

Smart Life Forum

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Thursday, February 18th 2010, at 7pm

Steve Blake, ScD

On

Preventing and Avoiding Heart Disease

SHORT PRESENTATION by Lily C Yang PhD, CEO/President, Theralife Inc.

On the AGING DRY EYE

Dr. Lily Yang, has a PhD in Immunology from the University of Chicago, and has been involved in developing innovative botanical approaches for treatments of a variety of eye conditions including chronic severe dry eye, autoimmune disease dry eye (Sjorgren’s, Rheumatoid Arthritis, Lupus, Chrone’s, Grave’s, Fibromyalgia) and macular degeneration (ARMD).

Dry eyes are one of the most common problems among seniors. Typical dry eye symptoms include dry, tired, red, irritated, watery eyes, often with sandy gritty feelings. The causes of dry eye include but are not limited to caffeine, overuse of computers, menopause, medications (such as antidepressants, antihistamines, muscle relaxants, sleeping pills, and pain relievers) and exposure to environmental elements.

There are simple measures one can do to relieve dry eyes such as: drink plenty of water, exercise, take nutritional supplements (especially Omega 3 Fish Oil), and use a humidifier. Typical dry eye treatments include the use of eye drops, insertion of punctal plugs or cauterization of tear ducts, and use of nutritional supplements rich in oils to thicken tears. New botanical research using a different approach has shown clinical efficacy in 70-80% of the dry eye patients. It is also helpful to know how dry eye symptoms are diagnosed. Tear composition, eye structure, and values for tear volume, tear viscosity, and cornea condition will help one determine the extent and severity of their dry eye condition. Prolonged untreated dry eye conditions can lead to cornea damage and blindness.

In This Issue

Short Presentation: Aging and the Dry Eye.....page 1

Meet Steve Blake ...page 2

Main Presentation: Steve Blake, ScD, on Preventing and Avoiding Heart Disease page 3

Special Report on Dry Eyes..... page 9

Presentation Location:

Cubberley Community Ctr.

Feb. & March Only, Room **M4** (Back to H1 after that)

4000 Middlefield Rd..

Palo Alto, CA

FMBR NOTICE

FMBR Meets on February 26: Connie Grauds, president, The Association of Natural Medicine Pharmacists, will speak on the world of the irrational in which spirit and matter meld, in her 16 year apprenticeship in Amazonian shamanism in the jungles of Peru. See FMBR.org and www.spiritedmedicine.com

Meet Steven Blake, ScD



Steve Blake has a doctorate in holistic health, a doctorate in naturopathic medicine, and is a neuromuscular therapist. He offers classes at the University of Hawaii VITEC program and is visiting faculty at the Maui Academy of Healing Arts. He is professor of nutritional biochemistry at the College of World Health. He lives on an organic farm on Maui that is powered by the sun. Dr. Blake is the author of 17 books and software tools, including the 2008 McGraw-Hill textbook *Vitamins and*

Minerals Demystified. He has just completed writing *Understanding Dietary Fats and Oils: A Scientific Guide to their Health Effects*. He has many other major publications including *Healing Medicine*, which is a constructive critique of modern medicine. He is co-author of *Mosby's Drug Guide for Nurses, 4th Edition*. He is well known for his databases on alternative remedies. The largest of these databases has over 128,000 footnotes and has been published by Harcourt Brace. Steve Blake programmed the *Diet Doctor 2010*, software for graphing dietary nutrients. This cutting-edge software has been instrumental in researching dietary fats and oils.

Dr. Blake lectures widely about the role of nutrition in health. He has taught anatomy & physiology and exercise physiology. He was the director of the Maui Holistic Health Center for seven years. He is often heard on radio and seen on television. He was selected in 2009 by IBC as one of the leading health professionals in the world. Please feel free to contact Dr. Blake with questions at mail@naturalhealthwizards.com. Mention Smart Life Forum for a \$50 discount on the Diet Doctor software to determine your own balance of essential fatty acids, vitamin E intake, and saturated fat intake. You may wish to peruse his other publications at www.naturalhealthwizards.com.

