



The Argument for a Vegetarian Diet

Part Three

by Gary Null, PhD, and Martin Feldman, MD

In Parts 1 and 2 of this series, we presented key aspects of the argument in favor of a vegetarian diet. Part 1 discussed misconceptions about protein, the body's protein requirements, and the assessment of protein quality. Part 2 discussed the ecological mandate for a vegetarian diet, detailing how our finite natural resources can be used much more efficiently to produce plant foods than animal products. In this final installment, we present evidence that a plant-based diet can have far-reaching health benefits.

It has been 13 years since the US Secretary of Health and Human Services first endorsed the healthfulness of a vegetarian diet. The data have been in for decades now, and they show that vegetarianism offers incontrovertible health benefits. Hundreds of studies in peer-reviewed journals support the advantages of vegetarian eating.

As stated by one researcher, "A growing body of scientific evidence indicates that wholesome vegetarian diets offer distinct advantages compared to diets containing meat and other foods of animal origin."¹ Another paper reports: "Numerous studies show important and quantifiable benefits of the different components of vegetarian diets, namely the reduction of risk for many chronic diseases and the increase in longevity. ... An abundant consumption of vegetables, fruits, cereals, nuts, and legumes all have been independently related with a lower risk for several chronic degenerative diseases, such as ischemic heart disease, diabetes, obesity, and many cancers."²

It is important for health-care professionals to share this information with patients. Many people believe that news about nutrition reported in the media presents conflicting information, and as a result they may develop a defeatist attitude regarding their food choices. But there is no disagreement about the value of a well-balanced vegetarian approach to eating. Reaffirmations that vegetables, whole grains, and other plant foods have yet again been shown to be healthful will quell any uncertainty and may even be life-saving.

Improving Heart Health

Many studies have shown that a vegetarian diet can affect risk factors for cardiovascular disease, which remains the number one cause of death in America.

In a study comparing healthy postmenopausal vegetarian women with omnivores, the vegetarians had statistically lower systolic and diastolic blood pressure (BP), along with lower total cholesterol, low density lipoprotein (LDL) cholesterol, triglycerides, fasting blood sugar, and hemoglobin levels.³ Other research has found that people eating a low-calorie, low-protein vegan diet had lower systolic and diastolic BP than two other groups studied: endurance runners eating a Western diet and sedentary people eating a Western diet. Both the vegans and the endurance runners had lower levels of lipids, lipoproteins, glucose, insulin, C-reactive protein, and BP than did the sedentary Western diet group.⁴ A study of vegetarians aged 35 to 64 in Brazil also found that they had lower BP, total cholesterol, LDL, triglycerides, and glucose than did meat-eaters.⁵

The following data support the positive effects of vegetarian eating on risk factors for cardiovascular disease:

Reduced Blood Pressure

The ability of a vegetarian diet to reduce blood pressure has been documented numerous times. In fact, one study notes that scientific interest in this effect of a meat-free diet dates to the early decades of the 20th century.⁶ That is when it was shown that patients' hypertension was worsened by meat consumption, and that when vegetarian college students began eating meat, their blood pressure increased significantly within two weeks.

According to one article, there is "... 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."⁷ These authors added,

"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."⁸

A study of Seventh-day Adventists, a religious group that encourages abstinence from meat, alcohol, caffeine, and tobacco, found that they had lower systolic blood pressure in early adulthood than two other groups, and that systolic BP increased less with age. The same was true of diastolic blood pressure. The researchers noted, "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."⁹

Improved Lipid Profile

Research into the chemistry of plants indicates that the phytosterol group has heart-healthy effects. Studies have shown that the intake of plant stanols or sterols reduces LDL cholesterol,^{10,11} which is one of the factors responsible for the plaque buildup that causes atherosclerosis. This intake also increases the percentage of plant sterols readily available to be absorbed by the intestinal cells, the enterocytes.

