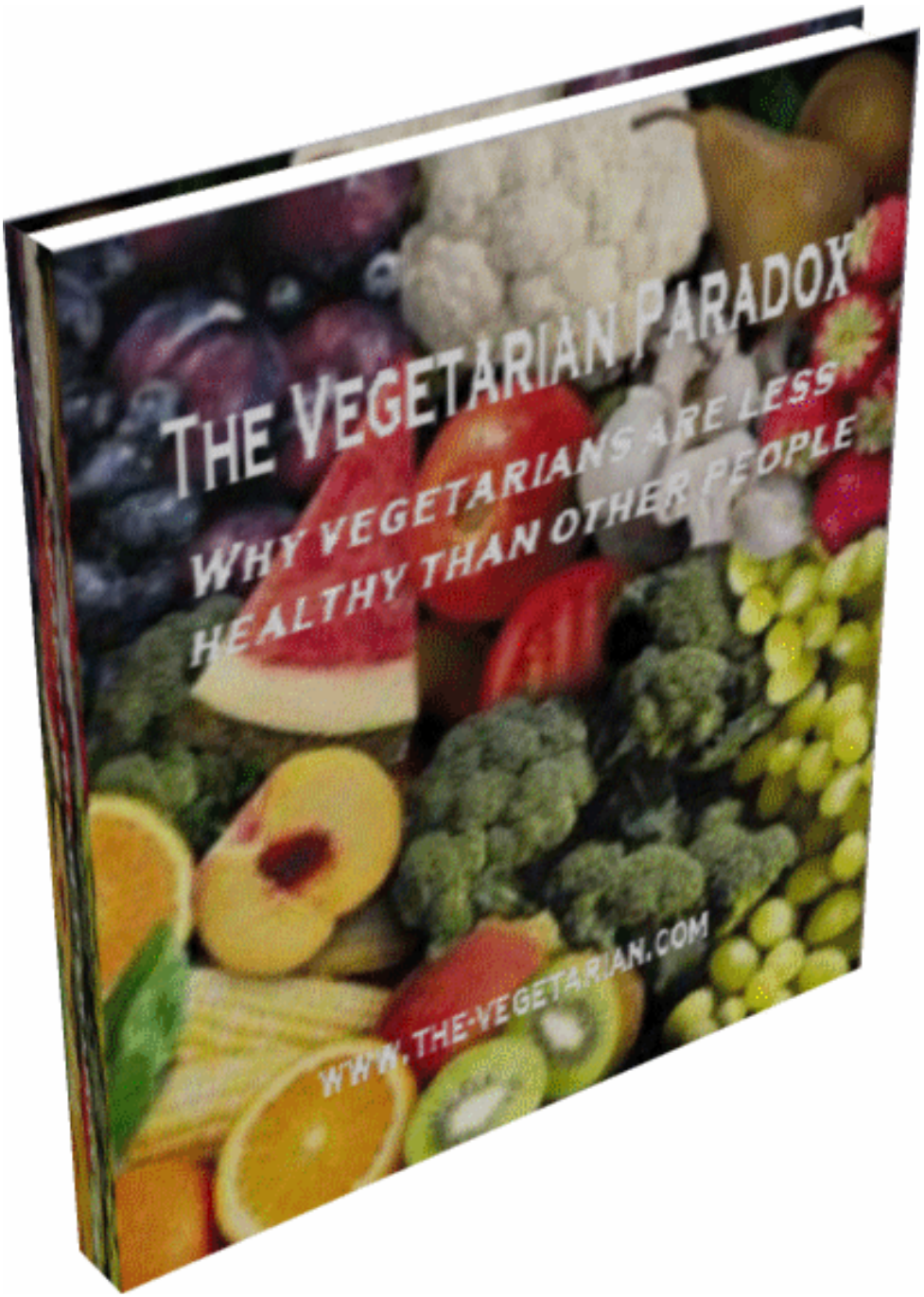

THE VEGETARIAN PARADOX
WHY VEGETARIANS ARE LESS HEALTHY THAN OTHER PEOPLE
WWW.THE-VEGETARIAN.COM

The Vegetarian Paradox

Why vegetarians are less healthy than other people

Edited & published by
DeliveredOnline.com

This ebook is free.
For latest version go to www.the-vegetarian.com

Title	The Vegetarian Paradox
Sub-title	*Why vegetarians are less healthy than other people*
Compiled & published by	Deliveredonline.com
Email	mailto@deliveredonline.com
Copyright	© 2009 deliveredonline.com
Last updated	November 2009

This ebook is free and may be copied and distributed without restriction. For the most up to date version of this ebook please go to www.the-vegetarian.com

If you know anybody who is vegetarian, overweight, or health conscious please do that person a big favor – send them a free copy of this ebook or tell them to go to www.the-vegetarian.com

This ebook is free.
For latest version go to www.the-vegetarian.com

Contents

Introduction

Roughly, about 6% of the world's population is vegetarian, a trend that is growing. Yet study after study shows that vegetarians are less healthy than their non-vegetarians peers. Why is this so? Surely a diet with plenty of fruit and vegetables should make you healthier, not less healthy, so what's going on?

This book answers these questions. In the light of extraordinary new research it is becoming apparent that most vegetarians are in fact less healthy than their non-vegetarian peers. By "peers" we mean people of a similar socio-economic and cultural background. Any valid comparison between vegetarians and non-vegetarians must compare apples with apples. For example, any study that compared an affluent health-conscious vegetarian from California with an impoverished meat eater from the slums of Calcutta is not likely to be meaningful.

The research that is now coming to light is clearly showing that compared to their non-vegetarians peers, vegetarians are more at risk of cancer, depression, and other ailments as explained in this book. But what's the cause? The answer will surprise you – it has nothing to do with meat and fish consumption and it has nothing to do with leading a so called healthy life style. Several studies have compared health-conscious vegetarians with health-conscious non-vegetarians from the same socio-economic cohort. In other words, scientists have compared apples with apples so as to validate the results and they have come up with some surprising conclusions.

The term "vegetarian" as used in this book is a person who includes some animal produce in the diet (e.g. cheese, eggs, milk, etc.) but not meat or fish. A "non-vegetarian" is taken to mean a person who includes some animal produce, meat and fish in the diet.

This book is not "anti" or "pro" any particular life-style and does not sit in judgment over what people should eat. The sole purpose of this book is to set out the facts and answer the question: why are vegetarians less healthy than other people?

Part One of the book explodes the myth that vegetarians are healthier than their non-vegetarian peers. The evidence for this is taken from peer-reviewed studies published in mainstream medical journals.

Part Two explains the vegetarian paradox. How is it that many studies show the vegetarian diet to be super healthy yet most vegetarians are seen to be less healthy than their non-vegetarian peers?

Part Three explains why the vegetarian diet is fatally flawed and how to resolve this paradox without resorting to a non-vegetarian diet.

This is a book for anybody interested in protecting their good health. Whether or not you are vegetarian, you are urged to read this book for the sake of your health and the health of those close to you.

Part One: The Evidence

In this section we will look at the evidence showing that vegetarians are less healthy (or at best not healthier) than their non-vegetarian peers. There is increasing research showing this to be the case. Then Part Two of the book looks at why this should be.

Vegetarians and Death Rates

In a talk titled 'Do Vegetarians Live Longer?' given by Paul Appleby, Secretary of Oxford Vegetarians,[1] it was shown that several prospective studies have recruited large numbers of Western vegetarians (and comparable non-vegetarians), enabling estimates of the relative mortality of vegetarians to be made:

Adventist Mortality (California, 1959-60)

Health Food Shoppers (UK, 1973-79)

Adventist Health (California, 1976-80)

Heidelberg (Germany, 1978-81)

Oxford Vegetarian (UK, 1980-84)

EPIC-Oxford (UK, 1993-2001)

Mortality for the vegetarians in these studies may be compared with death rates in the population from which they were recruited by calculating a Standardised Mortality Ratio (SMR). It was shown that vegetarians have low mortality compared with the general population.

But when you compare death rates for vegetarians and non-vegetarians within studies (peer to peer comparison) you get a different picture. No differences in overall death rates between vegetarian and non-vegetarian participants were found. The researchers concluded that the low mortality of British vegetarians compared with the general population *'may be attributed to non-dietary lifestyle factors such as a low prevalence of smoking and a generally high socio-economic status, or to aspects of the diet other than the avoidance of meat and fish.'*

In a related study [5] data from five studies were pooled into a very large collaborative analysis of mortality in vegetarians and non-vegetarians for 76,000 persons of whom nearly 28,000 were vegetarians. There were 8,330 deaths between the ages of 16 to 89 after an average of 10.6 years follow-up, allowing accurate estimates to be made of death rates for several common causes of death, as well as for all causes combined.

Death rate ratios for vegetarians compared with non-vegetarians, adjusted for age, sex and smoking, were calculated for each of the five studies and then combined to give an 'all studies' death rate. The results for all-cause mortality showed no significant difference between vegetarians and their non-vegetarian peers. The study concluded that *'Overall mortality was the same between vegetarians and non-vegetarians. But vegetarians had 2.2 times the death rate from mental and neurological diseases as non-vegetarians.'*

Vegetarians and Obesity Rates

Some studies have shown that vegetarians are slimmer than the general population. But when you compare vegetarians with their non-vegetarian peer group there is no significant difference in rates of obesity or average body weight. The belief that vegetarians are slimmer because of their diet is a myth that has arisen because of studies based on poor research that compared vegetarians with the general population.

For example, in a study that looked at body weight and efforts to lose excess weight, health-conscious vegetarians were compared with health conscious non-vegetarians from the same peer group.[2] The study concluded that *'Relative weight and weight loss efforts do not differ by dietary pattern among similarly health-conscious vegetarian and non-vegetarian women.*' The same study also showed that vegetarians' average intake of vitamin B12 and D are well below recommendations (more about this later in the book).

Another study in 2005 came to similar conclusions.[3] This was a large study that looked at 45,962 British men and women. It compared life-long vegetarians with people who become vegetarians as adults and it looked at menarche, body weight and body mass index. It concluded that *'compared with people who become vegetarian when adult, life-long vegetarians do not differ in adult height, weight, BMI or age at menarche in women.'*

However, several studies show that obesity is common among some populations that follow largely vegetarian diets, such as vegetarian Indians living in the UK and in India.

Vegetarians and Incidence of Cancer

There is growing evidence that the incidence of cancer in vegetarians is not significantly different compared to their non-vegetarian peers. In a German study[4] that involved a 21 year follow-up it found that *"death rates from cancer were similar in both groups when it compared 1,225 vegetarians and 679 'health-conscious' non-vegetarians"* who were recruited for the long-term study.

The majority of human evidence regarding vegetarianism consists of observational population studies of the risk for various diseases such as cancer. Very few clinical studies of people with cancer have been reported. A few studies of men with prostate cancer have reported that comprehensive lifestyle changes including vegetarianism, exercise, and stress reduction can slow the rate increases in blood PSA levels. The contribution of maintaining a vegetarian diet to these benefits remains unproven.

In another large and comprehensive study it was found that vegetarians had higher rates of death from breast cancer. The U.K. study compared vegetarians with health-conscious but non-vegetarian subjects. More than 8,000 vegetarians were studied over an average of 20 years and found to have low mortality compared with that of the general population. The vegetarians were also compared with nearly 12,000 non-vegetarians who were considered to be health-conscious. The non-vegetarians had death rates that were similar to vegetarians, suggesting that factors other than avoidance of meat and fish may influence mortality. These factors include a low prevalence of smoking, a generally high socio-economic status, and possibly a higher intake of fruits and vegetables. The study concluded that *'vegetarians had higher rates of death from breast cancer.*'[5]

In May 2009 the results of a large UK-wide study of 63,550 people aged 20 to 89 was concluded. Cancer incidence among the 63,550 people was monitored from the 1993 to 2005. The study concluded that *"The overall cancer incidence rates of both the vegetarians and the non-vegetarians in this study are low compared with national rates. Within the study, the incidence of all cancers combined was lower among vegetarians than among meat eaters, but the incidence of colorectal cancer [bowel cancer] was higher in vegetarians than in meat eaters.*" [6]

This UK study is interesting because it was so large and it covered all parts of the UK over a 12 year period. The incidence of all cancers combined was about 11% lower for vegetarians (not regarded as a statistically significant difference). However, the incidence of colorectal

cancer was about 39% higher for vegetarians (a significant difference). Rates for breast, prostate, lung, and ovarian cancer did not differ between vegetarians and non-vegetarians.

Vegetarians and Heart Disease/Stoke

Some studies have claimed that vegetarians have lower rates of heart disease than non-vegetarians. The International Atherosclerosis Project of 1968, however, which examined over 20,000 corpses from several countries, concluded that vegetarians had just as much atherosclerosis as meat eaters.[18] Other population studies have revealed similar data.[19]

It also does not appear that vegetarian diets protect against heart disease. A study on vegans in 1970 showed that female vegans had higher rates of death from heart disease than non-vegan females.[23] Another study showed that Indians, despite being vegetarians, have very high rates of coronary artery disease. [24]

Studies which conclude that vegetarians are at a lower risk for heart disease are typically based on a false assumption. It is assumed that lower blood cholesterol equates with less heart disease. Since vegetarians usually have lower blood cholesterol levels, it is concluded (falsely) that they are at less risk for heart disease.[21] There is mounting scientific evidence showing that heart disease predictors can be a combination of factors such as levels of C-reactive protein and homocysteine, and the degree of hypertension and obesity.

Many studies[7,8,9,20] show that vegetarians have on average significantly higher levels of homocysteine, a main cause of early death, heart disease, stroke and recurrent pregnancy loss. Elevated homocysteine may also be a partial cause of Alzheimer's disease, neural tube defects, and certain eye disorders.

