



YOUR GOOD HEALTH

THE NEWSLETTER WITH DR. JOHN McDOUGALL

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JANUARY/FEBRUARY 1994

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Free Radicals and Anti-Oxidants

What Is A Free Radical?

Free radicals are the hot topic in the cause of disease these days, and anti-oxidants are said to be our salvation. Understanding this subject will help you make diet and lifestyle choices, and help you choose whether or not to take supplemental vitamins.

Recall your basic chemistry education to help you learn more about free radicals.

Free radicals are often called "reactive oxygen species" and oxidants, because oxygen molecules are commonly part of free radicals; and in the language of chemistry, donation of an electron is called oxidation. The free radical may be a very small molecule such as oxygen or it may be a part of a large biomolecule such as a protein, carbohydrate, or fat (Am J Med 91:3C-2S, 1991).

Atoms consist of a central nucleus with electrons spinning around in orbits, like the planets spinning around the sun. The outermost orbit usually contains two electrons spinning in opposite directions. The pair balance each other, making the atom stable (not interested in becoming involved in chemical

reactions). A free radical is an unbalanced atom existing with only one electron in the outer orbit.

The free radical molecule actively seeks the missing electron from surrounding substances in order to reestablish balance. Snatching this electron from another molecule often causes damage to this substance, and sets off chain reactions involving many molecules. For example, chains of carbohydrates are broken, proteins are fragmented, and rearrangements are made in our genetic material (DNA). Fats altered by free radical reactions are incorporated into cells walls producing deleterious effects on the integrity of the walls.

How Are Free Radicals Formed?

Under controlled situations free radicals are naturally made in the body and perform important functions. For example, they are synthesized by white blood cells called macrophages and granulocytes. These free radicals provide a lifesaving function by killing bacteria and viruses after being ingested by the white blood cells.

On the other hand, free radical formations may be destructive to the body. Alcohol produces oxygen free radicals that can cause alcohol-induced fatty liver damage. Radiation will knock an electron out of orbit producing a free radical which can then attach to our genetic material (DNA). The resulting damage to the DNA can lead to cancer. Oxidants found in cigarette smoke damage lung tissues leading to emphysema. Environmental pollutants, such as formaldehyde, act as free radicals causing material damage to many tissues and organs. Free radicals participate in most, if not all, human disease. Common disease processes where the role of free radical damage has been extensively studied include atherosclerosis, rheumatoid arthritis, and chronic lung disease. Free radicals also effect the lens of eye—causing cataracts.

Oxidized Cholesterol Initiates Atherosclerosis

Elevated concentrations of low-density lipoprotein (LDL) cholesterol accelerate the development of injury to the arteries, known as atherosclerosis. The cholesterol that accumulates in the atherosclerotic plaque comes from the blood cholesterol. Injury of the cells lining the artery usually occurs before the cholesterol moves into the artery walls to form the plaques. Oxidized LDL cholesterol damages the cells that form the inner lining of the arteries (the intima) setting the processes of atherosclerosis in motion. Furthermore, oxidized cholesterol attracts even more white blood cells that participate in the formation of the plaque than does native cholesterol.

Although some of the oxidized cholesterol is consumed in the cholesterol containing foods we eat, most is believed to be made in the body from native LDL cholesterol. The formation of this toxic form of cholesterol is accelerated when the body is low in antioxidants whose job is to reduce the free-radical molecules in the body.

Free Radical Defenses

The body makes many enzymes, such as superoxide dismutase, which function to prevent the formation of free radicals and clean up these radicals once formed.

Many metals, particularly copper and iron, have the ability to donate or accept an electron and in this manner create free radicals. The body keeps as much iron and copper as possible bound in storage or transport proteins so there are essentially no free metals available for reactions. Two waste products of the body, uric acid and bilirubin act as free radical scavengers—cleaning up these rascals.

Antioxidant Vitamins

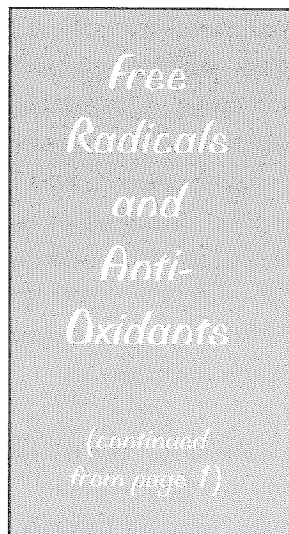
An antioxidant is a substance that, when present at low concentrations prevents the oxidation of surrounding substances which may include proteins, fats, carbohydrates, DNA, and almost anything else found in living cells. They act as blockers of radical processes.

The three vitamins that act as antioxidants are carotenoids (Vitamin A), Vitamin C, and Vitamin E. These vitamins donate or accept an electron and thereby decrease the reactivity of potentially damaging free radical molecules.

