

How to Lower Cholesterol Naturally Without Drugs

Guide to Implementing the Portfolio Eating Plan

Developed by David Jenkins and Colleagues

University of Toronto

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Disclaimer: This information should not be substituted for the advice of a physician.

Please consult with your family doctor before beginning any weight-loss or exercise program.

Do not stop taking prescription medicine except with guidance from your family doctor or specialist. Herbal remedies can interact with prescription drugs.

Be honest with your doctor about the herbal remedies, vitamins and supplements you take. If you do not have enough confidence in your doctor to ask his advice, consider getting a second opinion from another doctor or change doctors.

INTRODUCTION

What You Should Expect to Get from Reading this E-Book?

Some things in life you cannot control; some things you could control, but do not need to control. This e-book is about something you need to control and can control—development and progress of artery disease, and its consequences: heart disease, stroke, kidney failure and other chronic conditions. Artery disease results from the interaction of genes with behavior and environment. You cannot change your genes, but you can change your behavior and your environment to allow for your genetic strengths and weaknesses.

The focus of the entire book is to show you how to reduce cholesterol naturally, without drugs, while pointing out other factors you should watch for.

The first section of the e-book is an overview of artery disease and the many doors and windows by which artery disease can enter. What is the point in closing one door to artery disease, if you leave other doors and windows open, by lowering cholesterol without watching out for other factors?

The second section is an overview of research in the use of food to reduce cholesterol naturally. I do not expect you to take my word for the effectiveness of the eating program presented in this e-book. In section two, I present a summary of key studies, just enough to show you that the program is scientifically and clinically respectable.

The third and final section of this e-book presents the program itself, the Portfolio Eating Plan, including practical tips for including cholesterol-lowering foods in your own diet and a recipe for a high-protein shake based on foods contained in the Plan.

A links page follows the text providing access to items mentioned in the text and to products relevant to diet and fitness.

This is a short version of what will eventually become a more comprehensive guide to avoiding chronic disease by diet and exercise. [Check here for updates.](#)

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PART ONE: OVERVIEW OF ARTERY DISEASE

Control What You Can Control

You cannot control your age, gender, or your genes, but there are many factors you can control. For most people risk from cholesterol is controllable. Many people with high cholesterol take prescription drugs, mostly *statins*. Most people who have started taking statins should have tried other interventions first. In July 2003, the *Journal of the American Medical Association (JAMA)* reported research financed by the Government of Canada and carried out at the University of Toronto. This is what an editor of JAMA had to say:

"The findings of Jenkins and colleagues reported in this issue of The Journal indicate that intensive dietary therapy may be just as effective in reducing cholesterol levels as the starting dosage of a 3-hydroxy-3-methylglutaryl coenzyme A reductase inhibitor (statin) drug."

"Dietary management is an essential part of the treatment for lipid disorders, although adherence to strict and intensive dietary interventions requires motivation by patients, encouragement by physicians, and, perhaps, counseling by dietitians and nutrition experts. For most patients, dietary intervention should be the first line of therapy (perhaps for six to 12 weeks) before introducing pharmacotherapy [drugs] for hyperlipidemia, [high cholesterol]" James W. Anderson, M.D., University of Kentucky.

Author's note: Six to 12 weeks may be too short a time for a natural method to work. Sixteen weeks may be needed.

The Role of Cholesterol in Artery Disease

Heart attacks, strokes, kidney failure, gangrene in the arms and legs all have something in common: all may result from artery disease. Scientists now believe that the cause of artery disease—atherosclerosis—is inflammation. Inflammation of the arteries is similar to inflammation caused by hot steam burning the skin: the burned area turns red and swells up; under the surface, a blister forms. A similar process causes patches of arteries to swell up and form blisters called *plaques*. Doctors even refer to the site of inflammation as a "lesion" to indicate that the artery has been wounded.

Age, male gender, family history, high blood pressure, high cholesterol, diabetes, infectious disease and smoking have all been related to a higher risk of artery disease caused by inflammatory processes. While high cholesterol is only one of many risk factors for artery disease, it is probably the best known. Moreover, cholesterol is a major ingredient of the paste that fills arterial "blisters".

Atherosclerosis is an artery disease in which the walls of the arteries swell up, restricting blood flow by narrowing the channel. Swollen areas (plaques) may become fragile and burst open, causing blood clots to form that can move downstream to smaller arteries where they block blood flow.

When a clot blocks a blood vessel that feeds the heart, a clot causes a heart attack. Clots may travel within the body to affect the brain, kidneys, arms and legs. When it blocks a blood vessel that feeds the brain, it causes an ischemic stroke. (Artery disease can also cause a hemorrhagic stroke that results when a blood vessel inside the brain bursts and bleeds.) When a clot restricts blood supply to a kidney, the kidney can fail. When a clot forms in an arm or leg, it can eventually cause gangrene, requiring full or partial amputation of the limb. Atherosclerosis has long been a common disease in middle-aged men and women, but now early signs are appearing in young adults and even children. Medication may slow the progress of artery disease, but does not alter the underlying conditions that cause the disease.

While the causes of artery disease are complex, scientists believe that most people could modify the underlying causes of the disease by improved lifestyle. People who respond well to changed lifestyle may be able to avoid taking medication. In consultation with their doctors, others may be able to reduce their levels of medication in combination with lifestyle change.

Measuring Total Risk of Artery Disease

Total risk of artery disease can be estimated by taking into account several factors:

- Fixed factors: age, gender
- Genetic factors: family history, racial origin
- Medical factors: blood pressure, diabetes, chronic infections
- Lifestyle factors: smoking, alcohol, diet, exercise, salt intake, stress, loud noise
- Mixed factors: ethnic origin, body shape, weight control, sex habits

Fixed factors

- Age: The older you are the higher the risk, interesting for people who collect statistics. The association with age indicates that it takes a long time for artery disease to develop. **But remember, you are not a statistic!**
- Gender: The risk level for men is generally higher than for women, also interesting for people who collect statistics. **But remember, you are not a statistic!**

Genetic factors

- Family history: Artery disease in a first-degree relative (parent, brother, sister) is a warning sign.
- Racial origin: Scientists still dispute whether biological races exist. What is known is that genetic traits are common in some human groups because they share the same genes, some of which may predispose to artery disease. (But see "ethnic origin" below.) Even if you have genes that predispose you to artery disease, you may be able to avoid their **expression**, thus avoiding or delaying the disease.