In a meta-analysis of 41 trials, researchers found that 2 grams per day of stanols or sterols reduced LDL by 10%, and that eating foods low in saturated fat and cholesterol and high in stanols or sterols can reduce LDL by 20%.¹² Significant decreases in LDL were found in a study comparing the effects of a statin medication with a diet high in cholesterol-lowering foods, including plant sterols, soy protein, viscous fibers, and almonds. The mean decreases in LDL were 30.9% for the statin group and 28.6% for the dietary portfolio group, a difference that was not significant.¹³

Studies of vegetarians support the positive effects of vegetarian eating on cholesterol levels. In a comparison of healthy elderly vegetarian women with nonvegetarian peers, vegetarian eating was associated with lower lipid and blood glucose levels.¹⁴ Another study compared Adventist vegetarians with Mormons who also had a strong religious affiliation and avoided caffeine, alcohol, and tobacco. The groups differed only in their meat intake. In this way, the study could avoid a common problem in comparing Adventists with meat-eating members of society at large: the possibility that other lifestyle factors – religion and abstinence from substances besides meat – may confound the results. The study found that the vegetarian Adventists had significantly lower cholesterol levels, blood pressure, and obesity than did the Mormons.¹⁵

Other research with Seventh-day Adventists studied the effect of different levels of meat, fish, and fowl consumption on cholesterol levels in vegetarians and nonvegetarians who were matched according to physical and demographic variables. The study concluded, "With the exception of those under 25 years of age, the results showed that

nonvegetarians had higher serum cholesterol levels than the vegetarians."¹⁶

In another study, even those under age 25 showed the adverse effect of meat consumption on cholesterol levels. This study divided Adventists aged 12 to 17 years into two groups: 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 generally do not have to worry about heart disease, patterns established early in life tend to be carried into later years, when health risks increase.¹⁷

In addition to blood pressure and cholesterol levels, triglyceride levels have been shown to be adversely affected – that is, raised – by meat consumption.^{18,19}

Lower Risk of Mortality from Heart Disease

Perhaps it is most significant to look at the coronary heart disease picture from the perspective of mortality. One study looked at the rate of coronary heart disease mortality among vegetarian Seventh-day Adventists and other SDAs who were *not* vegetarians. The research found that "the risk of fatal coronary heart disease among nonvegetarian SDA males, ages 35 to 64, is three times greater than [that of] vegetarian Seventh-Day Adventist males of comparable age." The report cites lower intake of total or saturated fat and higher intake of dietary fiber as probable factors in the better statistics for the vegetarian group.²⁰

According to another report, "studies at Loma Linda University revealed that Seventh-day Adventists (aged 45 to 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."²¹

Reducing Cancer Risk

A wealth of published data points to a plant-based diet as a way to prevent cancer. An important paper on the incidence of cancer among Seventh-day Adventists in California (where many Adventists live) reported links between diet and many types of cancer.²² A high intake of meat was associated with a twofold increase in the risk of bladder cancer, and higher intake of saturated fats was associated with greater risk of colon cancer. On the other hand, the following associations were found: higher consumption of fiber and legumes with lower risk of colon cancer; high consumption pattern of beans, lentils, peas, tomatoes, raisins, dates, and other dried fruits with lower risk of prostate cancer; high intake of fruits with lower lung cancer risk; and higher consumption of soy-based products with markedly lower risk of pancreatic cancer.

A recent prospective study examined meat intake and cancer risk among approximately 500,000 participants (aged 51 to 70) in the National Institutes of Health-AARP Diet and Health Study. People in the highest quintile of



Vegetarian Diet

red meat intake had statistically significant increased risks (ranging from 20% to 60%) for esophageal, colorectal, liver, and lung cancer. In addition, people who ate the most processed meat had elevated risks for colorectal and lung cancer.²³ 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.²⁴ Other research has found 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 Adventist females, "the risk is 68% of that in all U.S. white females."²⁵

What might account for the lower cancer rates of Seventh-day Adventists? An article in the *Journal of Environmental Pathology and Toxicology* offers this analysis²⁶:

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.

Recent scientific plant research supports this data. Eating plant foods that have sterols is correlated with lower occurrences of cancer; these results also may be related to other cancer-fighting properties of the plant foods.

Another prime benefit of plant-based foods is their high fiber content. The importance of fiber as a preventive measure against disease cannot be overstated. Fiber aids in the speedy digestion and elimination of foods. It works like a scrub brush to scour deposits from the intestinal walls. Meat and other animal products, on the other hand, do not contain fiber. They are difficult to digest and can remain in the intestines for longer periods of time.

