Vegetarianism and Health What the Studies Show

by Gary Null, Ph.D.

There's a line of reasoning we hear repeatedly these days, both in the media and among friends. It's about diet, and it goes something like this: *The experts are always changing their minds about what's good for us and what isn't. One week they say that Food A is great for us, and the next week it's Food B that's wonderful, and Food A is totally out. The experts are beginning to seem a bit unreliable, and what's more, we're getting real confused about what to eat. We might as well give up trying to adopt a healthy lifestyle. With all the disagreement, what's the use?*

Sound familiar? This reasoning is voiced so frequently that you could almost call it part of the conventional wisdom. Except for one thing – it isn't wisdom because it isn't based on truth. At least when it comes to the benefits of adopting a properly balanced vegetarian way of eating, there is no disagreement. The data have been in for decades now ad they demonstrate one thing: Vegetarianism offers incontrovertible health benefits. The studies are there – hundreds of them – in peer-reviewed scientific journals. I know because I've got a lot of the reprints in my office – cartons full, in fact.

I'd like to share some of their findings with you. Part of the reason for people's confusion about health and their resultant defeatist attitude is that most people, not being in the science field, don't have access to the technical literature. Yes, the mass media do use these research articles when they distill the news for us. However, those who mold the news into the form that we consume each day often bypass less flashy but ultimately more significant research findings in favor of the more dramatic or seemingly contradictory. After all, confusion and conflict are profitable for the news business. And dramatic reversals are even better. On the other hand, reaffirmations that, yes, vegetables and whole grains have been shown, yet again, to be healthful, are stodgy.

Yet such reaffirmations can be lifesaving. That's why I think it's important to delve into the scientific literature and see what it's been telling us all along.

The Heart-Healthy Diet

Cardiovascular disease is the number-one cause of death in America today, and a major risk factor in heart disease is hypertension, or high blood pressure. This condition is sometimes called "the silent killer" because people often don't realize that they have it until it's too late. The symptoms – such as fatigue and poor circulation in the extremities – are frequently ignored, because people consider them normal parts of aging. But they're not. What's actually happening when a person has high blood pressure is that a constant, increased burden is being placed on the heart as this organ has to pump harder to get blood through the generally ever-narrowing artery walls. Extra exertion, in the form of exercise or stress, can then put the body in jeopardy because there may be insufficient oxygen supply to the muscles and the brain. Heart attack and stroke are possible consequences.

The good news is all of this is that a vegetarian diet has a blood-pressure lowering effect, and it's one that has been documented numerous times. In fact, as noted in one of the recent studies,[1] scientific interest in this salutary effect of a meat-free diet goes back to the early decades of this century. That's when it was shown that patients' hypertension was worsened by meat intake, and that when vegetarian college students added meat to their diets, their blood pressure increased significantly within two weeks.

The thinking on this diet-blood pressure connection continues to be the same to this day, with a recent article in *The American Journal of Clinical Nutrition* concluding that, "...there is now strong evidence for a blood-pressure-lowering effect of a lacto-ovo-vegetarian diet...; the effect is independent of sodium and energy intake and of other aspects of lifestyle that tend to characterize vegetarian populations."[2] What's more, the researchers involved in this report point out that "Cardiovascular risk in general is low in people adhering to a lacto-ovo-vegetarian diet, not only because their blood pressures are lower and tend to rise less with age, but also because they carry less excess fat and tend to have healthier blood-lipid profiles than do meat eaters."[2]

Studies of the effects of vegetarianism often look at Seventh-Day Adventists, a conservative religious group that encourages abstinence from meat, as well as from alcohol, caffeine, and tobacco use. These people have a general interest in a wholesome lifestyle, and a deep religious commitment. A problem, though, in comparing members of this group with meat-eating members of society at large is that these other lifestyle factors – religiosity and abstinence from substances besides meat, may confound the results. To avoid this pitfall, researchers writing in the *Australian & New Zealand Journal of Medicine* paired a group of about a hundred Adventist vegetarians with a group of Mormons who were similar in strength of religious affiliation, as well as caffeine, alcohol, and tobacco avoidance, but that differed only in that they ate meat. What the researchers found was that the vegetarian Adventists had significantly lower blood pressure, obesity, and cholesterol levels than the Mormons did.[3] Similar results have been found in many other studies, involving comparisons between vegetarian Seventh-Day Adventists and other groups,[4] and between groups of Adventists that differed only in that one experimental segment adhered to vegetarianism and one didn't. Here's an excerpt from this last type of study:[5]

