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Saving Yourself from Cancer – the Prostate (case in point)

I could have picked any one of the many kinds of cancer which threaten your life for the discussions that follow. One advantage of using prostate cancer for my example is that the male-dominated medical business has been more willing to accept the diet-cancer connection, and the short-comings of early detection and treatment, for this exclusively male-disease, than they have been for the predominantly female disease, breast cancer. Breast cancer is essentially the same disease in women as prostate cancer is in men (those of you interested in breast cancer should read the *McDougall Program for Women* book). As you read, you can assume that a parallel story can also be told for breast cancer, as well as, to some degree, for colon, kidney, and pancreatic cancer.

Prostate cancer is the leading kind of cancer and the second leading cause of cancer death for men (after lung cancer). The typical American man has a one in ten chance of being diagnosed with this disease, and a 3% chance of dying from it. As many as 30% of men *continued on page 2*

Fish is Not Health Food

(While you read this letter, picture me swimming at the Great Barrier Reef in Australia)

Many health professionals and scientists are recommending fish to improve your health and especially, to reduce your risk of suffering from heart disease. Japanese are the most-recognized example of a fish-eating population enjoying a low incidence of diseases common to

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in their 30s and 40s have prostate cancer; and nearly all men who reach the age of 100 show microscopic evidence of this disease.[1] I have taken two important steps to protect my own prostate: First, I eat a diet that supports a healthy prostate and discourages cancer growth (the subject of this newsletter) and;

Second, I avoid prostate screening tests, specifically the PSA (prostate specific antigen) test and the digital rectal exam (DRE) of my prostate (the subject of next month's newsletter).

Everything Causes Cancer; Nothing Causes Cancer

Because there is a large library of information that appears (after a superficial glance) to be completely contradictory, most people are thoroughly confused about how to protect themselves from cancer. An analogy from a 19th century medical mystery, solved by open-minded and clever detective work, will help me explain to you how to sort through the information and reduce your risk for most common cancers.

The Broad Street Pump

Cholera, an often-fatal infectious disease, spread throughout England beginning in 1831. At that time, this disease was believed to be from "miasma in the atmosphere." Miasma refers to foul or malodorous vapors (air) that cause disease. Four serious epidemics, taking tens of thousands of lives in England, occurred from then until 1854 when an anesthesiologist, John Snow, solved the mystery.

Dr. Snow noticed that the distribution of cases of cholera was largely confined to those people who obtained their water from one particular well, called the *Broad Street Pump*. He also observed that of the 530 inmates of the Poland Street workhouse, which was around the corner from the Broad Street Pump, only five people had contracted cholera; and that no one from the workhouse drank the pump water, for the building had its own well. Among the 70 workers in a Broad Street brewery, where the men were given an allowance of free beer every day, and consequently never drank water, there were no fatalities. These findings resulted in the identification of the well as the source of cholera and the removal of the handle from the well's pump – the epidemic of cholera ended.

Almost 30 years passed before it was recognized that the cause of this disease was a bacteria called *Vibrio cholerae;* however, this did not stop Dr. Snow and the community surrounding the Broad Street Pump from taking action that saved thousands of lives. The important message here is that even without identifying the exact agent causing the disease, they saved themselves by avoiding the well. Dr. Snow's work marks the beginning of the science of epidemiology.

Here is the analogy: the Western diet is the "Broad Street Pump" – And even though scientists may not agree upon the exact component(s) of the food that is (are) causing and promoting the cancer, all the evidence points to the food. Just as you would not need to know that *Vibrio cholerae* was the exact killing agent before you stopped drinking from the Broad Street Pump; you do not need to know exactly which one of, or combination of, the food-derived culprits are causing cancer before you avoid the Western diet (the well) and change to a healthy plant-based diet.

The World Picture

The link between diet and prostate cancer is shown in many ways, but the studies of populations of people worldwide are some of the most convincing. Prostate cancer is rare in parts of the world where people eat a low-fat, nearly-vegetarian diet. For example, there is 120 times less incidence of prostate cancer in China compared to men in the United States.[2] However, as these populations of Chinese people change to the Western diet, their risk increases proportionally[3]. This was demonstrated in one recent study in China where they found a man's chance for developing prostate cancer increased with increasing intake of animal products and dietary fats, both saturated (animal) and unsaturated (vegetable).[4] Also, among foreign-born Asians, the risk of prostate cancer increases with years of residence in the United States, as well as with increasing saturated (animal) fat intake.[5]

Many Facets of the Rich Diet

As you read through the evidence you will see there are many components of the Western diet including fat, animal protein, cholesterol, and chemicals that are believed to initiate and promote cancer. Likewise, there are many healthy components missing from this rich diet, such as powerful antioxidants, phytochemicals, and dietary fiber, which protect us from cancer. People are confused because there are so many different theories concerning the agent(s) causing prostate cancer – yet if you take one giant step back you will see they are all talking about the same diet – the rich Western diet. Let's look at some of the suspected culprits connecting our diet with cancer, and more specifically, prostate cancer.

The Dairy Connection:

After nearly a century of cow's milk being marketed as "Nature's Most Perfect Food," you may be surprised to learn that dairy products have consistently been associated with an increased risk of prostate cancer. A June 1999 article in the journal *Alternative Medicine Reviews* reported that the relationship of prostate cancer worldwide was more strongly related to the consumption of nonfat dairy products than to any other food product.[6] In one recent study, from the Harvard School of Public Health, high consumption of dairy products was associated with a 50% increase in the risk of prostate cancer.[7] Even though the exact mechanism for the relationship remains unknown, one possibility involves vitamin D. This vitamin is known to protect us from prostate cancer. Consuming cal-

cium (as with dairy foods) lowers the circulating levels of this vitamin, eliminating its protective qualities.

Another mechanism linking dairy products and prostate cancer is a very powerful growth-stimulating hormone, known as *insulin-like growth factor-1* (IGF-1). This hormone is increased in the body by the consumption of protein, and especially animal protein. However, dairy products are the worst offenders of all the foods we eat for raising this cancer-promoter.[8] They can easily increase the levels in our bodies by 10% from consuming amounts of dairy products commonly recommended to keep our bones strong – and this fact comes from studies paid for by the dairy industry.[9,10] On the other hand, vegan men have been found to have a 9% lower level of IGF-1 than men who follow a diet with meat and dairy products.[11]

Dairy products may also influence prostate cancer development and growth by their high content of environmental chemicals, by their saturated fat, and/or by raising testosterone levels.[12] *But, the exact details are practically unimportant for us to take sensible action and eliminate these foods from our diet.*

The Beef Connection:

A high intake of both red meat and dairy products has been associated with a two-fold elevation in risk of metastatic prostate cancer, compared to low intake of both products, but it is not clear whether the high fat content of these foods or some other component is responsible.[13,14] Beef fat (tallow) has been shown to be especially prostate cancer-promoting, when compared to other kinds of fat in animal studies.[15] Beef may also influence cancer development by increasing IGF-1 levels, its high environmental chemical content, by raising testosterone levels, and/or by the chemicals produced through cooking. *But, the exact details are practically unimportant for us to take sensible action and eliminate these foods from our diet.*

The Fat Connection:

Some of the earliest scientific research discovered that high-fat diets increase the risk of cancer, including prostate cancer. The mechanisms vary. Fatty foods are high in calories and excess calories promote cancer, possibly because they promote growth of all kinds of tissues, including the growth of cancer cells. Vegetable fats suppress the immune system, thus encouraging cancer growth. High-fat diets are high in chemical contaminants, and they raise hormone levels – like increasing the production of the male hormone, testosterone.