Elevations of homocysteine are quite common (about 10% of the world population) and are linked to an increased incidence of thrombosis and cardiovascular disease (source: Wikipedia). India has the doubtful honor of having ***by far*** the largest number (per capita) of vegetarians and the largest number (per capita) of deaths from heart disease. This is no coincidence. High levels of homocysteine cause heart disease.

Several studies also show that vegetarians are at greater risk of stroke compared to non-vegetarians.[10] For example, Dr. C.S. Yajnik points out that most Indians are vegetarian for religious and socio-economic reasons. Because of this, he says, *"there is a deficiency of Vitamin B-12 among vegetarians that has led to a rise in the incidence of stroke and heart attacks. Deficiency of vitamin B 12 increases the concentration of a chemical called homocysteine in the blood which causes blocks in arteries and veins. These blocks in turn are responsible for heart attacks and strokes."* [22]

Later in this book we explain why homocysteine levels are high in India and in vegetarians generally, and what can be done about it.

Vegetarians and Eating Disorders

A Minnesota, USA, study of 2,516 young people found that vegetarians were more likely to use extreme methods to control their weight than those who had always eaten meat. The study found that vegetarians and former vegetarians aged between 15 and 23 were most likely to binge eat.

Nutritionist Dr Ramona Robinson-O'Brien, of the College of Saint Benedict and Saint John's University in Minnesota, said that the study results "*indicate that it would be beneficial for clinicians to ask adolescents and young adults about their current and former vegetarian status when assessing risk for disordered eating behaviors. Furthermore, when guiding*

adolescent and young adult vegetarians in proper nutrition and meal planning, it may also be important to investigate an individual's motives for choosing a vegetarian diet."

The study, published in the Journal of the American Dietetic Association, found that although adolescent and young adult vegetarians may eat a healthier diet there was evidence that they could be at increased risk of developing an eating disorder.

Nevertheless, a survey of 116 anorexic patients cited by Scripps Howard indicated that 54 percent avoided red meat; only four percent had done so before their illness. Similarly, research into the food habits of 131 young adult women reported in the *International Journal of Eating Disorders* found that 34.3 percent were vegetarians whose diets were significantly more restrictive than the rest of those studied.[17]

It is estimated that about half of all anorexics proclaim themselves to be vegetarian. This is backed up by three studies conducted at the University of California, Davis, which suggest there is a biological basis to vegetarianism among anorexics.[14,15,16]

Vegetarians and Infertility

The diet can affect the fertility of both men and women. It is estimated that in developed countries about one in six couples experience problems trying to conceive and there is growing evidence showing that the problem is compounded by a vegetarian diet.

Several studies have shown that infertility in vegetarians is higher than in non-vegetarians. In addition, vegetarian women who do manage to get pregnant carry fetuses that are at risk of more birth defects.

For example in a Nottingham University Study, some 6,000 pregnant women were surveyed in 1998 and the results were published in the '*Practicing Midwife Journal'*. The study showed that vegetarians have a higher incidence of infertility. Also, vegetarians are more likely to have females instead of male babies.

While having a girl instead of a boy is certainly not a problem in itself, this statistic does provide evidence that vegetarian pregnancies are not as well nourished as non-vegetarians. Boy fetuses are known to be less robust than female fetuses and, as such, require a higher level of maternal nutrition to remain viable. The Nottingham University study revealed that:

- A vegetarian diet places stress on the female body, meaning that female fetuses, which are known to be more robust, survive, while male fetuses are killed off.
- A vegetarian diet changes the acidity of the vaginal secretions, creating a hostile environment for sperm carrying male genetic information.
- The vegetarian diet contains chemicals which mimic the action of female sex hormones such as estrogen.

Vegetarians and Mental Disease

It is well known by science that a deficiency of vitamin B12 in the diet causes depression and mental disease. Bridget Benelam, from the British Nutrition Foundation says: *"A vitamin B12 deficiency can manifest itself in extreme fatigue and brain or mood problems."* There are dozens of studies showing the link between vitamin B12 deficiency, mental disease and depression. Here are just three of the many studies:

- An eight year study in India revealed that 81% of urban middle class men (mostly vegetarian) in Pune are vitamin B12 deficient. The study concluded that "*The B12*

deficiency takes a toll on the neurosystem and leads to growing cases of depression." (Source: Times of India, 10 October 2009).

- A study showed that Alzheimer's disease was found to be associated with lower levels of Vitamin B12 in the blood compared to family members with no shortage of vitamin B12. [32]

- Another study found a clear association with Alzheimer's Disease when both vitamins (B12 and folate) were taken into account, especially among the cognitively intact subjects. [33]

The first manifestation of vitamin B-12 deficiency is usually mental disturbances. These range from abnormal mood swings, mental slowness and memory problems, through hallucinations and depression to severe psychosis. Physical symptoms include: rapid heartbeat, cardiac pain, facial swellings, jaundice, weakness and fatigue.

Vitamin B12 is one of the major vitamin deficiencies that vegetarians suffer from. Indeed, the typical vegetarian diet is more susceptible to vitamin B12 deficiency than just about any other kind of diet – even more susceptible than a vegan diet!

Part Two: The Vegetarian Paradox

At this point in the book you may be wondering why is it that there are so many studies showing the health benefits of a vegetarian diet. Any quick search on Internet will reveal dozens of studies showing that vegetarian diets are better for combating cancer, heart disease, obesity, diabetes, and just about any other ailment you can think of.

Yet, as evidenced in Part One of this book, there is no shortage of evidence showing that a vegetarian diet can be unhealthy relative to a non-vegetarian diet. So what is going on? Consider the following:

A vegetarian diet is on the whole healthier when compared to the non-vegetarian general population. But it is less healthy when compared to the same peer group. For example, take a group of health-conscious non-smokers from the same socio-economic demographic and same age group. Divide them into vegetarians and non-vegetarians – all the available research shows that the non-vegetarians would be healthier. At the very least non-vegetarians are not unhealthier than vegetarians in the same peer group.

Yet countless studies show that a diet that includes animal products (meat and fish) is less healthy than a vegetarian diet. The conundrum then is this: if a non-vegetarian diet that includes meat and fish is less healthy than a vegetarian diet, how can it be that a vegetarian diet is in fact less healthy? This is the ***vegetarian paradox***, the big elephant in the room.

When studies show that a vegetarian diet is more conducive to some particular illness (compared to a non-vegetarian diet) the findings get dismissed and disregarded – the elephant gets ignored. This happens because there is overwhelming evidence showing that a vegetarian diet is beneficial – so when contradictory evidence pokes its head through the door it gets ignored.

Is a vegetarian diet better than a non-vegetarian diet? Without question, the answer is a resounding YES. The evidence against the consumption of meat and fish is simply too great to dismiss. Some people have argued that consumption of meat and fish is good for health because it provides critical nutrition such as vitamin B12, long chain fatty acids and omega 3 fish oils.

The answer to this kind of argument goes like this:

- Vitamin B12 can be obtained from supplements and from breakfast cereals fortified with B12. The benefit of consuming meat for B12 is far outweighed by the health risks posed by carcinogens in cooked meat and by harmful saturated fat.
- Human biology does not require any kind of fatty acids provided by meat and fish. Saturated animal fat (including long chain fatty acids) consumed in the diet cannot be used by the body unless first converted into non-saturated fat. Since the body cannot easily convert long chain fatty acids into non-saturated fat, they get converted into surplus body fat (or into triglycerides which can then cause heart disease and stroke).
- Fish consumption is not required in the human diet. *"Consumers of oily fish should be aware of the potential presence of heavy metals and fat-soluble pollutants like PCBs and dioxin which may accumulate in fish"* (Wikipedia). Quite apart from the fact that most fish is contaminated with pollution, the omega 3 oils in fish can be replaced with plant oils. For example flax seed oil provides a good source of omega 3. It has been argued that fish oil provides long chain omega 3 fatty acids which the body can use more easily than the short chain omega 3 fatty acids provided by plant oils. This is not wholly true since the body can convert short chain omega 3 fatty acids into long chain fatty acids.

In scenarios where starvation and hunger are everyday events (as experienced by our remote ancestors) the consumption of saturated fat, including long chain fatty acids, was vital and life-saving because it was critical to store fat at every opportunity so as to survive times of starvation. In today's society we need very small amounts of saturated fat; but we never need to get such fat from the diet because the human body can comfortably make all the saturated fat it needs from non-saturated fats in the diet.

However, if you are not a vegetarian and wish to continue consuming meat and fish, there is nothing to stop you adopting a largely vegetarian diet and minimizing consumption of animal products for the sake of your health. For more information about the benefits of avoiding animal-based foods see Appendix A.

Note that although Part One of this book shows evidence against a vegetarian diet this does not mean that a non-vegetarian diet is better. A diet that includes meat and fish is worse for health than a diet that does not. The evidence against a vegetarian diet (as shown in Part One) shows that a vegetarian diet needs adjusting (tweaking); it does not show or imply that a vegetarian diet needs to include meat and fish.

So what about the vegetarian paradox? If a vegetarian diet avoids unhealthy meat and fish, why is there plenty of evidence showing that a vegetarian diet is nevertheless unhealthy?

The answer can be summed up in two words: estrogen dominance. The typical vegetarian diet promotes estrogen dominance to a much greater extent than any other kind of diet. Once you eliminate the estrogen dominance factor from a vegetarian diet you transform it into a super healthy diet, and in so doing you greatly improve your health.

Estrogen dominance is at the root of much illness, excess fat and obesity. Both men and women can be affected by estrogen dominance; once you eliminate estrogen dominance from your life you keep illness at bay, you become slim effortlessly and permanently, and you achieve optimum health. You can never be fully healthy or get rid of surplus body fat in the presence of estrogen dominance.

In a nutshell estrogen dominance occurs when the natural ratio of estrogen to progesterone is upset – in other words, when the body's internal estrogen-to-progesterone seesaw becomes titlted.[25]

Estrogen dominance does not mean that the body is producing too much estrogen. It means that the body's estrogen production is not balanced by progesterone production. For good health, the body always strives to keep estrogen and progesterone balanced – if estrogen goes up, progesterone goes up to keep estrogen in check. Likewise, if estrogen does down, progesterone goes down to keep it in check. When the body cannot produce enough progesterone to keep up with the up & down levels of estrogen, the body is said to be suffering from estrogen dominance.

Let's look at some of the evidence presented in Part One of this book. We will use the same headings as in Part One and briefly describe the role played by estrogen dominance under each of these headings. (Please refer back to Part One as necessary).

Vegetarians and Death Rates

The evidence shows that vegetarians are twice as likely to suffer from *mental and neurological diseases* compared to their non-vegetarian peers. Neurological diseases refer to mental illness and dementia and are caused by the body's immune system which attacks the body's tissues it was designed to protect. In other words the body's immune system turns on itself. That is why neurological diseases are classified as autoimmune diseases.

Technically, what happens is that when estrone (a type of estrogen) is used by the body it breaks down into harmful metabolites. These metabolites (known as 16α-hydroxylated metabolites) have the effect of increasing estrogen-induced autoimmunity. A number of studies have demonstrated that elevated levels of 16α-hydroxyestrone metabolites contribute to uncontrolled cellular proliferation and consequent autoimmune diseases.

So, as a result of estrogen dominance, a vegetarian diet acts to promote mental and neurological diseases. This is why vegetarians are significantly more likely to suffer from mental disease and dementia compared to their non-vegetarian peers in a similar socio-economic demographic.

Vegetarians and Obesity Rates

The evidence shows that the incidence of obesity is similar for vegetarians and non-vegetarians in the same peer group. However, some vegetarian groups such as vegetarian Indian women living in the UK have a greater incidence of obesity compared to the general population.

Why is this so? Many studies show that diets high in animal foodstuffs is more fattening than diets high in plant-based foods. The explanation for this apparent conundrum is estrogen dominance. Obesity goes hand-in-hand with estrogen dominance. This is what happens:

- **Body fat magnet.** Estrogen dominance increases body fat. This body fat then produces and stores yet more estrogen. Body fat does this by using an enzyme that converts adrenal steroids to estrogen. So estrogen leads to more body fat, and more body fat produces yet more estrogen, a vicious circle that makes your midriff (belly, hips and thighs) act like a 'fat magnet'.
- **Lack of energy.** Estrogen dominance reduces the body's ability to use fat stores for energy. This in turn means that fewer calories get used up as energy and more calories end up as body fat. The result is extra weight that stubbornly refuses to go away even with less food consumption and more exercise.
- **Eating disorders.** Estrogen dominance makes the body release insulin more rapidly and more often, making you get hungry faster, often producing food cravings, binge eating, and general over-eating.
- **Body fat distribution.** Estrogen dominance pre-disposes the body to store fat around the midriff. In women this means around the waist, hips and thighs. In men it means around the abdomen, giving men a pot belly or 'spare tire'.
- **Thyroid dysfunction.** Estrogen dominance has a dramatic affect on how the thyroid functions. In good health, the thyroid's main job is to help the body burn calories for energy. But too much estrogen circulating in the body has the effect of disrupting the thyroid, causing the body's metabolism to slow down (the medical term for this is 'relative hypothyroidism'). This in turn slows down the body's use of energy, thus increasing the proportion of calories that get converted into fat.

If you are already a vegetarian you may have wondered why your diet is not keeping you slim and why it's so difficult to shift your excess body fat. The explanation is that your vegetarian diet is giving you estrogen dominance, which in turn is keeping you over-weight. For a full examination of this subject and how to best lose weight see www.the-foolproof-diet.com.

Vegetarians and Incidence of Cancer

When it comes to cancer, the evidence shows no significant difference between vegetarians and non-vegetarians in the same peer group. However, the incidence of colorectal cancer has been found to be 39% higher for vegetarians (a significant difference). [6]

But this research raises a conundrum. Many studies show unequivocally that consumption of cooked meat and fish increases the risk of cancer. To see the evidence try searching for "meat causes cancer" on Internet – also see Appendix A.

