated fats* (e.g., the omega-9s in olive oil), and *saturated fats* (found in many animal foods and some plant foods). We need to get polyunsaturated fats from foods because our bodies don't manufacture them, but we can make monounsaturated and saturated fats. A lack of these fats will lead to health problems – just as vitamin deficiencies cause health problems.

Some of my friends and readers might argue the point with me, but the evidence linking saturated fats to heart disease has always been tenuous at best. Early studies failed to adequately distinguish the effects of dietary saturated fats, trans fats, and refined carbohydrates. Trans fats and refined carbohydrates (including sugars) *do* increase the risk of cardiovascular diseases.

Mozaffarian's analysis (previous article) of PUFA and saturated fat could not clearly determine whether eating less saturated fat improved cardiovascular risk. My hunch is that boosting intake of PUFAs led, overall, to a more balanced and healthier intake of the major dietary fats.

None of this research means that people can recklessly eat huge amounts of any type fat. I believe it is wise to maintain a moderate and balanced intake of dietary fats. It may be far more important to avoid all trans fats, not over-indulge in omega-6 PUFAs in corn and soybean oils, and minimize consumption of processed sugars and starches. –*JC*

L-Arginine Improves Exercise Ability After Heart Transplant

L-arginine, an amino acid (protein building block) is the precursor to nitric oxide, a compound that relaxes blood vessels – and is also important in maintaining normal blood pressure and erectile function.

A new study by French doctors has found that supplements of L-arginine can work in similar ways to improve the exercise capacity of patients who had recently undergone a heart transplant.

Stephane Doutreleau, MD, of Nouvel Hôpital Civil, Strasbourg, and her colleagues first measured the exercise capacity of 22 heart-transplant recipients and 11 healthy subjects. Exercise ability typically decreases after patients undergo transplant surgery, and reduced physical activity typically leads to poorer quality of life.

The subjects were asked to take either 6 grams of L-arginine twice daily or placebos twice daily for six weeks. The L-arginine supplements improved nitric oxide levels and led to increases in exercise tolerance, based on walking distance and cycling on a stationary bike.

Doutreleau concluded that L-arginine might be useful as a therapeutic adjuvant to improve the quality of life and exercise tolerance of patients after a heart transplant.”

Reference: Doutreleau S, Rouyer O, Di Marco P, et al. L-arginine supplementation improves exercise capacity after a heart transplant. *American Journal of Clinical Nutrition*, 2010;10.3945/ajcn.2009.27881. □

Studies Strengthen Role of Vitamin D in Flu Protection

A team of Japanese doctors has found that taking vitamin D supplements can protect school children against influenza A, a common type of flu.

Mitsuyoshi Urashima, MD, PhD, of the Jukei University School of Medicine, Tokyo, and his colleagues asked 167 children, ages six to 15 years, to take 1,200 IU of vitamin D3 daily from December 2008 through March 2009. They were compared with 167 children who were given placebos.

Children getting vitamin D had a 42 percent lower risk of contracting the flu. Of the children taking vitamin D supplements, 18 (10.8 percent) were diagnosed with influenza A. In contrast, 31 (18.6 percent) of those taking placebos were diagnosed with the flu. Diagnosis was based on a nasal swab for flu antigens.

In addition, vitamin D supplements reduced the risk of flu to a greater extent among children who

had not previously been taking vitamin D supplements and among those who had started nursery school after age three. In these groups vitamin D supplements conferred a 64 percent lower risk of flu.

A secondary benefit occurred in children with asthma. Vitamin D supplements reduced the risk of asthma attacks by 83 percent.

In a separate study, Carsten Geisler, MD, PhD, of the University of Copenhagen, Denmark, and his colleagues identified a key way that vitamin D protects against infection: the vitamin is needed to activate immune cells.

According to Geisler, immune cells remain “naive,” or dormant until they are turned on by a compound known as PLC-gamma 1. He found that PLC-gamma 1 activity depends on vitamin D.

Once activated, immune T cells can become “killer cells” that attack germs or “helper cells” that help the immune system remember experiences with specific germs.