Fats of all kinds, including vegetable fats, including “health-food” olive and flaxseed oil, are easily oxidized into highly reactive molecules which trigger a host of cancer-causing processes, including damaging our DNA.[16] Fortunately, these reactions are stopped by antioxidants, such as vitamin E, lycopene (found in red pigmented plants), and selenium, found in plant foods.

Thus, fats of all kinds may also influence cancer development by a variety of mechanisms. *But, the exact details are practically unimportant for us to take sensible action and eliminate these foods from our diet.*

The Testosterone Connection:

Testosterone is a sex hormone produced by the testicles. The prostate gland requires this hormone to grow and function properly. Men who lose both testicles early in life, and who don't have testosterone replacement, do not get prostate cancer. Men with prostate cancer have higher than average levels of testosterone. Furthermore, stimulation with these male hormones over a period of time causes prostate cancer to grow, like throwing gasoline on a fire; and an important corollary is that lowering hormone stimulation over time will prevent prostate cancer and slow the growth of any cancer that has already developed.[17,18] These observations have led to the development of widely-prescribed, anti-testosterone drugs for the prevention and treatment of prostate cancer. The safest and most effective way to keep male hormones under control is to encourage men to eat a low-fat, high fiber diet.[19-22] There are several mechanism by which testosterone is reduced in the body with a healthy diet; for example; plant substances known as isoflavones inhibit the production of testosterone.[23] But remember like John Snow and the Broad Street Pump, *the exact details of how raised testosterone activity, caused by the rich Western diet, affects cancer growth are practically unimportant for us to take sensible action and eliminate hormone-enhancing foods from our diet.*

The Cooking Connection:

Cooking animal muscles, including beef, poultry, and fish at high temperatures by broiling, roasting or frying, causes the production of very potent cancer-causing substances, such as *heterocyclic amines*. These heat-created chemicals can damage the genetic materials inside the cells (DNA), causing mutations and cancer -- and have been tied to the development of prostate cancer.[24,25] Importantly, eating vegetables, notably broccoli, will increase the metabolism of these cancer-causing chemicals and remove them from the body so they are no longer hazardous.[26] *But, the exact details of how these cooking-derived chemicals promote cancer are practically unimportant for us to take sensible action and eliminate these foods from our diet.*

The Chemical Connection:

A number of chemicals found in the environment influence the development of prostate cancer. For example, chemicals, known as *organochlorines,* mimic the role of hormones binding to hormone receptors in our sex organs, including the prostate, and promote cancer growth. Organochlorines, first produced in the early 1900's, have been made on a large scale since the Sec-

ond World War, when they were used as poison gases. They include DDT, PCBs, dioxin, Agent Orange and thousands of lesser-known chemical products and byproducts. Each year in North America, 13 million tons of chlorine are produced and used to chlorinate drinking water and are employed in the production of plastics and the bleaching of paper. These environmental substances are also called *xenoestrogens* and *endocrine disrupters*.

Over the past 20 years, the documented increase in the disorders of male sexual organs, such as hypospadias (the urethra ends at the base of the penis), cryptorchidism (undescended testis), poor semen quality, testicular cancer and micropenis, has led to the suspicion that environmental chemicals are detrimental to normal male genital development. Increasing rates of prostate cancer may also result in part from these and other man-made chemicals.[27]

The higher on the food chain, the higher the concentration of these environmental chemicals in the ecosystem. The concentrating process, known as *biomagnification*, occurs because these chemicals are attracted to fat and stored in body fat. So, when the cattle eat the chemicals on the grass, the chemicals become concentrated in the cattle's fatty tissues. After we eat the beef fat most of these chemicals are stored in our fat. Estimates are 80% to 90% of the chemicals in our bodies come from eating meat, poultry, fish, and dairy products. Understand that this accumulation is lifelong, and therefore, what you do as a child may come to haunt you as an adult with cancer and birth defects for your children. Fortunately, eating a clean diet allows these chemicals to leave the body. *Thus, the exact details on which chemicals and how they act are practically unimportant for us to take sensible action and eliminate foods high on the food chain (meats and dairy products) from our diet and replace them with foods low on the food chain (plant foods).*

Plant-Food Protection Connection:

Vegetables contain dozens of discovered, and hundreds of to-be-discovered, substances, called *phytochemicals*, which play a protective role on our tissues with numerous anticancer actions.[16] In one important study, the strongest protector from prostate cancer was related to the consumption of tomatoes -- the lycopene in tomatoes acted as an antioxidant, preventing prostate cancer.[6]

One well studied group of phytochemicals, known as *isoflavones,* has been found to inhibit the growth of prostate cancer in mice.[29] After feeding the mice soy products, examination of the animal's prostate tissues under a microscope showed reduced cell replication, increased cell death, and a decrease in the number of blood vessels that go to the tumor – all indicating a reduction in already established cancer. The low rate of prostate cancer in Japanese men is often attributed to the large quantities of these natural plant-derived chemicals in their diet of rice, vegetables, and soy products. *Obviously, the exact details on how these phytochemicals act to keep our tissues healthy and cancer-free are practically unimportant for us to take sensible action by flooding our cells with this*

life-giving assistance.

What if you have cancer already? Can diet help?

Because of the limited efficacy of present day treatments for prostate cancer, the medical community has encouraged doctors to look at nontraditional therapies, such as diet. Diet therapy has reached a level of acceptance where the respected *Journal of Urology* prints, "...dietary fat intake modification may be a promising intervention to prevent prostate cancer progression"[31] This statement is based in part on the fact that a study of 384 men diagnosed with prostate cancer found those who consumed the least amount of animal fat had one-third the risk of dying compared to those who ate the highest fat intake.[32]

The benefits of healthier living for men who already have prostate cancer can be seen in a simple laboratory experiment. Cancer cells placed in a dish, then covered with the serum (blood) of overweight men, *grew more slowly <u>after</u>* these men had followed a low-fat, high-fiber diet and exercised for only 11 days; compared to incubation of these same cancer cells in serum taken before the intervention.[33] Diet and exercise cause changes in the blood and body that inhibit cancer cell growth.