Medical factors

- Blood pressure: Elevated blood pressure (hypertension) is an independent factor in artery disease because of stress on the artery walls. About 90% of hypertension is primary, also called *essential* and *idiopathic*. What this means is the cause is unknown. About 10% of hypertension is secondary, meaning caused by another chronic condition, such as an adrenal tumor *pheochromocytoma*, *pheo* for short (pronounced "fee-oh") most of which are benign (non-cancerous).
- Diabetes: Of all diseases, diabetes is potentially the worst, because diabetes affects all organs of the body, including arteries, heart, kidneys and brain.
- Chronic infection: Serious colds, bronchitis, pneumonia, gum inflammation, and several sexually transmitted diseases (especially chlamydia) can initiate artery disease. Mycoplasmas have been implicated in pneumonia, chronic fatigue syndrome and sexually transmitted diseases.
- Controversy continues concerning two factors: CRP (C-reactive protein) and homocysteine. It is still not clear whether these are merely markers for inflammation and metabolic problems or causative factors in their own right.
- Metabolic syndrome also called syndrome X involves risk for diabetes and artery disease. Recent research shows that development of metabolic syndrome is related to diet.

Lifestyle Factors

- Smoking: Stopping smoking is probably **the number one most important way to slow or stop artery disease** as well as a shopping list of other diseases.
- Alcohol: For years, red wine has had a good press, and now beer is getting good coverage. However, regular heavy drinking and frequent binge drinking are serious risk factors. What is the limit? Two **standard** drinks per day for a man until age 60, and one **standard** drink per day for women and men over age 60.
- **Diet:** Some foods promote artery disease and some foods provide protection. This is the main subject of this e-book. The Beta release of this e-book focuses on foods that can reduce cholesterol. A later release will provide a more comprehensive approach, including the effects of salt, types of fat, and types of carbohydrates.
- **Exercise:** German research, the Heidelberg Regression Study, showed that heart attack survivors could stabilize progression of artery disease with five

hours exercise per week, while those who exercised seven hours per week or more saw their artery disease "regress" or decline. **Three hours a week were not sufficient to stop progression of artery disease.** (These figure are based on one hour of exercise being equivalent to 300 calories burned, such as by walking five miles or eight kilometers.) **If you use a pedometer, you can count the steps each day:** 10,000 steps per day are needed to reverse heart disease by walking.

- **Salt Intake:** Salt requirements depend on the amount of salt loss through sweat and urine. Sweat increases with the amount of exercise. Loss of salt in urine may be increased by drugs and by certain foods and drinks. Non-athletes need at least 1/4 teaspoon of salt per day (500 mg). Recommendations for maximum salt intake for non-athletes vary by country: about 1.25 teaspoon per day in the US (2400 mg) and about 3/4 teaspoon per day (1600 mg) in Canada and the UK. (Athletes have special requirements.) The average daily consumption of sodium consumed in the US is equivalent to more than 5 teaspoons (10,000 mg), about 80% of which is added by food producers. The food industry is a major promoter of artery disease driven by sodium.
- **Stress & Loud Noise:** Chronic stress is a known risk factor for heart disease. Continual exposure to loud noise causes reactions similar to other stressors. High blood pressure is a common symptom of stress.

RESPeRATE is a medical device that has been clinically proven to lower blood pressure with no side effects. **RESPeRATE** is approved by the FDA and is now available without prescription. The inexpensive device, smaller than a desk phone, reduces blood-pressure by a bio-feedback principle that has been known for more than 20 years, but could not be widely used for therapy before micro-chips were developed. While the device is said to work by assisting the user to learn heart-healthy breathing, many people may find **RESPeRATE** to be the best stress-buster they have ever used. In fact, the Mayo Clinic recommends [RESPeRATE](#) for managing stress. Allegro Medical Supplies [RESPeRATE to US residents without requiring a prescription](#). Please contact the author for Canadian and UK suppliers.

Ethnic Background

- Ethnic origin refers to the cultural group a person belongs to, which may be different from their racial background. Japanese who live in Japan have different health problems from Japanese whose ancestors are Japanese but who live in the USA or South America where they have adopted local customs. Although the genetic heritage may be the same, overseas Japanese who abandon Japanese ethnicity suffer chronic diseases similar to those common where they live. This shows that culture and environment can have a more important role than genes by determining behavior patterns, including diet.

Mixed Factors: body shape, weight control, blood pressure

- Body shape, weight control, blood sugar and blood pressure are related in complex ways. Insulin and leptin resistance are factors found in complex chronic conditions called syndromes. For example, the metabolic syndrome typically involves obesity, elevated blood sugar, high blood pressure and high cholesterol. If uncontrolled, these conditions lead to diabetes and artery disease. **A later release of this e-book will address further aspects of mixed risk factors.**

Measuring Cholesterol Risk

There are many kinds of cholesterol, some more dangerous than others. High total cholesterol does not tell the whole story.

This is critically important because low-density lipoprotein (LDL or "Lousy") cholesterol is the real culprit in artery disease as well as the form called very low density lipoprotein (VLDL). LDL particles contribute to artery damage partly by slipping through the spaces between the cells of the lining of the artery wall where LDL builds up inside the wall. A high level of LDL is considered to be a serious risk factor in itself, but within LDL are low-density particles that are so hazardous that even normal levels pose a risk, (URL: [Berkeley HeartLab](#)).