Vitamin Supplements May Reduce Heart Attacks and Death

In men who smoke, carotene (Vitamin A) intake was associated with a lower risk of heart disease in the Health Professionals Follow-Up Study (N Engl J Med 328:1450, 1993). In another study a population of more than 11,000 men was found to have less of a chance of dying from heart disease and other causes of death the more Vitamin C they consumed (Epidemiology 3:194, 1992). Not all studies have had the same positive findings for the intake of these two antioxidant vitamins (N Engl J Med 328:1450, 1993).

A growing body of scientific research is showing the protective effects of Vitamin E on the heart and blood vessels. Vitamin E reduced the development of atherosclerosis in a small experiment in monkeys (J Am Coll Nutr 11:131, 1992). After angioplasty (heart surgery) Vitamin E was found to decrease the risk of closure of the surgically opened arteries (J Am Coll Nutr 11:68, 1992). Both these findings were attributed to the antioxidant



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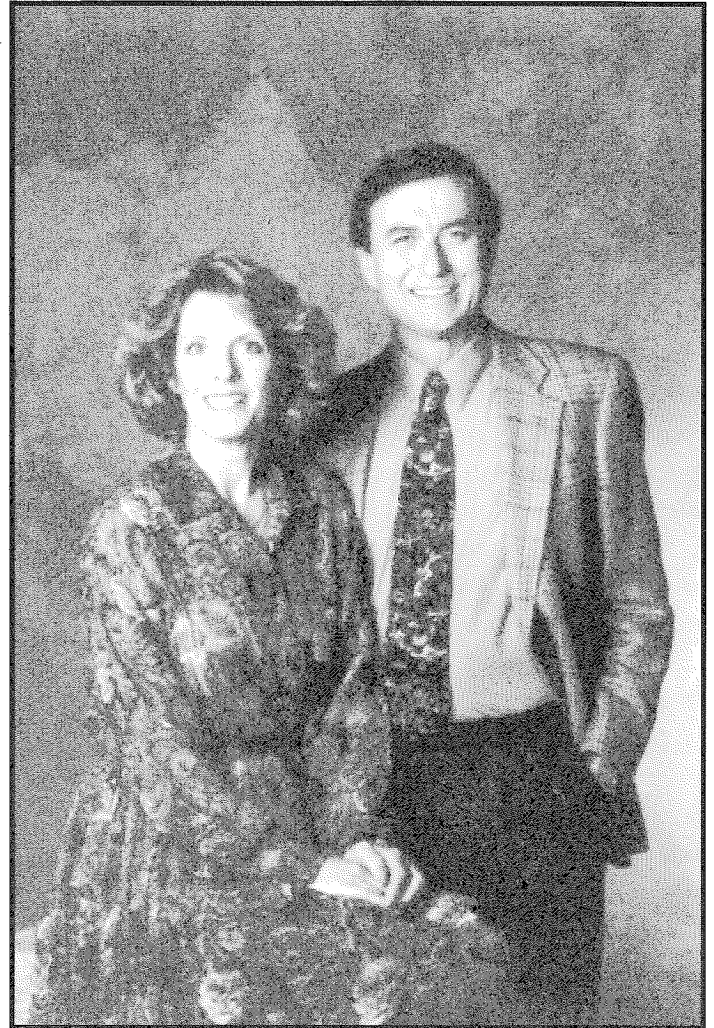
abilities of Vitamin E. Two recent studies on men and women found supplemental Vitamin E tablets reduced the risk of dying from heart disease. (*N Engl J Med* 328: 1444 & 1450, 1993). Doses of 100 to 200 IU (international units) provided maximum benefits. Doses of less than 100 IU showed little reduction in death from heart disease. There was no suggestion of greater reduction in chance of death with doses higher than 200 IU daily. Users of Vitamin E for less than 2 years showed no benefits. Use for 2 years or more showed a 37 percent and a 41 percent reduction in risk of a non-fatal heart attack or death from heart disease, in men and women respectively.

Benefits were only seen with doses of supplemental vitamins; no benefit was seen from the effects of increasing levels of Vitamin E in the diet. However, the amount of Vitamin E obtained from the diet was small compared to the amount the supplements supplied. (Note that all the subjects ate the rich American diet and no comparison was made with people who eat a low-fat vegetarian diet which would be naturally much higher in Vitamin E.) No benefit was seen from intake of supplements of Vitamin C or carotenoids (Vitamin A) in these two studies.

Should You Take Vitamins?

Unfortunately, not enough information is available to give a definitive answer, especially one for recommendations to the general public. Long term benefits and side effects are not known; even though therapy with carotenoids, Vitamin C, and Vitamin E is unlikely to result in any significant adverse effects.