PSA (prostatic specific antigen) is a sugar-protein often elevated in the blood of men with prostate cancer and the level of this hormone reflects the rate of growth of the cancer. A rising level indicates a losing battle. In one study, men with elevated PSA levels, but without cancer, who changed to a low-fat diet, high in soy products, showed the average serum PSA level reduction from 6.9 ng/ml to 5.6 ng/ml after 3 months.[34] In another study of men with prostate cancer, the rate of rise of PSA decreased in 8 of 10 men, while 3 had a decrease in absolute PSA level, when following a low-fat, plant-based diet. More evidence that this intervention slows the rate of tumor progression.[35]

A study of men with prostate cancer found that after an average duration of 34 days on a low-fat diet (20% fat), supplemented with an ounce of flaxseeds daily, there was a decrease in total serum cholesterol, total testosterone, and free androgen index (a measurement of male hormone activity).[36] PSA levels decreased slightly, and most importantly, the actual activity of cancer cell growth, as seen under the microscope, decreased in those on the diet. The longer the men with cancer were on the diet, the healthier the growth pattern of the cancer cells appeared. Finally, ongoing research by Dr. Dean Ornish, using a low-fat, vegan diet, has already produced encouraging results for men with prostate cancer.[37,38]

Logically, it would make about as much sense for cholera victims, after learning the truth, to continue drinking from the polluted Broad Street Pump, as it would to continue feeding cheeseburgers to a person with cancer.

Broad Street Food Pump = the Western Diet

After reading this article, you now are able to step back and look at the evidence from an expansive perspective and see that there is consistency in what once seemed to be disjointed messages. Choosing the right foods is 100% within your control, costs nothing (actually reduces your food bill by 40%), causes painless permanent weight loss, and results in a dramatic reduction in other diseases, like heart disease, obesity, diabetes, and arthritis. Today seems like a good day to make some healthy changes. What do you think?

References:

1) Barry MJ. Should Medicare provide reimbursement for prostate-specific antigen testing for early detection of prostate cancer? Part I: Framing the debate. *Urology.* 1995 Jul;46(1):2-13.

2) Wang Y. Decreased growth of established human prostate LNCaP tumors in nude mice fed a low-fat diet. *J Natl Cancer Inst.* 1995 Oct 4;87(19):1456-62.

3) Sung JF. Risk factors for prostate carcinoma in Taiwan: a case-control study in a Chinese population. *Cancer.* 1999 Aug 1;86(3):484-91.

4) Lee MM. Case-control study of diet and prostate cancer in China. *Cancer Causes Control.* 1998 Dec;9(6):545-52.

5) Whittemore AS. Prostate cancer in relation to diet, physical activity, and body size in blacks, whites, and Asians in the United States and Canada. *J Natl Cancer Inst.* 1995 May 3;87(9):652-61.

6) Grant WB. An ecologic study of dietary links to prostate cancer. *Altern Med Rev.* 1999 Jun;4(3):162-9

7) Chan JM. Dairy products, calcium, phosphorous, vitamin D, and risk of prostate cancer (Sweden) *Cancer Causes Control.* 1998 Dec;9(6):559-66.

8) Holmes MD. Dietary Correlates of Plasma Insulin-like Growth Factor I and Insulin-like Growth Factor Binding Protein 3 Concentrations. *Cancer Epidemiol Biomarkers Prev* 2002 Sep;11(9):852-61

9) Heaney RP. Dietary changes favorably affect bone remodeling in older adults. *J Am Diet Assoc.* 1999 Oct;99(10):1228-33.

10) Cadogan J. Milk intake and bone mineral acquisition in adolescent girls: randomised, controlled intervention trial. *BMJ.* 1997 Nov 15;315(7118):1255-60.

11) Allen NE. Hormones and diet: low insulin-like growth factor-I but normal bioavailable androgens in vegan men. *Br J Cancer.* 2000 Jul;83(1):95-7.

12) Kaaks R. Plasma androgens, IGF-1, body size, and prostate cancer risk: a synthetic review. *Prostate Cancer Prostatic Dis.* 2000 Nov;3(3):157-172.

13) Michaud DS. A prospective study on intake of animal products and risk of prostate cancer. *Cancer Causes Control.* 2001 Aug;12(6):557-67.

14) Giovannucci E. A prospective study of dietary fat and risk of prostate cancer. *J Natl Cancer Inst.* 1993 Oct 6;85(19):1571-9.

15) Mori T. Beef tallow, but not perilla or corn oil, promotion of rat prostate and intestinal carcinogenesis by 3,2'-dimethyl-4-aminobiphenyl. *Jpn J Cancer Res.* 2001 Oct;92(10):1026-33.

16) Fleshner NE. Diet, androgens, oxidative stress and prostate cancer susceptibility. C*ancer Metastasis Rev.* 1998-99;17(4):325-30.

17) DePrimo SE. Prevention of prostate cancer. *Hematol Oncol Clin North Am.* 2001 Jun;15(3):445-57.

18) Brawley OW. Prostate cancer prevention trials in the USA. *Eur J Cancer.* 2000 Jun;36(10):1312-5.

19) Howie BJ. Dietary and hormonal interrelationships among vegetarian Seventh-Day Adventists and nonvegetarian men. *Am J Clin Nutr.* 1985 Jul;42(1):127-34.

20) Key TJ. Testosterone, sex hormone-binding globulin, calculated free testosterone, and oestradiol in male vegans and omnivores. *Br J Nutr.* 1990 Jul;64(1):111-9.

21) Habito RC. Postprandial changes in sex hormones after meals of different composition. *Metabolism.* 2001 May;50(5):505-11.

22) Belanger A. Influence of diet on plasma steroids and sex hormone-binding globulin levels in adult men. *J Steroid Biochem.* 1989 Jun;32(6):829-33.

23) Krazeisen A. Human 17beta-hydroxysteroid dehydrogenase type 5 is inhibited by dietary flavonoids. *Adv Exp Med Biol.* 2002;505:151-61.

24) Ferguson LR. Meat consumption, cancer risk and population groups within New Zealand. *Mutat Res.* 2002 Sep 30;506-507:215-24.

25) Hein DW. Association of prostate cancer with rapid N-acetyltransferase 1 (NAT1*10) in combination with slow N-acetyltransferase 2 acetylator genotypes in a pilot case-control study. *Environ Mol Mutagen.* 2002;40(3):161-7.