References: Urashima M, Segawa T, Okazaki M, et al. Randomized trial of vitamin D supplementation to prevent seasonal influenza A in schoolchildren. *American Journal of Clinical Nutrition*, 2010; doi 10.3945/ajcn2009.29094. von Essen MR, Kongsbak M, Schjerling P, et al. Vitamin D controls T cell antigen receptor signaling and activation of human T cells. *Nature Immunology*, 2010; doi 10.1038/ni.1851. □

Vitamin E Protects Against Nerve Damage from Chemo Drug

Taking supplements of natural-source vitamin E can greatly reduce the symptoms of peripheral neuropathy caused by cisplatin, a chemotherapeutic drug commonly used to treat patients with cancer.

Cisplatin causes peripheral neuropathy – nerve damage in legs, feet, arms, and hands – in 90 percent of patients taking the drug. Symptoms are typically more severe at higher dosages.

Andrea Pace, MD, of the Regina Elena National Cancer Institute, in Rome, Italy, and her colleagues tracked 41 cancer patients who had received very high doses of cisplatin, 300 to 630 mg/m², in the treatment of lung, brain, endometrial, and other types of cancer. Seventeen of the patients received 400 mg (600 IU) of vitamin E, starting before chemotherapy began and continuing for three months after chemotherapy. Meanwhile, 24 patients received placebos.

Of the patients taking vitamin E, only 1 (5.9 percent) developed neurotoxicity. In contrast, 10 (41.7 percent) of the patients getting placebos had neurotoxicity symptoms. Those symptoms included a lack of nerve sensitivity to touch and vibration, as well as a pins-and-needle feeling.

“Experimental and clinical studies do not show significant differences in survival and tumor response in vitamin E-supplemented groups compared with control groups,” wrote Pace and her colleagues. “Moreover, the reduction of cisplatin-induced neurotoxicity could increase the therapeutic index and allow for the administration of higher doses.”

The researchers wrote that cisplatin neurotoxicity appears related to free radical damage and that, as an antioxidant, vitamin E protects against it.

Reference: Pace A, Giannarelli D, Galie E, et al. Vitamin E neuroprotection for cisplatin neuropathy. *Neurology*, 2010; 74:762-766. □

Taking Supplements Improves Behavior of Prison Inmates

A large body of research indicates that dietary habits and many specific nutrients can influence mood and behavior. In the latest study along these lines, young men who took nutritional supplements had better behavior and incurred fewer infractions while serving time in prison.

Ap Zaalberg, MSc, of the Ministry of Justice, The Hague, Netherlands, and his colleagues, gave either nutritional supplements or placebos daily to 221 male prisoners at eight prisons. The men ranged from 18 to 25 years of age.

The daily supplements consisted of a modest multivitamin and multimineral supplement, plus 400 mg of eicosapentaenoic acid (EPA), 400 mg of docosahexaenoic acid (DHA), and 100 mg of gamma-linolenic acid. The supplements were taken for at least 30 days and up to 90 days.

Prison staff supervised the inmates when they took the supplements or placebos during lunch. When asked, the men did not know whether they were taking nutritional supplements or placebos.

Inmates taking the supplements were significantly less likely to break prison rules. They were far less likely to violate prison rules regarding the use or possession of alcohol or illegal drugs. In addition, men taking the supplements exhibited somewhat less aggressive and hostile behavior.

Meanwhile, men in the placebo group had a 14 percent increase in incidents.

The prison study was similar in design to one conducted in Britain and published in 2002.

EPA and DHA are especially important for brain and nervous system development, as well as mood and behavior.

Reference: Zaalberg A, Nijman H, Bulten E, et al. Effects of nutritional supplements on aggression, rule-breaking, and psychopathology among young adult prisoners. *Aggressive Behavior*, 2009;35:1-10. □

More research summaries on next page

Quick Reviews of Recent Research

- Resveratrol improves brain blood flow

British researchers gave 22 healthy adults 250 mg of resveratrol, 500 mg of resveratrol, or placebos on different days. Resveratrol is an antioxidant that had been shown to activate the Sirt1 gene, which can help maintain normal blood sugar levels and also plays an important role in longevity. Both doses of resveratrol increased blood flow in the brains of subjects, with the higher dose leading to greater improvements in blood flow.