Future Speakers:

March 18, 2010
(in Room M4)
Ron Rothenberg, MD on
Hormone Myths

May 20, 2010
(in Room H1)
Gary Taubes, on
Good Calories, Bad
Calories

About Smart Life Forum

Smart Life Forum, Inc. is a 501(c)(3) California nonprofit corporation whose primary mission is to provide credible health education to the public with an emphasis on optimal wellness, anti-aging medicine, and longevity.

Annual memberships in Smart Life Forum, Inc. and charitable donations are tax deductible to the extent allowed by law. For information on how to join or make a donation, please visit our website: www.smartlifeforum.org.

For questions, please contact Mike Korek at (650) 941-3058.

Main Presentation:

Preventing Heart Disease: Fats, Antioxidants, and Eicosanoids

The most dangerous disease in America is atherosclerosis—the clogging of the arteries. It is an insidious disease because there are often no symptoms until a heart attack or stroke occurs. Arterial damage starts as early as ten years of age and is pervasive by age 20. Over one million Americans experience heart attacks each year. In addition, each year over 600,000 have strokes. This is not surprising since seventy million Americans have heart disease. Even more Americans have dangerously high levels of blood cholesterol that indicate a high risk of heart attacks or strokes. What are the causes of atherosclerosis, heart attacks, and strokes?

Excess saturated fat and excess calories

Heart disease is primarily caused by rich diets, rather than genetics or aging. No matter how technically adept our doctors become at detecting or treating heart disease, the only sane solution is to prevent it in the first place. Prevention is possible with dietary changes. While stress reduction and increased activity levels help, no heart disease prevention program will be effective without dietary management. We are now learning that diet is so powerful a therapy that regression of atherosclerosis can also be achieved in some cases with dietary changes alone (Esselstyn, 2007).

Saturated Fats

The principle cause of atherosclerosis is excessive saturated fats in the diet. The relationship between dietary fats and heart disease has been extensively investigated. There are strong and consistent associations between excessive saturated fats and heart disease. This wide body of evidence is from animal experiments, observational studies, and clinical trials.

In average American diets much of this excess saturated fat comes from cheese and meat, which are high in saturated fat compared to other common foods, as shown in the bar chart

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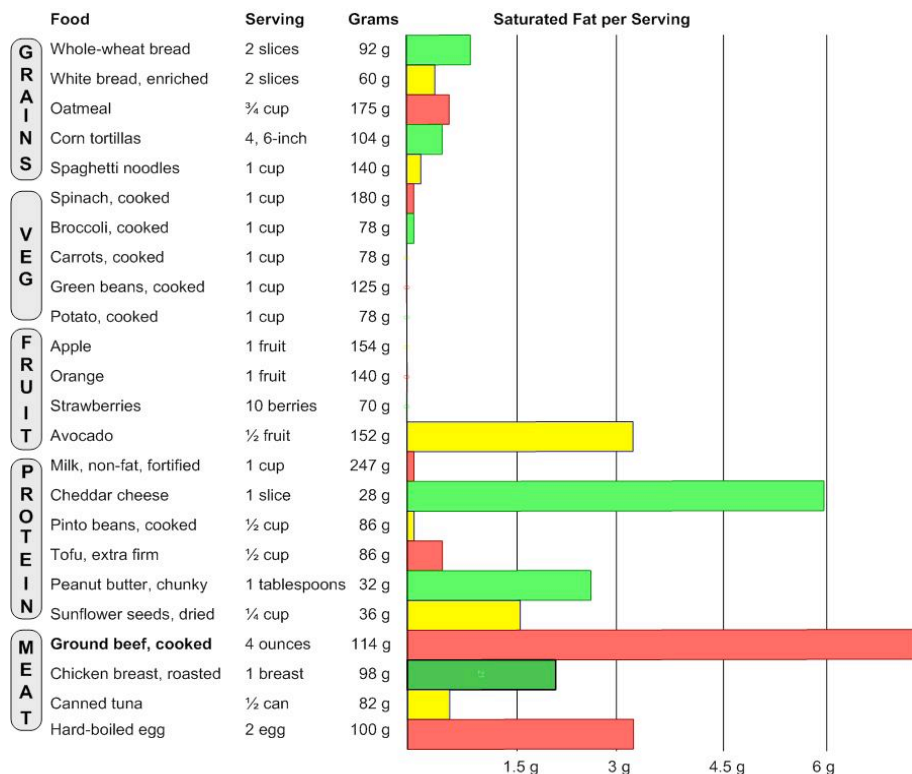
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below. Our bodies also biosynthesize saturated fat when there is an excess of calories. These excessive calories often come from fats and carbohydrates in “junk food.” From these excess calories, the human body builds palmitic acid, a saturated fat with 16 carbons in its chain. Unfortunately, palmitic acid is the most atherogenic of all of the saturated fats. The excess of calories in most American diets also results in the overproduction of cholesterol. Excessive fats and carbohydrates are first broken down to two-carbon fragments. These two-carbon fragments (acetyl coenzyme A) are then reassembled into saturated fat and cholesterol.