26) Felton JS. Human exposure to heterocyclic amine food mutagens/carcinogens: relevance to breast cancer. *Environ Mol Mutagen.* 2002;39(2-3):112-8.

27) Skakkebaek NE. Endocrine disrupters and testicular dysgenesis syndrome. *Horm Res.* 2002;57 Suppl 2:43.

28) Griffiths K. Certain aspects of molecular endocrinology that relate to the influence of dietary factors on the pathogenesis of prostate cancer.
Eur Urol. 1999;35(5-6):443-55.

29) Zhou JR. Soybean phytochemicals inhibit the growth of transplantable human prostate carcinoma and tumor angiogenesis in mice. *J Nutr.* 1999 Sep;129(9):1628-35.

30) Lee CT. The role of dietary manipulation in biochemical recurrence of prostate cancer after radical prostatectomy. *Semin Urol Oncol*. 1999 Aug;17(3):154-63.

31) Bairati I. Dietary fat and advanced prostate cancer. *J Urol*. 1998 Apr;159(4):1271-5.

32) Fradet Y. Dietary fat and prostate cancer progression and survival. *Eur Urol.* 1999;35(5-6):388-91.

33) Tymchuk CN. Evidence of an inhibitory effect of diet and exercise on prostate cancer cell growth. *J Urol.* 2001 Sep;166(3):1185-9.

34) Tsutsumi M. A low-fat and high soybean protein diet for patients with elevated serum PSA level: alteration of QOL and serum PSA level after the dietary intervention. *Hinyokika Kiyo.* 2002 Apr;48(4):207-11.

35) Saxe GA. Can diet in conjunction with stress reduction affect the rate of increase in prostate specific antigen after biochemical recurrence of prostate cancer? *J Urol.* 2001 Dec;166(6):2202-7.

36) Demark-Wahnefried W. Pilot study of dietary fat restriction and flaxseed supplementation in men with prostate cancer before surgery: exploring the effects on hormonal levels, prostate-specific antigen, and histopathologic features.
Urology. 2001 Jul;58(1):47-52.

37) Ornish DM. Dietary trial in prostate cancer: Early experience and implications for clinical trial design. *Urology.* 2001 Apr;57(4 Suppl 1):200-1.

38) Personal communication with Dean Ornish.

Fish is Not Health Food

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Americans (heart disease, breast cancer, diabetes, etc.), and a trim appearance. Plus, people living in Japan have the longest life expectancy of any country in the world. But, I believe these advantages are in spite of the fish, rather than because of the fish. Japanese are healthy primarily because they eat a diet based on rice with lots of vegetables – fortunately for them; they eat fish only as a condiment.

A Muscle is a Muscle

Fish is the muscle of a cold-blooded, animal with fins and gills. The major components of fish are fat and protein. There is no carbohydrate, no dietary fiber, or no vitamin C in fish. Because many fish are high on the food chain they are highly contaminated with environmental chemicals – it is not unusual to read in the newspaper that certain kinds of fish, such as swordfish, tuna, or shark, contain sufficient levels to be considered a health hazard. For example, because of their high content of mercury, the Food and Drug Administration (FDA) has advised women who are pregnant or plan to become pregnant to not eat swordfish, king mackerel, tile fish, shark, or fish from mercury contaminated areas.

The advantages of fish over beef, chicken or pork are largely mythical[1]

Fish Fat:

Fish is high in fat – often 60% of the calories come from fat. This fat is effortlessly incorporated into a person's body fat – contributing to the risk of obesity. Fish fat is usually associated with a low risk of cancer. However, there is considerable evidence that fish fat (omega-3 fat) will increase a person's risk of cancer and also will increase the risk of metastasis (spread of cancer to other parts of the body).[2-5] Fish fat is known to paralyze the actions of insulin and increase the tendency for high blood sugars and eventually diabetes, known to suppress the immune system, and known to increase the tendency for serious bleeding (see below under fish oil supplements).

Fish Cholesterol:

Like all animal products, fish are high in cholesterol. Based upon a weight of 100 grams, mackerel contains 95 mg of cholesterol, haddock 65 mg, tuna 63 mg, and halibut 50 mg. This compares to beef at 70 mg, chicken 60 mg, and pork at 70 mg.[1] However, when the comparison is made based on calories, fish (50 mg/100 calories) is much higher in cholesterol than pork (24 mg/100 calories), beef (29 mg/100 calories), or chicken (44 mg/100 calories).[1] Comparisons based upon calories are much more relevant because we eat our diet based upon calories (a 2000 calories diet) rather than based on the weight of the food (a 5 pound diet). Feeding fish to

people, instead of beef, pork or chicken, causes predictable increases in their blood cholesterol to levels that are virtually the same.[6]

Fish Protein:

Fish is high in animal protein and the kinds of protein that make up fish are very acidic in nature. The high acid load caused by the ingestion of fish results in bone loss, which eventually leads to osteoporosis.[7] Eskimos are among the highest consumers of fish on Earth; they also have the highest rates of osteoporosis of any people on our planet. After the age of 40 years, Eskimos of both sexes have from a 10% to 15% greater bone loss than do whites in the US of the same age.[8] The Eskimos consume up to 2,500 mg of calcium a day, mostly in the form of fish bones – this large calcium intake is offset by the high protein content (250 to 400 grams a day) – much of this coming from fish.

I have heard it said that the negative effects of protein on bone health are only caused by synthetic mixtures of proteins devised in the laboratory, and are not caused by the real foods that people eat, such as chicken, turkey, beef or fish. People making such statements fail to thoroughly review the scientific literature (and by no coincidence, most are advocates of high-protein diets).

To support their claim of no effect of whole animal foods on bone loss they will quote the work of Herta Spencer from the mid 1970s. She published 2 often-sited studies on the subject – one was paid for by the National Dairy Council[9] and the other by the National Livestock and Meat Board.[10] Her work has been rightly criticized because close scrutiny reveals areas of serious inconsistency. For example, in the study paid for by the National Dairy Council,[9] she used inappropriate subjects and reported conclusions in contrast to her results. Of the six subjects in the study, one had osteoporosis and the urinary calcium so low as to suggest calcium malabsorption. Another subject carried a diagnosis of hypercalcuria (very high levels of calcium in the urine), making his data invalid. Of the remaining four subjects, three subjects did experience increased calcium loss during the high protein diet.[11]

Studies on human subjects using whole foods, such as beef, chicken and turkey have produced negative calcium balances of 77 mg/day.[12] In another study, the addition of 5 ounces of skipjack tuna a day (34 grams of animal protein) increased the loss of urinary calcium by 23%.[13] Furthermore, scientific evidence shows that the body does not adjust (compensate) with time while on high protein diets, and the losses continue for as long as the diet is high in animal protein.[14]

Infectious Agents

In the United States of America, seafood ranked third on the list of products which caused foodborne disease between 1983 and 1992.[15] Several illnesses are a result of toxic algal blooms; for

example, the most commonly reported marine toxin disease in the world is ciguatera – associated with consumption of contaminated reef fish such as barracuda, grouper, and snapper. There are about 20,000 cases world-wide. Ciguatera presents primarily as diarrhea, abdominal cramps, vomiting, paresthesias, pain in the teeth, pain on urination, blurred vision, arrhythmias, and heart block Another common problem from fish is Scombroid poisoning. This type of food intoxication is caused by consuming scombroid and scombroid-like marine fish species that have begun to spoil with the growth of certain types of bacteria. Fish of the Scombridae family are tuna and mackerel.