My greatest concern is people will think the solution to good health is to pop a few pills and slack off on the basic causes of common illness: diet and lifestyle. Take smokers Vitamins (A and C) rather than quit their habit. Swallow 200 IU of Vitamin E as penance for their bacon and eggs. However, having dealt with the basic culprits in your life you may want to take supplements for their possible extra benefits. Especially if you are one of those people with much need for health improvement, and little time to wait. For example, if you have already suffered with heart disease you may wish to take advan-



Dr. John and Mary McDougall

tage of all reasonable options. Others in better health may wish to wait for long-term studies for guidance.

Which Supplements To Take?

Available research suggests dosages that may be most beneficial with least cost and possibility of side effects. Daily intake of beta-carotene (non-toxic, plant-derived, form of Vitamin A) of 25,000 IU, 2 grams of Vitamin C, and 200 IU of Vitamin E should be most beneficial. To avoid consuming oil you should purchase a "dry form" of Vitamin E. Many different dosages are available from different manufacturers. Fortunately, these three vitamins have very few side effects; even in large dosages they are essentially non-toxic. Be careful because other vitamins can be toxic; for example, the retinol form of Vitamin A can cause severe toxicity. Don't lose focus of the fact that a healthy low-fat, no-cholesterol diet, exercise, and clean health habits are the foundations for prevention of disease. No amount of vitamins or pills will protect your health like your good choices will. ☺

Medical Research Reviewed by Dr. John McDougall

PSA TEST NOT RECOMMENDED

"Prostate Cancer Screening: What we know and what we need to know," by Barnett Kramer in the November 1993 issue of the *Annals of Internal Medicine* (119:914) reviewed the scientific literature on prostatic specific antigens (PSA) and concluded "The net benefit from widespread screening is unclear." No randomized trial has tested the efficacy of screening with PSA for the early detection of prostate cancer. The PSA test is not specific—levels can be increased with non-cancerous disease, and be normal in cancer. The cost of the test is \$25 to \$60. Present therapy, including radiation and prostatectomy surgery, has not been shown to prolong life over doing nothing (Johannson J. *JAMA* 267:2191, 1992; Adolfsson J. *J Urol* 149:311, 1993). Early detection appears to help because of four types of bias: 1) *Selection bias*: occurs when the group that gets screening is different than the general population. For example, if better educated men who also eat a better diet sought testing more often than the less privileged men who eat a higher fat diet, then less cancer would be seen in those screened (due to their better diet, not the screening). 2) *Lead time bias*: occurs when screening advances the time of diagnosis, but does not change the time of death. When detection finds the tumor earlier you live longer from the time of diagnosis but you still

die the same day. This bias is the most common way early detection appears to prolong life (but actually doesn't). 3) *Length time bias*: occurs because disease detected between regular screening periods is more likely to be very aggressive (deadly); simply because this aggressive disease causes symptoms which lead to its discovery. Whereas, disease that does not cause symptoms, and is only detected because of a routine testing, is more likely to be less aggressive. 4) *Over diagnosis bias*: occurs when prostate cancer is detected through screening, is treated, and is apparently cured, and the patient dies of another cause. But the cancer was never life threatening in the first place. About 2/3 of men older than 60 have prostate cancer found at autopsy. This cancer would never have threatened the lives of these men in 95% of case.

There is harm from early detection. Mostly because detection leads to treatment; which causes death in 1 to 2%; impotence in 25%; urinary incontinence in 3 to 6%; urethral stricture in 8 to 18% of those treated by radiation or surgery. The cost of treating the extra cases of prostate cancer detected the first year by mass screening would be 11.9 billion dollars. And benefits for increased survival are highly unlikely based on present research.

COMMENT:

Screening for prostate cancer using a PSA test is inaccurate, will lead to increased treatment-related deaths, a reduced quality of life for many of the treated, and increased health-care expenditures in an already overburdened economy. Digital rectal exam is likewise ineffective. You will receive a false sense of reassurance by passing either test. This could further harm you by lessening your resolve to win the war on prostate cancer by stopping the cause—the rich Western diet. The reason these early detection methods don't work is because they are not really early detection. By the time a doctor's probing finger can find a prostate cancer it has been growing on the average 10 years. By this time (often within the first year of growth) the cancer has escaped into the blood stream and spread throughout the body. Likewise, by the time the tumor has grown

large enough to make sufficient amounts of the glycoprotein, PSA, the cancer has done its dirty work and spread to so many remote areas of the body that no surgery or radiation would have the slightest hope of controlling the disease. Concerning this article, a doctor wrote in the same journal: "...It is time that American physicians recognize what physicians in the rest of the developed world already know: Advocates of screening procedures of unproven benefit but known harm would replace the traditional ethical precept of 'primum non nocere' (first, do no harm) with its opposite, 'primum facere' (first do something)" (Hahn D. *Ann Intern Med* 119:1054, 1993). Prevention with a starch-based diet is your only hope (*J Natl Cancer Inst* 85:1571, 1993). Even if the cancer has already started growing research shows the course can be slowed and the chance of dying from the cancer decreased.