"The serum cholesterol levels and the dietary habits of a voluntary study group of 466 Seventh-Day Adventists...were compared to determine the influence of diet on serum cholesterol levels in an adult population whose only environmental differences

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related to dietary practices – adherence to vegetarianism. This study matched vegetarians with non-vegetarians from the same base population according to several physical and demographic variables – place of residence, age, sex, marital status, height, weight, and occupation – and examined the effects of various levels of meat, fish, and fowl consumption (degrees of non-vegetarianism) on serum cholesterol levels. With the exception of those under 25 years of age, the results showed that the non-vegetarians had higher serum cholesterol levels than the vegetarians."

In another study,[6] even those under 25 were shown to have cholesterol levels adversely affected by eating meat. Scientists writing in the *British Medical Journal* reported that at a Seventh-Day Adventist high school near Sidney, Australia, children aged 12 to 17 completed questionnaires about their dietary habits. The children were then divided into two groups according to their answers – those who occasionally or regularly ate meat, fish, or fowl, and those whose protein came entirely from dairy and vegetable sources. The vegetarian youngsters had significantly lower cholesterol levels than did their meat-eating peers. While adolescents don't generally have to worry about heart disease, patterns established early in life tend to get carried on in later years, when health risks increase.

In addition to blood pressure and cholesterol levels, triglyceride levels have been shown to be adversely affected – i.e., raised – by meat eating.[6,7] But perhaps it's most significant to look at the coronary heart disease picture from the perspective of mortality. Researchers writing in *The American Journal of Clinical Nutrition*[8] compared vegetarian Seventh-Day Adventists with non-vegetarian members of the same group. What they found was that "the risk of fatal coronary heart disease among non-vegetarian Seventh-Day Adventist males, ages 35 to 64, is three times greater than [that for] vegetarian Seventh-Day Adventist males of comparable age." The report cites lower total or saturated fat intake, and higher intake of dietary fiber, as probable factors in the better statistics for the vegetarian group.

Lowering Cancer Risk

There's a wealth of published information that points to a plant-based diet as a way of avoiding cancer. For instance, the *International Journal of Cancer* has reported that cancers of the colon, rectum, pancreas, breast, ovary, uterine corpus, and prostate are correlated with the amount of animal products used in various countries.[9] Returning to the vegetarian-oriented Seventh-Day Adventists, it's been reported[10] that "the risk of fatal cancer among Seventh-Day Adventist males is 53% of the risk among all U.S. white males of comparable age. For Seventh-Day Adventist females, the risk is 68% of that in all U.S. white females."

An article in the *Journal of Environmental Pathology and Toxicology*[11] elaborates on the Seventh-Day Adventists' lower cancer rates: "Perhaps as a result of their vegetarian diet, Adventists have a lower intake of benzopyrene and nitrosamines and a higher intake of flavones, which are strong inducers of the enzyme systems responsible for detoxifying such carcinogens. In addition, they may have a higher intake of vitamins A and C, recently suggested as possible protective agents against certain chemical carcinogens. Thus, it seems reasonable to suggest that the typical Adventist diet may protect against many of the major sites of cancer."

A prime benefit of eating plant-derived foods is that they contain fiber. Indeed, fiber is, largely, what plants are made of. The importance of fiber in a healthy diet and as a preventive measure against disease cannot be overstressed. Fiber aids in the speedy digestion and elimination of our foods. It works like a scrub brush to scour away accumulating deposits from our intestinal walls. Left to accumulate, these particles would otherwise decay and putrefy, sending toxins throughout the entire body and acting as a local irritant within the intestines. Since foods of vegetal origin are naturally rich in high amounts of fiber, they are easily digested. Meat and other animal products, on the other hand, do not contain fiber. They are difficult to digest and can often remain in the intestines for three to four days.