Colon Cancer

The scientific literature shows that diet is an important factor in colon cancer. One recent study concludes: "Our data confirm that colorectal cancer is positively associated with high consumption of red and processed meat ..."²⁷ The results of another study "strengthen the evidence that prolonged high consumption of red and processed meat may increase the risk of cancer in the distal portion of the large intestine."²⁸ A large-scale analysis of dietary patterns and colorectal cancer, published in 2008, found that "dietary patterns characterized by a low frequency of meat and potato consumption and frequent consumption of fruit and vegetables and fat-reduced foods are consistent with a decreased risk of colorectal cancer."²⁹

From the *American Journal of Clinical Nutrition*: "Recent epidemiological studies associate colon cancer

with specific types of diet. In general, highly developed countries 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."³⁰ It is noteworthy that the vegetarian-oriented Seventh-day Adventists have a colon cancer mortality rate only 61% that of the general US population for males and 70% for females.³¹

According to *Annals of Surgery*, "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 ... 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."³² The bile acids referred to in this article are associated with colon cancer risk, and they have indeed been shown to be lower in vegetarians.³³

From another report: "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.³⁴

Prostate Cancer

This is the most common cancer among men in the US, according to a 2007 government report.³⁵ A prospective study of dietary fat intake and the risk of prostate cancer found a direct relationship between total fat consumption and advanced prostate cancer. The association was due primarily to animal fat, not vegetable fat; and the food group with the strongest association with advanced prostate cancer was red meat.³⁶

The mortality rate from prostate cancer for Seventh-day Adventists aged 45 to 70 is only 30% that of males in the general population of California, suggesting that vegetarianism may be a protective factor. Say researchers who have studied this subject, "Implications include the possible modification of prostate cancer risk through dietary intervention."³⁷

Breast and Endometrial Cancers

Recent studies have shown that a higher intake of red meat during adolescence may increase the risk of premenopausal breast cancer³⁸ and that higher red meat consumption may be a risk factor for breast cancers that are estrogen- and progesterone-receptor positive among premenopausal women.³⁹

Compared with the general female population, Seventh-day Adventist women have a lower mortality rate from breast and endometrial cancers, and the fact that 50% of them are vegetarians seems to bear on this. Dietary patterns

affect hormonal ones, and these are crucial factors in women's disease risk.⁴⁰

One contributor to an increased risk of breast cancer, the leading cancer among women in the US,⁴¹ is early onset of menstruation. And, in fact, the age of first menstruation (menarche) has been decreasing in the US and Western Europe. Our changing diet, with greater intake of fat, simple carbohydrates, and meat, has contributed to this trend. But researchers writing in *Medical Hypotheses* 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."⁴²

Other researchers confirm the importance of this concept, noting 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."⁴³

Pancreatic Cancer

Processed and red meat was associated with an increased risk of pancreatic cancer in an analysis of data from a large prospective study. For processed meat consumption, people in the fifth quintile of daily intake had a 68% increased risk compared with those in the lowest quintile. For both pork and total red meat intake, the increase in risk for those in the highest quintile was 50%.⁴⁴

Vegetarian Diet

On the other hand, "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."⁴⁵

Brain Tumors

Research published in *Neuroepidemiology* found that the growing consumption of meat and poultry was associated with "increased risk estimates for gliomas. This increase in risk was especially apparent for consumption of pork products..." The report explained 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."⁴⁶

Other Effects of Vegetarianism

The following studies demonstrate the scope and depth of research on the health benefits of vegetarianism:

Diabetes. A 2003 report on plant-based diets and type 2 diabetes concludes that "the vegetarian diet ... contains a portfolio of natural products and food forms of benefit for both the carbohydrate and lipid abnormalities

Here's What Erased Chronic Pain in Seconds (continued from page 69)

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Vegetarian Diet

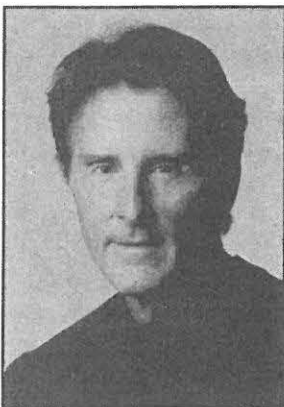
in diabetes.⁴⁷ In one recent study of people with type 2 diabetes, a low-fat vegan diet improved glycemic control and cardiovascular risk factors, including weight and LDL cholesterol. After 22 weeks, 43% of those eating the vegan diet had reduced their diabetes medications, compared with 26% of participants eating a diet that followed American Diabetes Association guidelines.⁴⁸