In *Before the Heart Attacks*, Dr Robert Superko, M.D. describes and explains the sub-types of LDL and why the conventional tests do not tell the full story. This shocking fact emerges: **Despite the importance of the LDL sub-types, routine measurements of cholesterol do not reveal their presence.** Routine cholesterol tests do not directly measure total LDL (LDL-C). The value shown for LDL-C is calculated rather than measured. The test actually measures TC (total cholesterol), HDL (healthy cholesterol), and triglycerides. LDL-C is calculated from these measurements using the following formula:

- **United States (mg/dL):** $LDL-C = TC - HDL - TRG/5$, if TRG (triglyceride) is less than 400 mg/dL.
- **Rest of world (mmol/L):** $LDL-C = TC - HDL - TRG/2.2$, if TRG is less than 4.5 mmol/L.

The Real Risk of LDL Cholesterol

The hazardous small LDL predominates in 50% of men and postmenopausal women, and in 30% of pre-menopausal women with heart disease. The small LDL trait is also present in 50% of their close relatives, who may or may not have heart disease symptoms. These LDL particles floating in the blood easily penetrate the artery wall. Worse, they are more susceptible to oxidation than ordinary LDL. Oxidation increases the artery damage due to LDL. Worse still, a so-called "normal" level of small-particle LDL may be dangerous.

High density (HDL or Healthy) cholesterol inhibits artery damage by carrying cholesterol out of the arterial wall via the bloodstream to the liver where it is either

recycled or excreted. The process is called reverse cholesterol transport. The more HDL you have the better. Some approaches to cholesterol lowering also have the undesirable effect of reducing HDL. Other approaches increase HDL levels.

The Gold Standard for Cholesterol Testing

The "gold standard" for classifying LDL sub-types is ANUC (analytic ultracentrifugation) but is available only for clinical studies. Another method called *gradient cell electrophoresis* has been calibrated to ANUC. The electrophoresis method is available at various locations in the US. For information contact: [Berkeley HeartLab](#) or [LipoScience](#).

Once you know your LDL sub-types you and your health adviser can tailor a diet with more or less fat and carbohydrate custom designed to fit your individual genetic profile. Identifying LDL sub-types would be a wise precaution before adopting a low-fat diet, with fat below 20% of the total calories in the diet.

What to Do If You Do Not Know Your LDL Sub-Types

People who do not know their predominant LDL sub-types can safely adopt a diet that is 20% protein, 50% carbohydrates, and 30% fat, (Dr Robert Superko, M.D., *Before the Heart Attacks*). Dr Superko places the limit on saturated fat at 6%. This macronutrient ratio has been recently confirmed by Lawrence Appel and colleagues at the Johns Hopkins School of Medicine as an improvement on the famous DASH diet (Dietary Approaches to Stop Hypertension).

Fatty Acid Balance: All diet advice tells you to increase the amount of unsaturated fats and to decrease the amount of saturated fat. In his book, *Inflammation Nation*, Dr Floyd Chilton explains why this advice is correct but is misleading, because it omits the crucial distinction between different kinds of unsaturated fatty acids, omega-3 and omega-6.

Dr Chilton explains the role of Arachidonic Acid (AA) in metabolic syndrome (syndrome X), diabetes, arthritis, and artery disease. He calls AA the "bullets in the gun" driving a host of chronic diseases. The body produces some AA from omega-6 oils commonly used for cooking, but the real culprit is the AA that we get preformed in the diet, from pork, chicken fat, farmed salmon, and egg yolks.

The body can produce AA in the liver even from GLA, the "healthy" kind of fat found in borage oil and primrose oil supplements. Dr Chilton explains why we need to balance GLA supplements with EPA, found in fish oil (omega-3). EPA blocks conversion of GLA to AA that normally occurs in the liver. [Dr Chilton's web site](#).

Dr Chilton does not have billions of dollars to finance the development of drugs to treat the symptoms of diseases caused by AA. The National Institutes of Health finance Dr Chilton's research, which aims to cure the disease through better nutrition and selected supplements. [Dr Chilton's current research](#).

The Role of Supplements: Dr Chilton explains why the omega-3 oil we use is important: wild fish, such as salmon and mackerel, contains high ratios of EPA, but farmed salmon contains high amounts of AA. Lean beef contains less AA than pork turkey and chicken and lamb. Healthy foods are: seeds, nuts, beans, roots, shellfish, and non-cereals (millet, quinoa, amaranth and buckwheat). While flaxseed oil is heart-healthy, it is not a substitute for fish oil. (Flaxseed oil is the subject of a research project in Dr Chilton's lab: Mechanisms of Atherosclerosis Prevention by Flaxseed Oil.) Not mentioned is olive oil, which probably owes its health benefits to the fact that the omega-9 oil that it contains follows a different metabolic pathway from the omega-6 oils. A later version of this e-book will explore the topic of unsaturated fats in more depth.

"Dr Chilton is internationally recognized as one of the leaders in his field."
Jonathan Arm, MD, Harvard Medical School.

Practical Way to Improve Nutrition and Lose Weight, Without Dieting

Many health and fitness enthusiasts follow Tom Venuto's approach to strength training and nutrition. ([Burn the Fat, Feed the Muscle](#)). Tom Venuto calls himself an "outlaw bodybuilder", for he is almost unique among bodybuilders in promoting a nutritional program that is at once heart-healthy and adaptable for bodybuilding. In particular, Tom avoids gym-lore that prescribes extremely high protein and low carbohydrate diets.. He regards low-fat diets as impractical.

Tom Venuto recommends a diet similar to the DASH diet, with plenty of fruits, vegetables, grains, nuts and other whole foods. Tom recommends the following macro-nutrient ratios: protein 30%, carbohydrate 50%, fat 20%. To avoid saturated fat found in animal protein, part of the increased protein could come from vegetable protein or whey protein powder. Combined with strength training, some of the extra protein goes to build muscle. (See links at the end of this e-book.)

Increasing protein means adjusting fats and carbohydrates. Instead of 30% fat as suggested by Dr Superko, or 20% as suggested by Tom Venuto, the strength trainee could aim for 25%, a compromise. This would leave 45% carbohydrates to provide the balance of energy requirements, lower than suggested by both Dr Superko and by Tom Venuto, but still a reasonable compromise.