Medical Research Reviewed by Dr. John McDougall

DIET AND SEVERE COLITIS

Treatment of active Crohn's disease by exclusion diet: East Anglian Multicenter Controlled Trial, by A. Riordan in the November 6, 1993 issue of the *Lancet* (342:1131) found diet highly effective in the treatment of a form of severe inflammatory bowel disease known as Crohn's disease. Patients were initially treated with a liquid diet of sugar, water and vitamins (an elemental diet) in order to quiet down the active disease. Those who achieved remission were allocated to treatment with corticosteroids (prednisolone 40 mg daily) or diet.

Patients in the diet group were told to reintroduce a single food each day and to exclude any food that provoked symptoms such as diarrhea and pain. After 14 days on the liquid diet 78 of the 93 (84%) achieved remission. Of these patients 38 were assigned to the corticosteroid group and 40 to the diet group. Intolerance was found to many foods: corn (7 patients), wheat, milk, and yeast (6 each), egg, potato, rye, tea, coffee (4 each), apples, mushrooms, oats and chocolate (3 each). Relapse occurred in 66% of the steroid group, but only 30% of the diet group.

ON THE LIGHTER SIDE

Graduation Song Performed by the participants of the November 1993 McDougall Program.

To the tune of: "These are a few of my favorite things."
Words by Judy Trumble.

Vicki, and Linda, and Dr. McDougall,
Lectures, and swimming, we're weak in the noodle,
giving our blood, when going to lab'
These are a few of the things, we think are just fab.

Watching the videos and cooking our dinners,
taking our walks so we'll all become winners
coping with stress, and learning to shop
we've done it all, 'til we're ready to drop.

When the alarm rings, when the clock says,
it's a brand new day,
we run to our showers, Lyn tends her rose flowers, and
we are all on our way
(Vicki is our dietitian, Linda is the social coordinator, and
Lyn was one of the participants)

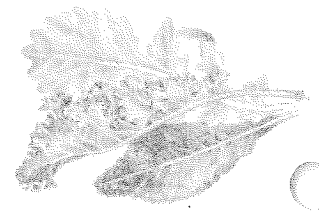
COMMENT:

Crohn's disease is an inflammatory disease of the bowel common only in Western societies where the rich American diet is consumed, and it is on the increase. Inflammation involves the full thickness of the bowel and may affect the large and small intestine. Bloody diarrhea, fever, pain, fatigue, and weight loss are common. The onset is typically in a young adult. Intestinal obstruction and fistula formation, and surgical loss of the bowel are common. Commonly prescribed treatments are unsatisfactory. (Ulcerative colitis is another common inflammatory bowel disease with the same cause and treatment implications as Crohn's disease).

Diet has been used for years to treat Crohn's disease. Low-fat diets have been shown to relieve severe diarrhea in patients with disease that involves the last part of the small intestine (ileum). With disease of the ileum, the bile acids are not reabsorbed, passing into the colon they cause severe irritation and watery diarrhea. Removing the fats and oils from the diet dramatically reduces the production of bile acids from the liver. In a couple of days they change from having 20 or more watery stools a day to having 1-2 formed stools (Andersson E. *Gut* 15:351, 1974). Other investigators (Jones V. *Lancet* 2:177, 1985; Heaton K. *Br Med J* 2:764, 1979) have shown benefit from dietary manipulation. With the McDougall Program you will find the most effective approach to quieting Crohn's disease (as well as, other forms of colitis including ulcerative colitis). This dietary approach begins with a very low-fat, starch-based-diet with the addition of fruits and vegetables. Wheat is eliminated in the beginning. In a few people this approach will not be satisfactory and they must be placed on the elimination diet also described in the McDougall Program. This diet is limited to brown rice, sweet potatoes, non-citrus fruits, and green and yellow vegetables—all thoroughly cooked (for details see the McDougall Program—12 Days to Dynamic Health). The results are predictably good to excellent. Lack of compliance (as usual) is the most likely cause for failure.

Healthy Recipes

By Mary McDougall



Quick Bean and Vegetable Chowder

4 servings

Preparation Time: 10 Minutes

Cooking Time: 1 Hour

- | | |
|---------|-----------------------------------|
| 1 cup | quick bean mixture (see below) |
| 4 cups | vegetable broth or water |
| 1 leek | thinly sliced |
| 1 cup | frozen, diced hash brown potatoes |
| 1/2 cup | frozen corn kernels |
| 1 | bay leaf |
| 1 T | soy sauce |
| 1/2 t | dried marjoram |
| 1/2 t | dried thyme |
| 1/2 t | rubbed sage |
| 1/4 t | freshly ground black pepper |

Combine all the ingredients in a medium soup pot. Mix well, cover, bring to a boil, reduce heat and simmer for 1 hour, stirring occasionally.