Kennedy DO. *American Journal of Clinical Nutrition*, 2010: doi 10.3945/ajcn.200928641.

- St. John's wort eases hot flashes

Iranian doctors treated 100 perimenopausal women with either the herb St. John's wort or placebos for eight weeks. After both four and eight weeks, the women taking St. John's wort had a significant reduction in hot flashes.

Abdali K. *Menopause*, 2010;17:326-331.

- Amino acids might help brain injuries heal

Injuries to the brain result in a significant decrease of amino acids in the hippocampus, possibly because these building blocks of protein are needed for the healing process. Researchers at the Children's Hospital, Philadelphia, Pennsylvania, fed mice branched-chain amino acids (leucine, isoleucine, and valine) after they suffered a serious brain injury. The supplements improved cognitive function, and the researchers noted that a similar therapy could help people recover from traumatic brain injuries.

Cole JT. *Proceedings of the National Academy of Sciences*, 2009: doi 10.1073/pnas.0910280107.

- DHA may have benefits in cancer treatment

Docosahexaenoic acid (DHA), one of the key constituents of omega-3 fish oils, and DHA's derivatives may have some benefits in fighting cancer. Researchers at the Karolinska Institute, Stockholm, Sweden, exposed neuroblastoma cells to DHA and by products of DHA. DHA destroyed the cancer cells, but some of the cellular byproducts of DHA, such as 17-HpDHA, had significantly greater anticancer effects. DHA also inhibited production of prostaglandin E2, a proinflammatory compound.

Gleissman H. *FASEB Journal*, 2010: epub ahead of print.

- Vitamin K2 may protect against cancer

German researchers investigated the consumption of vitamin K2 from foods (primarily cheese) and its relationship to the risk of cancer in a group of 24,340 people. Overall, those with the highest intake of vitamin K2 were 14 percent less likely to develop cancer during a follow-up period of at least 10 years. High intake of vitamin K was associated with a

28 percent lower risk of death from cancer. The apparent benefits of vitamin K were most clear in men, with high levels of the vitamin associated with a lower risk of prostate and lung cancers.

Nimptsch K. *American Journal of Clinical Nutrition*, 2010: doi 10.3945/ajcn.2009.28691.

- Selenium may reduce diabetes risk

French and British researchers studied the relationship between selenium consumption and the risk of developing prediabetes or type 2 diabetes in a group of 1,162 people. Over nine years of follow up, 127 cases of blood-sugar problems were diagnosed. People with the highest dietary consumption of selenium had one-half the risk of developing either impaired glucose tolerance or type 2 diabetes.

Akbaraly TN. *Nutrition & Metabolism*, 2010: doi 10.1186/1743-7075-7-21.

- Cola drinks may impact semen quality

Danish researchers investigated the relationship between cola consumption and semen quality among 2,554 young men. Moderate intakes of caffeine from cola drinks did not affect semen quality. However, high cola consumption (with or without caffeine) reduced sperm counts by 30 percent. Consuming more than 34 ounces of soft drinks or more than 800 mg of caffeine daily had the greatest impact on sperm counts. Caffeine from other sources, such as from coffee and tea, had less of an effect on sperm.

Jensen TK. *American Journal of Epidemiology*, 2010: doi 10.1093/aje/kwq007.

- Beta-carotene converts poorly to vitamin A

Researchers reported that the conversion of beta-carotene to vitamin A varies among different fruits and vegetables and in general is not very efficient. Only 1/12th to 1/27th of beta-carotene gets converted to vitamin A.

Tang G. *American Journal of Clinical Nutrition*, 2010: doi 10.3945/ajcn.2010.38674G.

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Post Office Box 30246 • Tucson AZ 85751-0246 USA

Editor and Publisher: Jack Challem

Copy Editor: Mary E. Larsen

Medical and Scientific Advisors

Richard P. Huemer, MD Lancaster, Calif. • Ralph K. Campbell, MD Polson, Montana

Peter Langsjoen, MD Tyler, Texas • Ronald E. Hunninghake, MD Wichita, Kansas

Marcus Laux, ND San Francisco, Calif. • James A. Duke, PhD Fulton, Maryland