This figure copyright 2009, Steve Blake, Courtesy of the Diet Doctor

Trans Fats

Trans fatty acids contribute to our risk of heart disease even more powerfully than saturated fats. However, Americans eat only about one-tenth the amount of trans fats as they do saturated fats. An average American diet will contain 50-60 grams of saturated fat, but only contain about 5 grams of trans fats. The biggest sources of trans fats in American diets are baked goods, beef and dairy products, fried food, and margarine, according to a recent U.S. Department of Agriculture study. It is interesting that 21% of dietary trans fats come from dairy products and beef in a typical American diet. The trans fats in dairy products and beef are made by bacteria in the bovine digestive tract (the rumen).

Dietary Cholesterol

Recent studies show that dietary cholesterol raises blood cholesterol only a little. Adding 400 mg of cholesterol to a diet without cholesterol will raise serum total cholesterol by about 20 mg/dl (Hopkins, 1992). This results in an increase of blood cholesterol of about 10%. Higher amounts of dietary

cholesterol do not seem to further increase blood cholesterol.

Antioxidants and the etiology of heart disease

The delicate lining of our arteries can become damaged when circulating LDL (low density lipoprotein) is unprotected by antioxidants. The cells in the walls of the arteries can then become attacked by immune cells, principally macrophages. This causes a scab-like buildup of cholesterol and foam cells that restricts the flow of blood in the arteries. Thankfully, this damage does not occur if there are sufficient antioxidants to protect the arterial walls.

The longer the LDL circulates, the more depleted of antioxidants it becomes. This is one reason why dietary saturated fats are so damaging. Saturated fats decrease the number of LDL receptors on cell membranes, thus prolonging the time LDL spends in the bloodstream. Excess saturated fats decrease the fluidity and permeability of the cell membranes. This results in fewer LDL receptors binding to the membranes. Also, Excess dietary saturated fats suppress the biosynthesis of LDL receptors by liver cells (Fernandez, 2005).

Vitamin E and its co-antioxidants

The principle dietary fat-soluble antioxidant is vitamin E. Vitamin E functions as a fat-soluble antioxidant and reduces blood clotting. There is no scientific doubt that dietary vitamin E prevents heart disease. There is some scientific doubt that supplementary vitamin E prevents heart disease. The vitamin E in food is in a natural form, while the vast majority of supplements use a cheap, synthesized all-racemic form of alpha-tocopherol. Most medical studies use this synthesized form.

The synthesized alpha-tocopherol consists of eight isomers, only one of which is in the natural form (Blake, 2008). The risk of heart disease can be increased when the liver loads these ineffective isomers of vitamin E onto the LDL for protection. Some of these synthetic isomers are ineffective as antioxidants. Oxidized LDL can damage the delicate lining of the arteries. The synthetic form is also not effective in reducing platelet aggregation (blood clotting). It is, after all, blood clotting that finishes the deadly blockage of coronary arteries in a heart attack.