Without strength-training, no extra muscle can be gained by increasing protein above the required minimum of 0.5 gram per pound (1 g/kg) of body weight. A middle-aged or older trainee probably cannot benefit from protein above 0.75 g/lb (1.65 g/kg) body weight. The reason is lies in the rate of muscle growth: the older the trainee, the slower the growth and protein not used to build muscle is burned as energy.

Satiation, a Factor in Appetite Control

The more satisfying the food, the less food we feel we need. Studies have shown that both protein and fat tend to be satisfying: People who eat more protein and fat become **satiated**, so they eat less. This is probably why “low-carbohydrate” diets result in weight loss.

While eating extra protein and maintaining fat to at least 20% helps to control appetite, these foods do not fill the stomach. To get the “full” feeling we need unrefined carbohydrates with all the fiber intact, as recommended in the DASH diet and by both Dr Superko and Tom Venuto.

Outline of Tom Venuto’s Nutrition and Fitness Approach

Tom Venuto also co-authored an inspiring book with Jon Benson that contains an outline of his nutritional approach along with 50 fitness and health success stories, including Jon Benson's own triumph over life-threatening conditions (Tom Venuto and Jon Benson, [Fit Over 40](#)).

PART TWO: THE PORTFOLIO EATING PLAN - THE EVIDENCE

Clinical Research

Important work on the health impact of nutrition is carried out in collaboration between the University of Toronto, Canada, and the Clinical Nutrition and Risk Factor Modification Center, St Michael's Hospital, Toronto. The research is headed by Professor David Jenkins, MD, PhD, who holds the Canada Research Chair in Nutrition and Metabolism in the Department of Nutritional Sciences, University of Toronto.

David Jenkins is best known for developing the glycemic index in 1981 to determine the types of foods that are best for people suffering from diabetes.

More recently, Dr Jenkins and his team of researchers have developed dietary approaches to reducing cholesterol and with it a marker of inflammation that has been shown to signal artery disease, C-Reactive Protein (CRP).

"Over the past two decades, cholesterol-lowering drugs have proven to be effective and have been found to significantly reduce the risk of coronary heart disease (CHD). However, diet and lifestyle factors are still recognized as the first line of intervention for CHD risk reduction by the National Cholesterol Education Program and the American Heart Association, which now advocate use of viscous fibers and plant sterols, and soy protein and nuts, respectively. In a series of metabolically controlled studies, we have combined these four cholesterol-lowering dietary components in the same diet (ie, a dietary portfolio of cholesterol-lowering foods) in an attempt to maximize low-density lipoprotein cholesterol reduction. We have found that the portfolio diet reduced low-density lipoprotein cholesterol by approximately 30% and produced clinically significant reductions in CHD risk. These reductions were the same as found with a starting dose of a first-generation statin drug." Kendall CW, Jenkins DJ. *Current Atherosclerosis Reports*. 2004 Nov;6(6):492-8.

For many years, Jenkins and his colleagues have studied broad aspects of diet related to chronic conditions, such as insulin resistance, obesity, diabetes and cardiovascular disease. Their research has confirmed other studies that have shown that a diet high in unsaturated fats offers more protection to the arteries than low-fat diets. The following abstract illustrates the breadth of their research. The authors stress that a low-carbohydrate diet does not have a health advantage over a diet rich in fruits and vegetables, low-glycemic index carbohydrates, unsaturated fat, and viscous (soluble) fiber.

Fat Versus Carbohydrate in Insulin Resistance, Obesity, Diabetes and Cardiovascular Disease.

PURPOSE OF REVIEW: "This review assesses the relative effect of fat versus carbohydrate and the differences between fatty acids and types of carbohydrate on insulin resistance and associated risk factors for diabetes and cardiovascular disease."

RECENT FINDINGS: "The debate continues over whether high-carbohydrate or high-fat diets have the more deleterious metabolic effects. Large randomized controlled trials have shown that a reduction of fat intake as part of a healthy lifestyle combined with weight reduction and exercise reduce the risk of type 2 diabetes. Carbohydrate as fruit and vegetable together with low-fat dairy products reduce blood pressure. The results of trials of fatty acid type continue to favor the use of monounsaturated fats. However, the advantages over carbohydrate have not always been clear. In terms of carbohydrate, the glycemic index appears to be a better predictor of the metabolic effects of a diet than the sugar content. The fiber content of the carbohydrate food appears to confer benefits in terms of diabetic control. Lower cholesterol and postprandial blood glucose results are associated with viscous fibers."

SUMMARY: "Diets that are higher in monounsaturated fatty acids, fiber and low glycemic index foods appear to have advantages in insulin resistance, glycemic control and blood lipids in a number of studies. The division of nutrients into total fat (regardless of fatty acids) versus carbohydrate (type and quantity not specified) appears to be less helpful in predicting outcomes." Hung T, Sievenpiper JL, Marchie A, Kendall CW, Jenkins DJ. *Current Opinion in Clinical Nutrition and Metabolism Care*. 2003 Mar;6(2):165-76.

Other Nutrition Issues

Elsewhere, Jenkins and his colleagues have addressed nutritional approaches to cancer and other chronic diseases beyond the scope of this e-book. Though most relevant to other chronic conditions, their work on resistant starches has relevance for fitness and muscle preservation in middle and old age. Increasing the consumption of beans and peas may improve bowel health through the resistant starches they contain. But also, by increasing soluble fiber and protein, these vegetables may improve artery health and help conserve muscle mass.

The Portfolio Eating Plan

Usually, to read the full text of journal articles online, readers must buy a subscription or pay for the article. Sometimes though, a journal may consider an article so important the publisher wants every doctor in the world to read it. If so, the article is made available online free of charge. So it was with the article by David Jenkins and his colleagues: **Effects of a Dietary Portfolio of Cholesterol-Lowering Foods vs Lovastatin on Serum Lipids and C-Reactive Protein.** [JAMA article](#). The name of the program **Portfolio Eating Plan** was derived from the title of this article. The article is the basis of the Plan developed by Jenkins and his colleagues and presented in Part 3 of this e-book.

What was so special about this article?