But if meat consumption increases the risk of cancer shouldn't this put non-vegetarians at greater risk of cancer compared to their vegetarian peers in the same socio-economic demographic? Well, the evidence is clearly saying no – there is no significant difference. This apparent paradox is again explained by estrogen dominance.

It is well known in medical science that estrogen increases cell growth, and when unchecked, this cell growth can result in cancer. Progesterone on the other hand inhibits cells from replicating. What happens is that progesterone increases the activity of a gene called P53 which protects us from cancer. Progesterone also inhibits the action of BCL2, a gene that is a marker for cancer.

The part that estrogen dominance plays in the development and prevention of cancer is still a subject of much controversy in the conventional medical community and further research is ongoing. However, there is mounting evidence that chronic estrogen dominance increases the risk of hormone-dependent cancers and therefore anything you can do to banish estrogen dominance from your life can do nothing but good.

Hormone-dependent cancers include breast, thyroid, prostate, kidney, ovary, testes, and colon cancers, to name but a few. Vegetarians are at greater risk of hormone dependent cancers because, as mentioned, there are certain peculiarities of the vegetarian diet that promote estrogen dominance. This is demonstrated by the fact that even though vegetarians abstain from animal foodstuffs, their incidence of cancer is on a par with their non-vegetarians peers in the same socio-economic demographic.

Vegetarians and Heart Disease/Stroke

As shown in Part One, several large studies have shown that vegetarians have just as much atherosclerosis as meat eaters.[18] Other population studies have revealed similar data.[19] The evidence also shows that vegetarian diets do not protect against heart disease. Some of the research even shows that vegetarians are at *greater* risk of heart disease and stroke that their non-vegetarian peers (see Part One).

Yet there is no shortage of research showing that animal foodstuffs in the diet increase the risk of heart disease and stroke. For example, a major study published in February 2005 reconfirmed the link between meat consumption and heart problems. The study, which was published in the American Journal of Epidemiology, concluded that among the 29,000 participants, those who ate the most meat were also at the greatest risk for heart disease.

"This link between animal products and heart disease is now very well documented. It's no surprise that half of all Americans develop heart disease, because the typical U.S. diet puts almost everyone at risk." Dean Ornish, M.D.

A vegetarian who omits meat and fish should therefore be at lower risk of heart disease, but from the research it is clear that this is not the case. So what is going on? Yes dear reader, you were nearly right when you said "estrogen dominance."

As explained in Part One, many studies show that vegetarians have on average significantly higher levels of homocysteine, a main cause of early death, heart disease, stroke and recurrent pregnancy loss. Elevated homocysteine may also be a partial cause of Alzheimer's disease, neural tube defects, and certain eye disorders.

The link between homocysteine and heart disease/stroke is well known to medical scientists and many studies support this. *"A high level of blood serum homocysteine is a powerful risk factor for cardiovascular disease."* (Wikipedia).

The body creates homocysteine as a toxic byproduct, i.e. as a result of chemical reactions in the body. Elevated levels of homocysteine in the bloodstream are caused by a shortage of vitamins B6, B12 and folic acid (also known as vitamin B9). These B vitamins act to break down homocysteine so that it can be safely eliminated. So when the body has enough B6, B12 and folic acid, the toxic production of homocysteine is minimized.

You would think that a vegetarian diet is going to provide the body with plenty of B6, B12 and folic acid. However, this is not the case. B6 and B12 are more plentiful in animal foodstuffs. Furthermore, folic acid although available from plant foods such as green leafy vegetables, is easily destroyed in cooking. As a consequence, vegetarians can often suffer from a shortage of B6, B12 and folic acid and consequent raised levels of homocysteine.

Furthermore, it is now known that estrogen dominance promotes homocysteine. What happens is that the B vitamins get used up trying to neutralize (break down) the excess estrogen in the liver. As a result, less B vitamins are available for breaking down homocysteine. Elevated levels of homocysteine then act to promote clogged arteries.

"Homocysteine does this by injuring the lining of the coronary arteries and by thickening of the wall of the arteries, regardless of the level of cholesterol in the blood. Homocysteine interferes with the way cells use oxygen, resulting in a build-up of damaging free radicals. These reactive chemical forms can oxidize low-density lipoproteins (LDL), producing oxycholesterols and oxidized fats and proteins within developing plaques. Also, homocysteine stimulates growth of smooth muscle cells, causing deposition of extracellular matrix and collagen, which causes a thickening and hardening of artery walls." [26]

Vegetarians, then, get a double whammy when it comes to homocysteine. Firstly, the vegetarian diet does not provide a rich source of the B vitamins, particularly B12. This shortage of B vitamins prevents the liver from eliminating excess homocysteine. And secondly, as explained in Part Three, the vegetarian diet promotes estrogen dominance which in turn uses up the precious B vitamins, again leading to elevated levels of homocysteine. This puts vegetarians at greater risk of heart disease and stroke compared to their non-vegetarian peers.

Vegetarians and Eating Disorders

As explained in Part One, several studies show that anorexia and eating disorders are significantly associated with vegetarians. This is ironic since most vegetarians are over-weight. This may come as a surprise to most people since there is a perception that vegetarians are generally slimmer and that a vegetarian diet is generally non-fattening. Nothing could be further from the truth.

When you next meet a vegetarian (not vegan, but vegetarian) ask yourself this: does this person have any excess body weight? If you are honest, the answer will invariably be YES. In fact, about 30% of vegetarians are obese, around 30% are overweight and the other 40% are of normal weight.[27] The average rate of obesity in the general population worldwide is 14.1%. (Source: OECD Health Data 2005).

Even if you look at the Unites States (the country with the highest incidence of obesity in the world), the rate of obesity is 30.6% according to OECD data. (Obesity is defined as having a body mass index greater than 30). *"…there are a significant number of overweight vegetarians who struggle every bit as much as non-vegetarians to lose weight."* [27]

In another study vegetarian and non-vegetarian adolescents were compared. It was found that *"vegetarians presented subscapular, suprailiac and midaxillary skinfolds statistically higher than omnivores, but the percent body fat was not different."* [30]

Many people adopt a vegetarian diet in the belief that it will help them to lose weight only to discover that in fact they do not lose weight. This, of course, contributes to any eating disorders that may already be present. As already explained in this part of the book (see 'Vegetarians and Obesity Rates') a vegetarian diet promotes estrogen dominance in the body, and this in turn promotes obesity. Any eating disorders that a person may suffer will not be helped by estrogen dominance.

Vegetarians and Infertility

In Part One it was shown that both infertility and birth defects are higher in vegetarians compared to their non-vegetarian peers. This is no exaggeration, and there are many studies showing this to be the case.

For example a Bristol University study has found that mothers who ate a vegetarian diet during pregnancy had a five-time greater risk of delivering a boy with hypospadias, a birth defect of the penis.

Hypospadias is a birth defect where the opening of the penis is found on the underside of the penis rather than at the tip. It is a common congenital defect, affecting about 1 in 300 newborn males. The condition requires surgery to correct it, where the foreskin is used to repair the problem. Untreated, it can interfere with urination and sexual function.

The study asked mothers to fill out questionnaires during pregnancy regarding obstetric history, lifestyle, and dietary practices. Of 7,928 boys born to mothers participating in the study, 51 cases of hypospadias were identified.

Mothers with a vegetarian diet in the first half of pregnancy had a 4.99 times greater risk of having a boy with hypospadias compared with non-vegetarian mothers. (Source: BJU International January 2000;85:107-113).

Another 2009 study found that women with low levels of B12 were 2.5 to three times more likely to have a child with a neural tube defect while those classed as deficient in B12 were five times more likely to have a child with a defect. [30] There are dozens of similar studies showing that birth defects are much more common in women with low levels of folic acid and vitamin B12.

As explained in this part of the book (see 'Vegetarians and Heart Disease/Stroke'), vegetarians are more susceptible to deficiencies of folic acid and vitamin B12. This is so for two reasons. Firstly the vegetarian diet is a poor source for folic acid and vitamin B12, and secondly the vegetarian diet promotes estrogen dominance. The dominance of estrogen in the body has the effect of reducing further still the availability of folic acid and B12.

When it comes to infertility, estrogen dominance is your worst enemy. Infertility is to a large extent caused by insulin. *"The insulin can interfere with the development of the eggs as they're growing, as well as interfere with the establishment of a pregnancy inside the uterus."* [31 There] is a misconception that vegetarians are more susceptible to infertility because

they do not eat meat. There is no research to verify this. However, there is plenty of research to show that insulin plays a big part in conception.

The point here is that vegetarians are more susceptible to insulin interference (and hence infertility) by virtue of being estrogen dominant. Estrogen dominance makes the body release insulin more rapidly and more often, making you get hungry faster, often producing food cravings, binge eating, and general over-eating.

It is well known in medical science that when insulin is released more rapidly and more often (i.e. poor blood sugar control) it is more likely to interfere with the process of conception. This subject has been studied exhaustively because it is of great concern to diabetics. The general consensus is that:

- Good blood sugar control reduces the risk of miscarriage and stillbirth, the primary concerns for pregnancy and diabetes.
- Good blood sugar control during early pregnancy greatly decreases the baby's risk of birth defects, particularly those affecting the brain, spine and heart.

In summary, vegetarians are more susceptible to infertility (and birth defects of their progeny) as a consequence of a vegetarian diet that promotes estrogen dominance.

Vegetarians and Mental Disease

In Part One we saw the evidence that a diet that is deficient in vitamin B12 can lead to depression and mental disease. Many studies show this to be the case.

According to The Vegetarian Society the only reliable unfortified sources of vitamin B12 are meat, dairy products and eggs. Vitamin B12 is also found in smaller amounts in fish and poultry. But milk and eggs have been shown to be poor sources of vitamin B12. This is because they contain a factor which blocks absorption when digested. [34]

The vegetarian diet is particularly deficient in B12 for two reasons:

1. Dairy products and eggs cannot be relied upon for sufficient vitamin B12.
2. The vegetarian diet promotes estrogen dominance, which in turn robs the body of vitamin B12 (the liver uses B12 to break down and neutralize excess estrogen – in so doing B12 gets used up).

As mentioned in Part One, a deficiency of vitamin B12 leads to depression, and neurological diseases such as dementia and Alzheimer's Disease. Although there has been some research into the effect of different types of diet and dementia there are no comprehensive studies looking at the incidence of dementia among vegetarians.

Part Three: The Vegetarian Flaw

This section of the book explains why the vegetarian diet is fatally flawed and how to resolve this paradox without resorting to a non-vegetarian diet.

In Part One of this book we looked at the evidence against a vegetarian diet and in Part Two we looked at how a vegetarian diet can cause health problems as shown by the evidence. We have seen how estrogen dominance is at the root of poor health and obesity among vegetarians.

In fact, estrogen dominance is at the root of much illness and obesity in the general population. Vegetarians as well as non-vegetarians can suffer from estrogen dominance. Although there are no studies comparing incidence of estrogen dominance among vegetarians and non-vegetarians, one can infer from the research that estrogen dominance plays a major role in the lives of many vegetarians.

This is evidenced by the vegetarian paradox. Studies that compare the health of vegetarians with their non-vegetarians peers (same socio-economic demographic) show that vegetarians come off worse. Yet the evidence that regular long-term consumption of meat and fish is bad for health is overwhelming. This paradox is explained by an emerging picture showing a greater incidence of estrogen dominance among vegetarians compared to their non-vegetarian peers.

When you have estrogen dominance it means your hormones are out of balance and estrogen is "running riot" in the body. For good health and a slim body estrogen must always be kept on a leash – that leash is called "progesterone".

Nature intended the hormones in our bodies to be in harmony (i.e. balanced) – this is a reflection of good health. If your hormones are in harmony (i.e. synchronized with each other) it means your hormones are in a healthy state of balance inside the body.

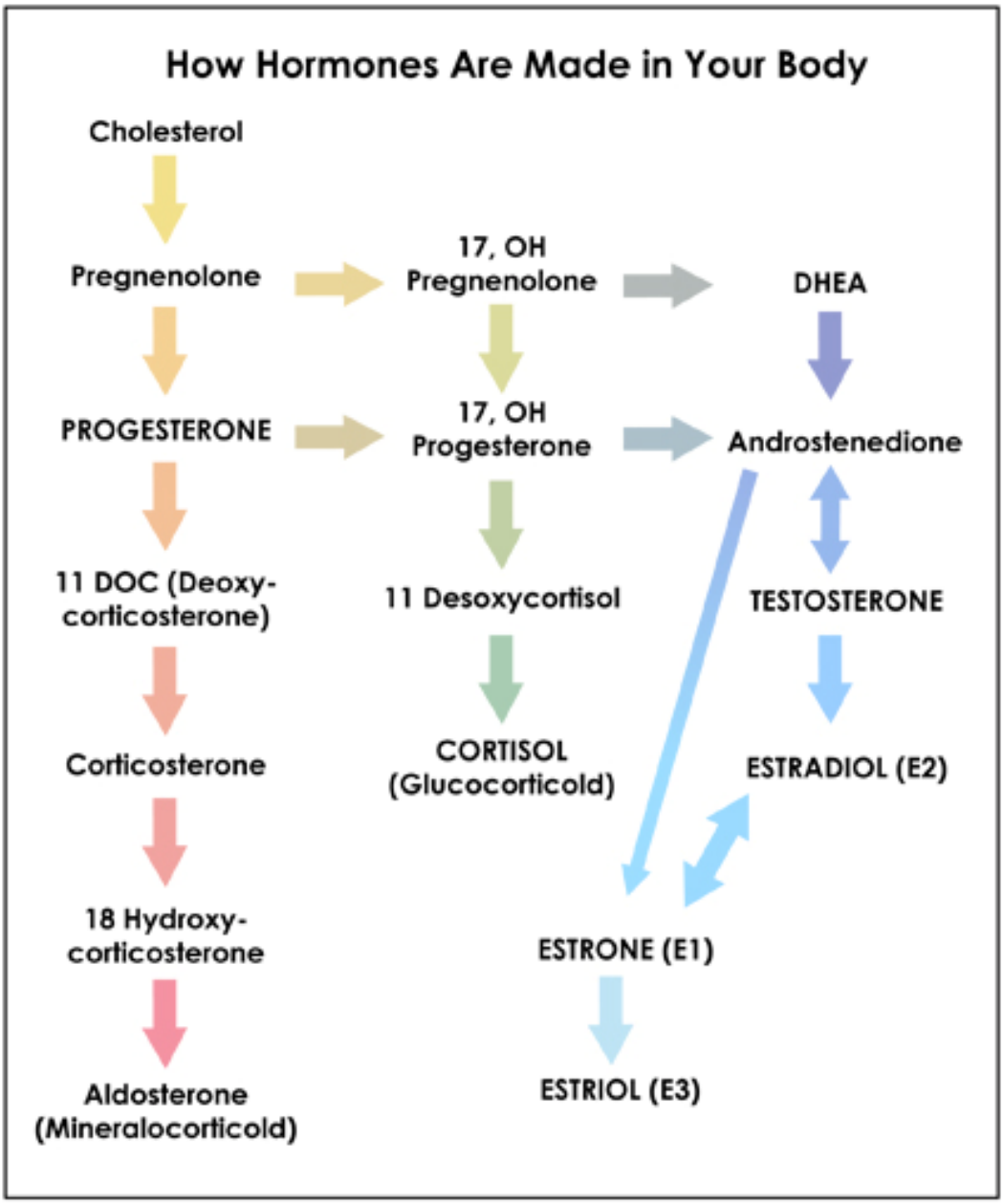
The human body produces three types of gender-related hormones: estrogen, progesterone and testosterone. When it comes to weight control and good health we are primarily interested in estrogen and progesterone because new discoveries are revealing that by the simple act of keeping these two hormones in harmony you will dramatically lose surplus body fat and stay slim and healthy.