QUICK BEAN MIXTURE

1 cup	split green peas
1 cup	split yellow peas
1 cup	brown lentils
1 cup	red lentils
1 cup	barley
1 cup	orzo pasta (or other small pasta)

Combine well. Store in a covered jar.



Lima Orzo Soup

6 servings

Preparation Time: 25 Minutes

Cooking Time: 1-1/2 hours

- | | |
|-----------|-----------------------------------|
| 1 cup | dried baby Lima beans |
| 6 cups | water |
| 2 | leeks, cut in half, thinly sliced |
| 2 cloves | garlic, minced |
| 2 stalks | celery, sliced |
| 2 medium | potatoes, peeled and diced |
| 1/2 pound | fresh mushrooms, sliced |
| 1/2 cup | orzo pasta |
| 1 | bay leaf |
| 1/4 cup | packed chopped fresh dill |
| 1 T | soy sauce |
| 1/4 t | freshly ground black pepper |

Place beans and water in large pot. Soak overnight, or boil for 2 minutes, remove from heat and let rest for 1 hour. Bring beans and water to a boil, cover, reduce heat and simmer for 30 mins. Add leeks, garlic, celery and potatoes. Cook additional 30 mins. Add mushrooms. Cook another 20 mins. Add remaining ingredients. Cook another 10 mins or until orzo is tender. Note: May also be made with rice or barley instead of orzo. Add grain when you add mushrooms.

Craig's Favorite Noodle Soup

servings 4

Preparation Time: 10 Minutes

Cooking Time: 22 minutes

- | | |
|---------|------------------------|
| 4 cups | vegetable broth |
| 1/2 cup | finely chopped onion |
| 1/2 cup | finely chopped celery |
| 1/4 t | marjoram |
| 1/4 t | thyme |
| 1/4 t | sage |
| 1/8 t | poultry seasoning |
| dash | soy sauce |
| 2 cups | flat, uncooked noodles |

Place the broth, vegetables and seasonings in a large sauce-pan. Bring to a boil, cover and simmer over low heat for 15 minutes. Add noodles and cook gently for 7-8 minutes until noodles are tender.

Evening Primrose Oil

By Gurumantra Khalsa

Called the most sensational preventive nutrient discovery since Vitamin C, Evening Primrose Oil continues to gather accolades as studies pour in demonstrating its effectiveness against such widely diverse physical problems as acne, arthritis, female problems, schizophrenia, heart disease, weight control and multiple sclerosis.

The Evening Primrose is a large delicate wild flower, native to North America, which grows along streams and roads and in the high desert, at altitudes from sea level to 9000 feet. The blooms generally last only one evening and are pollinated by night-flying insects. The Evening Primrose came to this continent from South and Central America hundreds of years ago and has been used as a healing herb by Native Americans here for at least the past 500 years. Learning of the healing properties of the plant, the European settlers transported it back to England where it soon became known as "King's Cure-All".

Originally parts of the whole plant were used externally to heal wounds, soothe skin inflammations and eruptions and internally to control coughs and infections, to lessen spasms, as a sedative, pain killer, diuretic and mild astringent. Currently attention is being vested in the tiny seeds which are about the size of mustard seeds.

Back in the thirties, a Swedish scientist, U.S. von Euler, discovered a previously unknown substance in high concentrations in the prostate gland and named it prostaglandin. Now we know they occur in every cell and there exists over 36 different prostaglandins. PG's have a hormone-like character, acting as regulators and messengers though they are not secreted by the glands. Instead, each cell keeps a tiny store of the material used to produce them. They are metabolized on site as needed and very quickly utilized by the body. The same prostaglandin may have different functions in different tissues.

Why Evening Primrose Oil?

Evening Primrose Oil contains gamma-linoleic acid or GLA. This is a substance found in substantial amounts in only one other food, human milk, and it is the precursor for the prostaglandins...no GLA, no prostaglandins.

As far as we know, Essential Fatty Acids or EFA's, have 2 main functions in the body: they are part of the building material for all body membranes, including brain cells, and they are the basis for the production of prostaglandins.

Fluidity and flexibility of the cell membranes depend on the amount of EFA's present in the cells. This has a direct effect on the quality of immune response. We also know that EFA's give energy, help to maintain body temperature, insulate nerves, cushion and protect tissues and are vital to metabolism.

Laboratory studies depriving animals of EFA's

Show:

- * they develop very bad skin and their hair falls out
- * they cannot resist infections
- * they do not have proper collagen formation
- * they become infertile, especially rapid in males

- * the liver becomes damaged
- * they become lethargic and irritable
- * they develop painful, swollen joints

There is one EFA in particular, the presence of which will guarantee the production of the others. It is linoleic acid. The body can produce GLA, the precursor of the prostaglandins directly from linoleic acid. No matter how much linoleic acid is present in the body, it is totally useless unless the body can convert it to GLA, gamma-linoleic acid.