In other research, a 17-year follow-up with members of Adventist Health Studies found that "long-term adherence (over a 17-year interval) to a diet that included at least weekly meat intake was associated with a 74% increase ... in odds of diabetes relative to long-term adherence to a vegetarian diet (zero meat intake)." The researchers noted that while some of this risk may be attributable to obesity and/or weight gain, weekly meat intake was an important risk factor even after control for weight and weight change.⁴⁹

Other research suggests that a Western dietary pattern (with higher intakes of red and processed meats, French fries, refined grains, and sweets and desserts) substantially increases the risk of type 2 diabetes in men⁵⁰ and may increase the risk in women.⁵¹ In addition, a 21-year study and follow-up found that "the rate of diabetes as an underlying cause of death in Adventists was only 45% of the rate for all U.S. whites."⁵²

Body Weight. "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 lifestyle 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."⁵³

Bone Health. An issue of interest to older women is the maintenance of mineral content in bones. Once again, vegetable eaters have an advantage. Vegetarianism has been shown to contribute to strong bones in postmenopausal women. Researchers explain, "The primary dietary



Gary Null

Gary Null has authored more than 75 books on health and nutrition, and numerous articles published in research journals. He is an adjunct professor in graduate studies, Public Health Curriculum, at Fairleigh Dickinson University in Teaneck, New Jersey. Null holds a PhD in human nutrition and public health science from the Union Graduate School.

Martin Feldman, MD, practices complementary medicine. He is an assistant clinical professor of neurology at the Mount Sinai School of Medicine in New York City.

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."⁵⁴

The statistics back this up: In one study, "Lacto-ovo-vegetarian women 50 to 59 years of age lost 18% bone mineral mass while omnivorous women lost 35%."⁵⁵ In another, vegetarian Adventist women "aged 55 and above have significantly less osteoporosis than the meat-eating non-Seventh-Day Adventists."⁵⁶

Dental Health. "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."⁵⁷

Need for Medical Care. Researchers tracked nearly 30,000 Seventh-day Adventists for a year to identify any differences in their need for health care versus meat-eaters. The average number of chronic diseases was 1.03 in vegetarian females, compared with 1.24 in nonvegetarian females. Among males, vegetarians averaged 0.79 chronic diseases and nonvegetarians averaged 0.93. In addition, vegetarian females reported significantly fewer overnight hospitalizations and surgeries than did nonvegetarian females, while vegetarian males reported fewer overnight hospitalizations and X-rays than nonvegetarian males. Medication use was lower for vegetarian females and males than for meat-eaters.⁵⁸

Mortality. In one study, vegetarian Adventists had a "substantially lower risk of fatal coronary disease, fatal diabetes and death from any cause, especially among men" compared with Adventists who use meat heavily.⁵⁹ Research also shows that vegetarians have a lower mortality rate from several types of cancer.⁶⁰

In other research, "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."⁶¹ Specifically, some compounds in plants may help reduce overall inflammation. For example, laboratory and nonhuman experiments indicate that plant sterols may lower the histamine reactions in certain immune cell lines.

Conclusion

What matters in the end, of course, is that we can affect the quality of our lives with our eating patterns. There may be no better way to achieve this goal than by eliminating our consumption of animal foods and centering our diet

Vegetarian Diet

on a well-balanced intake of plant foods. The scientific literature shows that vegetarian eating offers far-reaching health benefits, allowing people to reduce their risk of chronic diseases that plague modern-day society, including hypertension, diabetes, and various types of cancer.

It is our hope that as more consumers become aware of these benefits, they will switch to a vegetarian diet and thereby optimize their health and quality of life. In the process, they will support the increasingly important ecological benefits of vegetarianism, which allows us to conserve the natural resources used to produce animal foods that provide limited nutritional value in return.

Gary Null, PhD
2307 Broadway
New York, New York 10024 USA

Martin Feldman, MD
132 East 76th Street
New York, New York 10021 USA
precisemd@aol.com

Notes

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