Jenkins and his colleagues summarized their results: "The significant reductions in the statin and dietary portfolio groups were all significantly different from changes in the control group. **There were no significant differences in efficacy between the statin and dietary portfolio treatments.**" [Emphasis added.]

The authors concluded: "In this study, diversifying cholesterol-lowering components in the same dietary portfolio increased the effectiveness of diet as a treatment of hypercholesterolemia."

The American Medical Association went further than making the article freely available. The editors of their flagship journal, *JAMA* asked an independent reviewer to comment in an editorial. James W. Anderson, M.D., University of Kentucky recommended that: "For most patients, dietary intervention should be the first line of therapy (perhaps for six to 12 weeks) before introducing pharmacotherapy for hyperlipidemia, [high cholesterol]" James W. Anderson, Diet first, then medication for hypercholesterolemia [high cholesterol]. *JAMA*. 2003 Jul 23;290(4):531-3.

Author's note: Six to 12 weeks may be too short a time for a natural method to work. Sixteen weeks may be needed.

Comment by a Doctor

In a comment published by *JAMA*, a doctor questioned the ethics of trying to get patients to change their diets. Doctors have noticed that most patients just want to pop pills instead of changing their lifestyle. As a result, doctors do not warn patients of the dangers of prescription drugs—**the third leading cause of death in the US**—nor do they offer natural methods of avoiding or mitigating chronic diseases, such as heart disease, stroke, and diabetes. Reference: Ray D. Strand, MD, *Death by Prescription*, Thomas Nelson, Nashville, 2002.

Dr Strand is not a maverick doctor. His book was inspired by an article in the *Journal of the American Medical Association*, which showed that properly prescribed medication, prescribed and taken properly, is the fourth-leading cause of death in the country. J. Lazarou, B. Pomeranz, and P. Corey. Incidence of adverse drug reactions in hospitalized patients, *JAMA*, 279 (1998) 1200-05. Together with medication incorrectly prescribed or dispensed, prescription drugs are the third leading cause of death in the US.

What Dr Strand reveals in his book is common knowledge among medical professionals and has been the subject of whistleblowing by senior FDA staff that was investigated by Congress.

Author's note: A government agency, **The Agency for Healthcare Research and Quality**, monitors and publishes reports on the growing risk of death from prescription drugs. Extracts from two reports: "They find a 2.57-fold increase in the incidence of medication errors as the reported cause of death, in the face of an only 1.39-fold increase in prescriptions written over

the same period." [The risk of death from prescription drugs increased by 85% in 10 years.] [Increase in US medication-error deaths between 1983 and 1993](#) and "...40% of patients received a medication that carried a potential for serious harm...." [FDA drug prescribing warnings: is the black box half empty or half full?](#)

WARNING: These statements should not be taken as advice to stop taking any drug prescribed by your doctor, but as information to enable you to discuss with your doctor the options that may be open to you.

Summary

Dr Jenkins summarized his team's work:

"In conclusion, current dietary recommendations focusing on diets low in saturated fat have been expanded to include foods high in viscous fibers (eg, oats and barley) and plant sterols. These guidelines, together with additional suggestions to include vegetable protein foods (soy) and nuts (almonds), appear to reduce LDL-C levels similarly to the initial therapeutic dose of a first-generation statin. However, before the true effectiveness of this dietary change can be assessed, studies must be undertaken in patients who assemble the diets for themselves on a routine basis. Using the experience gained, further development of this approach may provide a potentially valuable dietary option for cardiovascular disease risk reduction in primary prevention."

My Experience with the Portfolio Eating Plan

As suggested by Dr Jenkins, I assembled the diet for myself on a routine basis. While a sample size of one is hardly scientific confirmation, I did find that my lipid levels conformed to expectations. After following the program for 16 weeks, my own experience was as follows: Total cholesterol fell from 192 to 123 (-36%), LDL ("Lousy" cholesterol from 117 to 68 (-42%), triglycerides fell from 89 to 44 (-50%). HDL ("Healthy" cholesterol) fell from 58 to 46 (-20%), a non-significant amount in the context of the overall pattern. During this same period, I increased my brisk walking from two hours per week to six hours per week. During the last six weeks, I followed a program of pilates and light strength training three hours per week, including use of an exercise ball. I ate more high-fiber food with lower calorie content and I lost 20 pounds (9 kg). Animal protein was limited mainly to whey protein powder, low-fat cottage cheese and yoghurt. The training and calorie restriction may have contributed to part of the fall in cholesterol.

After 12 months, cholesterol levels increased slightly, HDL as well as LDL. However, the values were still nearly ideal: total cholesterol, 150; LDL, 81; triglycerides, 62; HDL, 55. C-Reactive Protein had fallen to 1.0 (indicating reduced inflammation) and homocysteine had fallen from 13.4 to 10.6, not ideal, but an improvement. Blood glucose levels were normal both before and after the experiment.

Cholesterol Equivalents for Canada and the UK

Total cholesterol fell from 5.0 to 3.2 (-36%), LDL ("Lousy" cholesterol from 3.05 to 1.77 (-42%), triglycerides fell from 1.0 to 0.5 (-50%). HDL ("Healthy" cholesterol) fell from 1.5 to 1.2 (-20%), a non-significant amount in the context of the overall pattern.

After 12 months, lipid levels rose slightly, HDL as well as LDL. However, the values were still nearly ideal: total cholesterol, 150; LDL, 81; triglycerides, 62; HDL, 55.

How I Achieved This Improvement

In my opinion, these cholesterol levels declined because I added the foods recommended by Dr Jenkins and his colleagues. Before starting the experiment, my diet was a relatively healthy diet. I rarely ate junk food, not even white bread. In fact, I baked my own whole-grain bread and cooked traditional rolled oats for breakfast, which I ate with low-fat yoghurt and no sugar. I ate fish at least three times per week, seldom ate red meat and avoided saturated fat and fried foods. I ate plenty of fruit and more green vegetables than do most people.

I must conclude that what lowered my cholesterol was not foods cut from my diet, but **foods added** to my diet, as prescribed by the Portfolio Eating Plan, the subject of the next and final part of this e-book.

