

Dietary Deceptions

Richard Harding

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Newcastle Herald and the Silent Assassin

There has been 7 articles in the Newcastle Herald during December 2021 and January 2022 relating to Dr James Muecke and Dr Peter Bruckner, a sport's medical clinician, on how to prevent and cure diabetes with an animal-based diet that is high in fat and low in carbohydrates. Muecke and Bruckner both state that we should be eating more eggs, cheese, meat and dark chocolate to minimise diabetes, its associated blindness (diabetic retinopathy) and diabetic neuropathy.



Newcastle Herald - 1st Dec 2021

One of these articles was an editorial “*The pandemic should be all the impetus we need to properly address diabetes, the other silent assassin in our midst*” urging people to address diabetes by adopting Dr Muecke and Dr Bruckner’s recommended diets.

Their recommendations are killing people.

Despite that these diets are not endorsed by the medical profession, both the Australian Medical Association and the Medical Journal of Australia have indicated that it is not within their scope to bring this to the attention of medical doctors or the Australian public.

The material below has been sent to the Newcastle Herald, The Australian newspaper, Sydney Morning Herald, my state and federal members of parliament, NSW and South Australia Health departments without obtaining any response.

Not one person or organisation is prepared to challenge these popular commentators who are causing immeasurable damage to the Australian public.

Dr James Muecke - Australian of the Year in 2020

Eat more eggs, cheese, meat and dark chocolate

Dr James Muecke, a South Australian eye surgeon, was named Australian of the Year in 2020 for his work raising awareness of type 2 diabetes and its links to blindness.

In 2000, he co-founded Vision Myanmar at the South Australian Institute of Ophthalmology and later co-founded Sight For All, an organisation aiming to create a world where everyone can see.

His recent work is focused on preventing type 2 diabetes which is the leading cause of blindness in adults.

Dr Muecke has stated that we need to “Declare war on type 2 diabetes and cut back on sugar” in order to reduce the incidence of blindness.

Muecke believes that we should be eating more eggs, cheese, meat and dark chocolate to minimise diabetes, its associated blindness (diabetic retinopathy) and diabetic neuropathy. Peripheral diabetic neuropathy is nerve damage of the limbs that is caused by diabetes. 50% of adults with type 2 diabetes have peripheral neuropathy. It can result in pain, numbness and an increase in sensitivity. Diabetes account for more than 80% of amputations.

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When popular commentators such as Muecke and Bruckner make public statements, they do not need to quote their sources. However, with some understanding of the literature it is often easy to determine the source as the quotes often are directly taken from papers, along with the idiosyncratic wording and fallacies.

Low-Carbohydrate Diets

There are a multitude of websites advocating low-carbohydrate and ketogenic diets - far more than those advocating whole-food, plant-based diets. People enjoy their high-fat, animal-based diets and do not require much encouragement to increase their consumption.

If carbohydrates are limited in the diet that means an increase in fats, proteins and animal-based foods. Those offering low-carbohydrate dietary plans usually offer (expensive) supplements to make up for the deficiencies of their diets.

Dr Muecke is passionate about his crusade to prevent diabetes, its associated blindness (diabetic retinopathy), diabetic neuropathy and amputations. Unfortunately, the solution is based on popular myths and as a result is contributing to society's ill-health. No-one has the courage to gently point out that the "facts" Dr Muecke is presenting to the Australian public does not hold up to scrutiny.

Eliminating sugar from the diet is a simplistic message. Foods are much more than the sum of fats, protein and carbohydrates. Whole-food, plant-based diets automatically removes added sugars and oils. This results in a diet high in fibre, complex carbohydrates, micronutrients, antioxidants, vitamins, minerals and thousands of phytonutrients such as carotenoids and flavonoids. Individual components do not work in isolation but work synergistically.

Instead of solving the problems of increasing diabetes, obesity, high blood pressure and autoimmune diseases, Muecke is creating an environment that amplifies the problem.

Below are some of the studies Muecke cites, either directly or indirectly to support his high-fat, high-protein, high animal-based diet.

The PURE Study

The purpose of the PURE Study is to examine the impact of urbanisation on the development of risk factors such as physical activity, nutrition changes, obesity, high blood pressure, abnormal blood sugars, abnormal blood lipids and smoking on heart disease. ^[1]

The PURE Study is examined in more detail later.

American College of Cardiology Review

Muecke also quotes (or misquotes) a *Journal of the American College of Cardiology* review of the literature that found there was "no evidence that cutting saturated fats from your diet would help you live longer".

Muecke was referring to the 25 page review *2013 AHA/ACC Guideline on Lifestyle Management to Reduce Cardiovascular Risk*. This is interesting as the review did not examine longevity or mortality. The review specifically states that,

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Because of resource limitations, CVD morbidity and mortality outcomes were not included in the evidence review for this question.

Muecke's statement does not appear anywhere in the 25 page review.

Muecke has stated:

There are over 100 controlled clinical trials that a healthy fat diet works to both prevent and reverse type 2 diabetes. Need to shift from a high-carb to low-carb pattern with a good dose of healthy fat.

Since Muecke relies on the media to disseminate his information, he does not need to communicate what these "controlled clinical trials" are.

Dietary Guideline Recommendations From NutriRECS

Muecke indirectly refers to a 2019 article in the Annals of Internal Medicine, *Unprocessed Red Meat and Processed Meat Consumption: Dietary Guideline Recommendations From the Nutritional Recommendations (NutriRECS) Consortium* to support his beliefs.

Walter Willett, the Harvard professor of epidemiology and nutrition, called the study,

"the most egregious abuse of data I've ever seen".

The publications produced by the NutriRECS organisation are concerned with proving that red meat consumption is healthy – or at least not detrimental.

Bradley Johnston is the director and co-founder of NutriRECS, and is an Associate Professor with the Department of Nutrition & Statistics, Texas A&M University (formerly Agricultural and Mechanical College).

Grant money came from AgriLife Research, a part of Texas A&M University that is partially funded by the beef industry. According to Patrick Stover, vice-chancellor and dean of AgriLife, the Texas research agency received more than \$2 million in funding from the beef industry in 2019 alone.

Stover was also a co-author on the Annals study with Johnston, along with an international team of researchers. Stover has since hired Johnston as an associate professor of community health and epidemiology at Texas A&M. [2]

Dr Muecke is providing advice that people dearly wish to believe but is detrimental.

WHO's Draft Guidelines are Out of Date

It is evident that Muecke is also influenced by Arne Astrup's article *WHO draft guidelines on dietary saturated and trans fatty acids: time for a new approach?* that was published in *The BMJ* on 3rd July 2020 and received so much attention in the popular press. [3]

The next day the ABC published an article, *World Health Organisation's recommendations on saturated fat are out of date, expert team says* as its top news story. The low-carb marketing team is very well organised.

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Astrup also published a similar article in 2011 *The role of reducing intakes of saturated fat in the prevention of cardiovascular disease: where does the evidence stand in 2010?* |4|

A symposium was held at the The University of Copenhagen on 28–29 May 2010, for all the authors of this paper. The symposium was organised and sponsored by The Nordea Foundation OPUS Research Centre, The Centre for Advanced Food Studies, Denmark.

Unrestricted grants [for the symposium] were received from The Beef Checkoff (USA), Centre National Interprofessionnel de l'Economie Laitiere (CNIEL), The Danish Agriculture & Food Council, Dairy Australia, the Dairy Council for Great Britain, the Dairy Council of California, the Dairy Farmers of Canada, The Global Dairy Platform, Milchindustrie-Verband, the National Dairy Council (USA), and Svensk Mjolk.

Astrup's two papers are examined in greater detail in subsequent chapters.

US News Best Diets 2022

U.S. News & World Report released its annual report of 2022 Best Diets in December 2021, evaluating 40 diet plans “to help millions of Americans make food and nutrition-related resolutions and achieve their health goals”.