The vitamin E in food contains not only the natural form of alpha-tocopherol, but also gamma-tocopherol. About 70% of the vitamin E in food is found in the form of gamma-tocopherol. Although gamma-tocopherol is the most abundant form of dietary vitamin E, it is missing from most vitamin E supplements. Gamma-tocopherol is more effective than alpha-tocopherol in inhibiting oxidation from reactive nitrogen-oxide free radicals (Clarke, 2008).

Vitamin E does not work alone in protecting our arteries from oxidized LDL. Vitamin C is crucial for recharging the antioxidant potential of vitamin E. Vitamin E embedded in the membrane of the LDL can only quench one free radical. Circulating vitamin C then can restore the antioxidant activity of vitamin E.

Coenzyme Q10 is the only fat-soluble antioxidant made in the human body. Coenzyme Q10 works as a co-antioxidant along with vitamin E to increase its effectiveness. Unfortunately, coenzyme Q10 biosynthesis is obstructed by statin drugs, which are given to reduce cholesterol biosynthesis. When vitamin C and coenzyme Q10 are unavailable, vitamin E can promote free radicals, rather than quench them.

Eicosanoids, inflammation and heart disease

Eicosanoids are powerful molecules that control inflammation, immunity, and blood clotting. The biosynthesis of eicosanoids is triggered by tissue damage or by the immune system. Eicosanoids have a short half-life of only seconds to minutes. For this reason, they only get to act on the same cells that they are made in, or on surrounding cells. The network of eicosanoid interactions is among the most complex in the human body.

Eicosanoids are not stored in the body. They are made upon demand when and where they are needed. They are made from eicosanoid precursors that are stored in phospholipids in cell membranes. There are only three eicosanoid precursors: EPA (EicosaPentanoic Acid), arachidonic acid, and DGLA (Dihomo-Gamma-Linolenic Acid). Each of these eicosanoid precursors is a 20-carbon fatty acid and each one can be biosynthesized from one of the two essential fatty acids.

We can influence our production of eicosanoid by altering our intake of the two essential fatty acids: linoleic acid (LA) and alpha-linolenic acid (ALA). Common cooking oils are overly rich sources of LA. Unfortunately, when we get too much LA in relation to ALA, our bodies synthesize more of the pro-inflammatory and pro-blood clotting eicosanoids. On the other hand, when we eat enough ALA, our bodies can biosynthesize enough EPA to make anti-inflammatory and anti-blood clotting eicosanoids. Walnuts and flax seed powder are rich sources of the hard-to-get ALA.

We can also more powerfully alter our production of eicosanoids by direct dietary intake of EPA and arachidonic acid. EPA is found in certain fatty fish, such as salmon, and in fish oil supplements. Arachidonic acid is only found in meat, chicken, fish, and dairy products.

Thromboxanes and blood clotting

Heart attack and stroke risk is increased if our blood clots too easily. One class of eicosanoids, *thromboxanes*, powerfully affects blood clotting. Thromboxanes were named after *thrombocytes*. Thrombocyte is another word for platelet. As you may know, platelets are involved in blood clotting.

There are two types of thromboxanes, one made from arachidonic acid and the other made from EPA. The thromboxanes made from arachidonic acid increase blood clotting, while the thromboxanes made from EPA decrease blood clotting. In addition, the thromboxanes made from arachidonic acid constrict arteries, while the thromboxanes made from EPA open up arteries. The balance between these two thromboxanes is crucial for keeping arteries open while still responding to arterial damage.

The balance between the two classes of thromboxanes is influenced by the dietary intake of the essential fatty acids LA and ALA. In the typical American diet, the amount of LA is 10 to 20 times higher than the amount of ALA. The ideal ratio of LA to ALA is 3 to 1, as explained in chapter 11 of my recent book (Blake, 2009). In addition, dietary arachidonic acid increases the production of blood-clotting thromboxanes. This predisposes some people to heart attacks and strokes.