Now consider what the literature reports about dietary links to colon cancer. This is from the journal *Annals of Surgery*:[12] "Current epidemiologic data have shown that there are striking differences in the incidence of colon cancer in various parts of the world. It has been demonstrated that the occurrence of cancer of the colon is much lower in East Africa, India, and Japan than in Western Europe or North America. A series of studies of migrants have revealed that these differences are most likely environmental and not genetic. Investigations of various environmental influences have frequently linked dietary habits to the development of carcinoma of the colon. Nutritional substances such as fiber, refined carbohydrate, animal fat and protein have all been advanced as being the significant factor responsible for the variance in incidence rates of colonic cancer.

"Epidemiologic data have also shown that the incidence of cancer of all types, including carcinoma of the colon, is 30% to 40% lower in American Seventh-Day Adventists, who are strict vegetarians, than in the meat consuming general public. Further studies have shown that the levels of bile acids, as well as the degradation products and enzymes responsible for the degradation of bile acids in the colonic lumen, are decreased in this group of vegetarians."

The bile acids referred to in that journal article are substances associated with colon cancer risk, and they have indeed been shown to be lower in vegetarians.[13] It's noteworthy that the vegetarian-oriented Seventh-Day Adventists have a colon cancer mortality rate only 61% that of the general U.S. population, for males, and 70% for females.[14] A paper reporting these statistics, in *The American Journal of Clinical Nutrition,* goes on to note that "socioeconomic status and educational level are factors that influence mortality rates, and these are generally higher among Seventh-Day Adventists. However, the standardized mortality ratio for colon cancer is equally low among Seventh-Day Adventists with a low and high level of education. This implies that the higher educational level of Seventh-Day Adventists does not account for their lower colon cancer mortality rate."

Again and again diet comes up as an important factor in colon cancer. From *The American Journal of Clinical Nutrition*:[15] "Recent epidemiological studies associate colon cancer with specific types of diet. In general, highly developed counties have a high incidence of colon cancer, and less well developed countries have a low incidence. Japan represents an exception in that it is highly developed but has a low incidence of large bowel cancer. Japanese who adopt a Western diet, however, develop colon cancer with increased frequency; among Japanese immigrants, the frequency approaches that of native Americans."

From another report:[16] "Cholesterol and its metabolites, together with bile acids, are implicated as risk factors in the genesis and progression of colon cancer..." Again, a high-meat regimen will increase levels of these harmful substances.

Among men in the U.S., cancer of the prostate is the second most common malignancy, after lung cancer.[17] But it's been shown that Seventh-Day Adventist men between the ages of 45 and 70 have a mortality rate from this disease that's only 30% that of males in the general California population (California is where many Adventists live), suggesting that vegetarianism may be a protective factor here. Say researchers who have studied this, in *The American Journal of Clinical Nutrition*, "Implications include the possible modification of prostate cancer risk through dietary intervention."[18]

"Cancer incidence among California Seventh-Day Adventists, 1976-1982" was an important paper that appeared in *The American Journal of Clinical Nutrition in 1994*.[19] Some excerpts: "For prostate cancer, a high consumption pattern of beans, lentils, peas, tomatoes, raisins, dates, and other dried fruits was associated with lower cancer risk in this analysis...

"High consumption of fruits was significantly associated with lower lung cancer risk even after adjusting for smoking. Higher risk of colon cancer was associated with higher consumption of saturated fats. Lower risk of colon cancer was associated with higher fiber and legume consumption.

"Higher consumption of soy-based products was associated with markedly lower risk of pancreas cancer in this population. Consumption of dried fruits, beans, lentils, and peas was also significantly associated with lower risk...Risk of bladder cancer increased twofold in association with high meat intake."

And this is from an article dealing solely with pancreatic cancer risk, which appeared in the journal *Cancer*:[20] "Increasing consumption of vegetarian protein products, beans, lentils, and peas, as well as dried fruit, was associated with highly significant protective relationships to pancreas cancer risk."