For the fifth consecutive year, the Mediterranean Diet ranks as the No. 1 Best Diet Overall. The Mediterranean Diet is among the most studied diets, and one of few (most of which are higher fat/lower carbohydrate diets) showing benefits on cardiovascular disease outcomes. The Mediterranean Diet also claimed the top spot in five other lists: Best Diets for Healthy Eating, Easiest Diets to Follow, Best Diets for Diabetes, Best Plant-Based Diets and Best Heart-Healthy Diets (tied for No. 1).

“Eating well to maintain a healthy body and mind is one of the most personal and necessary aspects of caring for oneself,” said Gretel Schueller, managing editor of health at U.S. News. “The U.S. News Best Diets offers information on nearly every major diet out there, as well as targeted categories so everyone can find the right diet for their specific needs.”

27 panellists scored 40 diets in seven areas which included ease of compliance, likelihood of losing significant weight in both the short and long term, and effectiveness against cardiovascular disease and diabetes.

The Report

The U.S. Best Diets is a series of blog posts. It is not a report. It does not contain a table of contents which makes it difficult to navigate to different sections of the report. Try finding the list of the 40 diets that were evaluated and the brief description of each one.

References to material are not adequately cited.

Some conclusions are based on personal preferences, such as which diets are easy to follow.

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For example, the “*Cons*” listed for the *Engine 2 Diet* are that it requires a “complete lifestyle overhaul” and that it requires “considerable meal planning and prep”. If you have a stroke, heart attack or suffering from diabetes, you already had a “lifestyle overhaul”.

The evaluation concludes that, although the diet is “undeniably healthy, all of its ‘do not’s’ can make it exceptionally difficult to stick to long term”.

The only “do not’s” on this diet and other “whole-food, plant-based diets” are “*no added oils*” or frying. Oils do not deliver health benefit. Fake meats are a manufactured food. Protein from whole soy flour are mixed with other food products such as wheat protein, vegetable oils, starch, sugar, salt, artificial sweeteners, dairy and egg proteins. The resulting mixture is compressed and heated to form a product with similar taste and texture to the foods that they are attempting to replace.

Panellists

Below is a list of the 27 panellists with the qualifications that are provided by U.S. News Best Diets. Additional comments are provided for some of the panellists.

Louis Aronne, MD, FACP, DABOM

Sanford I. Weill Professor of Metabolic Research Director, Comprehensive Weight Control Center Weill Cornell Medicine.

Katherine Beals, Ph.D., RD, FACSM, CSSD

Associate professor, clinical, division of nutrition at the University of Utah, Salt Lake City.

Amy Campbell, RD, LDN, CDCES

Clinical Diabetes Program Manager at Good Measures.

Lawrence Cheskin, MD, FACP, FTOS

Chair, Department of Nutrition and Food Studies George Mason University Founder, Johns Hopkins Weight Management Center and currently practices family medicine in Ranson and Martinsburg, West Virginia.

Michael Dansinger, MD

Founding director of the Diabetes Reversal Program at Tufts Medical Center in Boston and is a nationally recognized expert in dietary and lifestyle coaching for weight loss and related medical problems.

Michael Davidson, MD

Director of preventive cardiology, University of Chicago Medical Center.

Teresa Fung, ScD, RD

Professor of nutrition, Simmons College, Boston, Massachusetts. A nutritional epidemiologist, she researches the relationship between diet and chronic disease, especially diabetes.

Christopher Gardner, PhD

Rehnborg Farquhar Professor of Medicine, Stanford University.

Gardner’s most cited studies are the *The A to Z Weight Loss Study* |5| and the *DIETFITS Randomized Clinical Trial*. |6|

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The *A to Z Weight Loss Study* examined four diets: Atkins's Diet, Zone Diet, the Ornish Diet and the LEARN Diets. Gardner's version of the Ornish Diet contained 29% fat and 18% protein and was labelled "extremely low in fat" by the researchers. *Ornish's Diet*, does contain some fish, added "healthy" oils, egg-whites and low-fat dairy, otherwise it is a whole-food, plant-based diet, without add oils.

The original *Ornish Diet* contained 10-12% fat and protein intake of 20-22%. Four researchers including Ornish wrote letters to the editor of the *Journal of the American Medical Association*, stating the Gardner had "grossly misrepresented" the original diet. The editor refused to publish these letters.

Gardner obtained funding from the Robert C Atkins Foundation for this study.

The *DIETFITS Trial*, conducted by Christopher Gardner and colleagues, chose three genes: PPAR γ (PPAG-gamma), ADRB2 and FABP2. They claimed that variations in these genes result in a low-fat responsive genotype and a low-carbohydrate responsive genotype.

The conclusion of Gardner's study was:

There was no significant diet-genotype pattern interaction or diet-insulin secretion interaction with 12-month weight loss. There were 18 adverse events or serious adverse events that were evenly distributed across the 2 diet groups.

These two trials are examined in greater detail in subsequent chapters.

Hollie Gelberg, PhD, RD

Private practice dietitian at Healthy Eating and Training, Inc.

Andrea Giancoli, MPH, RD

Nutrition communications consultant, Hermosa Beach, California.

Michael Greger, MD

A physician and author and is a founding member and fellow of the American College of Lifestyle Medicine.

Michael Greger is the founder of NutritionFacts.org, a not-for-profit charity, that advocates a whole-food, plant-based diet. The website contains approximately 2,000 videos with transcripts. The material is fully referenced, mostly from peer-reviewed journals.

David Katz, MD, MPH, FACPM, FACP, FACLM

President, True Health Initiative.

A specialist in preventive medicine and lifestyle medicine, with particular expertise in nutrition.

Penny Kris-Etherton, Ph.D

Evan Pugh University Professor of Nutritional Sciences, The Pennsylvania State University studying the impact of diet on heart disease risk.

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JoAnn E. Manson, MD, DPH

Michael and Lee Bell Professor of Women's Health, Harvard Medical School, Boston studying how lifestyle factors and nutrition affect women's risk for heart disease, diabetes and cancer.

Yasmin Mossavar-Rahmani, PhD, RD, CDN

Associate professor of clinical epidemiology and population health, Albert Einstein College of Medicine studying the link between nutrition and chronic disease.

Elisabetta Politi, CDCES, MPH, RD

Nutrition director, Duke Diet and Fitness Center, Durham, N.C.

Eric Rimm, ScD

Professor of Epidemiology and Nutrition and Director of the Program in Cardiovascular Epidemiology at the Harvard T.H. Chan School of Public Health.

Professor Rimm obtained his Doctorate of Science Degree in 1991 and started teaching in the same year at Harvard School of Public Health. Since then he has published more than 800 articles on diet and health.

His advice includes: |7|

- Eat a range of food choices, including fruits, vegetables, whole grains, and nuts.
- Stay away from processed food.
- Replace unhealthy fats (trans fats and saturated fats) with healthy fats (olive oil or canola oil (mono and polyunsaturated fats)).
- Use liquid cooking oils.
- Eat two servings of fish weekly or fish oil supplements. Ensure that you avoid mercury contamination in the fish.
- Dark chocolate can be good for blood pressure.

Lisa Sasson, RD

Clinical associate professor of nutrition, food studies and public health, New York University.

Toby Smithson, MS, RDN, LD, CDCES, FAND

Founder of DiabetesEveryDay.com and DiabetesEveryDay YouTube channel.

Laurence S. Sperling, MD, FACC, FAHA, FACP, FASPC

Founder and director of The Heart Disease Prevention Center at Emory in Atlanta.

Fatima Cody Stanford, MD, MPH, MPA, MBA, FAAP, FACP, FAHA, FAMWA, FTOS

Obesity Medicine & Nutrition Physician Scientist Harvard Medical School.

Anne Thorndike, MD, MPH

Assistant Professor of Medicine at Harvard Medical School and an Associate Physician at Massachusetts General Hospital in Boston.

Vahista Ussery, MS, MBA, RDN

Registered dietitian, chef and co-founder of To Taste, a culinary nutrition consulting company.

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Jill Weisenberger, MS, RDN, CDCES, CHWC, FAND

Author, health and wellness coach and internationally recognized expert in nutrition and diabetes.