There are several factors which can block this conversion.

Natural, unprocessed or cold-processed vegetable oils contain a form of linoleic acid which is readily used by the body and is called cis-linoleic acid. Processes which remove their odor, increase their shelf-life, render them suitable for making margarine and for cooking, transform the cis-linoleic acid to trans-linoleic acid. This unnatural substance is not acceptable to the body despite its similarity chemically, and will not be converted to GLA. Therefore, much polyunsaturates we consume are biologically valueless and harmful. Their presence interfere with the capacity of the body to convert the cis-linoleic acids to GLA, the first step in the production of prostaglandins.

These trans-linoleic acids are found in almost every prepared or processed food we eat. A stick of margarine contains 25-35% trans-fatty acids.

Trans-fatty acids, saturated fats, cholesterol and sugar as well as moderate to high consumption of alcohol, insulin deficiency (diabetes), aging, lack of sufficient zinc, magnesium, vitamin B6, vitamin C and niacin, viral infections, radiation, cancer and the use of anti-prostaglandin drugs all inhibit the conversion of linoleic acid to GLA.

Dr. David F. Horrobin, known for pioneering work with prostaglandins and Evening Primrose Oil, stated that 1:250 people cannot make the conversion to GLA. Even healthy bodies use their linoleic acids as energy before it can be converted. It is thought that the inability to make GLA, which prohibits the production of prostaglandins may be one of the most important factors in aging.

It appears that the barriers to the formation of GLA are largely overcome when GLA is taken directly into the body. This conversion step can be by-passed by using Evening Primrose Oil. Dietary experiments and tests using radioisotopes show that GLA found in Evening Primrose Oil is more efficient than the linoleic acid in sunflower seed oil.

In his article in *Bestways* (Sept 1981), Alan Donald writes that Evening Primrose Oil "has been found effective in lowering cholesterol levels, in inhibiting the formation of clots, and in lowering blood pressure in those with mild to moderate hypertension. The effects of clotting are rapid, 2-4 hours, while those on cholesterol and blood pressure take 3-4 weeks to begin and reach maximum levels after 6-12 weeks." ☺

(continued on page 8)

OVERWEIGHT

About half the people who are overweight by at least 10% and are using the primrose oil will lose weight, without making any conscious effort at dieting, at the rate of about 1-2 pounds per week. It is not yet known why only 50% respond this way. People of normal weight using the oil show no weight change.

ARTHRITIS

There is a particular prostaglandin of the E type, series 1, PGE1, that has been found to be particularly useful with a number of auto-immune diseases, including rheumatoid arthritis. PGE1 has prevented arthritis in rats and auto-immune disease in mice. It is an anti-inflammatory agent and reduces the release of inflammation causing lysosomes at the joints. It is also important for collagen formation.

In about 2/3 of all subjects with mild to moderate rheumatoid arthritis, daily primrose oil capsules seemed to stop the disease process completely. Almost all of those who were involved felt worse for about 2 weeks after beginning the therapy, then improved.

Dr. Horrobin says that the most effective approach is not to take steroids or aspirin because these substances will further lower the PGE1 deficit.

ECZEMA

Recently it has been found that babies who develop eczema after being switched from breast feeding to bottle feeding have been "dramatically" healed by rubbing 500-1000 mgs of Evening Primrose Oil into their *normal* skin morning and evening. The primrose oil is absorbed effectively as swallowing and replaces the GLA they are accustomed to receiving from their mothers. The oil has also been shown effective in the same way with adult sufferers of eczema.

There is a particular type of eczema called atopic eczema that is a symptom of a genetic maladaptation of the immune system sometimes known as atopy. This disease can also manifest in asthma, hay fever, hives or other allergic symptoms and seems to be connected with the inability to convert cis-linoleic acid to GLA, similar to some other genetic problems of the immune system.

MULTIPLE SCLEROSIS

MS is considered an auto-immune disease. A shortage of prostaglandins weakens the immune system and increases the

susceptibility to auto-immune damage.

GLA is capable of altering abnormal cell membranes, including myelin (Multiple Sclerosis, Judy Graham). Myelin is a fatty covering of some nerve fibers. Ms. Graham tells of evidence that a dietary supplement of Evening Primrose Oil provides the GLA to normalize essential fatty acid composition in MS patients and may stabilize their condition.

Action for Research of Multiple Sclerosis (ARMS), an English pressure group whose members are MS victims, has gathered evidence that the primrose oil actually slows down the progression of the disease. They are willing to share this very controversial information with any inquirers.

CANCER

Dr. Richard Passwater, nutritional biochemist, writes that the body has 3 defenses against cancer: the liver, which detoxifies cancer-causing chemicals; the cell membranes, which controls against invasion by cancer-causing chemicals; and the immune system. It has been suggested that cancer is a common physical occurrence which is controlled by these defenses, especially the immune system.