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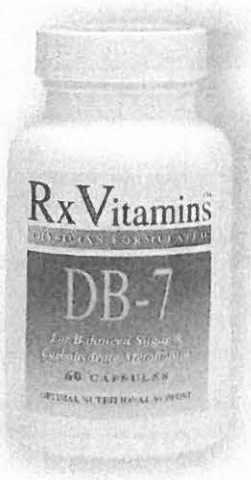

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In the area of brain tumors, the journal *Neuroepidemiology* published research showing that "increasing use of meat, poultry or fish...was associated with increased risk estimates for gliomas. This increase in risk was especially apparent for consumption of pork products..."[21] The report went on to explain that "since many pork products are cured with sodium nitrite, this may be consistent with the hypothesis that foods containing high concentrations of N-nitroso compounds may increase brain cancer risk."

Women's Health Concerns

Compared to the general female population, Seventh-Day Adventist women have a lower mortality rate from breast and endometrial cancers, and the fact that 50% of the Adventists are vegetarians seems to bear on this. Dietary patterns affect hormonal ones, and these are crucial factors in women's disease risk.[22]

One contributor to increased breast cancer risk is early onset of menstruation, and, in fact, the age of menarche, or first menstruation, has been decreasing over the years in Western Europe and the U.S. Our changing diet, with increased amounts of fat, simple carbohydrates, and meat, has contributed to this trend. But researchers writing in the journal *Medical Hypotheses*[23] have proven experimentally that "the present trend toward early menarche can be reversed when a balanced vegetarian diet is selected in place of the ordinary American diet." Other researchers underscore the importance of this concept when they write in the *Journal of the American Dietetic Association* that the maturation delay of vegetarian Adventist teenage girls, compared with meat-eating schoolgirls, "may carry potential health benefits in adult life. A later age of menarche has been consistently associated with decreased risk for several cancers, particularly of the breast."[24]

An issue of interest to older women is the maintenance of mineral content in their bones, and once again, vegetable eaters have an advantage. Vegetarianism has been shown to contribute to strong bones in postmenopausal women. Researchers explain that "The primary dietary characteristics of a lacto-ovo-vegetarian diet that may be of benefit to bone tissue are the sources of protein and quantities of calcium and phosphorus in the diet. Investigators...suggest that vegetable protein produces a lower-acid ash than animal protein when metabolized and thus, helps to conserve calcium."[25] The statistics are there to back this up:[26] "Lacto-ovo-vegetarian women 50 to 59 years of age lost 18% bone mineral mass while omnivorous women lost 35%."

From Dental Health to Diabetes

The reports go on and on, and to fully document vegetarianism's health benefits would require volumes. But here are just a few more sample quotations from the literature to give you an idea of the scope and depth of the research that's been done - and replicated time and again:

"...the dental and periodontal status of the Seventh-Day Adventist group was significantly better than that of the controls, suggesting that vegetarianism is beneficial to oral health."[27]

"...when healthy elderly vegetarian women are compared with closely matched non-vegetarian peers, the vegetarian diet is associated with several benefits, primarily lower blood glucose and lipid levels..."[28]

"...After controlling for height, boys and girls in the Seventh-Day Adventist schools were found to be leaner than their public school peers.... These results suggest that a health oriented life-style in childhood and adolescence, such as the one followed by Seventh-Day Adventists, is compatible with adequate growth and associated with a lower weight for height."[29]

"During 21 years [of study and follow-up], the rate of diabetes as an underlying cause of death in Adventists was only 45% of the rate for all U.S. whites."[30]

"All-cause mortality showed a significant negative association with green salad consumption and a significant positive association with consumption of eggs and meat. For green salad and eggs, the association was stronger for women; for meat, the association was stronger for men. All the observed associations were adjusted for age, sex, smoking history, history of major chronic disease, and age at initial exposure to the Adventist Church."[31]

"Systolic blood pressure in Adventists was lower in early adult life and rose less with aging than in the other two groups [from the general population]. This pattern also occurred with diastolic blood pressure.... The differences in plasma lipid levels between Adventists and other population groups can be explained by a vegetarian diet, and this may have contributed also to the blood pressure levels."[32]

"Vegetarian students consumed significantly higher amounts of calcium and phosphorus than did omnivore students, suggesting that...the vegetarian students were making superior food pattern selections."[33]