William Yancy, MD

Published general internist and obesity medicine physician Fellow of The Obesity Society and a diplomate of the American Board of Obesity Medicine.

William Yancy, along with Eric Westman, have been responsible for many articles advocating a ketogenic diet to control diabetes, obesity and hyperlipidemia. His studies are examined in more detail in later chapters.

He has received funding from the Robert C Atkins Foundation.

Lisa R. Young, PhD, RDN, CDN

Internationally recognised nutritionist, author and adjunct professor of nutrition at NYU.

What Diets Were Evaluated?

40 diets were evaluated. Some of the diets and a brief description provided by the panel are listed below. Additional comments are provided for some of the diets.

01 Mediterranean Diet

Ranked #1 Best Diet with a score of 4.2/5.

It is also ranked #1 for Best Plant-based Diet, Best Heart-Healthy Diet, Best Diabetes Diet, Best Diet for Healthy Eating and Easiest Diet to Follow.

The US News Best Diets report notes that “there isn't ‘a’ Mediterranean diet. Greeks eat differently from Italians, who eat differently from the French and Spanish”.

Their review states:

It's generally accepted that the people living in countries bordering the Mediterranean Sea live longer and suffer less than most Americans from cancer and cardiovascular ailments. The not-so-surprising secret is an active lifestyle, weight control and a diet low in red meat, sugar and saturated fat and high in produce, nuts and other healthful foods.

The Mediterranean diet may offer a host of health benefits, including weight loss, heart and brain health, cancer prevention, and diabetes prevention and control. By following the Mediterranean diet, you could also keep that weight off while avoiding chronic disease.

It was Ancel Keys who devised the term the Mediterranean Diet. Keys stated that “our version” of the Mediterranean Diet was based on the diets of Greece, southern Italy and the Mediterranean regions of Spain and France in the 1960s.

This is how he described the Mediterranean Diet.

Homemade minestrone; pasta in endless variety always freshly cooked, served with tomato sauce and a sprinkle of cheese, only occasionally enriched with some bits of meat, or served with a little local sea food without any cheese; a hearty dish of beans and short lengths of macaroni (pasta e fagioli); lots of bread never more than a few hours from the oven and never

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served with any kind of spread; great quantities of fresh vegetables; a modest portion of meat or fish perhaps twice a week; wine [...]; always fresh fruits for desert. |8|

The heart of what we now consider the Mediterranean diet is mainly vegetarian [or lactovegetarian]: pasta in many forms, leaves sprinkled with olive oil, all kinds of vegetables in season, and often cheese, all finished off with fruit, and frequently washed down with wine. I say “leaves.” Near our second home in southern Italy, all kinds of leaves are an important part of the everyday diet. There are many kinds of lettuce, spinach, Swiss chard, purslane, and plants I cannot identify with an English name such as lettuga, barbabietole, scarola, and rape. |9|

The people of these areas also lived very strenuous lives, living in mountainous regions that involved much walking. The sense of community was also very strong.

This is very different from the version of the Mediterranean Diet presented by Best Diets and many popular commentators.

02 DASH Diet

Ranked #2 Best Diet with a score of 4.0/5.

It is ranked #3 for Best Heart-Healthy Diet, #5 for Best Diabetes Diet, #2 for Best Diet for Healthy Eating and #6 for Easiest Diet to Follow.

It emphasises the foods you've always been told to eat (fruits, veggies, whole grains, lean protein and low-fat dairy), which are high in blood pressure-deflating nutrients like potassium, calcium, protein and fibre.

The DASH (Dietary Approaches to Stop Hypertension) Diet and the more flexible Omni Heart Diet derivatives that “*provide more options for heart health*” will be examined in greater detail.

02 The Flexitarian Diet

Ranked #2 Best Diet with a score of 4.0/5.

It is ranked #2 for Best Plant-based Diet, #4 for Best Heart-Healthy Diet, #2 for Best Diabetes Diet, #2 for Best Diet for Healthy Eating and #2 for Easiest Diet to Follow.

The Flexitarian diet “is about adding five food groups to your diet – not taking any away. These are: the ‘new meat’ (non-meat proteins like beans, peas or eggs); fruits and veggies; whole grains; dairy; and seasonings”.

The review states “vegetarians tend to eat fewer calories, weigh less and have a lower body mass index (a measure of body fat) than their meat-eating peers. If you emphasise the plant-based component of this diet – eating lots of fruits, veggies, beans, lentils and whole grains – you'll likely feel full on fewer calories than you're accustomed to”.

This is only if you “emphasise the plant-based component of this diet”.

The big advantage listed is that it is flexible accompanied by the disadvantages that there is an “emphasis on home cooking and it might be tough if you don't like fruits and veggies”.

05 What Is Mayo Clinic Diet

Ranked #5 Best Diet with a score of 3.7/5.

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It is ranked #10 for Best Heart-Healthy Diet, #4 for Best Diabetes Diet, #9 for Best Diet for Healthy Eating and #9 for Easiest Diet to Follow.

The second edition of the "Mayo Clinic Diet" book was published in 2017. There is a Mayo Clinic diet website that offers guidance plus you can obtain paid support.

Recommended foods include healthy carbs (think fruit, legumes, vegetables, whole-wheat flour and wheat bran); fibre-rich foods such as nuts and beans; heart-healthy fish such as salmon, mackerel and tuna; and good fats, which include avocados, almonds, olives and walnuts. Foods to avoid include saturated fats, trans fats, cholesterol and sodium.

The diet is not much different to the DASH diet with the addition of a restrictive two week “*Lose it*” phase.

09 Vegetarian Diet

Ranked #9 Best Diet with a score of 3.6/5.

It is ranked #3 for Best Plant-based Diet, #7 for Best Heart-Healthy Diet, #5 for Best Diabetes Diet, #10 for Best Diet for Healthy Eating and #11 for Easiest Diet to Follow.

A vegetarian diet contains eggs and dairy but no meat.

The review included the following comment.

A meta-analysis of over 90 studies found significantly lower levels of body mass index, total cholesterol, LDL-cholesterol and glucose levels in vegetarians and vegans versus omnivores. The Italian study from 2017 also linked vegetarian and vegan diets to significantly lower rates of ischaemic heart disease and cancer. |10|

It appears that the significant health benefits does not offset lack of flexibility.

10 What Is The Nordic Diet

Ranked #10 Best Diet with a score of 3.5/5.

It is ranked #4 for Best Plant-based Diet, #12 for Best Heart-Healthy Diet, #14 for Best Diabetes Diet, #5 for Best Diet for Healthy Eating and #18 for Easiest Diet to Follow.

The Nordic diet was specifically designed to revolutionise Nordic cuisine and improve public health. Professor Arne Astrup at Denmark’s University of Copenhagen wished to create a similar concept to the Mediterranean diet that is based on Scandinavian tradition and culture.

The Nordic Diet and Professor Astrup’s work is examined later.

10 What is the Ornish Diet

Ranked #10 Best Diet with a score of 3.5/5.

It is ranked #4 for Best Plant-based Diet, #1 for Best Heart-Healthy Diet, #8 for Best Diabetes Diet, #11 for Best Diet for Healthy Eating and #27 for Easiest Diet to Follow.

The Ornish Program was developed in 1977. As well as the dietary component, the program places importance on physical activities, yoga and meditation for stress management and the importance of personal relationships.

Dietary Deceptions

The program has shown that it can reverse heart disease, diabetes, prostate cancer as well as lose weight.

The *Ornish Diet* is mostly plant-based with the addition of some fish, egg-whites and low-fat dairy.

According to the Best Diet's panel, the *Ornish Diet* is "solid nutritionally and your heart will love you". They also claim that "staying the course could be tough if you're aiming to reverse heart disease."

Why would anyone not want to reverse heart disease given the devastating consequences of not reversing the biggest killer in western societies?

Most patients report substantial reductions in angina, within the first few weeks of the program.