More Information

- Glycemic Index: [Linus Pauling Institute on the glycemic index and glycemic load](#).
- Glycemic Load: [Dr Abe Mirkin explains how the concept of glycemic load improves the value of the glycemic index](#).

References

- Jenkins DJ, Kendall CW, Marchie A, Faulkner DA, Wong JM, de Souza R, Emam A, Parker TL, Vidgen E, Trautwein EA, Lapsley KG, Josse RG, Leiter LA, Singer W, Connelly PW., Direct comparison of a dietary portfolio of cholesterol-lowering foods with a statin in hypercholesterolemic participants. *American Journal of Clinical Nutrition*. 2005 Feb;81(2):339-40.
- Jenkins DJ, Kendall CW, Marchie A, Faulkner DA, Josse AR, Wong JM, de Souza R, Emam A, Parker TL, Li TJ, Josse RG, Leiter LA, Singer W, Connelly PW., Direct comparison of dietary portfolio vs statin on C-reactive protein. *European Journal of Clinical Nutrition*. 2005 Jul;59(7):851-60.
- Jenkins DJ, Kendall CW, Marchie A., Diet and cholesterol reduction. *Annals of Internal Medicine*. 2005 May 3;142(9):793-5.
- Lamarche B, Desroches S, Jenkins DJ, Kendall CW, Marchie A, Faulkner D, Vidgen E, Lapsley KG, Trautwein EA, Parker TL, Josse RG, Leiter LA, Connelly PW. Combined effects of a dietary portfolio of plant sterols, vegetable protein, viscous fibre and almonds on LDL particle size. *British Journal of Nutrition*. 2004 Oct;92(4):657-63.

- Kendall CW, Emam A, Augustin LS, Jenkins DJ. Resistant starches and health. *Journal of AOAC International*. 2004 May-Jun;87(3):769-74.
- Augustin LS, Galeone C, Dal Maso L, Pelucchi C, Ramazzotti V, Jenkins DJ, Montella M, Talamini R, Negri E, Franceschi S, La Vecchia C. Glycemic index, glycemic load and risk of prostate cancer. *International Journal of Cancer*. 2004 Nov 10;112(3):446-50. Kendall CW, Jenkins DJ. A dietary portfolio: maximal reduction of low-density lipoprotein cholesterol with diet. *Current Atherosclerosis Reports*. 2004 Nov;6(6):492-8.
- Hung T, Sievenpiper JL, Marchie A, Kendall CW, Jenkins DJ. Fat versus carbohydrate in insulin resistance, obesity, diabetes and cardiovascular disease. *Current Opinion in Clinical Nutrition and Metabolism Care*. 2003 Mar;6(2):165-76.
- Jenkins DJ, Kendall CW, Marchie A, Faulkner DA, Wong JM, de Souza R, Emam A, Parker TL, Vidgen E, Lapsley KG, Trautwein EA, Josse RG, Leiter LA, Connelly PW. **Effects of a dietary portfolio of cholesterol-lowering foods vs lovastatin on serum lipids and C-reactive protein.** *Journal of the American Medical Association*. 2003 Jul 23;290(4):502-10.
- Jenkins DJ, Kendall CW, Marchie A, Faulkner D, Vidgen E, Lapsley KG, Trautwein EA, Parker TL, Josse RG, Leiter LA, Connelly PW. The effect of combining plant sterols, soy protein, viscous fibers, and almonds in treating hypercholesterolemia. *Metabolism*. 2003 Nov;52(11):1478-83.
- Jenkins DJ, Kendall CW, Marchie A, Jenkins AL, Connelly PW, Jones PJ, Vuksan V. The Garden of Eden—plant based diets, the genetic drive to conserve cholesterol and its implications for heart disease in the 21st century. *Comparative Biochemistry & Physiology Part A: Molecular Integrative Physiology*. 2003 Sep;136(1):141-51.
- Jenkins, D.J., Kendall, C.W., Augustin, L.S., Franceschi, S., Hamidi, M., Marchie, A., Jenkins, A.L., & Axelsen, M. (2002). Glycemic index: overview of implications in health and disease. *American Journal of Clinical Nutrition*, 76, 266S-273S

PART THREE: THE PORTFOLIO EATING PLAN IN PRACTICE

Forming the Portfolio Eating Plan Habit

The best way to make the Portfolio Eating Plan a habit is to write out your own plan for the first month and then follow it. After one month, the new eating pattern will become a habit. To add these foods to your diet will probably prove easier to do than cutting foods from your diet to avoid increasing total calories. What I did was substitute some meals with a bean sauce and a whole-grain in place of meals with animal proteins. Spaghetti with a bean sauce will do.

The main foods to be added to the diet are grouped as follows:

- Viscous Fiber: 20 grams/day
- Almonds: 30 grams/day
- Plant Sterols: 2000 milligrams/day (mg/day)
- Soy Protein: 50 grams/day

All quantities are shown as part of a 2,000 calorie diet to be adjusted to your personal calorie target.

Viscous fiber means "soluble fiber", not rough fiber like bran. Almonds should be dry-roasted without fat, salt or sugar. Manufacturers now add plant sterols to some spreads. Soy protein comes in many forms.

The first table on the next page, **The Portfolio Eating Plan**, provides a long list of foods in each category. The second table, **Protein Shake Using Foods of the Portfolio Eating Plan**, gives a recipe for a protein shake based on the foods recommended by Dr Jenkins and his team. You can divide the shake into three parts and use it for snacks during the day along with an apple or pear and a tablespoon of psyllium husk in a glass of water.

Recipes for Health

- Diana Mirkin has prepared a list of [healthful recipes](#). Among her recipes, the following can easily be adapted to the Portfolio Eating Plan:
- [Grecian Gabanzo Stew](#)
- [Marge's Lentil Sauce for Whole Grains](#)

Dr Abe Mirkin and Diana Mirkin provide healthy eating [guidelines](#) and [Diana shows her approach to blending spices](#).

For cholesterol-lowering health snack, try [humus and pita bread](#).