More precisely, when the hormones are balanced it means that estrogen and progesterone are balanced, i.e. keeping each other in check in a kind of seesaw action. Estrogen stimulates tissue and cellular growth, and progesterone signals the body to slow down the growth. When estrogen goes up, progesterone goes up to balance the estrogen, and when estrogen goes down, progesterone goes down.

Other hormones in the body, such as insulin and glucagon, also have an impact on body weight, but they play less prominent and more indirect roles. For example glycemic control (blood sugar control) is very important in hormone regulation, because insulin, which controls our blood-sugar, is a master-regulator hormone, and if there is a problem with insulin, it will throw off balance all the hormones including estrogen. Chronically high insulin levels lead to insulin resistance which in turn leads to estrogen dominance.

But the way to deal with chronically high insulin levels is by dealing with estrogen dominance, i.e. by restoring the balance between progesterone and estrogen. If you tell a person to deal with their chronically high insulin levels by avoiding high sugar foods, this is bound to fail unless the issue of estrogen dominance is also addressed.

Hence, when it comes to staying slim and healthy, estrogen and progesterone are the main protagonists as they orchestrate nutrition, and how/when you put on weight and lose weight. Therefore, by focusing mainly on these two hormones, the whole business of good health and weight loss will fall into place so to speak. The following chart illustrates the relationship between the hormones in the body:



As you can see in the above chart, many major hormones depend on the availability of progesterone. When estrogen dominance prevents progesterone from being available to the body, every aspect of health suffers. All hormones are interlocked with one another in a web-like relationship. When estrogen dominance disturbs the balance of one hormone (i.e. progesterone) it has a ripple effect throughout the whole hormonal system, causing harm to all parts of the body.

In a healthy person (in both women and men) the ratio of estrogen and progesterone is optimal, i.e. balanced or in harmony. This is so particularly if you are aged under 30. From age 30 onwards, the body's ability to keep these hormones in balance gradually declines with age. This is why we tend to put on weight as we grow older.

With age, the body's ability to balance estrogen production with progesterone production becomes less efficient, leading to what we now call 'estrogen dominance', a phrase coined by the late Dr. John R. Lee. This does not mean that the body produces too much estrogen – it just means that the natural ratio of estrogen to progesterone is not maintained so efficiently and too much estrogen circulates in the body.

However, estrogen dominance never has to be inevitable whatever your age. There are easy ways to avoid estrogen dominance once you know how. The following table shows some of the typical symptoms of estrogen dominance. Do you recognize some of these symptoms in yourself?

Women	**Women**		**Men**
Bleeding changes	Osteoporosis		Abdominal fat
Anxious	Premature ageing		Burned out feeling
Depressed	Tearful		Decreased mental clarity
Fibrocystic breasts	Tender breasts		Decreased sex drive
Heavy periods	Vaginal dryness		Decreased stamina
Headaches	Water retention		Decreased strength
Incontinence			Decreased urine flow
Memory lapse			Depressed
Hot flushes			Difficulty sleeping
Mood swings			Erectile dysfunction
Fatigue			Increased urinary urge
Irritable			Irritable
Nervous			Night sweats
Night sweats			Poor concentration
Decreased sex drive			Prostate problems

Estrogen dominance is at the root of much ill-health and obesity and it causes a host of metabolic disturbances. The list of illnesses caused by estrogen dominance is almost endless. These include all the illnesses associated with being overweight, ranging from cancer and diabetes to heart disease and stroke.

A major consequence of estrogen dominance is obesity and surplus body fat. If you are overweight it is very unlikely to be because you eat too much or do too little exercise. It is much more likely to be because you are suffering from estrogen dominance. Once you get rid of estrogen dominance you will lose surplus bodyweight effortlessly and permanently and you will greatly improve and protect your health.

What then, is the secret to weight loss? What is the foolproof way to get rid of surplus body fat? The answer is simple yet shocking. Simple because it is easy to do and requires no great lifestyle change. Shocking because losing excess body weight is not about calorie consumption or physical exercise, it's about estrogen dominance.

If you are a woman you will regain the slim, curvaceous body that is hiding inside you. If you are a man you will regain your masculine, firm body. You will do this almost effortlessly because, as you will discover, it is easy to look after your hormones.

This is revolutionary because it means that by focusing on estrogen dominance rather than on calories and exercise, you can lose body weight effortlessly and without fail. It means that you no longer have to torture yourself with calorie restrictions or half-kill yourself doing boring, exhausting exercise.

A detailed examination of exactly how to banish estrogen dominance from your life is beyond the scope of this book, but *The Foolproof Diet* (www.the-foolproof-diet.com) fully covers this subject. In particular, *The Foolproof Diet* reveals exactly why vegetarians are so susceptible to estrogen dominance (it's nothing to do with eating or not eating meat) and how to easily banish estrogen dominance from your life forever.

There are two particular foods that are more responsible for estrogen dominance than just about anything else. Most vegetarians consume these two particular foods on a daily basis and this is why vegetarians suffer from more estrogen dominance than their peers in the same socio-economic demographic. *The Foolproof Diet* shows how best to give up these two particular foods by using easily available equivalents. Giving up these two foods does not involve any kind of deprivation or hardship, but once you do this your health will improve dramatically, and any surplus body fat will just melt away.

To summarize, the vegetarian diet is fatally flawed because it promotes estrogen dominance more than just about any other kind of diet. Vegetarians can get rid of estrogen dominance without resorting to a non-vegetarian diet by adjusting their diet so as to banish estrogen dominance. This has a dramatic effect on health and well-being, and is by far the best way to lose excess body weight.

Whatever your lifestyle, culture, or state of health it is important to understand that now at last there is an easy, enjoyable, and foolproof way to lose surplus body weight, improve your health, and stay slim and energetic for the rest of your life. This book has been about research into the health aspects of a vegetarian diet. A detailed examination of estrogen dominance is beyond the scope of this book – for more information please see the last section in this book: "Further Information".

Appendix A: The Evidence Against Animal Foodstuffs

This appendix provides a small example of the mountain of evidence showing that human consumption of animal foodstuffs is bad for health. Since this report came out in 1999, there has been plenty of further evidence supporting the points in this report.

Cancer and the Vegetarian Diet

by William Harris, M.D.

Cancer is not caused by bacteria, faulty diet, inadequate exercise, environmental contaminants, ionizing radiation, tobacco, viruses, nor heredity. Cancer is caused by a series of genetic mutations in DNA which may be either germline (inherited) or somatic (acquired during life). However, the chances of these mutations occurring in sufficient number to result in cancer is affected by all of the preceding factors.

DNA is the critical target molecule in carcinogenesis (1). Although DNA has various repair mechanisms, some types of damage persist and become the basis of the defective molecular biology that is cancer. Oncogenes (tumor genes), tumor suppressing genes, and aptotic genes (causing programmed cell death) normally interact to build normal cells, to prevent excessive growth, and finally to kill the cell before genetic mutations cause it to malfunction.

Table 1. U.S. cancer rates.

Rank	Males	Rate	Females	Rate
1	Prostate	187	Breast	111
2	Lung	81	Lung	43
3	Colorectal	56	Colorectal	39
4	Bladder	29	Uterus	30
5	Lymphoma	22	Ovary	15
6	Oropharyngea	16	Lymphoma	15
7	Melanoma	15	Melanoma	10
8	Kidney	13	Pancreas	8
9	Leukemia	13	Bladder	8
10	Stomach	11	Kidney	8

Cancer is the second most common cause of death in the United States, where over 1.3 million new cases of cancer are diagnosed annually, with 550,000 deaths. Current United States incidence figures for the ten leading types of cancer are shown (2). Women have an approximately 1:8 lifetime chance of developing breast cancer, and men have an approximately 1:5 chance of developing prostate cancer. Rates above are per 100,000 in 1992. Both Hodgkin's disease and non-Hodgkin's lymphoma are included under lymphoma.

There are three categories of evidence suggesting that vegetarian diet reduces risk for various types of cancer.

Epidemiologically, the intake of animal source food correlates with the country-by-country incidence of six types of cancer. Although none of the reporting countries can be assumed to have large vegan or even vegetarian populations, it appears that the less animal source food per capita, the lower the cancer rate.

In the graphs below, the Y axis contains the disease, the X axis contains the animal source dietary risk factor. R is the correlation coefficient which reflects the "goodness of fit" of the data points to the sloping regression line. The p-value is the probability the apparent relationship is merely a mathematical coincidence. An R of 1 would indicate a direct linear relationship, while an R of zero would indicate no relationship. A p-value of .05 indicates a

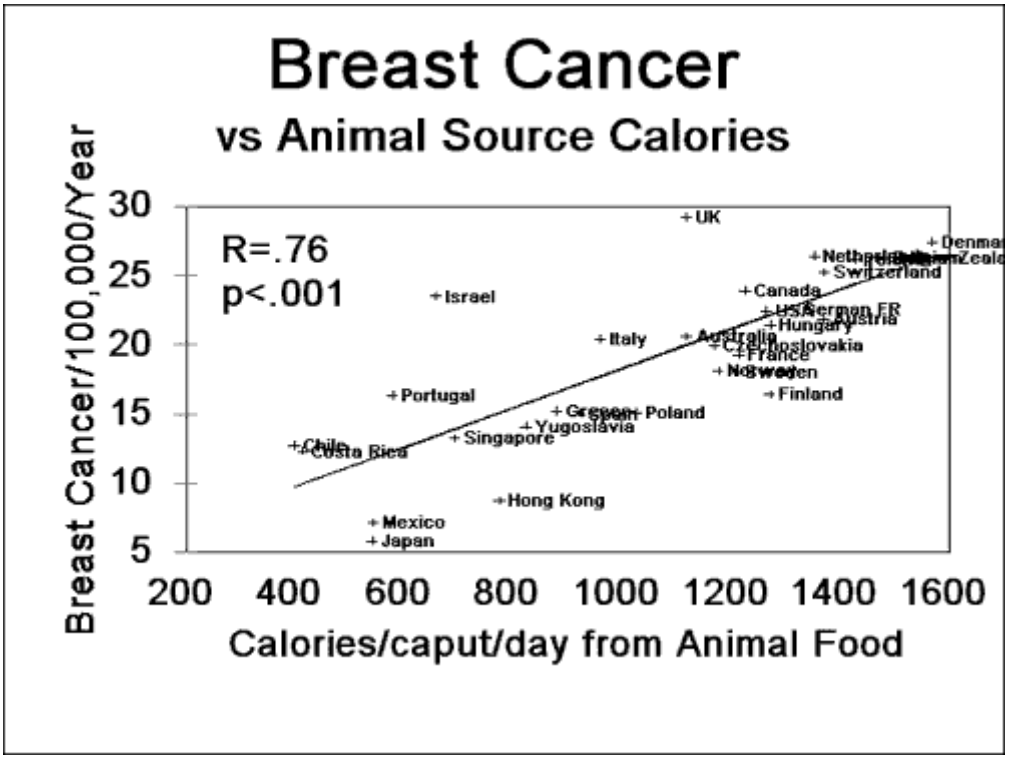
5% chance of mathematical coincidence but numbers less than .05 are traditionally taken to suggest a non-coincidental relationship.