The panel noted that:

In fact, close to 80% of the nearly 3,000 participants in the 2011 American Journal of Health Promotion study were still following the program after one year. In contrast, less than 50% of people are taking statins after one year, one study found.

This contradicts the claim that the program is difficult to follow.

Popular commentators and researchers frequently call all whole-food, plant-based diets as "*extremely low in fat*".

17 Vegan Diet

Ranked #17 Best Diet with a score of 3.2/5.

It is ranked #8 for Best Plant-based Diet, #4 for Best Heart-Healthy Diet, #2 for Best Diabetes Diet, #22 for Best Diet for Healthy Eating and #30 for Easiest Diet to Follow.

The report states that the diet is "rich in high-fibre foods" and that it has "health and environmental benefits".

Although the diet ranks #4 for Best Heart-Healthy Diet and #2 for Best Diabetes Diet, it only ranks #22 for the Best Diet for Healthy Eating.

The US Best Diet notes eight key studies that support the benefits of vegan diets.

19 Engine 2 Diet

Ranked #19 Best Diet with a score of 3.1/5.

It is ranked #10 for Best Plant-based Diet, #9 for Best Heart-Healthy Diet, #8 for Best Diabetes Diet, #21 for Best Diet for Healthy Eating and #30 for Easiest Diet to Follow.

According to the report,

The diet is essentially a vegan diet with a twist – it cuts out vegetable oils and prescribes only whole, plant foods. Skip the refined grains and shakes and instead focus foods such as whole, intact grains, fruits, vegetables and legumes. U.S. News experts rank the diet in the middle of the pack on most measures – while whole, plant foods are undeniably healthy, all of its "don'ts" can make it exceptionally difficult to stick to long term.

Dietary Deceptions

According to the panel, eliminating added oils and the manufactured isolated protein products from a vegan diet make this diet and others like it difficult to follow.

20 The Zone Diet

Ranked #20 Best Diet with a score of 3.0/5.

It is ranked #21 for Best Heart-Healthy Diet, #30 for Best Diabetes Diet, #19 for Best Diet for Healthy Eating and #20 for Easiest Diet to Follow.

The *Zone Diet* program was created by Dr Barry Sears working at Stanford University. The first Zone Diet book, *The Zone*, was published in 1995. Since then there have been more than 6 million Zone books.

According to Sears, “elevated levels of insulin, coupled with omega-6 fatty acids, cause you to pack on pounds because they generate other hormones that promote inflammation”, which he believes is a chief driver of the obesity epidemic.

Optimal protein choices include skinless chicken, turkey, fish, egg whites, low-fat dairy, tofu and soy meat substitutes.

Carbs are either “good” or “bad,” and dieters are instructed to choose those that are low on the glycemic index, a ranking of how carbs affect blood sugar. Low-GI carbs are said to keep your blood sugar and metabolism steady – and you feeling fuller longer – while high-GI “bad” carbs do the opposite. Your best bets are vegetables (except starchy corn and peas), fruits (except bananas and raisins), and oatmeal and barley. Stay away from pasta, bread, bagels, cereals, and potatoes. And while small amounts of healthy fats are added to each meal, avoid fatty red meat, egg yolks, liver and other organ meats, and processed foods – all high in saturated fat.

Almost as important as what you eat is when. Meal and snack timing are crucial on Zone. If you don’t eat often enough, your blood sugar will dip, triggering hunger pangs.

You should never go more than five hours without eating. Have breakfast within one hour of waking. If that’s at 7 a.m., for example, have lunch at noon, a snack at 5 p.m., dinner at 7 p.m. and another snack at 11 p.m.

According to Sears, the Zone Diet requires that your protein intake is limited to 100 grams per day. It also requires a distribution of macronutrients (by energy) of 30% protein, 30% fat and 40% carbohydrate. | 11 |

This results in a severely limited energy intake of 1,300 kCal per day. | 12 |

Apparently you do not feel hungry “because you are in the Zone of properly balanced insulin levels”.

The Zone Diet website states:

As powerful as the Zone Diet® is, it is just one of three parts of the complete Zone Anti-Inflammatory Nutrition Program required to manage diet-induced inflammation for a lifetime.

Zone Diet® benefits can be enhanced with anti-inflammatory supplements. The two most powerful are ultra-refined omega-3 fatty acids, such as OmegaRx®2 Fish Oil, and purified

Dietary Deceptions

polyphenol supplements, such as MaquiRx®. Collectively, these three distinct dietary components provide what is required to stay in the Zone.

Sears claims, “The underlying cause of chronic disease comes from the increased production of a natural fatty acid called arachidonic acid which is incredibly toxic at high enough concentrations.”

13

He states “the most likely suspect gene-altering drama is increased consumption of omega-6 fatty acids, such as linoleic acid, which lower the percentage of omega-3 fats in the diet.” and “We have been become genetically altered by increasing linoleic acid to gain weight rapidly and make it difficult to lose.” 14

Not so according to a 2008 article.

It is time to shift the arachidonic acid (ARA) paradigm from a harm-generating molecule to its status of polyunsaturated fatty acid essential for normal health. ARA is an integral constituent of biological cell membrane, conferring it with fluidity and flexibility, so necessary for the function of all cells, especially in nervous system, skeletal muscle, and immune system. 15

It derives its name from the Latin word, *arachis* meaning *peanuts* but it is not present in peanuts or other nuts. Arachidonic acid is obtained from food such as poultry, animal organs and meat, fish, seafood and eggs.

20 What is the South Beach Diet

Ranked #20 Best Diet with a score of 3.0/5.

It is ranked #19 for Best Heart-Healthy Diet, #19 for Best Diabetes Diet, #22 for Best Diet for Healthy Eating and #11 for Easiest Diet to Follow.

The South Beach Diet was created by a Dr Arthur Agatston, a cardiologist from Miami, Florida and Marie Almon, who was a dietician at Mount Sinai Medical Center at Miami Beach, in 1995.

Agatston has written over 20 South Diet books.

On the South Beach diet, there are good carbs and fats, and there are unhealthy carbs and fats. The key to weight loss is choosing the best of each. That means lots of nonstarchy vegetables, fish, eggs, full-fat dairy, protein like chicken and turkey, whole grains and nuts. South Beach is lower in carbohydrates and higher in protein and healthy fats than the typical American diet.

The South Beach diet is based on the premise that insulin resistance is fundamental cause of the diseases of modern civilisation. South Beach diet is lower in carbohydrates and higher in protein, fats and animal products than the average American diet.

Replace bad fats with good fats. Replace trans-fats and omega-6 vegetable oils with healthier monounsaturated fats such as olive oil, avocado and omega-3 fatty acids from fish, and saturated fats from full-fat dairy and coconut-oil.

Replace bad carbohydrates with good carbohydrates. Bad carbohydrates are contained in processed foods, foods with added sugars, foods that have removed fibre, fruits and fruit juices. Good

Dietary Deceptions

carbohydrates are whole grains, low-sugar fruits and starchy vegetables. The daily carbohydrate goal is between 75 and 100 grams per day.

A high protein intake is required “representing at least 25% of your daily calories, to maintain muscle mass” which is similar to the Zone Diet.

Phase 1

A 14 day low-carbohydrate phase that eliminates bread, rice, cereals, potatoes or any other complex carbohydrates as well as simple carbohydrates. All fruits are out because of their fructose content.

Steak, eggs, turkey bacon, salmon, chicken, fat-free-cheese [there is no such thing as fat-free cheese] are important components of a healthy breakfast. Canola and olive oil in liberal amounts are allowed.

Phase 2

After two weeks the cravings for the above foods that made you fat will be eliminated and you can now reintroduce them.

Phase 3

Once you reached your desired weight goal in Phase 2, Phase 3 is your eating program for the rest of your life. If necessary, return to Phase 1 or Phase 2 to “re-boot”.

Current program

The South Beach diet is now a home-delivery program that provides delivering prepared meals, there is still a shopping requirement.

27 Intermittent Fasting

Ranked #27 Best Diet with a score of 2.6/5.