Prostacyclins and blood clotting

Prostacyclins are another class of eicosanoids that powerfully affect blood clotting. Prostacyclins

can be made from either EPA or arachidonic acid. Prostacyclins powerfully inhibit blood clotting. Prostacyclins are much more potent than other eicosanoid anti-clotting agents. Prostacyclins made from EPA are also potent vasodilators. We need to consume the right dietary balance of essential fatty acids so that our bodies can produce the perfect amount of the correct eicosanoids at the time and place needed.

Flax powder and fish oils

As we have seen, the eicosanoids made from EPA decrease the risk of fatal blood clots that can cause heart attacks and strokes. Is it wise to take EPA from fish oils, or is it better for us to make EPA ourselves from ALA?

If certain conditions are met, we can make all the EPA we need. First of all, we need to take in 2-5 grams of the essential fatty acid ALA every day. The addition of walnuts and flax powder are excellent ways to boost intake of this essential fatty acid. Secondly, we need to limit the amount of our intake of the LA essential fatty acid. To accomplish this, it is best to get most of our fats from whole foods rather than from refined oils. Dietary intakes of arachidonic acid reverse the beneficial effects of EPA.

Under certain conditions, supplementation with preformed EPA may be necessary. There are some factors that limit the conversion of essential fatty acids to EPA. People with hepatitis C or those who have diabetes may need extra EPA. People with several risk factors for heart disease including high blood triglycerides and cholesterol may also benefit from supplementation. People whose diets do not provide the nutrients needed for internal production of EPA may need supplementation. The nutrients needed for conversion of ALA to EPA include vitamin B6, vitamin B3, magnesium, and zinc. It is best to correct these limiting factors when possible.

EPA supplementation, whether with fish or omega-3 fish oils has some potential disadvantages. Fatty fish and EPA supplements made from fish can be contaminated with bioaccumulated toxic chemicals, such as polychlorinated biphenyls (PCBs) and pesticides like DDT. Fish oils can also increase bleeding tendencies.

Leukotrienes are eicosanoids that powerfully enhance our immune system. Leukotrienes made from arachidonic acid are estimated to be 30 times more potent than leukotrienes made from EPA. EPA in fish oil reduces the amount of the more powerful leukotrienes and increases the amount of the less powerful leukotrienes made from EPA. Therefore, fish oil results in a lessening of the ability of our immune systems to combat infections and cancer.

Taking EPA supplements is a powerful way to decrease blood-clotting thromboxanes. Alternatively, we can lower the intake of linoleic acid and raise the intake of ALA to decrease thromboxanes. This can be a safer method of balancing both the immune system and bleeding tendencies.

References:

Blake, 2008) Steve Blake, "Vitamins and Minerals Demystified," McGraw-Hill, 2008.

(Blake, 2009) Steve Blake, "Understanding Dietary Fats and Oils: A Scientific Guide to their Health Effects," available online free at: http://www.naturalhealthwizards.com/html/dietary_fats_oils.html.

(Clarke, 2008) Michael W. Clarke and John R. Burnett, "Vitamin E in human health and disease," Critical Reviews in Clinical Laboratory Sciences, 45(5):417-450 (2008).

(Esselstyn, 2007) Caldwell B. Esselstyn, Jr., "Prevent and Reverse Heart Disease," Avery, 2007.

(Fernandez, 2005) Fernandez, M. and West, K., "Mechanisms by which Dietary Fatty Acids Modulate Plasma Lipids," J. Nutr. 135:2075-2078, September 2005.

Aging and Dry Eyes

Dry eyes are one of the most common problems among seniors as they age. With age, our eyes and body are undergoing a variety of changes. Decreased cardiac function results in decreased micro-circulation which leads to poor supply of blood and nutrients to the eye. If dry eye is left untreated, the cornea can develop ulcers as well as other severe eye problems.