A. Breast Cancer

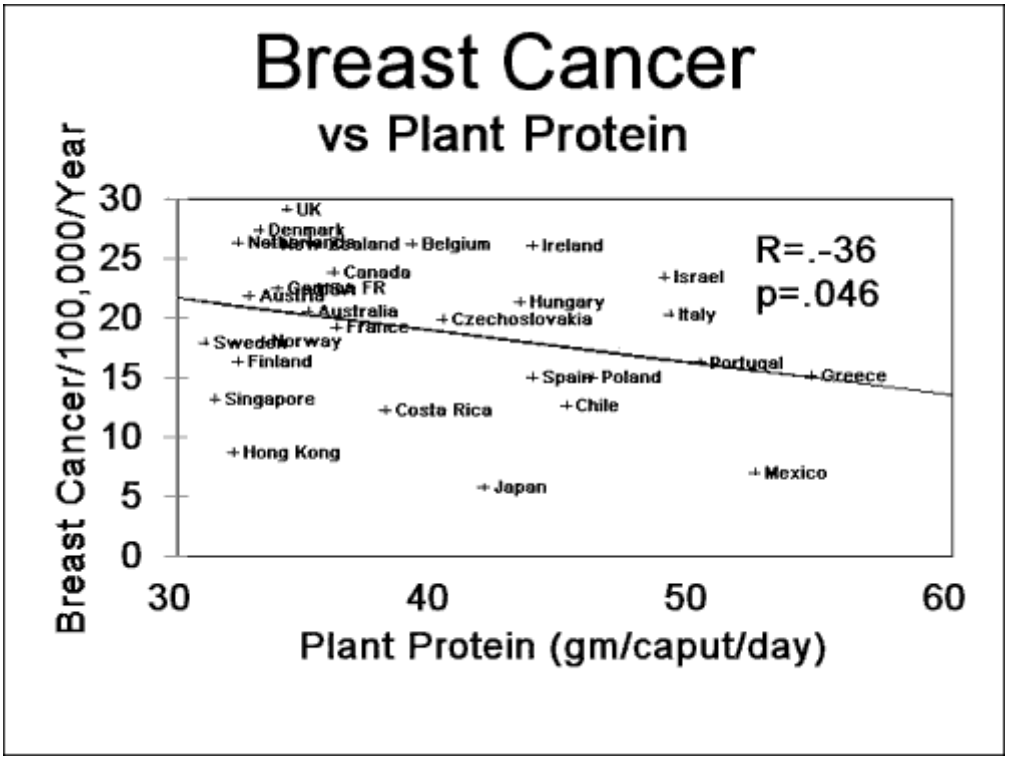
The etiology of breast cancer, as with most cancer, is multi-factorial, with a strong hereditary component. Using BMDP (3) statistical software, I performed multiple regression analysis on breast cancer incidence(4) country by country using Food and Agriculture Organization food consumption data (5) for animal source calcium, animal Calories, animal fat, animal protein, butter and ghee, cheese, eggs, milk production (metric tons/yr), plant source calcium, plant fat, plant protein, plant Calories, total calcium, total fat, total Calories, and total protein.

I included additional vital statistics from *The Book of World Rankings* (6,7) for birth rate, female life expectancy, GNP/caput($), infant mortality, male life expectancy, male/female cancer ratios, meat consumption (kg/caput/yr early 70's), sugar consumption (kg/caput/yr - 1976), and total population.

Of these (sometimes not independent) variables, the highest correlation (R=.76, p<.001) with breast cancer incidence was from animal source Calories, (with animal fat and the other animal constituents close behind).



Plant protein consumption had a moderate negative (protective) correlation (R= -.36, p=.046).

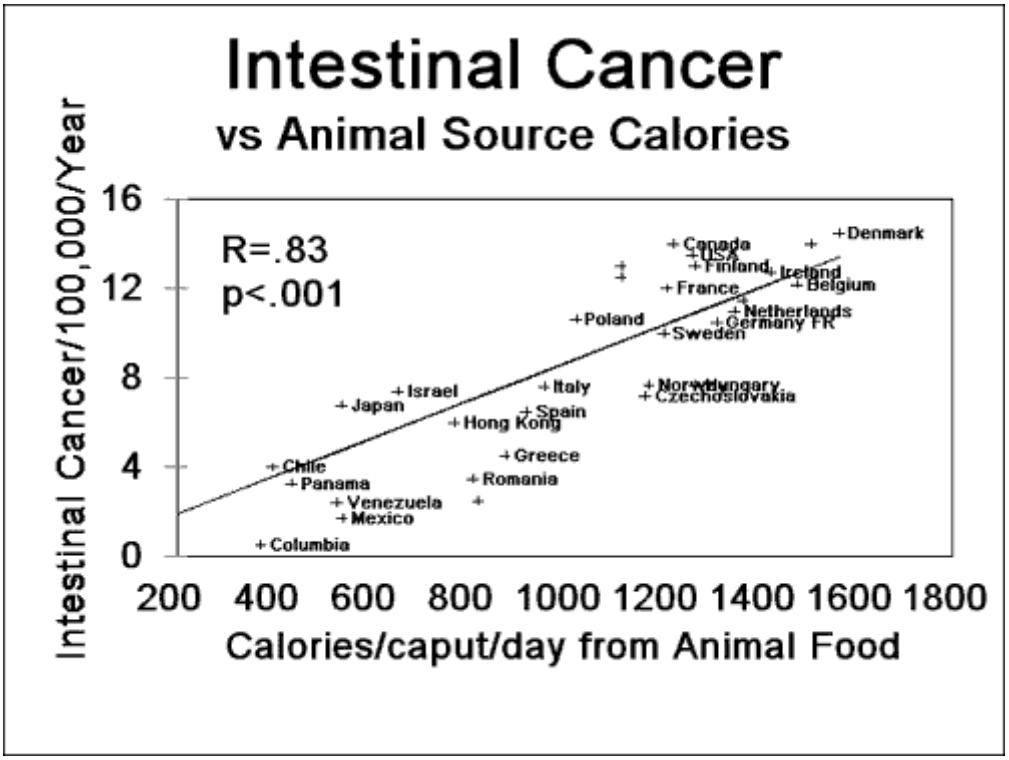


Of the other positive correlations, animal source calcium had an R value of .62 and p=.0026. This would support the contention that dairy hormones are a risk for human breast cancer (8). Insulin-like growth factor (ISGF-1), present in both cow milk and human milk is known to stimulate the growth of human breast cancer cells (9, 10).

The vegetarian diet has been shown to lower the level of estradiol (11) (an estrogen) and raise sex hormone binding globulin (SHBG) levels (12). Some forms of breast cancer are estrogen-receptor (ER) sensitive and the phytoestrogens from plant foods (13, 14), particularly soy products, are thought to block ERs in a manner similar to tamoxifen. Lower post-treatment ER-rich breast cancer survival rates in women who reported higher dietary fat intake have been found.(15)

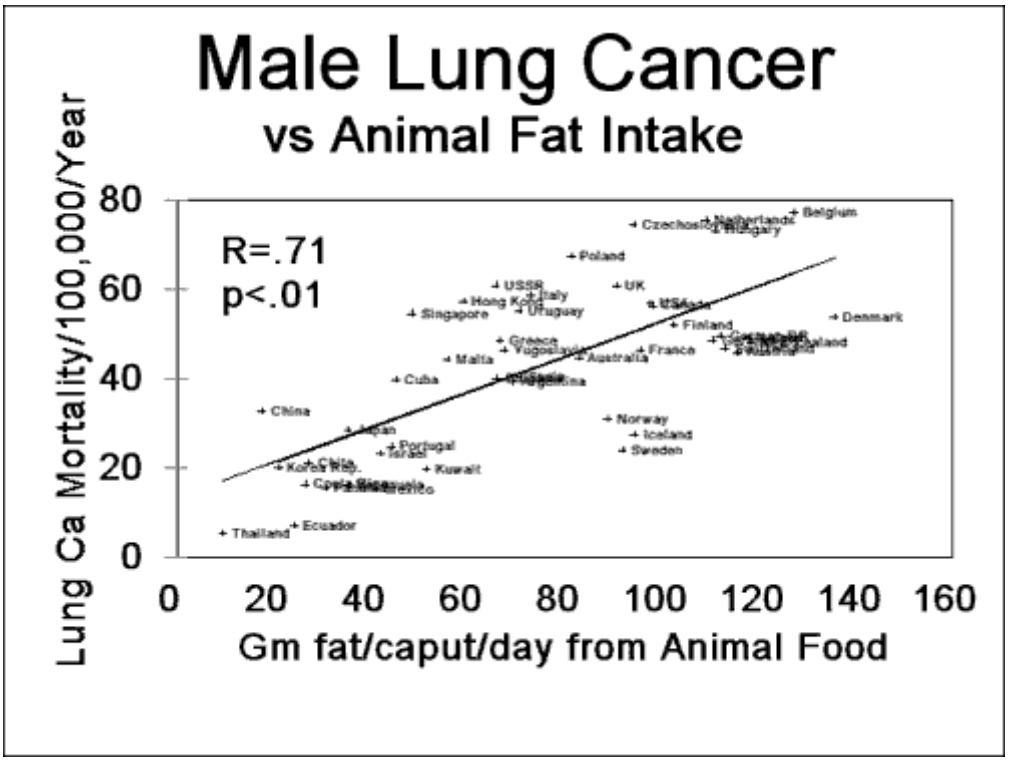
Although the most recent pooled-analysis of fat intake as a risk factor for breast cancer produced negative results (16), a case-control study (17) conducted in Italy on 2,569 incident cases of breast cancer and 2,588 controls found an odds ratio (OR) of 1.22 for saturated fat, and 0.89 for unsaturated fat.

B. Intestinal cancer



Intestinal cancer also correlates with animal food consumption (R=.83, p<.001) (18). Suggested explanations here are that meat increases the rate of carcinogenic bile acid formation (19), lack of fiber has an adverse effect on colonic bacteria (20), and additionally lengthens the intestinal transit time so that both dietary carcinogens in meat (21), and endogenous ones (the bile acids), are in contact with the intestinal mucosa for a longer period.

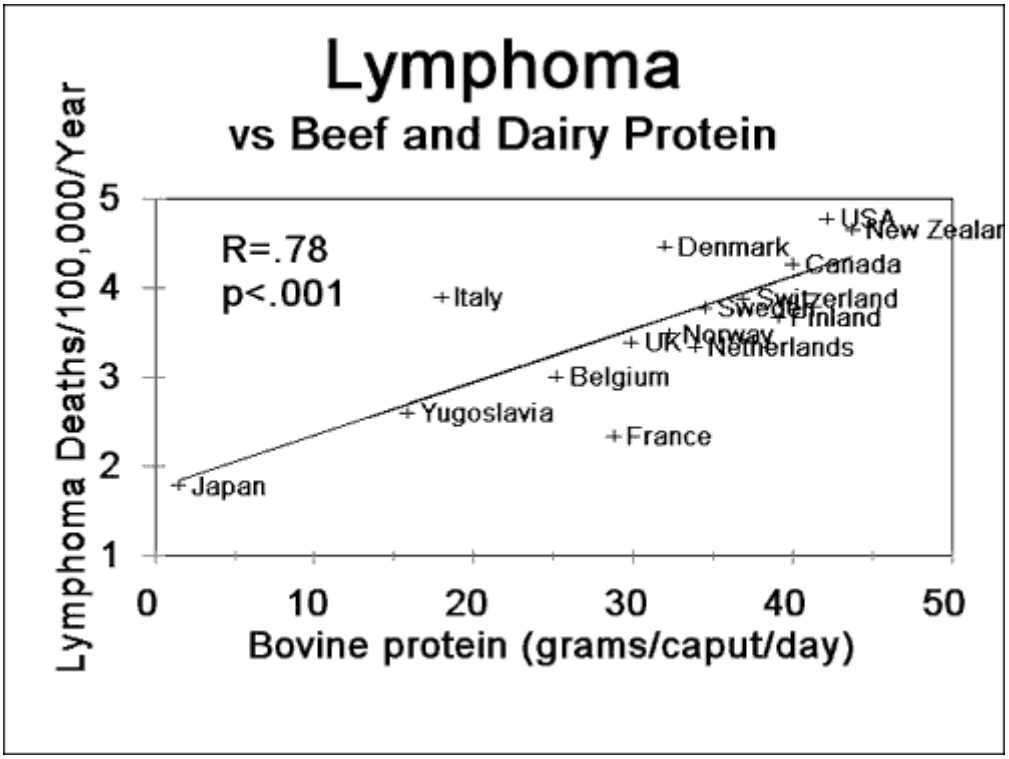
C. Lung Cancer.



Lung cancer mortality correlates with animal fat consumption (R=.71, p<.01) (22) and with the consumption of animal source protein and calcium. Plant nutrients had negative (protective) R values but p values were above .05, so they were not deemed statistically significant. However, the World Cancer Research Fund (WCRF) (23) judges that "diets high in a variety of vegetables and fruit, and the microconstituents they contain, may prevent 20-33% of cases of lung cancer in both smokers and non-smokers."

Data on tobacco use was not available, but there is little doubt that it would prove to be the most important predictor of lung cancer mortality, exceeding dietary factors by a wide margin.