When human cells are treated with radiation, chemical carcinogens or cancer-causing viruses under lab conditions, they change. Those mutated cancer cells seem unable to produce GLA from linoleic acids. Amazingly, Passwater reports, in cell cultures, the prostaglandin PGE1 reduced the rate of cell division in malignant tissue and restored cell normality.

Besides these diseases we've discussed, Evening Primrose Oil research shows effects when used for hyperactive children, alcohol damage, schizophrenia, female problems and acne.

Which leads us to believe that we should use those foods which are rich in linoleic acid: Evening Primrose Oil (72% pure cis-linoleic acid), sunflower seed oil, safflower and corn oil, liver, kidneys, brains, sweetbreads, lean meats, legumes, green vegetables, fish (particularly herring and mackerel), shellfish, fish liver oils and linseeds. Choose cold-pressed oils from which the natural anti-oxidants have not been removed. Vegetable and seed oils are most beneficial when eaten uncooked. In the event that you do not get enough of these in your diet, you might consider supplements.

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John McDougall's Comments

Evening Primrose Oil has been shown to help with atopic eczema in some studies (Clin Investig 70:167, 1992), but not in others (Lancet 341:1557, 1993). Breast pain (mastalgia) is also improved (Br J Surg 70:407, 1992; Br J Clin Pract 44:454, 1990). Recently, the Annals of Internal Medicine reported benefit for patients with rheumatoid arthritis from primrose oil (Ann Intern Med 119, 867, 1993). However, use of this oil should be reserved for second line treatment. The rich Western diet, which is the cause of the above problems should be your first treatment. If you need more help, then try primrose oil. Oils deregulate diabetes, contribute to obesity, oily skin and hair.

Sensitivity to Fat in Multiple Sclerosis

By Roy L. Swank, M.D., Ph.D

I have frequently stated that multiple sclerosis (MS) can be controlled. I mean by this, that total disability will be little more in patients on low fat diet than the disability which was present when the low fat diet was started, plus that due to aging alone. My conclusions are based on retrospective epidemiological observations (1) (2), and on prospective studies of MS patients on very low saturated fat diets for up to 34 years (3-11). These studies have strongly suggested that the saturated animal fats are toxic for MS patients. The fish and vegetable (unsaturated) oils are, however, not toxic for MS and can be consumed freely without causing an increase in MS disability.

During the first year on low fat diet (Dec. 1948 to Dec. 1949) the average exacerbation rate for all 150 patients decreased by approximately 70% (3). A slower rate of decrease followed and at 6 to 8 years of dieting, had reached, and continued, at approximately 95%.

During the first year, those 70 patients receiving an average of 17 grams of fat daily exhibited significant improvement in their neurological state. This improvement lasted for about 10 years in patients continuing to follow the diet carefully. This was then followed by a slow adjustment downward to near the original starting level of disability (death rate, 31%).

Another group of patients, 37 in number, consumed about 10 grams of fat daily more than the group described in the above paragraph (average of 25 grams per day). They deteriorated rapidly and 79% failed to survive the 34 year period.

The last 37 patients consumed an average of 42 grams of saturated fats daily. They rapidly became disabled and 81% failed to survive the 34 years.

In a subsequent analysis, the same 150 patients on diet were separated into 3 groups; those early cases with slight or no disability (25 cases), those with moderate disability (58 cases), and finally, those with severe disability (57 cases), and were placed on diet. Twenty of the 25 early cases followed the diet carefully. Nineteen (or 95%) finished the 34 year study without increased disability. Considering the age (average 70 years) at the end of the study, enfeeblement by aging was minimal. The patients were ambulant and mentally active. The neurograde average was what it had been before starting the low fat diet. Eighty percent of the 5 cases who chose not to follow the diet however, had died from MS prior to the end of the study. The 70 moderately and severely disabled patients who followed the diet closely, deteriorated more slowly than those who failed to follow the diet.

It is to be noted that patients who were diagnosed early, before significant disability had occurred, and placed on low fat diets containing an average of 18.1 grams of saturated animal fat per

day, which they continued to consume faithfully, avoided significant disability for 34 years (remained normally ambulant and active) in 95% of cases. Only 1 of the 20 (5%) became disabled and expired.

It is especially interesting that the addition of only about 8 grams of saturated fat daily to the diet, on average, was accompanied by a very rapid deterioration, and by a death rate of 79%. Overall, those patients who followed the diet carefully had a death rate of only 31%, approximately 1/3 as high as the 79%.

Dr. Swank was a guest on Your Good Health with Dr. McDougall on November 14. To order a tape of that show, call (707) 576-1654.