Causes of Aging Dry Eyes

As we age, our body produces fewer tears. Dry eyes are a very common complaint among older adults. Here are a few of the different causes that influence our dry eyes:

- **Watery Eyes-** Ironically, dry eyes can cause watery eyes because the body senses the amount of fewer tears which triggers the brain to produce reflex tears (excessive watery tears that do not contain sufficient mucin lipids and protein). This excessive tearing however does not lubricate your eyes it only makes the problem worse.
- **Menopause-** Hot flashes, insomnia, vaginal dryness, mood swings, fatigue, headaches are all associated with menopause. However, more than 60% of women experiencing these symptoms also experience dry eyes. Women at this stage are also vulnerable in developing autoimmune diseases like Sjogren's syndrome; Rheumatoid Arthritis (see section under TheraLife Eye Enhanced – Autoimmune Dry Eyes.)
- **Tear Production-** As we age, our eyes naturally slow down the tear production process. Tears are a major protective agent for the eyes. Tears not only wash away dust from our eyes, but also soothe our eyes, provide oxygen and nutrients to the cornea, as well as help defend against eye infections by removing microorganisms that can form communities in our eyes.
- **Medications-** Medications can cause dry eye. This includes some medications, antidepressants, antihistamines, muscle relaxants, sleeping pills, and pain relievers. Natural therapy sometimes tends to be a more balanced approach to aging diseases.
- **Caffeine in foods-** Coffee, tea, sodas and chocolates are some of our everyday indulgences that contain caffeine. Caffeine causes blood vessels to constrict which results in decreased circulation, cause insomnia, and a variety of health issues. Try avoiding these foods and drinks if possible as caffeine is known to dehydrate the body.
- **Computer use-** Internet allows us to connect with the outside world. Sitting in front of the computer for extended periods of time can significantly dry your eyes out. Remember to blink more often.

Prevention Measures as You Age

We strongly recommend the following things you can do to help prevent and relieve the severe

symptoms of Dry Eye, regardless of your age. Here are a few examples:

- **Drink Water**- At least 8 glasses a day. Water is a great source to keep your body hydrated, especially if you live in dry, hot or cold climates.
- **Humidifiers**- Either in your central heating system or individual rooms inside your home can bring moisture into the air, especially if you live in a dry location, or during winter when there is less moisture in the air.
- **Natural Supplements**- Omega-3's (especially fish oil) and Omega 6's is a great way to help you thicken your tears and decrease your dry eye symptoms. For women, adding Primrose Oil to Fish Oil can also help with hormone balance.

Tear Secretion Glands, Tear Composition and Eye Structure

Tear composition is very complex. It has been analyzed to contain over 300 components. All key components, mucin, lipids, proteins, and fluids must be balanced and sustainable in order to provide eye protection and comfort. Deficiencies in any of the components will produce poor quality tears that evaporate too rapidly and cause dry eyes. Severe dry eye condition left untreated can lead to cornea damage and blindness.

How Severe is your dry eye?

Tests that your doctor will do to determine the extent of your dry eye include but not limited to measuring tear volume, tear viscosity, fluorescent staining and examination. Knowing the values of tear volume and tear viscosity in particular help determine the extent and severity of your dry eye conditions.

What are the treatments for dry eye?

Typical treatments for dry eyes include eye drops, punctal plugs, cauterization of tear ducts, prescription cyclosporin eye drops, and nutritional supplements consists of high doses of omega 3, vitamins, and oils. Each approach has its advantages and drawbacks. The most common being frequent use of eye drops which wash away the mucin, lipids and proteins that protect the eye, making dry eye worse. High doses of oily supplement provide thickness to the tear but do not address the lack of tear volume.

New Approach to Dry Eye Relief

What we need is an approach to stimulate and restores tear glands to secrete balanced, sustainable quality tears systemically. New research has shown that a blend of specific herbs, vitamins, and minerals can stimulate mitochondrial DNA synthesis in tear secretion glands and restore normal cellular functions to relief dry eye. More details of this research will be discussed during the presentation.

Written for Smart Life Forum, Jan. 26th, 2010. Lily C. Yang, PhD CEO/President – TheraLife Inc.