It is ranked #27 for Best Heart-Healthy Diet, #30 for Best Diabetes Diet, #26 for Best Diet for Healthy Eating and #20 for Easiest Diet to Follow.

The 5:2 *fast diet* as advocated by Dr Michael Mosely is a version of an *Intermittent Fasting* diet.

Intermittent fasting is a low-energy diet. People consume fewer significantly fewer calories than normal. You will be hungry. The premise is that your body will “depletes its fat stores instead of glucose for energy, leading to weight loss”.

Different strategies can be employed to limit food intake and increase the fasting periods.

Time-restriction

Skipping breakfast increases the fasting period with some advocating a 20 hours fast followed by a 4 hour feeding period.

Twice-a-week fasting (5:2 diet)

Eat normally for 24 hours then fast for 24 hours by reducing intake to 25% of your normal intake. Include protein-rich foods like skinless chicken, nuts and legumes rule on low-calorie days with high-fibre, low glycemic-index fruits and veggies such as “strawberries and carrots”.

Alternate-day fasting

Every second day consume nothing to about 500 daily calories.

Dietary Deceptions

24-hour fasts

Several times a week have only one meal a day. The fast is from “one day’s meal to the same meal the next day”.

The type of food you eat does not change – only the amount that you eat on your fasting days.

30 Paleo Diet

Ranked #30 Best Diet with a score of 2.4/5.

It is ranked #33 for Best Heart-Healthy Diet, #26 for Best Diabetes Diet, #30 for Best Diet for Healthy Eating and #27 for Easiest Diet to Follow.

The original concept for the palaeolithic diet originated with the gastroenterologist Walter Voegtlin with the publication of the book *The Stone Age Diet*. According to this book, |16|

Our ancestors were exclusively carnivores for at least two and possibly twenty million years? Were you aware that ancestral man first departed slightly from a strictly carnivorous diet a mere ten thousand years ago? Our ancestors were exclusively carnivores for at least two and possibly twenty million years? Were you aware that ancestral man first departed slightly from a strictly carnivorous diet a mere ten thousand years ago?

The idea was developed by Stanley Boyd Eaton and Melvin Konner. Dr Stanley Boyd Eaton graduated from Harvard Medical School in 1964. Dr Eaton is a radiologist. Melvin Konner is a medical doctor and anthropologist.

Their initial paper, *Paleolithic Nutrition - A Consideration of Its Nature and Current Implications* was published in the New England Journal in 1985. This was followed by the book, *The Paleolithic Prescription* (Harper & Rowe) in 1988 which was written by Eaton, Konner and Marjorie Shostak. |17|

The premise is that early man, from 1.8 – 1.6 million years ago, began to consume a much larger quantity of meat than their hominid ancestors who mainly consumed fruit.



Dr Katharine Milton is a professor of physical anthropology at the University of California in Berkeley. She received her Ph.D. in anthropology from New York University in 1977.

Her field of expertise is the dietary ecology of primates, including human ancestors and modern humans.

According to Professor Milton,

In fact, we do not know much about the range of foods Palaeolithic hunter-gatherers consumed in almost any environment. |18|

Also, according to Professor Milton,

Comparative and experimental data shows that modern humans, common chimpanzees, gorillas, and orangutans show close similarity to most features of (human) gut anatomy as well as patterns of digestive kinetics.

Dietary Deceptions

Most monkeys and apes include considerable fruit in their diet. These fruit are more nutritious than cultivated fruits. Wild fruits are higher in protein, minerals, vitamins and fibre and have less fat. They are higher in omega-3 fatty acids. Wild fruits are also higher in glucose and fructose but lower in sucrose. Sucrose is a disaccharide which contains a molecule of glucose and fructose which needs to be broken down into the component parts before it can be utilised by humans. | 19 |

All primates obtain the majority of their food from plant sources. Primates include lemurs, monkeys, apes and humans.

One difference is that chimpanzees, bonobos and orangutans produce less of the enzyme amylase than human populations. Amylase is the most abundant protein in human saliva and is required to breakdown starches into the component simple sugar – glucose.

Professor Milton's conclusion is:

It is prudent for modern-day humans to remember their long evolutionary heritage as anthropoid primates and heed current recommendations to increase the number and variety of fresh fruit and vegetables in their diets rather than increase their intake of domesticated animal fat and protein. | 20 |



As a professor at the Department of Health and Exercise Science at Colorado State University Colorado State University, Dr. Loren Cordain developed *The Paleo Diet* with colleagues Dr. Boyd Eaton and Dr. Staffan Lindeberg.

He published the book, *The Paleo Diet* (2001) that defined the term.

The premise of the Paleo Diet is that if,

Cavemen did not eat it are based on a simple premise – if the cavemen didn't eat it, you shouldn't either. So long to refined sugar, dairy, legumes and grains (this is pre-agricultural revolution), and hello to meat, fish, poultry, fruits and veggies.

These diets contain up to 35% or more energy from protein which is much higher than official recommendations or the average western diet.

These diets eliminate grains and dairy and are high in animal products.

32 Raw Food Diet

Ranked #32 Best Diet with a score of 2.3/5.

It is ranked #1 for Best Plant-based Diet, #24 for Best Heart-Healthy Diet, #26 for Best Diabetes Diet, #35 for Best Diet for Healthy Eating and #40 for Easiest Diet to Follow.

The US News review of the Raw Food diet states,

While there are numerous variations of the raw food diet today, it typically involves food that hasn't been cooked, processed, microwaved, irradiated, genetically engineered or exposed to pesticides or herbicides. About 75% to 80% of what raw foodists eat each day will be plant-

Dietary Deceptions

based foods never heated above 115 degrees Fahrenheit (45 degrees Celsius). Very few people follow a 100% raw diet.

Most followers are vegan, but some choose to consume raw animal products, such as raw (unpasteurised) milk, cheese made from raw milk, sashimi, raw fish and certain kinds of raw meat. Proponents say cooking obliterates most of the vitamins in food and nearly all of the immune-boosting plant nutrients – though scientific evidence to support these claims is lacking.

Most who follow the plan consume only half the calories they would eat on a cooked diet – just one of the reasons this low-calorie plan isn't a great idea in nutrition pros' mind.

A blender and food processor is essential.

Richard Wrangham is a Professor of Biological Anthropology at Harvard University. He wrote an excellent book *Catching Fire: How Cooking Made Us Human*. [21]

The book describes how cooking evolved, starting millions of years ago. It is essential part of our diets and has been the foundation of all human societies.

Between 1.9 and 1.8 million years ago, our ancestors, *Homo erectus*, evolved as a result of cooking.

Use of fire and cooking resulted in changes to society with man-woman pairs and sharing of food with partner, walking upright, and a large change to anatomy with smaller digestive systems, mouth and jaw, loss of hair. Food is more energy dense, softer and easier to digest, less astringent and sweeter. Cooking destroys bacteria.

Chimpanzees spend 5-6 hours chewing their food. Less chewing time means that we have time to develop societies.

34 Atkins Diet - Low Carb

Ranked #34 Best Diet with a score of 2.2/5.

It is ranked #33 for Best Heart-Healthy Diet, #22 for Best Diabetes Diet, #37 for Best Diet for Healthy Eating and #30 for Easiest Diet to Follow.

The Atkins Diet is another low-carbohydrate diet and ketogenic diet based on similar principles to other low-carbohydrate diets.

Generally speaking, the theory is that by limiting carbs, your body has to turn to an alternative fuel – stored fat. So sugars and "simple starches" like potatoes, white bread and rice are all but squeezed out; protein and fat like chicken, meat and eggs are embraced. Fat is burned; pounds come off.

There is a chapter in Atkins' book *New Diet Revolution*, "Nutritional Supplements: Don't Even Think of Getting Along Without Them". [22]

There are many version of low-carbohydrate diets including, *The CSIRO Low-Carb Diet* and *CSIRO Total Wellbeing Diet* were developed in Australia by the CSIRO. [23][24]

The *CSIRO Total Wellbeing Diet* plan "is higher in protein, and lower in high Glycemic Index carbohydrates which supports weight loss, especially fat mass whilst helping with appetite control".