The Portfolio Eating Plan, Selected from Four Food Groups

(Add these foods to your diet and reduce other foods with equivalent calories.)

1. Viscous Fiber: 20 grams/day as part of a 2000 calorie diet

Kidney Beans	1 cup cooked	6.0 g
Lima Beans	1 cup cooked	5.2 g
Oats	1 cup cooked	4.0 g
Pinto Beans	1 cup cooked	3.8 g
Strawberries	1 cup (about 8)	3.4 g
Broccoli	1 cup raw or cooked	3.2 g
Dried Prunes	1/2 cup	3.1 g
Apple	1 large	3.0 g
Chickpeas	1 cup raw	3.0 g
Sweet Potatoes	1 cup mashed	2.8 g
White Beans	1 cup cooked	2.8 g
Barley	1 cup cooked	2.6 g
Metamucil® (psyllium husk from health food shop)	1 tblsp	2.4 g
Grapefruit	1 medium	2.3 g

2. Almonds: 30 grams/day as part of a 2000 calorie diet

Whole almonds	1 ounce (about 23 nuts)	30 g
Sliced, slivered or ground almonds	1 oz	30 g
Almond butter (3 tblsp oil with 1 cup almond flour)	2 tblsp	30 g

3. Plant Sterols: 2000 mg/day as part of a 2000 calorie diet

Avocado	1 small (6 oz)	132 mg
Corn Oil	1 tablespoon	132 mg
Soybeans	1 cup	90 mg
Chickpeas	1/2 cup	35 mg
Almonds	1 ounce (about 23)	34 mg
Olive Oil	1 tablespoon	30 mg
Vegetable Shortening	1 tablespoon	19 mg

Caution: avoid shortening containing hydrogenated fat/trans fat.

4. Soy Protein: 50 grams/day as part of a 2000 calorie diet *

Lightlife® Organic Wild Rice Tempeh	4 oz (1/2 pkg)	18 grams
Soybeans	5 ounces cooked	12 grams
Firm Tofu	1/3 cup	10 grams
Pacific Foods® ULTRA Soy Drink, Vanilla		1 cup/8 grams
Mori-Nu® Silken-Style Tofu	3 ounces (a 1-inch slice)	6 grams
Soy protein isolate powder such as Vege-Fuel by Twinlabs (based on the Supro process).		

Reference: Jenkins DJ, and others. *Journal of the American Medical Association*. 2003 Jul 23; 290(4).

Notes to the Table of Foods

Amount of Food to Eat

To avoid gaining weight, a person following the Portfolio Eating Plan must reduce the quantities of some foods usually eaten.

How to Compose the Daily Targets

The first line for each food component shows the number of grams of the component required. For example, a person with a 2000-calorie diet would aim for 20 grams of viscous fiber. If your diet is only 1500 calories, you should reduce this to 15 grams of viscous fiber.

For a 2000-calorie diet, a person would choose from among the 14 foods shown to make up 20 grams of fiber. For example:

1 apple (3 g) + 1 cup chickpeas (3 g) + 3 tbsp psyllium husk (7.2 g)
+½ cup dried prunes (3.1 g) + 1 cup cooked oats (4 g) = 20.3 g

Suggested chocolate drink

Hershey dark cocoa is sugar-free and low-fat.

Blend Hershey dark cocoa and 15 almonds with a little water. Add hot water. No milk is needed. To sweeten, blend in dried fruit or three drops of stevia or other low-calorie sweetener.

Beans with a Grain

Oats are sold as “groats” or whole grains. Barley is sold as “pearled”, meaning that only the ends of the grain are lost in milling. These grains combined with a bean and tomato sauce to make a savory dish.

Beware Grapefruit

Grapefruit interferes with some medications. Check before using.

Protein Shake Using Foods of the Portfolio Eating Plan

Ingredients	Qty	Units	g/unit	Grams	Cal/g	Calories
Prunes/dried apricots	5	fruits	6.0	30	2	60
Protein powder (scoops)	3	scoops	18.0	54	4	216
Yoghurt (rounded tbsp)	5	tbsp	33.0	165	0.6	99
Almonds (scoop)	1	nuts	50.0	50	2.6	130
Flax (ground/ rounded/tbsp)	2	tbsp	30.0	60	2	120
Gelatine	2	tsp	10.0	20	4	80
Total				379		705

Add water as needed.

Food ratios	Protein	Carbs	Fat	SatFat	Total
Percentages	52%	25%	23%	3%	100%
Total	grams 91	44	18	2	154

Dairy protein powder is usually a mixture of whey protein and casein. Economy versions may be just as suitable as expensive versions. Protein content should be 80% or more. **Vegetable protein powder** is based mainly on soy protein. Supro contains the complete range of amino acids balanced to be equivalent to animal protein. Supro is sold under various names, such as Vege-Fuel by Twin Laboratories. Whey and Supro powders can be mixed to get the benefit of both. See links for suppliers.

Vegetable protein powder can be added to soups, sauces and casseroles.

A suitable target macronutrient ratio would be: 20%-30% protein; 40% to 50% carbohydrates; and 20% to 30% fats, minimizing saturated fats. For heart health, a safe fat ratio would be 25% to 30% fat, with little saturated fat.

Reference: Jenkins DJ, Kendall CW, Marchie A, Faulkner DA, Wong JM, de Souza R, Emam A, Parker TL, Vidgen E, Lapsley KG, Trautwein EA, Josse RG, Leiter LA, Connelly PW. Effects of a dietary portfolio of cholesterol-lowering foods vs lovastatin on serum lipids and C-reactive protein. *Journal of the American Medical Association*. 2003 Jul 23;290(4):502-10.

Disclaimer: This information should not be substituted for the advice of a physician. Please consult with your family doctor before beginning any weight-loss or exercise program. Do not stop taking prescription medicine except with guidance from your family doctor or specialist. Herbal remedies can interact with prescription drugs. Be honest with your doctor about the herbal remedies, vitamins and supplements you take. If you do not have enough confidence in your doctor to ask his advice, consider getting a second opinion from another doctor or change doctors.