John McDougall's Comments

Dr. Roy Swank is one of my heroes. His pioneering work discovered the ravages of the rich American diet before I was in kindergarten. Thousands of people have benefited. I believe his approach to MS works in almost all patients. There are small differences in the diets we recommend. But, both are low in animal fat, which is key for success with MS. I ask more of my patients because I want success in all areas of their health.

Herb Profile: Goldenseal

Hydrastis canadensis

Common names: Eye balm, eye root, jaundice root, yellow puccoon, yellowroot.

American Indians used Goldenseal roots and rhizomes to provide brilliant yellow dye for weapons, clothing, face paint, and remedies for inflamed eyes, mouth ulcers, cancer, tuberculosis, and edema.

It may not have been effective for all these, but its efficacy as an antiseptic and for a hemostatic (stopping bleeding), even hemorrhaging, is unquestionable.

Other properties include: alterative (relieves malarial-type fevers and chills and prevents regular recurrences), antiperiodic, diuretic, laxative and bitter tonic.

Update on Viral Disease of Food Animals

By Virgil Hulse, M.D.

People in the know are becoming vegetarians in ever-increasing numbers. Why? consider these recent developments in infectious disease of food animals:

MAD COW DISEASE

Before 1980, and prior to the AIDS "epidemic" in man and the epidemic disease in cattle called the "mad cow disease", infectious disease seemed no longer too much of a threat in the developed world. Things have changed.

A wave of fear over the safety of the British meat supply—that eating beef could lead to dementia and death has also been confirmed in Ireland, France, Switzerland and in cattle exported from England.. Technologically known as bovine spongiform encephalopathy (BSE), mad cow disease is a fatal degenerative disease affecting the central nervous system of cattle. Its similarity to certain neurological diseases affecting humans underlines its significance.

The assumption by the British Veterinary Association is that the dead cattle got the disease by eating quantities of scrapie-infected meat and bonemeal. Scrapie is a virus-caused disease prevalent in sheep and usually fatal, where the animal develops twitching, intense itching, excessive thirst, becomes very excitable, emaciated, weak and are finally paralyzed. Virus in scrapie-infected sheep carcasses can be incorporated into meat and bone meal used for cattle feed and thus transmit the disease. Conventional rendering does not inactivate the virus.

The USDA states to date no scientific evidence indicates that BSE is a human health hazard. Some scientists disagree.

COW AIDS

Yes, AIDS in Cows! Retroviruses are particularly vicious because they can work backwards from the usual flow of genetic information and pervert the very code of existence of a cell. Usually DNA in the nucleus of a cell sends a message to the captains to make specific proteins, and the captains order the

troops to get the needed supplies and hook them up into the designated substance. A retrovirus jams the system so that a captain sneaks into the nucleus and puts one of his team in command. Thereafter, the impostor issues erroneous signals that are transplanted into unwanted, harmful products, including more virus.

The USDA National Animal Disease Center in Ames, Iowa, reported that "bovine immunodeficiency virus" (BIV) seems to be prevalent among dairy cattle in the south. Its structure and characteristics are closely related to HIV, the human AIDS virus. Preliminary research results indicate the virus may impair the immune systems of cattle just as AIDS does in patients with the acquired immune deficiency syndrome.

The USDA has been able to transfer infection among goats, and rabbits by blood transfer. Dairy herd records indicated that animals were being culled because of health problems and the incidence of lymphosarcoma (cancer) was quite high. Serological (antibody) tests for BIV, bovine leukemia virus and bovine syncytial virus proved that infections with all 3 of these bovine retroviruses were represented in herds. BLV and BIV are related to the only known human retroviruses: HTLV-I (causes human T-cell leukemia), HTLV-II (causes human hairy-cell leukemia) and HIV (causes human AIDS).

Government researchers say that the BIV poses no threat to human health. However, Jeremy Rifkin of the Foundation on Economic Trends, a watch-dog group, says that infected cattle should not be sent to slaughter any more, they should not be milked until long-term studies can be done, and that the USDA should set up an emergency protocol to start locating every infected cow in the United States and isolate it. There is no cure for BIV.

Virgil Hulse was a guest on Your Good Health with Dr. McDougall September 5, 1993. If you would like a tape of this program see the order form on page 11.

John McDougall's Comments

Infection of the food supply is a serious problem. Dairy products are often times infected with E. coli, salmonella, staphylococci, or tuberculosis. Too often, pasteurization fails to rid the food of these microbes, and they cause serious disease in humans.

Our dairy herds are infected with bovine immunodeficiency viruses (BIV) and bovine leukemia viruses (BLV). In the United States, results show an average 40% of beef herds and 64% of dairy herds are infected with BIV. Herds infected with the BIV are usually infected with the leukemia virus also (AIDS 6:759, 1992). Both viruses cross species lines infecting other animals. Nationwide and worldwide, leukemia is more common in the higher dairy consuming populations. The first case of BIV infection in humans was recently reported (Jacobs R. Can J Vet Res 56:353, 1992).

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