D. Lymphatic Cancer

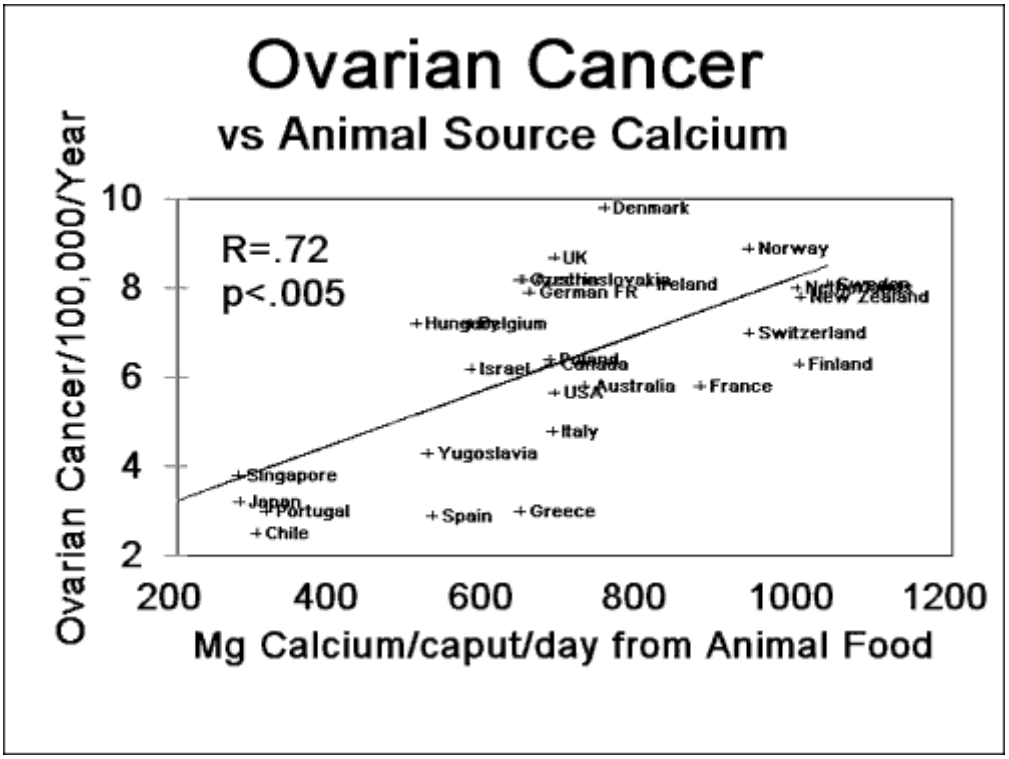


In 1977 Cunningham (24) examined the correlation between age-adjusted lymphoma mortality as reported by the WHO (25), and food intake as reported by the O.E.C.D. (26). Using multiple regression analysis for the intake of cereal grain, eggs, fish, nuts, pork, potatoes, poultry, pulses, seeds, starches, animal protein, crop protein, and total protein, he found the highest positive correlation with beef and dairy protein intake (R=.78, p<.001). Fish and all of the plant foods had a slight negative correlation.

A 1997 case-control study conducted in Northern Italy between 1983 and 1992 involving 829 cases and 1,157 controls (27) found that "Compared with the lowest tertile, the odds ratio (OR) for the highest tertile of milk intake was 1.8 for Non-Hodgkins Lymphoma (NHL) and 1.9 for sarcomas. Liver intake was an indicator of the risk of Hodgkins Disease (HD) (OR = 1.8), NHL (OR = 1.6), and myelomas (OR = 2.0), ham another indicator of HD (OR = 1.7), and butter an indicator of myelomas (OR = 2.8). A high consumption of green vegetables was inversely related to myelomas (OR = 0.4), and frequent use of whole-grain foods was inversely related to NHL (OR = 0.4) and soft tissue sarcomas (OR = 0.2). The OR for the highest tertile of intake of beta-carotene ranged between 0.5 and 0.7, whereas the OR for retinol ranged between 1.5 and 2.3."

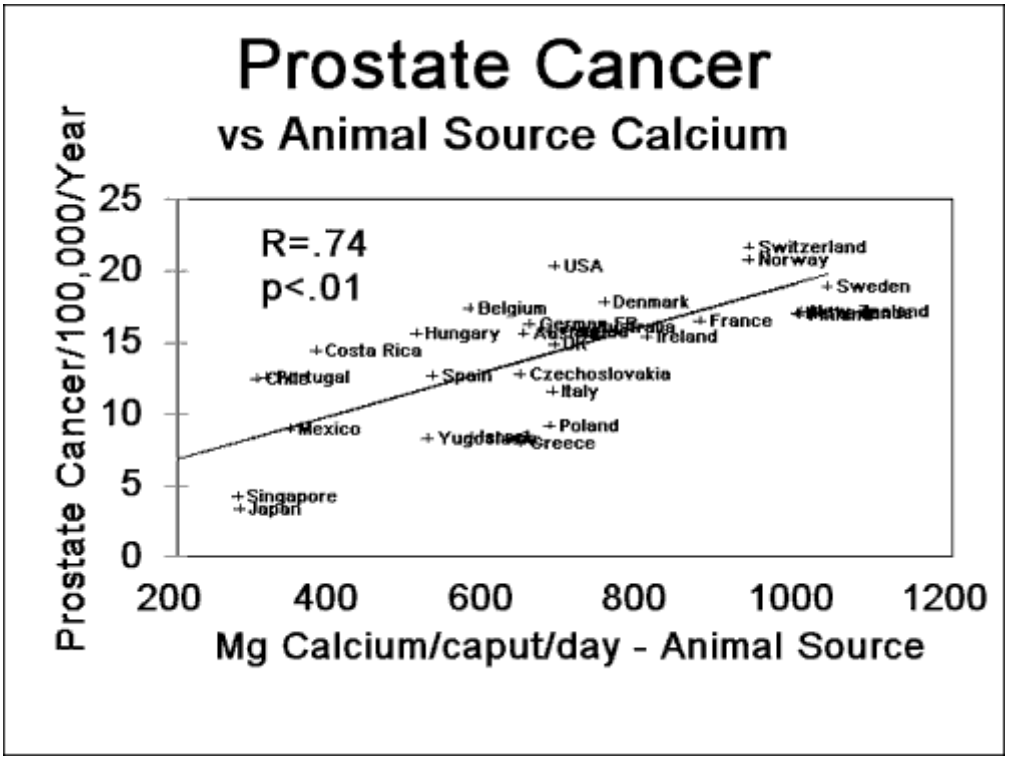
E. Ovarian Cancer

Ovarian cancer also appears related to animal food consumption (28). Animal source Calorie intake showed the highest positive correlation (R=.81, p<.007). Plant source Calories were protective, with an R value of -.62 and p<.005. Animal source calcium intake was also a risk, with an R value of .72, p=.0005.



This latter finding is consistent with the hypothesis that consumption of milk lactose may be a dietary risk factor for ovarian cancer in women with a an inherited deficiency of the enzyme galactose-1-phosphate uridyl transferase. (29). Additionally, insulin-like growth factor-I (IGF-I) present in both cow and human milk, is elevated in the cystic fluid of ovarian cancer (30). A study from Canada (31) implicated saturated fat and egg cholesterol consumption as risk factors for ovarian cancer, with reduced risk from vegetable fiber consumption.

F. Prostate Cancer.



Surprisingly, multiple regression analysis of prostate cancer incidence (32) versus the same dietary and social variables showed the highest correlation with animal source calcium intake (R=.74, p<.01) (33), which in general means dairy products. Animal source Calories came in second and plant protein had the highest negative correlation coefficient (R= -.49, p=.0052). This finding is consistent with a cohort study of 20,316 men of various ethnicities interviewed between 1975 and 1980 in Hawaii (34) that found beef and milk consumption to increase risk for prostate cancer. Prostate cancer, once again, is a sex hormone dependent cancer (35). A more recent study again identified animal source fat as a risk factor for prostate cancer, particularly in blacks (36).

The World Cancer Research Fund (37) recommends a "predominantly plant-based diet" and lists fruits and vegetables as [convincing, probable, or possible] risk reducers for cancer of the bladder, breast, cervix, colon, endometrium, esophagus, kidney, larynx, liver, lung, mouth and pharynx, ovary, pancreas, prostate, rectum, stomach, and thyroid. This organization recommends five or more portions of vegetables and fruit daily, and "if eaten at all, red meat to provide no more than 10% of total energy" (Calories).

There are biochemical studies that suggest how plant foods protect against cancer. Since DNA damage is crucial to cancer, its cause and prevention should be reviewed. Important in current thinking is the effect of lipid peroxidation in the generation of free radicals, small molecular fragments of fat with incorporated oxygen. Lipid peroxidation is a branching chain reaction with devastating side effects due to the ability of the oxidized fat fragments to covalently bond with DNA, damaging its structure and function.

There is a large category of antioxidants, many of them man-made such as the food preservatives BHA and BHT. Naturally occurring antioxidants include vitamins C, E, the carotenoids (lycopene-[tomatoes], luteins and beta-carotene [leafy greens]) ellagic acid (4-carbon ring metabolic artifacts found in berries) (38), and saponins (plant sterols attached to a short chain of sugars) (39). All of these substances help to quench the free radical chain reaction.

Not all of these antioxidants are listed in the USDA database, but of the ones that are, I sorted by nutrient/Calorie ratio to find the highest plant source and the highest animal source for -carotene, vitamin C, and vitamin E. Included were 232 foods including beans, dairy, eggs, fish, fruit, grains, meat, nuts, poultry, and vegetables. Sorting by nutrient/weight ratio produces roughly similar results.

Clearly animal source food is no anti-oxidant match for plant foods. It's likely that by the time animal source food reaches the table the animal's tissues have already utilized most of the anti-oxidants that were synthesized by the plants the animal ate. A diet high in plant food, particularly fruits and vegetables, will be high in these anti-oxidants, thus protective against cancer. A diet high in animal food will be low in these anti-oxidants, since the food itself is low and its presence in the diet displaces the fruits and vegetables that might otherwise be present.

It should be noted that of 20 flours, breads, grains, and grain products included in the 232 foods, all were well below 100% of the RDA/Calorie for these three antioxidants with the exception of wheat germ oil (vitamin E). This may bear slightly on a recent study showing no reduction in colon cancer by high fiber intake (40). Admittedly grains are high in fiber, but they are not high in cancer-protective anti-oxidants. The respondents with high fiber intake may have been consuming large amounts of cereals and grains as they had been advised to, but the cancer-preventive agents are mostly in fruits and vegetables. The same grain products added in 100 gram increments and averaged, also proved to have less than 100% of the RDA/Calorie for calcium, folate, and riboflavin. Ninety three vegetables treated in the same manner were well over 100% RDA/Cal for 18 common nutrients except for vitamin B12 and had 800% of the RDA/Cal for -carotene, 1250% for vitamin C, and 300% for Vitamin E.

Fiber, plentiful in grains, is not a nutrient since it is not absorbed. It acts, in the words of one medical editor, as "a sort of colonic broom" and while this may be advantageous, a repeat of the study, this time using fruits and vegetables, rather than fiber, as dietary intake markers might produce more favorable results.

Steinmetz and Potter (41) report that the cancer protective substances in fruits and vegetables include, in addition to antioxidants, the following: allium compounds (diallyl sulfide, allyl methyl trisulfide), coumarins, dietary fiber, dithiolthiones, flavonoids (quercetin, kaempferol), folic acid, indole-3-carbinol, inositol hexaphosphate, genistein, biochanin A, isothiocyanates, sulphorophane, d-limonene, phytosterols, protease inhibitors, and selenium.

The means by which these substances protect against cancer cell initiation include effects on cell differentiation, increased activity of enzymes that detoxify carcinogens, blocked formation of nitrosamines, altered estrogen metabolism, altered colonic milieu (including bacterial flora, bile acid composition, pH, fecal bulk), preserved integrity of intracellular matrixes, effects on DNA methylation, maintenance of normal DNA repair, increased apoptosis (programmed cell death) of cancer cells, and decreased cell proliferation.

Cancer cell metastasis may be blocked by a plant-based diet. German investigators have shown that vegetarian men have roughly twice the natural killer cell activity as age-matched omnivorous controls (42).

A recent study from Britain (43) concluded that: "Vegetables and fruit are almost invariably protective for the major cancers. The evidence is best for a protective effect of vegetables in the large bowel and for fruits and vegetables in stomach cancer.... High consumption of meat, especially red meat and processed meat, is linked with higher risk of bowel, breast, prostate, and pancreatic cancer. There is some evidence of an association with lung cancer, and of an

association of barbecued meat and oesophageal cancer." This study also concluded that "up to 80% of bowel and breast cancer may be preventable by dietary change."

Practical aspects of the vegetarian or vegan diet.

A straightforward and simple dictum is:

"Eat as wide a variety of plant foods in as unprocessed a form as possible."

-Susan Havala, R.D.

All the essential amino acids, essential fatty acids, and vitamins required in the human diet are synthesized either by plants or micro-organisms (44), not by animals. The essential inorganic nutrients (iron, calcium, zinc, etc.) were synthesized in nuclear fusion reactions that occurred in stars that blew up more than 5 billion years ago (45). The notion that veg*n diets are more likely than omnivorous ones to be nutrient deficient is the result of sorting foods by nutrient/weight ratio. Since there is no RDA for weight in the diet, while there is an RDA for Calories, a more rational approach to food analysis is by nutrient/Calorie ratio, in which case it is seen that animal source foods, because of their high fat content, have little advantage over plant foods (46). Although poorly designed veg*n diets have produced reports of nutritional deficiency, particularly in children (47), the notion that vegans are more likely than omnivores to suffer nutrient deficiencies is not supported by the literature (48). In general, a diet centered on vegetables and fruit, preferably raw, with grains, nuts, seeds, and starches used to fill in Calorie requirements will satisfy nutrient requirements, with the exception of Vitamin B12, which must be supplemented, at least until the scientific dust settles. Numerous vegetarian and vegan cookbooks and handbooks are available and should be consulted by new veg*ns.

Conclusion

Evidence from a broad scientific literature suggests:

A. Rates for at least six common types of cancer, country by country, correlate with the consumption of animal source food.

B. There is a modest negative correlation with these cancers and plant source food consumption.

C. A variety of phytochemicals present in plant foods have been demonstrated to be protective against the DNA damage that leads to cancer.

D. The vegan diet, extolled by its advocates for at least 150 years as a cancer preventive strategy, is the logical end point of the dietary recommendations, now made by scientific organizations, to reduce animal food consumption.

E. A recent clinical review (49) concluded: "Up to 80% of bowel and breast cancer may be preventable by dietary change... Diet contributes to varying extent to the risk of many other cancers, including cancers of the lung, prostate, stomach, oesophagus, and pancreas... Generally, fruit, vegetables, and fibre have a protective effect, whereas red and processed meat increase the risk of developing cancer."

There are no logical arguments for the continued use of animal source food in the human diet. However, logic is not the key factor here. The United States Department of Agriculture (USDA) has shielded the meat and dairy industries from normal market forces since at least the beginning of the Commodities Credit Corporation (CCC) in 1933 (50), by giving direct price supports to dairy production, and de facto supports to the meat industry in the form of feed grain price supports (51, 52).. In 1998 USDA Secretary Dan Glickman bought up at least

$250 million worth of beef, chicken, dairy, eggs, fish, lamb, and pork that could not be sold on an already flooded market. These goods will be dumped into public feeding troughs such as the National School Lunch Program (53).