LINKS TO RECOMMENDED HEALTH AND FITNESS SITES & PRODUCTS

- **Veteran consultant fed up with anti-aging hype, exposes the myths about aging.** Discover how thousands of people combat aging, getting fitter, leaner, and stronger than they ever thought possible using science and logical reasoning to separate practical anti-aging strategies from pie-in-the-sky schemes and outright quackery, www.Combat-Aging.com.
- **A nutritional program that is at once heart-healthy and adaptable for bodybuilding.** Health and fitness enthusiasts who follow Tom Venuto's approach need make only a small adjustment in their diets to include the foods of the Portfolio Eating Plan. (Tom Venuto, [Burn the Fat, Feed the Muscle](#)). For good reason Tom Venuto calls himself an "outlaw bodybuilder", for he is almost unique among bodybuilders in promoting a nutritional program that is at once heart-healthy and adaptable for bodybuilding. Tom recommends a diet similar to the DASH diet, with plenty of fruits, vegetables, grains, nuts and other whole foods, with the following macro-nutrient ratios: protein 30%, carbohydrate 50%, fat 20%. A fitness and strength enthusiast could adjust these ratios to 30% protein, 45% carbohydrates, 25% fat, so long as the added protein does not increase the amount of animal fat. This could be achieved by using vegetable protein or by using whey protein powder.
- **A summary of Tom Venuto's nutritional approach—50 fitness and health success stories—Jon Benson's triumph over life-threatening conditions.** [Fit Over 40](#), co-authored by Tom Venuto and Jon Benson.
- **Truly a BEST BUY. Christian Finn, Britain's leading health and fitness trainer, provides continually updated guidance for weight-loss and fitness.** Christian holds a master's degree with distinction in exercise science and has lectured at universities and private training organizations around the UK. He is an expert on fitness training, weight loss and the effective use of nutritional supplements. Christian finances his site with paid membership subscriptions, so his advice about products and services is unbiased and not restricted to UK readers only. **Sign up for Christian Finn's free newsletter.** [Facts About Fitness](#).
- **Dr Ray Sahelian, MD is best known for his books on natural healing approaches.** Dr Sahelian provides books and a selected range of health products on his website. Sign up for his newsletter. [Physician's Formulas.com](#). I was impressed by the fact that Dr Sahelian supplies the active form of vitamin B12, [methylcobalamin](#), rather than cobalamin, the form found in ordinary vitamin tablets. Methylcobalamin is the co-enzyme of B12 that is readily absorbed by people over 50, many of whom gain little benefit from the inactive form found in food and vitamin tablets.
- **Co-enzyme Q10 and Statins:** Statin drugs used to reduce cholesterol are known to deplete the body of **co-enzyme Q10**, an important substance for maintaining muscles, including the heart muscle. [Co-Q10](#)

- **RESPeRATE** has been clinically proven to lower blood pressure with no side effects and is approved by the FDA. While the device is said to work by assisting the user to learn heart-healthy breathing, many people may find **RESPeRATE** to be the best stress-buster they have ever used. In fact, the Mayo Clinic recommends [RESPeRATE](#) for managing stress. Allegro Medical supplies [RESPeRATE](#) to US residents without requiring a prescription. Please contact the author for Canadian and UK suppliers.
- **Vege-Fuel by TwinLabs** is a complete protein containing all the amino acids required for muscle growth. The TwinLabs product contains Supro, a balanced blend of all essential amino acids obtained from vegetable sources, ideal for someone wanting to increase their protein intake while avoiding saturated fat found in meat and dairy products. Vege-Fuel is inexpensive (2.2 cents per gram of protein) and suitable for the soy component of the Portfolio Eating Plan. In my opinion, Vege-Fuel is cheapest and most convenient form to use. The powder is 85% protein and has no added flavor, so you can mix it either with soups and sauces or with fresh and dried fruit as a drink. [Vege-Fuel](#).
- **ProStar Natural Whey Protein** is a no-nonsense protein powder free of artificial flavoring. You pay two cents per gram of protein and not one cent for hype. That's about as good as it gets. I sometimes mix whey powder with the juice and pulp of an orange to kill my appetite. [ProStar Natural Protein](#).
- **Polar Heart Rate Monitors** keep you safely in the most efficient fat-burning range and ensure that you don't overdo it. Play it safe. A budget model is all you need. [Polar Heart Rate Monitor](#).
- A **pedometer** fastened to your belt will count your steps during the day. There are Mickey Mouse versions and some that come free with popcorn. If you are serious about setting targets for yourself get a good economy version like the one made by Omron. [Omron Pedometer](#).
- **Body Fat Measurement Kit:** Chart your progress with body-fat calipers and an accurate tape measure. Semi-professional: [FatTrack Gold Digital Body Fat Caliper with MyoTape Body Tape Measure](#), or save by getting economy versions separately: [MyoTape Measure alone](#), or [Calipers alone](#).
- **BodyLOGIC Body Fat Analyzer:** Just enter your height, weight, age and gender into the device and read your body fat percentage on the digital display. The Omron 306 is a noninvasive bioimpedance analyzer used to measure body-fat percentage by weight. The analyzer sends an extremely weak electrical current through your body to determine the amount of fat tissue. This weak current is not felt while operating the Body Fat Analyzer. [Omron Body Fat Analyzer](#).
- **Wrist Strap and Hand Protectors:** Avoid straining your wrists and don't let pinched nerves in your fingers make your workouts painful. [Wrist and Hand Protectors](#).
- **Major Cardiac Risk Factor Screening and The Role of Exercise in Preventing CHD - Video** [Prevent Heart Disease](#).

- **ACE's Guide to Exercise and Weight Control - Video.** [Exercise and Weight Control.](#)
- **Use It or Lose It: How We Get To Be Who We Are - Video.** [Use IT, Don't Lose It!](#)
- **Exercise Through Menopause - Video.** [Exercise Through Menopause.](#)
- **Body Composition: Health Is More Than Skin Deep - Video.** [Body Composition and Health.](#)

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