The Bottom Line - A Longer, Healthier Life

This last concept - that vegetarians tend to have superior nutritional status as shown by measures of important nutrients – has been borne out in multiple studies. In one, which was detailed in the *Journal of the American Dietetic Association,*[34] groups of vegetarian and non-vegetarian elderly women were matched for a variety of nondietary factors and then asked to keep records of what they ate over a week-long period. The analyzed results showed that the vegetarians consumed significantly less cholesterol, saturated fatty acids, and caffeine, but more carbohydrates, dietary fiber, magnesium, vitamins E and A, thiamin, panthothenic acid, copper, and manganese. "In summary," says this report, "when healthy elderly women were compared with closely matched non-vegetarian peers, the vegetarian diet was associated with improved nutrient intake and associated reduction in blood glucose and lipid levels."

Another study pairing vegetarian and omnivorous postmenopausal women[35] yielded similar results, with the vegetarians' diet providing higher nutrient density for folate, thiamin, vitamin C, and vitamin A; as well as lower total fat, saturated fatty acids, and cholesterol; and higher dietary fiber.

Other studies[36-38] further emphasize the nutrient- and fiber-rich nature of vegetarian eating. But of course, in the final analysis, what really matters is that *we can affect the quality of our lives by our eating patterns.* Once again,

the scientific literature can guide us as we make our choices, if we will only read its findings:

"Compared to Adventists who heavily use meat, the vegetarian Adventists have a substantially lower risk of fatal coronary disease, fatal diabetes and death from any cause, especially among men. Among men who use few animal products...the risk of fatal prostate cancer is one-third that of Adventist men who heavily use such products."[39]

"Recent studies at Loma Linda University revealed that Seventh-Day Adventists (aged 45-54) who eat meat six or more times per week are three times as likely to die of heart disease as vegetarian Seventh-Day Adventists....

"Seventh-Day Adventist men and women who eat meat six or more times per week have twice the incidence of obesity (30% overweight or above) which is related to increased death rate from diabetes. This may be related to a higher caloric density, low fiber diet....

"Vegetarians also have a lower mortality rate from several cancers....

"Vegetarian Seventh-Day Adventist women aged 55 and above have significantly less osteoporosis than the meat-eating non-Seventh-Day Adventists."[40]

Finally, consider a study on lifestyle and the use of health services described in a 1994 issue of *The American Journal of Clinical Nutrition*.[41] In this research, a group of close to 30,000 Seventh-Day Adventists in California were given questionnaires on lifestyle and divided into four groups – vegetarian and non-vegetarian groups of men, and of women. These people were then tracked for a period of a year to see how much health care they required, and whether there were differences between the amount of medical attention needed by vegetarians versus meat-eaters.

There were. In a year's time, vegetarian females reported significantly fewer overnight hospitalizations and surgeries than did their non-vegetarian female counterparts in the study. Non-vegetarian males reported more overnight hospitalization and X-rays than did their vegetarian cohorts. The average numbers of chronic diseases were 1.24 in non-vegetarian females, compared to 1.03 in vegetarian females, with non-vegetarian and vegetarian males averaging 0.93 and 0.79, respectively, in the chronic disease count. Medication use was higher by 70 to 115% for the non-vegetarian females compared to their vegetarian peers, and for males, the meat-eaters' medication use was double that of the abstainers. In short, the vegetarians were healthier.

"We conclude that a vegetarian diet may decrease the prevalence of chronic disease, medication use, and health services use, and thus, potentially, health care costs," said the study.[41] Of all these conclusions, I myself am convinced, and have been for a long time. One has only to examine the vast body of scientific literature to see why.

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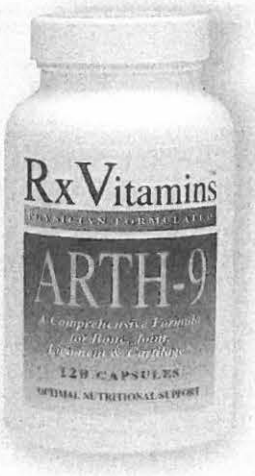

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