Environmental Contaminants

Fish eat other fish that eat plankton and algae, which are contaminated with environmental pollutants. Because these chemicals are attracted and concentrated in the fat of the fish, they become even more concentrated as the chemicals move up the food chain, by a process known as *bio-magnification.* The fish most heavily laden with chemicals are those such as the tuna, swordfish and shark, which are predators of smaller sea life.

Unfortunately, those most affected by all this contamination are the ones highest on the food chain – our unborn and breast-feeding children, living off of their mother. Polychlorinated biphenyl exposure (PCB) of children born to women who had eaten relatively large quantities of Lake Michigan fish resulted in poorer intellectual function of the children, compared to other children, shown by lower scores on a preschool IQ test, and poorer verbal IQ and reading comprehension at 11 years of age.[17]

Mercury Contamination and Heart Disease:

Methylmercury (MeHg) is a global environmental problem and is listed by the International Program of Chemical Safety as one of the six most dangerous chemicals in the world's environment. A recent article in the *New England Journal of Medicine* warned that many fish contain such high levels of mercury that they may actually increase your risk of a heart attack.[18] In this study, toenail clippings from men with a history of a previous heart attack provided evidence of the person's accumulation of mercury. Those with high mercury levels had more than double the risk of a heart attack compared with those who had low levels.

Mercury is known to be toxic to the nervous system and kidneys, but long-term exposure may also accelerate the development of arthrosclerosis (hardening of the arteries) by promoting free radical damage to the arteries. Free radicals are highly reactive species of common substances, such as fats and LDL-cholesterol, which donate electrons to tissues and cause severe damage leading to many common diseases. Fish can be a major source of mercury in a very toxic form called methylmercury. This substance may counteract all the hypothesized benefits of omega-3

fats on prevention of heart disease.

Fish Oil Supplements

Unless they have been specially processed to remove cholesterol, fish oils contain large amounts of cholesterol and will raise the blood cholesterol of people. Even when the fish oil is purified of cholesterol, the omega-3 fat itself will cause the LDL-bad cholesterol to rise.[19,20] The final results are published in a study on the effects of fish oil on artery closure, where the authors concluded, "Fish oil treatment for 2 years does not promote favorable changes in the diameter of atherosclerotic coronary arteries."[21]

To get the cholesterol lowering effects of fish oil you need to consume about 2.5 to 3.5 ounces daily, and that represents 675 to 900 extra calories daily.[1] Fish fat is easily stored and I have seen patients of mine gain 5 pounds when they added fish oil to their "heart disease prevention program."

Furthermore, fish oils suppress the immune system, which can promote cancer and increase susceptibility to viral infections; and can cause severe bleeding.[22,23] Fish fat also inhibits the action of insulin, thus increasing a person's tendency to suffer from diabetes.[24]

Our Future and that of the Poor Fish

As you are reading this article, I want you to know, I am SCUBA diving on the Great Barrier Reef in Australia (February 2003). I love fish – I love to watch them and I love to photograph them, but I do not like to kill or eat them. I am very concerned that fish, in too many minds, has become "health food." It is not healthy for humans to eat and it is certainly not healthy for the fish. I have shown my children the beauty of the oceans on our many adventures to Costa Rica, Panama, Hawaii and the Cayman Islands. I worry that my children will not have the opportunity to show their children the same beauty -- unless we start telling the truth about fish.

References:

1) J Pennington. Bowes & Church's Food Values of Portions Commonly Used. 17th Ed. Lippincott. Philadelphia- New York. 1998.

2) Griffini P. Dietary omega-3 polyunsaturated fatty acids promote colon carcinoma metastasis in rat liver. *Cancer Res*. 1998 Aug 1;58(15):3312-9.

3) Klieveri L. Promotion of colon cancer metastases in rat liver by fish oil diet is not due to reduced stroma formation. *Clin Exp Metastasis*. 2000;18(5):371-7.

4) Young MR. Effects of fish oil and corn oil diets on prostaglandin-dependent and myelopoiesis-associated immune suppressor mechanisms of mice bearing metastatic Lewis lung carcinoma tumors. *Cancer Res*. 1989 Apr 15;49(8):1931-6.

5) Coulombe J. Influence of lipid diets on the number of metastases and ganglioside content of

H59 variant tumors. *Clin Exp Metastasis*. 1997 Jul;15(4):410-7.

6) Davidson MH. Comparison of the effects of lean red meat vs lean white meat on serum lipid levels among free-living persons with hypercholesterolemia: a long-term, randomized clinical trial. *Arch Intern Med.* 1999;159:1331-8.

7) Barzel US, Massey LK. Excess dietary protein can adversely affect bone. *J Nutr*. 1998;128:1051-3.

8) Mazess R. Bone mineral content of North Alaskan Eskimos. *Am J Clin Nutr.* 1974 Sep;27(9):916-25.

9) Spencer H. Effect of a high protein (meat) intake on calcium metabolism in man. *Am J Clin Nutr.* 1978 Dec;31(12):2167-80.

10) Spencer H. Further studies of the effect of a high protein diet as meat on calcium metabolism. *Am J Clin Nutr.* 1983 Jun;37(6):924-9.

11) Marcus R. The relationship of dietary calcium to the maintenance of skeletal integrity in man-an interface of endocrinology and nutrition. *Metabolism.* 1982 Jan;31(1):93-102.

12) Cummings J. The effect of meat protein and dietary fiber on colonic function and metabolism. I. Changes in bowel habit, bile acid excretion, and calcium absorption. *Am J Clin Nutr.* 1979 Oct;32(10):2086-93.

13) Robertson W. The effect of high animal protein intake on the risk of calcium stone-formation in the urinary tract. *Clin Sci (Lond).* 1979 Sep;57(3):285-8.

14) Allen L. Protein-induced hypercalciuria: a longer term study. *Am J Clin Nutr.* 1979 Apr;32(4):741-9.