This is contrary to advice given by the National Cancer Institute, the U.S. Department of Health and Human Services (DHHS), and the USDA itself, to consume daily at least five servings of fruit and vegetables. Only a third of the U.S. public is aware of the "5-A-Day" recommendation (54).

Vegetable and fruit growers have for the most part been excluded from support programs..."All crops may be harvested on flex acreage except...fruits and vegetables..." (55), and apparently don't want government assistance or large ad campaigns(56) to market their products. Evidence indicates that animal industries have exerted enormous pressure on the government for continuation of their supports (57). These industries then plow their profit margins into massive ad campaigns, nutritional "education", and political action to insure that their benefits will continue.

A glance at IRS Corporate Income Tax Form 1120 and most state corporate tax forms shows also that advertising is a tax deductible business expense. There is little doubt that the animal food interests are taking full advantage of this as they suborn the media, the nutritional establishment, and the government to push their wares on a naive public.

Until the government stops using public tax moneys to bail out the animal food interests and stops giving tax breaks for their massive advertising programs that virtually freeze vegetarian information out of the public consciousness, there is not much chance that we will see a reduction in cancer rates.

William Harris, M.D.

Medical Director

Kaiser-Permanente Vegan Lifestyle Clinic (VLC)

1765 Ala Moana Blvd. #1880

Honolulu, HI 96815

END NOTES FOR APPENDIX A

1 Murray RK, Granner DK, Mayes PA, and Rodwell VW.*Harper's Biochemistry.* Appleton and Lange Norwalk, CT 1990. ISBN 0-8385-3640-9 p 653.

2 McPhee SJ, Papadakis, Gonzales, Tierney. *Current Medical Diagnosis & Treatment* (CMDT) *on CD-ROM 1998*. Appleton Lange 1998. Norwalk, 1990. ISBN 0-8385-1480-4.

3 BMDP Statistical Software. *BMDP New System for Windows v1.0* Los Angeles,1994. ISBN 0-935386-30-0.

4 Tominaga S., Aoki K, Fujimoto I, Kurihara M. *Cancer Mortality and Morbidity Statistics Japan and the World -1994.* Age adjusted breast cancer incidence/100,000/year 1983-87. Japan Scientific Societies Press CRC Press 2000 Corporate Blvd., N.W. Boca Raton Fl 33431ISBN 0-8493-7748-X . Table I-13. p194.

5 Food and Agriculture Organization of the United Nations. *FAO Production Yearbook.*Rome,1987

6 Kurian, George Thomas. *The Book of World* Rankings. Facts on File Inc. 119 West 57th St. New York,N.Y.10019. 1979.ISBN 0-87196-394-9.

7 Kurian, George Thomas. *The New Book of World* Rankings. Facts on File Inc. 460 Park Ave. So. New York, N.Y. 10016. 1991 ISBN 0-8160-1931-2.

8 Outwater JL; Nicholson A; Barnard N. *Dairy products and breast cancer: the IGF-I, estrogen, and bGH hypothesis.* Med Hypotheses (ENGLAND) Jun 1997, 48 (6) p453-61, ISSN 0306-9877.

9 Musgrove EA, Sutherland RL. *Acute effects of growth factors on T-47D breast cancer cell cycle progression.* Eur J Cancer 1993;29A(16):2273-9.

10 Figueroa JA, Sharma J, Jackson JG, McDermott MJ, Hilsenbeck SG, Yee D. *Recombinant insulin-like growth factor binding protein-1 inhibits IGF-I, serum, and estrogen-dependent growth of MCF-7 human breast cancer cells.* J Cell Physiol 1993 Nov;157(2):229-36.

11 Prentice R, Thompson D, Clifford C, Gorbach S, Goldin B, Byar D. *Dietary fat reduction and plasma estradiol concentration in healthy postmenopausal women. The Women's Health Trial Study Group.* J Natl Cancer Inst 1990 Jan 17;82(2):129-34.

12 Bennett FC; Ingram DM. *Diet and female sex hormone concentrations: an intervention study for the type of fat consumed.* Am J Clin Nutr Nov 1990, 52 (5) p 808-12, ISSN 0002-9165.

13 Reinli K, Block G. *Phytoestrogen content of foods--a compendium of literature values.* Nutr Cancer 1996;26(2):123-48.

14 Adlercreutz H; Mousavi Y; Clark J; Hockerstedt K; Hamalainen E; Wahala K; Makela T; Hase T. *Dietary phytoestrogens and cancer: in vitro and in vivo studies.* J Steroid Biochem Mol Biol Mar 1992, 41 (3-8) p331-7, ISSN 0960-0760.

15 Holm LE, Nordevang E, Hjalmar ML, Lidbrink E, Callmer E, Nilsson B. *Treatment failure and dietary habits in women with breast cancer.* J Natl Cancer Inst 1993 Jan 6;85(1):32-6.

16 Hunter DJ, Spiegelman D, Adami HO, Beeson L, van den Brandt PA, Folsom AR, Fraser GE, Goldbohm RA, Graham S, Howe GR, et al. *Cohort studies of fat intake and the risk of breast cancer--a pooled analysis.* N Engl J Med 1996 Feb 8;334(6):356-61.

17 Decarli A, Favero A, La Vecchia C, Russo A, Ferraroni M, Negri E, Franceschi S *Macronutrients, energy intake, and breast cancer risk: implications from different models.* Epidemiology 1997 Jul;8(4):425-8

18 Wynder EL. *The Dietary Environment and Cancer*. J Amer Dietetic Assoc. 1977;71:385-92.

19 Shils ME, Olson JA., Shike M. *Modern nutrition in health and disease-8th ed.* Lea & Febiger Malvern, PA. 1994. ISBN 0-8121-1485-X. p 580.

20 van Faassen A; Bol J; van Dokkum W; Pikaar NA; Ockhuizen T; Hermus RJ. *Bile acids, neutral steroids, and bacteria in feces as affected by a mixed, a lacto-ovovegetarian, and a vegan diet.* Am J Clin Nutr Dec 1987, 46 (6) p 962-7, ISSN 0002-9165.

21 Bingham SA, Pignatelli B, Pollock JRA, Ellul A, Mallaveille C, Gross G, *et al. Does increased endogenous formation of N-nitroso compounds in the human colon explain the association between red meat and colon cancer?* Carcinogenesis 1996;17:515-23.

22 National Institutes of Health. National Cancer Institute. *Cancer Rates and Risks: Cancer Death Rates Among 50 Countries (Age adjusted to the world standard) 4th Edition*. Source: World Health Organization data as adapted by the American Cancer Society 1996. U.S. Department of Health and Human Services. Lung cancer p 39.

23 World Cancer Research Fund / American Institute for Cancer Research. *Food, Nutrition and the Prevention of Cancer: a global perspective*. 1997 1759 R St. NW Washington, DC 20009. 178-FNS/F27 p 12.

24 Cunningham AS. *Lymphomas and Animal-Protein Consumption.* Lancet.1976;Nov.27:1184-86.ISSN 0023-7507.

25 World Health Organization. *Mortality from Malignant Neoplasms 1955-1965.* Geneva, 1970.

26 Organization for Economic Cooperation and Development (O.E.C.D.) *Food Consumption Statistics 1955-1971*. Paris, 1973.

27 Tavani A; Pregnolato A; Negri E; Franceschi S; Serraino D; Carbone A; La Vecchia C. *Diet and risk of lymphoid neoplasms and soft tissue sarcomas.* Nutr Cancer (UNITED STATES) 1997, 27 (3) p256-60, ISSN 0163-5581.

28 Tominaga S, Aoki K, Fujimoto I, Kurihara M. *Cancer Mortality and Morbidity Statistics. Japan and the World-1994.* Japan Scientific Societies Press CRC Press 2000 Corporate Blvd., N.W. Boca Raton Fl 33431. ISBN 0-8493-7748-X. Table I-15 p 196. 1983-87.

29 Cramer DW; Harlow BL; Willett WC; Welch WR; Bell DA; Scully RE; Ng WG; Knapp RC. *Galactose consumption and metabolism in relation to the risk of ovarian cancer* . Lancet Jul 8 1989, 2 (8654) p 66-71, ISSN 0023-7507.

30 Karasik A, Menczer J, Pariente C, Kanety H. *Insulin-like growth factor-I (IGF-I) and IGF-binding protein-2 are increased in cyst fluids of epithelial ovarian cancer.* J Clin Endocrinol Metab 1994 Feb;78(2):271-6.

31 Risch HA; Jain M; Marrett LD; Howe GR *Dietary fat intake and risk of epithelial ovarian cancer.* J Natl Cancer Inst Sep 21 1994, 86 (18) p 1409-15, ISSN 0027-8874.

32 Tominaga S., Aoki K, Fujimoto I, Kurihara M. *Cancer Mortality and Morbidity Statistics. Japan and the World-1994.* Japan Scientific Societies Press CRC Press 2000 Corporate Blvd., N.W. Boca Raton Fl 33431ISBN 0-8493-7748-X . Table I-16. p 197. 1983-87. "Cancer mortality statistics in 33 countries of the world were compiled and calculated from data edited from a magnetic tape copy of the WHO data base of cancer mortality." All figures are age-adjusted and represent death rate per 100,000 population.

33 Food and Agriculture Organization of the United Nations. *FAO Production Yearbook.* Rome, 1987. Calcium/caput/day-milligrams 1983-85. Table 109. p 252.

34 Le Marchand L; Kolonel LN; Wilkens LR; Myers BC; Hirohata T. *Animal fat consumption and prostate cancer: a prospective study in Hawaii.* Epidemiology May 1994, 5 (3) p 276-82, ISSN 1044-3983.

35 Mousavi Y, Adlercreutz H. *Genistein is an effective stimulator of sex hormone-binding globulin production in hepatocarcinoma human liver cancer cells and suppresses proliferation of these cells in culture.* Steroids. Jul 1993, 58 (7) p 301-4, ISSN 0039-128X.

36 Mousavi Y, Adlercreutz H. *Genistein is an effective stimulator of sex hormone-binding globulin production in hepatocarcinoma human liver cancer cells and suppresses proliferation of these cells in culture.* Steroids. Jul 1993, 58 (7) p 301-4, ISSN 0039-128X.

37 World Cancer Research Fund / American Institute for Cancer Research. *Food, Nutrition and the Prevention of Cancer: a global perspective*. 1997 1759 R St. NW Washington, DC 20009. 178-FNS/F27 pgs 10, 14.

38 Goodwin and Mercer. *Introduction to Plant Biochemistry.* Pergamon Press.Oxford, 1983. p 562.

39 Salisbury FB, and Ross CW. *Plant Physiology*. Wadsworth Publishing Co. Belmont 1985. ISBN 0-534-04482-4 p 276.

40 Fuchs CS, Giovannucci E., Colditz GA, Hunter DJ, Stampfer MJ, Rosner BR, Speizer FE, Willett WC. *Dietary Fiber and the Risk of Colorectal Cancer and Adenoma in Women*. N Engl J Med 1999;340:169-76.

41 Steinmetz [(1)]KA, Potter JD. *Vegetables, fruit, and cancer prevention: a review*. Journal of the American Dietetic Association, Oct 1996;(10): 1027(13).

42 Malter M; Schriever G; Eilber U. *Natural killer cells, vitamins, and other blood components of vegetarian and omnivorous men.* Nutr Cancer (UNITED STATES) 1989, 12 (3) pp 271-8, ISSN 0163-5581.

43 Cummings, JH, Bingham,SA. *Diet and the prevention of cancer.* BMJ 1998;317:1636-1640.

44 Lindner M. *Nutritional Biochemistry and Metabolism*. Elsevier Science Publishing Co. New York, 1985. ISBN 0-444-01241-9 pp 70-71.

45 Random House. *Random House Encyclopedia*. New York, 1977. ISBN 0-394-40730-X. p 48.

46 Harris W. *The Scientific Basis of Vegetarianism.* Hawaii Health Publishers. 1415 Victoria St. Suite 1106. Honolulu, HI 96822-3663. ISBN 0-9646538-0-X. p 91.

47 Jacobs C, and Dwyer T. *Vegetarian children: appropriate and inappropriate diets.* Am J Clin Nutr. 1988;48(3):811.

48 Langley G. *Vegan Nutrition, a Survey of Research.* The Vegan Society. Oxford, 1988. ISBN 0-907337-15-5.

49 Cummings JH, Bingham SA. *Diet and the prevention of cancer.* BMJ 1998;317:1636-1640.

50 Luttrell, Clifton B. *The High Cost of Farm Welfare*. Cato Institute. Washington, 1989. ISBN 0-932790-70-4. p 15.

51 United States Department of Agriculture. *Agricultural Statistics, 1989*. United States Government Printing Office. Washington, 1989. Table 623.

52 United States Department of Agriculture. *History of Budgetary Expenditures of the Commodity Credit Corporation: Fiscal Year 1990-1991 Actual.* ASCS/BUD/CPB Book 3.p 2.

53 http://www.ams.usda.gov/cp/index.htm

54 http://dcp.nci.nih.gov/5aday/week98/CommunityKit98.html

55 ASCS Commodity Fact Sheet. *Feed Grains: Summary of Support Program and Related Information.* United States Department of Agriculture. June 1991.

56 GAO/RCED-92-15. *Generic Promotion of Produce.* Resources,Community, and Economic Division. United States General Accounting Office. Washington, 1991. P 2.

57 McMenamin M, and McNamara W. *Milking the Public: Political Scandals of the Dairy Lobby from L.B.J. to Jimmy Carter.* Nelson-Hall. Chicago, 1980. ISBN 0-88229-552-7.