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The *CSIRO Low Carb Diet* is "lower in carbohydrate and higher in healthy fats which may improve blood glucose control and possibly a reduction in need for diabetes medication".

35 Whole30 Diet

Ranked #35 Best Diet with a score of 2.1/5.

It is ranked #36 for Best Heart-Healthy Diet, #40 for Best Diabetes Diet, #34 for Best Diet for Healthy Eating and #35 for Easiest Diet to Follow.

The diet was created by Melissa Hartwig and Dallas Hartwig in 2009. It is a 30 day program.

Eat real food

Eat meat, seafood, and eggs; vegetables and fruit; natural fats; and herbs, spices, and seasonings. Eat foods with a simple or recognisable list of ingredients, or no ingredients at all because they're whole and unprocessed.

Ghee or clarified butter, fruit juice and some legumes are OK. Green beans and most peas (including sugar snap peas, snow peas, green peas, yellow peas, and split peas) are allowed.

Avoid for 30 days

Do not consume added sugar, real or artificial. This includes (but is not limited to) maple syrup, honey, agave nectar, coconut sugar, date syrup, monk fruit extract, stevia, Splenda, Equal, Nutrasweet, and xylitol. If there is added sugar in the ingredient list, it's out.

Do not consume alcohol, in any form, not even for cooking.

Do not eat grains. This includes (but is not limited to) wheat, rye, barley, oats, corn, rice, millet, bulgur, sorghum, sprouted grains, and all gluten-free pseudo-cereals like quinoa, amaranth, and buckwheat. This also includes all the ways we add wheat, corn, and rice into our foods in the form of bran, germ, starch, and so on. Again, read your labels.

Do not eat most forms of legumes. This includes beans (black, red, pinto, navy, garbanzo/chickpeas, white, kidney, lima, fava, cannellini, lentils, adzuki, mung, cranberry, and black-eyes peas); peanuts (including peanut butter or peanut oil); and all forms of soy (soy sauce, miso, tofu, tempeh, edamame, soy protein, soy milk, or soy lecithin).

Do not eat dairy. This includes cow, goat, or sheep's milk products like milk, cream, cheese, kefir, yogurt, sour cream, ice cream, or frozen yogurt.

37 What Is the Keto Diet

Ranked #37 Best Diet with a score of 2.0/5.

It is ranked #35 for Best Heart-Healthy Diet, #26 for Best Diabetes Diet, #40 for Best Diet for Healthy Eating and #35 for Easiest Diet to Follow.

US News review of the Keto Diet states,

The keto diet emphasises weight loss through fat-burning. The goal is to quickly lose weight and ultimately feel fuller with fewer cravings, while boosting your mood, mental focus and energy.

Dietary Deceptions

Ketosis occurs during starvation. It is not a normal, healthy condition. No animal species or human society normally lives in a state of ketosis. Ketosis occurs when fat in the body is utilised to obtain energy in the absence of glucose. Glucose is normally obtained from the digestion of carbohydrates. Ketosis results in the production of three types of ketones produced during ketosis, with acetone (nail polish remover) being one. Blood acidity rises with an increase in ketones.

During pregnancy, ketosis has been linked to adverse outcomes for the unborn child.

Prominent researchers in this field are Richard Feinman, Stephen Phinney, Mary Vernon, Jeff Volek, Eric Westman, and William Yancy—all supporters of low-carbohydrate dietary regimes.

Low-carbohydrate diets and ketogenic diets are examined in more detail later.

Popular Commentators and Ancel Keys

Who was Ancel Keys?

Many popular commentators attribute the cause of obesity, diabetes and other ills of modern western societies to one person – Ancel Keys.

Ancel Keys was one of the most famous public health researchers of the twentieth century. He was born in 1904 and died in 2004. Peripatetic for the first third of his life, his outstanding research followed appointment age 36 to the Laboratory of Physiological Hygiene, at the University of Minnesota's Minneapolis Football stadium. Born in Colorado, a refugee from the San Francisco earthquake aged 2, he studied chemistry at Berkeley, economics, and political science, earned a master's degree in zoology, a PhD in oceanography and biology, won a fellowship in physiology to Copenhagen, and did a second PhD in physiology in Cambridge, England, becoming interested in high-altitude physiology. Offered a permanent post in Cambridge, he went to study biochemistry at Harvard.

In 1937, Ancel commenced working at the Mayo Clinic, Rochester, Minnesota where he hired Margaret Haney, a research chemist. In 1938, Ancel established the Laboratory of Physiological Hygiene at the University of Minnesota. In 1939, Ancel Keys and Margaret Haney married. [25]

During World War II, he instigated an experiment to determine the effects of starvation on 36 conscientious objectors. This helped to develop programs to assist the rehabilitation of those who had been starved during the war. The men “universally stated a simple, solid conviction not to kill another human being,” of their dedication to the experiment, and their desire to be of service to those who were starving in appalling conditions in Europe. Keys was remembered for his professionalism and compassion. It is a reflection of Keys and his staff that the participants insisted that they would “make the same decision to participate, even after having experienced the physical sacrifice required.” [26]

He pioneered several modern techniques in health and biology including detailed comparisons of whole populations to determine the effects of different lifestyle factors on health. He demonstrated experimentally that traits heretofore considered irrevocable and constitutional, such as body type, blood fat levels (cholesterol), blood pressure, heart rate, and responses to stress, were, in fact,

Dietary Deceptions

largely modifiable by simple changes in the composition and quantity of diet and physical activity. |27|

In 1951, Keys was working at Oxford when the Food and Agriculture Organization asked him to chair their first conference on nutrition in Rome. Keys states, “The conferees talked only about nutritional deficiencies”.

When he asked about the new epidemic of coronary heart disease, Gino Bergami, Professor of Physiology at the University of Naples, said “coronary heart disease was no problem in Naples”. |28|

In 1952, Keys and his wife Margaret visited Naples. Margaret measured serum cholesterol concentrations and found them to be very low except among members of the Rotary Club. Heart attacks were rare except amongst the rich whose diet included daily servings of meat. He obtained similar results in studies in Madrid.

In Minnesota, he performed a series of experiments that lasted for eight years with the results published in 1965. According to Keys:

The major villains in the diet that are responsible for raising the concentration of cholesterol in the blood serum are saturated fatty acids in the fat of meat and dairy products. Preformed cholesterol in the diet also tends to raise blood cholesterol concentrations slightly if the diet otherwise is extremely low in cholesterol. Mark Hegsted at Harvard University confirmed our Minnesota findings in similar experiments. Saturated fatty acids and preformed cholesterol are commonly found in the same foods. The good Mediterranean diet is low in both saturated fat and cholesterol. |29|

Ansel Keys coined the name and introduced the concept of Mediterranean diet. |30|

In 1975, Ansel Keys and his wife Margaret published the book, *How to Eat Well and Stay Well the Mediterranean Way*, based on the results of his studies. |31|

Ansel Keys and his wife Margaret lived for 28 years in Pioppi, a fishing village south of Naples in southern Italy. Keys lived to be 100 years old and his wife 97. Margaret was an integral part of Keys’s work.

Six Countries Study

Popular commentators frequently accuse Keys of manipulating data in his 1953 paper, *Atherosclerosis, A Problem in Newer Public Health*. |32|

This study is sometimes referred as the “*Six-Countries Study*”. A number of popular commentators think this is the Seven Countries Study— they count England & Wales as two countries.

This paper was presented in Amsterdam in 1952 and in January 1953 in New York.

On page 4 of this paper, Keys lists 16 countries (which includes France, The Netherlands, Switzerland, and Sweden) and compared their all-cause death rates to the United States. United States compared unfavourably to all countries and Keys believed that what was possible for other countries “should be possible for Americans.” The mortality data was for the years 1947–1949.