15) Lipp EK. The role of seafood in foodborne diseases in the United States of America. *Rev Sci Tech.* 1997 Aug;16(2):620-40.

16) Aguilar A. Geographical and temporal variation in levels of organochlorine contaminants in marine mammals. *Mar Environ Res.* 2002 Jun;53(5):425-52. Review.

17) Jacobson JL. Association of prenatal exposure to an environmental contaminant with intellectual function in childhood. *J Toxicol Clin Toxicol.* 2002;40(4):467-75.

18) Guallar E. Mercury, fish oils, and the risk of myocardial infarction. *N Engl J Med.* 2002 Nov 28;347(22):1747-54.

19) Harris W. Effects of a low saturated fat, low cholesterol fish oil supplement in hypertriglyceridemic patients. A placebo-controlled trial. *Ann Intern Med.* 1988 Sep 15;109(6):465-70.

20) Wilt TJ. Fish oil supplementation does not lower plasma cholesterol in men with hypercholesterolemia. Results of a randomized, placebo-controlled crossover study. *Ann Intern Med.* 1989 Dec 1;111(11):900-5.

21) Sacks F. Controlled trial of fish oil for regression of human coronary atherosclerosis. HARP Research Group. *J Am Coll Cardiol.* 1995 Jun;25(7):1492-8.

22) Calder PC. Polyunsaturated fatty acids, inflammation, and immunity. *Lipids.* 2001;36:1007–24.

23) Clarke J. Increased incidence of epistaxis in adolescents with familial hypercholesterolemia treated with fish oil. *J Pediatr.* 1990 Jan;116(1):139-41.

24) Hendra TJ. Effects of fish oil supplements in NIDDM subjects. Controlled study. *Diabetes Care.* 1990 Aug;13(8):821-9.

Niacin – A Time Honored Treatment for Cholesterol and Triglycerides

Present day treatment with the most popular cholesterol lowering agents, called "statins,"* is far from ideal. In addition to the high costs, requirement of a doctor's prescription, and side effects, intensive therapy is still associated with progression of artery disease based upon heart scans (serial electron beam tomography - EBT). A recent study using enough medication to reduce the total cholesterol close to an ideal level of 150 mg/dl unfortunately found a 7.5% to 11% increase in the progression of artery disease over a one year interval.[1] In addition to the "statin" medication, half of the people were also on niacin. There was no attempt to assess the benefits of the "statins" compared to the niacin in this study.

Without intervention it has been found that artery disease progresses at a rate of 24% to 52% per year based on a heart scan.[1] The most optimistic report of the benefits of cholesterol-lowering therapy found that those people who were able to lower their LDL "bad" cholesterol below 120 mg/dl showed a 7%/year decrease in artery disease compared to a 52%/year progression of disease in untreated patients based on a heart scan.[2] (Simply through a low-fat, no-cholesterol diet alone most people are able to lower their LDL cholesterol well below 120 mg/dl – an ideal level I strive for in my patients is an LDL-cholesterol below 85 mg/dl – and total cholesterol below 150 mg/dl.)

Niacin is a vitamin (vitamin B3, also called nicotinic acid). It was first introduced in 1954 as a lipid lowering agent and was the first drug found to prevent heart disease. Niacin has been found to be very effective at changing multiple cholesterol and triglyceride characteristics to more favorable forms – making it an ideal agent for treating some of the signs (risk factors) that predict your risk of a heart attack and stroke. By inhibiting the production of very-low-density lipoprotein in the liver and blocking the release of fatty acids from our body fat tissues (adipose tissues), it reduces the level of LDL "bad" cholesterol. At the same time, it will lower triglycerides and raise HDL "good" cholesterol. Niacin is the most potent drug available to raise HDL cholesterol.

Common Results:

LDL – down 10 to 25%

Triglycerides – down 20 to 50%

HDL – up 15 to 35%

More importantly, niacin has been shown to significantly reduce coronary events (like heart attacks) and total mortality[3,4] – approximately a 27% reduction of both. Some evidence suggests that niacin therapy combined with a cholesterol binding agent (colestipol) is as effective, or maybe slightly better than, the "statins."[5]

Niacin is available in 3 formulations:

Immediate-release (IR)

Sustained-release (SR)

Extended-release (ER)

The side effects that most limit its use are *flushing*, which is most often seen with IR formulations, and *hepatotoxicity* (liver damage), associated with SR formulations. Niacin ER has a delivery system allowing absorption rates intermediate to that of niacin IR and SR. As a result, niacin ER achieves the efficacy of niacin IR with a reduced incidence of flushing and without the hepatic effects seen with niacin SR.

Side effects also include itching, rash, skin pigmentation, headache, abdominal pain, diarrhea, indigestion, nausea, vomiting, sore throat, runny nose, elevated liver function tests, and an increase in blood sugar and uric acid levels. With the older sustained-release (SR) forms, the risk of toxic effects on the liver is as high as 52% of patients using this formulation.[6] (Liver toxicity is seen as a rise in common liver function tests – SGOT.) I recommend against using these formulations. Liver toxicity is an indication to stop using any form of niacin.

Many current recommendations are to not use niacin in patients with diabetes because of the effects on blood sugar. However, because of the benefits and only mild rises seen in blood sugar levels, many investigators[7,8] are recommending its use in diabetes – certainly close medical-monitoring would be appropriate.

Based on efficacy and side effects the best preparation available today is Niaspan – an extended release (ER) form of niacin. This is a prescription medication, and considering the potential side effects of niacin, I usually recommend people have doctor's supervision with regular check-ups on their cholesterol, triglycerides, blood sugar, and liver function tests. The dosage is begun at 500 mg in the evening and increased every 1 to 4 weeks by 500 mg until a maximum dosage of 2500 to 3000 mg daily is reached. This drug is found to be very effective at dosages of 1000 to 1500 mg per day. However, few benefits are seen after 2500 mg – so this should be the maximum dosage. With continued use most people develop a tolerance to the flushing – it disappears. Side effects can be reduced by taking niacin with food and by taking it 30 minutes after one adult aspirin.

The cost of 500 mg dosage of Niaspan is $25.97 for 30 capsules and $69.57 for 90 capsules from one on-line pharmacy.[9] Niacin should be taken at bedtime as a single dose, because during the night (while sleeping) is when most of cholesterol and triglyceride synthesis takes place.

Immediate release (IR) niacin has 4 times more flushing reported with its use than does the ER form, but is much less expensive. A bottle of 100 capsules of 500 mg IR niacin can be purchased for about $8. I wholeheartedly support the use of the IR form (over the ER form) for people who

can adjust to the side effects. Even though this form is sold without prescription, I recommend doctor's supervision with its use because of the side effects.