Bibliography

1. Appleby, Paul, Do Vegetarians Live Longer? Talk given by Paul Appleby, Secretary of Oxford Vegetarians, to members of Oxford Green Party Students at the Friends Meeting House, Oxford, on Friday 1 March 2002, and at an Oxford Vegetarians speaker meeting at the same venue on Wednesday 20 March 2002.
2. Barr, S.I, et al, Relative weight, weight loss efforts and nutrient intakes among health-conscious vegetarian, past vegetarian and nonvegetarian women ages 18 to 50. J Am Coll Nutr. 2000 Nov-Dec;19(6):781-8.
3. Rosell, M., et al, Height, age at menarche, body weight and body mass index in life-long vegetarians, Public Health Nutrition, 2005 Oct;8(7):870-875.
4. Eilber, U, Steindorf, K, 2005, Lifestyle determinants and mortality in German vegetarians and health-conscious persons: results of a 21-year follow-up. Epidemiol Biomarkers Prev 14:963-68.
5. Appleby PN, Key TJ, Thorogood M, Burr ML, Mann J. Mortality in British vegetarians. Public Health Nutr. 2002 Feb;5(1):29-36.
6. Key, Timothy J., et al, Cancer incidence in vegetarians: results from the European Prospective Investigation into Cancer and Nutrition , Am J Clin Nutr 89: 1620S-1626S, 2009.
7. Bissoli L, et al, Effect of Vegetarian Diet on Homocysteine Levels, Ann Nutr Metab 2002;46:73-79.
8. Krajcovicová-Kudlácková M,, Homocysteine levels in vegetarians versus omnivores, 1: Ann Nutr Metab. 2000;44(3):135-8.
9. Bissoli, L., et al, Effect of Vegetarian Diet on Homocysteine Levels, Annals of Nutrition & Metabolism 2002;46:73-79.
10. Dr S Prabhakar, head of PGI's neurology department, Chandigarh, India, said “studies indicate that a vegetarian diet makes people vulnerable to brain strokes.” Source: Times of India, 16 March 2005.
11. Shetty PS (2002) Nutrition transition in India. Public Health, Nutrition 5, 175–182.
12. Jebb, S.A., et al, (2004) Prevalence of overweight and obesity among young people in Great Britain. Public, Health Nutrition 7, 461–465.
13. Key TJ, Fraser GE, et al. (1999b) Mortality in vegetarians and nonvegetarians: detailed findings from a collaborative analysis of 5 prospective studies. American Journal of Clinical Nutrition 70, Suppl. 516S–524S.
14. Washburn, BS, Jiang JC, Cummings, SL, Dixon K, Gietzen, DW. Anorectic responses to dietary amino acid imbalance: effects of vagotomy and tropisetron. American Journal of Physiology 266 (6 Pt. 2): R1922-1927, 1994.
15. Jiang, JC, Gietzen, DW. Anorectic Response to Amino Acid Imbalance: A Selective Serotonin3 Effect? Pharmacology Biochemistry and Behavior 47(1): 59- 63, 1994.
16. Terry-Nathan, VR, Gietzen DW, Rogers, QR. Serotonin3 antagonists block aversion to saccharin in an amino acid-imbalanced diet. American Journal of Physiology 268 (5 Pt.2): R1203-1208, 1995.

17. Gilbody SM, Kirk SFL, Hill AJ. Vegetarianism in young women: Another means of weight control? *International Journal of Eating Disorders* 26(1): 87-90, 1999.

18. HC McGill and others. Lab Inves, 1968, 18:(5):498.

19. (a) D. Groom and others. Ann Int Med, July 1961, 55:1:51-62; (b) WF Enos and others. J Amer Med Assoc, 1955, 158:912; (c) W Laurie and others. Lancet, Feb 1958, 231-232; (d) WB Robertson. Lancet, 1959, 1:444; (e) T Gordon. Pul Health Rep, 1957, 51:270; (f) OJ Pollack. Lancet, 1959, 1:444.

20. Herrmann, Schorr, Purschwitz, Rassoul, Richter. Total homocysteine, vitamin B (12), and total antioxidant status in vegetarians. Clin Chem, 2001, 47(6):1094-10; (b) D Mazzano and others. Cardiovascular risk factors in vegetarians. Normalization of hyperhomocysteinemia with vitamin B(12) and reduction of platelet aggregation with n-3 fatty acids. Thromb Res 2000 Nov 100:153-60.

21. (a) U Ravnskov. The Cholesterol Myths, 47-113, 79-80; (b) A Ascherio and others. Dietary fat and risk of coronary heart disease in men. Brit Med J, 1996, 313:84-90.

22. Yajnik, Dr. C.S., coordinator of the "Coronary risk of insulin sensitivity in Indian subjects," (CRISIS) a study done by KEM hospital. Diabetologia, ISSN 0012-186X , 2008, vol. 51, n°1, [Note(s): 6-7, 39-46 [10 p.]] (47 ref.).

23. Ellis, Path, Montegriffo. Veganism: Clinical findings and investigations. Amer J Clin Nutr, 1970, 32:249-255.

24. Enas, E.A., Coronary artery disease epidemic in Indians: a cause for alarm and call for action. J Indian Med Assoc 2000 Nov;98(11):694-5, 697-702.

25. Randolph, Dr C.W. et al, From Belly Fat to Belly Flat, the medically proven diet to reshape your body, Vermillion Press, 2008, ISBN 9780091929565.

26. McCully, Kilmer, Dr., The Homocysteine Revolution, Keats Publishing, 1997.

27. Stanley, Jason, Ph. D., et al, Taming Your Food Monster, Dyslexic Dog; 1st edition (November 6, 2007), ISBN 978-0971660915.

28. Melina, Vesanto, et al, The New Becoming Vegetarian: the essential guide to a healthy vegetarian diet, Healthy Living Publications, ISBN 978-1-57067-144-9.

29. Meirelles, Cláudia de Mello, et al, Nutritional status of vegetarian and omnivorous adolescent girls, Nutrition Research, volume 21, Issue 5, May 2001, Pages 689-702.

30. Anne M. Molloy, et al, Maternal Vitamin B12 Status and Risk of Neural Tube Defects in a Population With High Neural Tube Defect Prevalence and No Folic Acid Fortification, Pediatrics, Mar 2009; 123: 917 - 923.

31. Groll, Jeremy, M.D., et al, Fertility Foods, Fireside, 2006, ISBN 978-0-7432-7281-0.

32. McCaddon A., Kelly C. L.. Familial Alzheimer's disease and Vitamin B-12 deficiency. Age and Ageing 1994; 23: 334-7.

33. H-X. Wang, et al, Vitamin B12 and folate in relation to the development of Alzheimer's disease, Neurology, May 2001; 56: 1188 - 1194.

34. Doscherholmen, A., et al. (1975). Proc Soc Exp Biol Med, Sep;149(4):987-90.

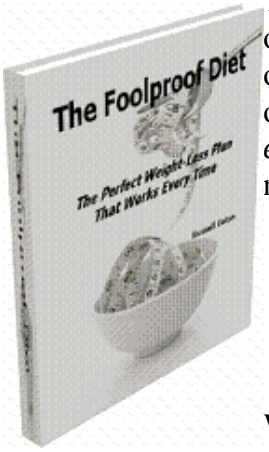
Further Information

For further information about combating estrogen dominance, protecting your health, and staying slim see *"The Foolproof Diet"* by going to www.the-foolproof-diet.com.

Here is some information taken from the website:

Whether or not you consume animal foodstuffs, *The Foolproof Diet* will apply to you.

The Foolproof Diet harnesses the biology of the human body. Instead of fighting the body to lose weight, you get the body to cooperate in losing weight. You do this by tweaking the diet in a very special way – this makes surplus body fat melt away until you reach your ideal weight. There is no mystical element to this – no mind over matter. Everything is based on the biology of the human body, backed up by extraordinary new scientific revelations.



The biology and mechanics of the body are the same for every member of the human race. Since we are all the same biologically, there is only one *universal* way to lose weight, stay slim and remain healthy. There is only one way that works every time, without fail. Now, for the *first time ever* you can discover the secrets of *The Foolproof Diet* and become a new slim person.

Once you know the secrets of The Foolproof Diet you will never look back.
A new 'you' will emerge: a slimmer, healthier, more energetic person, better in mind and body.

Women will regain an attractive, slim feminine body, and men will regain a masculine, firm well-formed, body. Your health will improve dramatically, your immune system will grow strong and fight off illness, and you will feel wonderful and full of energy.

If you've ever tried to lose weight you will know that the most common advice is to eat less calories and do more exercise. The advice to 'eat less and do more' is not only wrong, it is counter-productive, it fills people with a false sense of guilt and failure, and it sells diet books that are doomed to fail. Science has now revealed the biggest misconception in the health & diet industry: advice to eat less and do more is wrong and counterproductive. Equally, advice to eat in special complicated ways to speed up your metabolism never works long-term.

Forget short-term yo-yo dieting, this never works. Forget set meal menus designed for weight loss, forget complicated dietary and exercise regimes, forget weight loss surgery – none of these work permanently and safely.

Did you know that fat tissue makes people want to eat more? When you restrict calories and food intake you impose intolerable stress on the body which in itself is bad for health.

Nobody can ignore the body's constant demand for food on a restrictive diet. You might manage for one week, but not for months and years on end. When you starve the body you make the body want to store even more fat than before. Over 99.9% of people who lose weight through calorie and food restrictions eventually bounce back to their original weight and end up even heavier than before!

The Foolproof Diet works without fail because:

☑ It's easy and simple to follow.
☑ It fits in with any lifestyle, culture or dietary requirement.
☑ It works straight away which keeps you motivated.
☑ It exploits the body's own biology to lose weight in a way never seen before.

The Foolproof Diet is unlike any other diet plan because:

☑ It does not restrict food consumption, so you never go hungry.
☑ It does not impose exhausting exercise regimes.
☑ It does not provide set food menus – this never works.
☑ It does not involve any gimmicks, diet pills, medical procedures, hypnosis, colonic irrigation or detoxification.

The Foolproof Diet is based on a revolutionary and unique method that produces dramatic weight-loss results the moment you start to follow it. People with medical conditions such as diabetes or inflammatory illness will benefit enormously from this diet program. Equally, people who are fit and healthy will find *The Foolproof Diet* indispensable because it enables the body to achieve the best possible level of fitness and health.

This is a diet plan for all walks of life whatever your medical condition, gender, weight, or state of health. As soon as you adopt *The Foolproof Diet* you will realize that you will never need to read another book about weight loss and you will never need to worry about your weight again. *The Foolproof Diet* will change your life and send you in a wonderful new direction. When you become slim and your health improves, your life undergoes a dramatic change for the better – this is priceless.

People who read *The Foolproof Diet* say they wish they had seen this book years ago. But years ago this publication did not exist; *The Foolproof Diet* is based on the latest scientific discoveries which have at last revealed exactly how best to lose weight whatever your circumstances.

Here's just a taste of what you'll discover...

The one thing you absolutely must do to conquer weight loss. No human being can lose surplus body fat unless they know this secret. 99.9% of diet plans fail because of this. Once you know this secret you will never be over-weight again.

Two critical foods you must never eat if you want to be slim and healthy. These two common foods are consumed by most people on a daily basis and they have nothing to do with sugar, fat or salt. Avoid these two harmful foods and you're on your way to a slim body and good health. Avoiding these two foods is very easy and does not involve any kind of food deprivation.

A special kind of super-food that greatly promotes weight loss and good health. Discover this food and experience a dramatic improvement in health and well-being. This special super-food has an extraordinary ability to promote weight loss and you will never

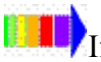
want to be without it. It is very economical to buy and easy to obtain (one of the best kept secrets in the food industry!).

 Why the body fat around your midriff is virtually impossible to shift whatever you do. Women tend to put on weight around the hips and thighs, men around the abdomen. No amount of dieting or exercise will get rid of this body fat. But now it is easy to shift this stubborn body fat when you apply *The Foolproof Diet*.

 Why some people are naturally slim whatever they eat! *The Foolproof Diet* reveals why this is so and how you too can be naturally slim. Do not believe the myth some people are naturally slim because they expend energy fidgeting – this is not so. Once you adopt *The Foolproof Diet* you will stay slim effortlessly.

 An extraordinary new discovery that reveals a direct link between diet and dementia. The latest research is showing that diet is the biggest cause of dementia (apart from the natural aging of the body). *The Foolproof Diet* is the perfect diet to combat dementia – find out why.

 *The Foolproof Diet* is medically proven to work without fail – it is the safest, easiest way to lose weight permanently. As soon as you start applying *The Foolproof Diet* you will notice a dramatic difference to the way you feel, and soon (within a few days) you will begin to see a steady, consistent weight loss. This is real, permanent weight loss of surplus body fat – not a temporary weight loss of water retention.

 If you have tried to lose weight using a variety of diet plans but never succeeded, you will know how frustrating this is. Many lives and relationships are blighted by obesity – don't let this happen to you. Once you start using *The Foolproof Diet* you will be astonished at how effective it is. The genuine loss of surplus body fat is a truly life-changing experience.

 Why most types of exercise promoted by health gurus and diet books have got it wrong. Discover the best way to be physically active that will make you lose the most weight and yet is the least tiring.

This is what happens when you lose weight:

Apart from looking slimmer, your health will improve immeasurably: you will feel better mentally and physically; you will be more energetic; you will feel calmer and be more clear-headed; you airways will clear and you will not be so breathless; you will sleep better; you will keep coughs, colds and illness at bay, plus many other health improvements. The health benefits that accrue as a result of losing excess weight are well known to medical science, including the avoidance of serious diseases such as heart disease, diabetes, stroke and cancer to name but a few.

Many people are astonished at how effective *The Foolproof Diet* is when it comes to weight loss. The latest scientific discoveries about weight loss are not widely known yet. Because of this virtually all diet plans and books are based on outdated ineffective methods when it comes to lasting, healthy weight loss.

www.the-foolproof-diet.com