Dietary Deceptions

The only countries that have a higher all-cause mortality rate for males are South Africa for 50-54 years old and Portugal for 40-44 year old which have mortality rates of 102% and 139% of the US mortality rate respectively. The increase in Portugal's mortality rate is attributed to tuberculosis and violence. All values are from 1947-1949 expressed as a percentage of US mortality rates.

Country	40-44		50-54		60-64	
Sex	M	F	M	F	M	F
Australia	75	91	87	96	94	94
Belgium	96	89	91	96	97	101
Canada	78	91	76	92	84	96
Denmark	59	83	63	88	70	100
England & Wales	68	78	76	83	93	88
France	96	100	91	91	93	91
Ireland	80	78	57	86	69	88
Italy	91	100	77	88	75	97
Netherlands	52	69	56	76	63	89
New Zealand	55	72	66	81	85	88
Norway	64	78	53	65	54	68
Portugal	139	125	99	96	99	103
Scotland	93	97	93	100	97	107
South Africa	93	108	102	115	94	104
Sweden	61	86	63	85	68	92
Switzerland	78	97	78	97	88	108
Mean	79.9	90.1	76.8	89.7	82.7	94.6

On page 17 of this 22-page paper, Keys graphed the mortality rate for degenerative heart disease and fat intake for six countries that he stated had “fully comparable dietary and vital statistics data.” The food data was obtained from FAO for the year 1949.

This graph causes a great deal of consternation in the popular press. The claim is made that Keys “cherry-picked” his data, which is stating that he was dishonest.

Yerushalmy and Hilleboe criticised this paper in the publication *Fat in the Diet and Mortality from Heart Disease*, claiming that Keys only choose 6 countries (Japan, Italy, England & Wales, Australia, Canada, U.S.) that supported his hypothesis instead of using the World Health Organization data from the 22 countries that was available. The data for the 22 countries that Yerushalmy and Hilleboe listed were for the years 1951-1953, a period which is after the publication of Keys's paper. |33|

Dietary Deceptions

Even if data from all the 22 countries are included, it still shows:

- positive correlations between heart disease and total calories consumed, fat consumption, animal fat consumption and animal protein consumption, and
- negative correlations with heart disease and carbohydrate consumption, vegetable protein consumption and vegetable fat consumption.

This observation is clearly stated in Yerushalmy and Hilleboe's paper. Yerushalmy and Hilleboe were criticising the methodology and the classifications and sub-classifications of heart disease that were used. They were not criticising the lack of correlation.

Below are Pearson's correlation coefficients for B-26 category of heart disease compared with three dietary components. The data used is supplied by Yerushalmy and Hilleboe for all of the 22 countries.

- % fat in diet and heart disease – 55%
- % saturated fat in diet and heart disease mortality – 69%
- % animal protein in diet and heart disease mortality – 70%

As a generalisation, 90% indicates a very strong correlation, 70-90% a strong correlation and 50-70% a moderate correlation. The claim that there is no correlation (even with all the countries included) is simply false.

Yerushalmy and Hilleboe used rank correlations – not linear correlations.

Taubes, Teicholz and other popular commentators ignore the fact that Yerushalmy and Hilleboe found the greatest correlation with the percentage of animal protein and heart disease. Once again, that is simply being dishonest.



Keys was opposed to dietary guidelines and advocated “our” version of the Mediterranean Diet, which based on the diets of Greece, southern Italy and the Mediterranean regions of Spain and France in the 1960s.

Homemade minestrone; pasta in endless variety always freshly cooked, served with tomato sauce and a sprinkle of cheese, only occasionally enriched with some bits of meat, or served with a little local sea food without any cheese; a hearty dish of beans and short lengths of macaroni (pasta e fagioli); lots of bread never more than a few hours from the oven and never served with any kind of spread; great quantities of fresh vegetables; a modest portion of meat or fish perhaps twice a week; wine [...]; always fresh fruits for desert. [34]

The heart of what we now consider the Mediterranean diet is mainly vegetarian [or lactovegetarian]: pasta in many forms, leaves sprinkled with olive oil, all kinds of vegetables in season, and often cheese, all finished off with fruit, and frequently washed down with wine. I say “leaves.” Near our second home in southern Italy, all kinds of leaves are an important part of the everyday diet. There are many kinds of lettuce, spinach, Swiss chard, purslane, and plants I cannot identify with an English name such as lettuga, barbabietole, scarola, and rape. [35]

Dietary Deceptions

The “*Six-Countries Study*” was a minor discussion paper that was ignored until Gary Taubes discovered it to criticise Keys in the book, *Good Calories, Bad Calories* in 2007. |36|

Dietary Deceptions

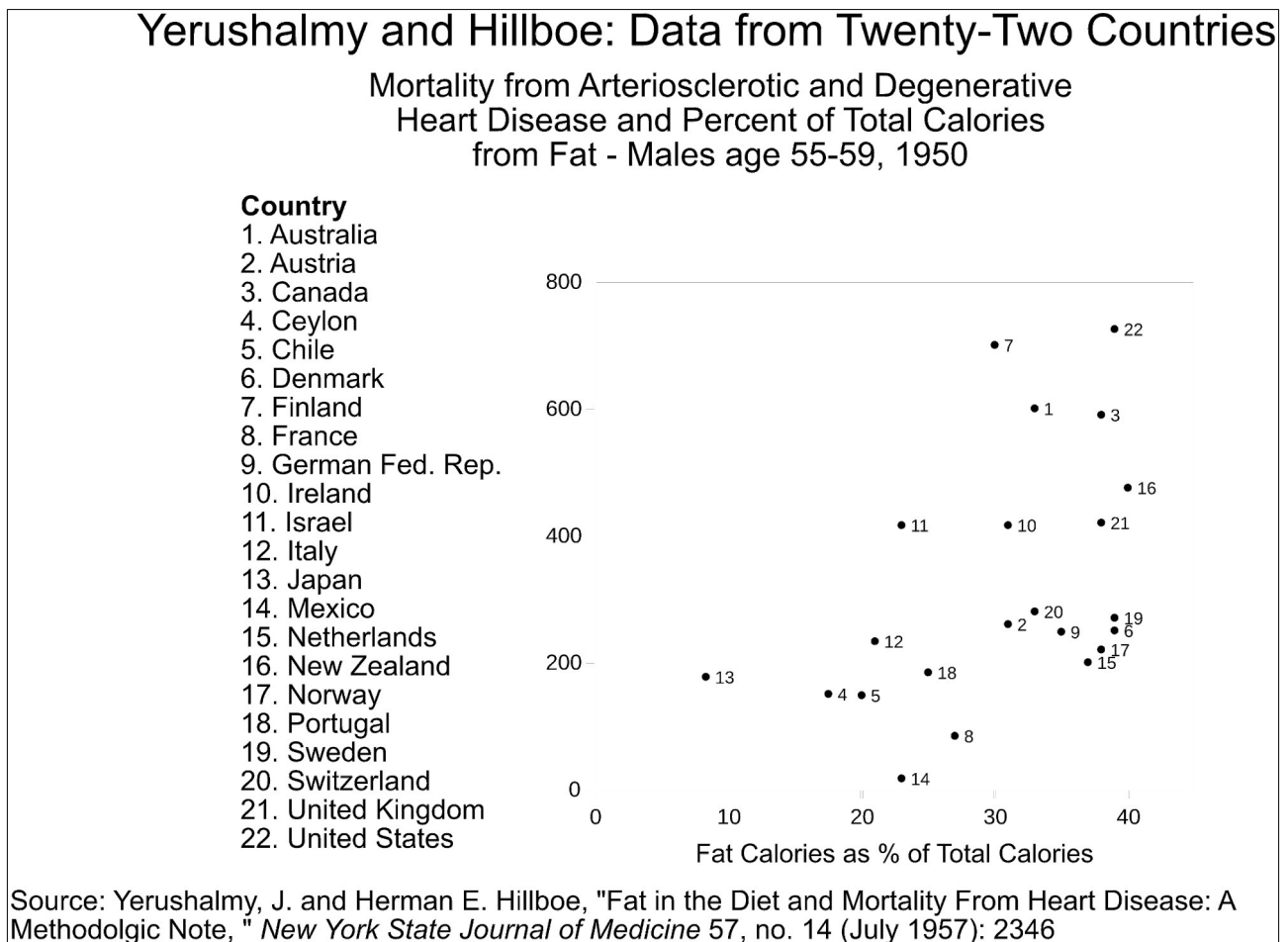
Ancel Keys and The Big, Fat Surprise

Teicholz and the Six Countries Study

In the book *The Big Fat Surprise: why butter, meat, and cheese belong in a healthy diet*, Nina Teicholz claims that, [37]

This connect-the-dot exercise in 1952 [The “Six-Countries Study”] was the acorn that grew into the giant oak tree of our mistrust of fat today. All of the ailments that have been ascribed to eating fat over the years— not just heart disease but also obesity, cancer, diabetes, and more— stem from the implantation of this idea in the nutrition establishment by Ancel Keys and his perseverance in promoting it. Now, as you eat a salad with a lean chicken breast for lunch and choose pasta over steak for dinner, those choices can be traced back to him. The influence of Keys on the world of nutrition has been unparalleled.