Although niacin has been shown to reduce risk factors and to lower your risk of heart attacks and death, it should be used only as second-line therapy behind a low-fat, no-cholesterol diet, exercise, and clean habits. Diet and exercise have been shown to effectively reduce your risk of heart attacks and reverse the underlying disease of atherosclerosis – while at the same time being free of side effects and cost-free, and effective for many other health problems (obesity, diabetes, arthritis, high blood pressure, etc.).[10] The reason diet and lifestyle are so effective is they correct the cause of the problems – and no one would be so naive as to believe heart disease is due to "niacin deficiency."

* Statins commonly prescribed include: Zocor, Lescol, Pravachol, Lipitor, and Mevacor.

References:

1) Hecht HS. Comparison of the effects of atorvastatin versus simvastatin on subclinical atherosclerosis in primary prevention as determined by electron beam tomography. *Am J Cardiol.* 2003 Jan 1;91(1):42-5.

2) Callister TQ. Effect of HMG-CoA reductase inhibitors on coronary artery disease as assessed by electron-beam computed tomography. *N Engl J Med.* 1998 Dec 31;339(27):1972-8.

3) Canner PL . Fifteen year mortality in Coronary Drug Project patients: long-term benefit with niacin. *J Am Coll Cardiol*. 1986 Dec;8(6):1245-55.

4) Blankenhorn DH. Beneficial effects of combined colestipol-niacin therapy on coronary atherosclerosis and coronary venous bypass grafts. *JAMA.* 1987 Jun 19;257(23):3233-40.

5) Knopp R. Evaluating niacin in its various forms. *Am J Cardiol.* 2000 Dec 21;86(12A):51L-56L.

6) McKenney JM. A comparison of the efficacy and toxic effects of sustained- vs immediate-release niacin in hypercholesterolemic patients. *JAMA.* 1994 Mar 2;271(9):672-7.

7) Elam MB. Effect of niacin on lipid and lipoprotein levels and glycemic control in patients with diabetes and peripheral arterial disease: the ADMIT study: A randomized trial. Arterial Disease Multiple Intervention Trial. *JAMA.* 2000 Sep 13;284(10):1263-70.

8) Grundy SM. Efficacy, safety, and tolerability of once-daily niacin for the treatment of dyslipidemia associated with type 2 diabetes: results of the assessment of diabetes control and evaluation of the efficacy of niaspan trial. *Arch Intern Med.* 2002 Jul 22;162(14):1568-76.

9) http://www.drugstore.com

10) McDougall J. The McDougall Program for a Healthy Heart. Plume 1998.

Vegan Diet Damages Baby's Brain – Sensationalism!

People Love to Hear Good News About Their Bad Habits!

National news agencies carried a story about a January 31, 2003 report from the CDC on two young children who developed problems with brain development as a result of breast feeding from mothers on a vegan (pure vegetarian) diet. The cause was suspected to be vitamin B-12 deficiency and in both cases treatment with B-12 corrected most of their troubles.

Whenever a story surfaces condemning eating vegetables, especially when the focus is on those eccentric vegetarians, it makes front page news and is welcome reading for people longing to hear their meat- and dairy- centered diet is better than all that "health food nonsense."

Let me begin by acknowledging there is a little truth in most stories that make the headlines – this one is no exception. The truth here is that a vegan diet (a diet with no animal products of any kind), unless supplemented with B-12, is deficient in this vitamin, and has been found in very rare cases to result in problems of vitamin B-12 deficiency. B-12 is made by bacteria and is stored in the body parts of animals that eat these bacteria. If you search the medical literature carefully, you will find about a dozen cases ascribed to a vegetarian diet (search www.nlm.nih.gov) – and almost every one of these has made front page news. Compare this risk to 1.25 million heart attacks (half fatal) annually in the USA that get almost no media attention and are accepted as part of our modern way of life.

Furthermore, most reported cases of B-12 deficiency are not clear cut; they are surrounded with controversy because other factors are usually involved (like parental neglect, underlying diseases, and generally very poor nutrition). My reading of the case histories of the two children that generated this story leads me to believe that they were sickly and malnourished children for reasons other than simply a low supply of B-12 in their mother's breast milk. Read the report yourself and see what you think: http://www.cdc.gov/mmwr/mmwr_wk.html. Regardless, any diet I recommend will be adequate in all nutrients to ensure excellent health.

B-12 is the only legitimate criticism of a healthy vegan diet

There are no other nutritional deficiencies caused by a vegan diet of whole plant foods – in other words, there is no chance of calcium, amino acid, protein, vitamin D, essential fatty acid, zinc, or iron deficiency – except B-12 deficiency. To avoid controversy from the scientific community or any criticism of my recommendations, I have for the past 25 years made a clear, consistent recommendation in all of my books and tapes about B-12. This is what I have written: **If you follow our diet for more than 3 years or if you are pregnant or nursing, then take a minimum of 5 micrograms of B-12 a day.** This recommendation avoids all risk of dietary-caused B-12 defi-

ciency – the human body stores a 20 to 30 year reserve of B-12 in most people.

B-12 deficiency is usually accompanied by minor problems, like a well-tolerated anemia that is easily reversible with supplementation with the vitamin and/or changes in the nervous system, like tingling sensations (paresthesias) that are reversible until late stages. On very rare occasions more serious neurological consequences, like the poor development, have been reported. When the victims are children with brain damage, the emotional juices of the sensation-seeking public flow overboard.

A B-12 sufficient diet causes serious illnesses for billions of people

Weigh this risk of B-12 deficiency from avoiding all animal products against an opposing stand of assuring sufficient B-12 by eating lots of meat, poultry and dairy products – in other words, the Western diet.

For the unborn infant the consequences of mother following the Western diet are:

1) An abnormally large baby that is too big to fit through the mother's birth canal, and therefore requiring a cesarean section – the medical description is "failure of progression of labor."[1] Twenty-five percent of mothers deliver by this major surgery in the USA.

2) Thousands of birth defects annually, of which most are known to be due to too little folic acid in the expectant mother's diet.[2] Folic acid is from foliage, in other words, plants. Birth defects from folic acid deficiency include spina bifida (the spinal canal fails to close in development of the spinal cord, and when left exposed, often causes paraplegia), and anencephalia (where the child is born without a brain). Heart deformities, cleft palate, and many other birth defects are also caused by eating too few vegetables by the mother prior to and during early pregnancy. You will never see folic acid deficiency in a healthy vegan mother.

For the young child the Western diet causes:

1) The beginnings of atherosclerosis, known as fatty streak development. Children raised on cow's milk, meat, and other delicacies found on a typical B-12-sufficient Western diet show fatty streaks in their aorta beginning at 9 months of age and all children on this diet have this artery damage by age 3 years.[3] These streaks evolve into well-known heart attacks and stokes in adulthood.

2) Obesity and overweight affect at least 25% of children on the Western diet. Approximately 22 million children under 5 years of age are overweight across the world.[4]

If you have any doubts about the wisdom of a healthy vegan diet then look around your neighborhood. Children on B-12-sufficient diets with lots of ice cream, milk, hot dogs, egg muffins, and chicken nuggets are fat and sick. The obvious signs and symptoms are snotty noses, ear infections, stomach aches, and headaches. Get to know them better and you will find them consti-

pated with bloody bowel movements. The pain and suffering inflicted on children by the American diet is so brutal that if it were administered with a stick, parents would be put in jail. Because the instruments of injury are a fork and spoon, everyone ignores the agony as if nothing was out of the ordinary, and nothing could be done to remedy the problems – you know so well that is not true.

For the Adult the Western diet causes:

In order to avoid a one-in-a-million risk of an anemia or neurological problem caused by a vegan diet alone, you risk a:

1 in 2 chance of dying prematurely of heart disease,

1 in 10 chance of breast or prostate cancer,

65% chance of being at least overweight

22% chance of being obese

almost certainty of arthritis, indigestion and/or constipation.

(I could go on for several pages)

What to do?

First, have faith that a low-fat vegan diet, based around unrefined starches, vegetables and fruits, is the healthiest diet for men, women and children (after the age of 2 years). From birth to 6 months babies should be exclusively breast-fed. After 6 months, solid foods in the form of starches, vegetables and fruits, are added in increasing amounts and breast milk is continued until at least 2 years of age. Failure to breast feed puts your child at a high risk of death and disease.[1] Follow my recommendations for B-12 (above) by finding a reliable B-12 supplement in the natural foods store. If you have any question about your B-12 status you can have your blood checked for your body's B-12 levels. (Deficiency is a level less than 150 pmol/L).

You might ask, "Why would a diet so perfect in all other ways be deficient in a necessary vitamin?" Most likely the answer is that we live in an unnatural world these days. Remember, B-12 is made by bacteria. Our world is sterilized because of an irrational fear of germs. Once people consumed trillions of helpful B-12 producing-bacteria daily – they lived with their chickens, goats, and horses. Today everything is sanitized by hand-washing, antiseptics, antibiotics, mouth washes, and cleaning agents. To compensate, we must add back B-12, or possibly, live more naturally, like I do, with my B-12 producing dog, cat, and birds.

References:

1) McDougall J. The McDougall program for Women. Plume, 2000.

2) Kalter H. Folic acid and human malformations: a summary and evaluation.
Reprod Toxicol. 2000 Sep-Oct;14(5):463-76.

3) Holman R. The natural history of atherosclerosis. The early aortic lesions as seen in New Or-

leans in the middle 20th century. *Am J Pathol* 1958;34:209.

4) Deckelbaum RJ. Childhood obesity: the health issue. *Obes Res*. 2001 Nov;9 Suppl 4:239S-243S.

Featured Recipes

BAKED RICE PUDDING

We have been enjoying rice pudding in assorted variations for many years. We made this one a few nights ago and really enjoyed it. Check out the "hints" for different serving ideas. We would consider this a healthy dessert, the less sugar used, the healthier it is.

Preparation Time: 5 minutes (cooked rice needed)
Cooking Time: 35 minutes
Servings: 4-6

3 cups cooked brown rice
1 ½ cups soy or rice milk
1 cup dried fruit
3 teaspoons brown sugar
1 ½ teaspoons vanilla
dash cinnamon
Preheat oven to 325 degrees.

Combine all ingredients in an oven-proof pot. Heat to just boiling. Remove from heat, stir and place uncovered in the oven. Bake for 30 minutes. Remove from oven and let rest for 5-10 minutes before serving.
Hints: Serve in individual bowls with extra soy or rice milk to pour over the pudding and/or brown sugar to sprinkle on top. This may also be baked in individual bowls. Baking time will be reduced by about half. Different kinds of fruit may be used such as raisins, currents, dried cranberries, or chopped apricots or dates. This may also be served cold or at room temperature.

SAVORY PATE

Preparation Time: 15 minutes
Cooking Time: 45 minutes
Servings: makes about 4 cups

4 cups water
1 cup uncooked brown lentils
½ cup vegetable broth
1 onion, chopped
1 teaspoon minced garlic
½ pound fresh mushrooms, sliced
1 ½ teaspoons basil
1 ½ teaspoons marjoram
1 teaspoon rubbed sage
1 teaspoon rosemary
1 teaspoon thyme
1 teaspoon dry mustard
¼ teaspoon black pepper
¼ teaspoon allspice
¼ teaspoon ground ginger
¼ teaspoon cayenne
2 tablespoons soy sauce
1 tablespoon sherry

Place water and lentils in a saucepan and cook, covered, until lentils are tender, about 45 minutes. Drain and set aside.
Meanwhile, place the vegetable broth, onions and garlic in a non-stick pan. Cook and stir occasionally for about 5 minutes, until onions are soft. Add mushrooms and cook 5 minutes more. Add herbs and spices, cook and stir another 10 minutes, adding a bit more vegetable broth if needed. Add cooked lentils, soy sauce and sherry. Cook and stir until liquid is absorbed and mixture starts to stick to the bottom of the pot.
Place in a food processor and process until fairly smooth.

Serve warm or cold as a spread for bread or crackers.

TUNISIAN SWEET POTATO STEW

Preparation Time: 20 minutes
Cooking Time:
Servings: 6-8

1/3 cup water
1 onion, chopped
2 jalapenos, seeded and finely chopped
2 teaspoons minced fresh ginger
1 teaspoon minced fresh garlic
1 ½ teaspoons ground cumin
¼ teaspoon ground cinnamon
1/8 teaspoon crushed red pepper
1/8 teaspoon ground coriander
2-3 sweet potatoes, peeled and chopped
2 14.5 ounce cans chopped tomatoes
2 14.5 ounce cans garbanzo beans, drained and rinsed
1 cup green beans, cut in 1 inch pieces
1 ½ cups vegetable broth
¼ cup natural peanut butter
¼ cup chopped cilantro

Place the water, onion, jalapenos, ginger and garlic in a large pot. Cook, stirring occasionally for 5 minutes. Add cumin, cinnamon, red pepper and coriander. Cook and stir for 1 minute. Add sweet potatoes, tomatoes, garbanzo beans, green beans, vegetable broth and peanut butter. Bring to a boil, reduce heat and simmer for 30 minutes, or until potatoes are tender. Stir in cilantro and let rest for 2 minutes. Serve over rice or other whole grains.