Below is a reconstruction of the graph from *The Big, Fat Surprise*.



Teicholz used data from Yerushalmy and Hilleboe's 1957 paper. [38]

The date of the table from Yerushalmy and Hilleboe paper was *1951-1953*. Teicholz has changed the date in the heading from *1951-1953* to *1950* so it fits with her chronology of Keys's apparent deception. That can be only described as being deliberately and blatantly dishonest. It cannot be a

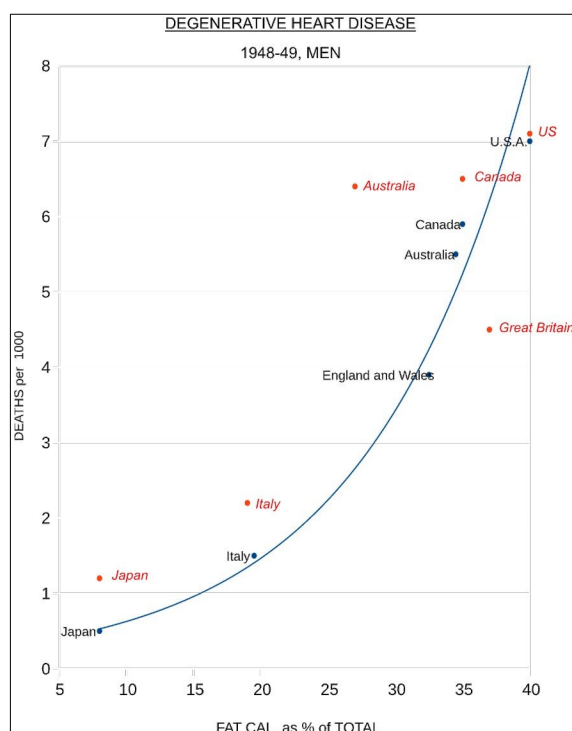
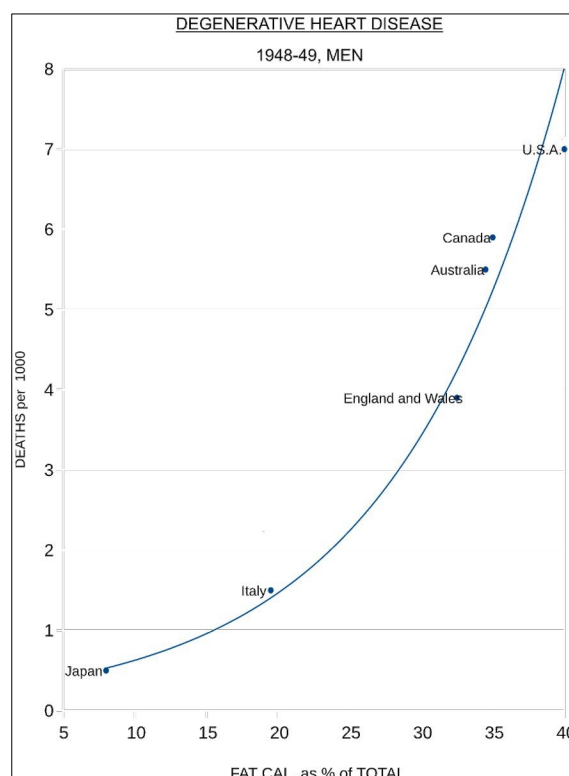
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mistake. Clearly this data was not available to Keys as he first presented his talk in Amsterdam in 1952.

Yerushalmy and Hilleboe used data in their paper from *The World Health Organization: Annual Epidemiological and Vital Statistics Report* which was issued in 1953. [39]

Clearly this data was not available to Keys as he first presented his talk in Amsterdam in 1952 and later in New York in January 1953. This paper was published in Jul-Aug 1953. [40]

Data that clearly was not available when Keys first presented his talks and published his paper.



It is clear that it is from a completely different set of data to that supplied by Keys. Teicholz has added data to that supplied by Keys. Yerushalmy and Hilleboe used data for Great Britain for the years 1951-1953 whilst Keys used data for England and Wales for the year 1949 supplied by the Food and Agriculture Organization of the United Nations. The 22 countries that is frequently cited comes from Yerushalmy and Hilleboe.

If you go back to the original Food and Agriculture Organization document for the year 1949, you will discover that there were actually 36 countries

available. Perhaps we should be asking why Yerushalmy and Hilleboe only included 22 countries. No – not really, it is irrelevant.

Keys's original data (Japan, Italy, England & Wales, Australia, Canada, U.S.A) for the year 1949 is marked in black. The data added by Teicholz was published in 1957 by Yerushalmy and Hilleboe and is marked in red. It is a completely different series of data. Data for *England & Wales* is replaced by data for *Great Britain*. Regardless, the conclusions are the same irrespective of which set of data is chosen.

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Yerushalmy and Hilleboe found a significant correlation with saturated fat and heart disease and an even greater correlation with animal protein and heart disease.

Ancel Keys and Harry Blackburn

Teicholz writes in *The Big, Fat Surprise* that,

Ancel Keys has a quick and brilliant mind, a prodigious energy, and great perseverance. He can also be frank to the point of bluntness, and critical to the point of sharpness. |41|

Later, his closest colleague at the University of Minnesota, Henry Blackburn, would describe him as being “direct to the point of bluntness, critical to the point of skewering, and possessing a very quick, bright intelligence.” By all accounts, Keys also had an indomitable will and would argue an idea “to the death.” (Less admiring colleagues called him “arrogant” and “ruthless.”)

There is no indication of who called Keys “arrogant” and “ruthless”. Teicholz is being malicious without any foundation.

The actual quote from Blackburn is: |42|

Ancel Keys has a quick and brilliant mind, a prodigious energy, and great perseverance. He can also be frank to the point of bluntness, and critical to the point of sharpness.

Blackburn’s words of “can be” has been transformed into “as being”. Henry Blackburn and many other highly skilled international collaborators worked with Keys for decades. They held reunions. Demonising Keys is another strategy employed to discount his work.



In Defence of U Research

The Minneapolis Star Tribune published an article, *In defence of U[niversity] research: The Ancel Keys legacy*, by Henry Blackburn on the 18th July 2014. Henry Blackburn was a long-time collaborator of Keys, joining the Minnesota laboratory in 1954.

Blackburn begins the article with,

Recently, a number of writers identifying themselves as “health-science journalists” have been calling on Americans to “end the war on fat” as they promote a high-fat, low-carbohydrate diet (“Chocolate milk in the schools and other products of expert opinion,” June 22). What’s puzzling is that they draw attention to their arguments by using personal attacks on one of Minnesota’s premier scientists, Ancel Keys.

In the article Blackburn writes,

In the most bizarre accusation of all, several writers are laying the blame on Keys for our modern epidemics of obesity and diabetes. It all started in the 1950s, they say, with Keys’ undue influence on the American Heart Association and the later U.S. government dietary guidelines. The idea that one person could hold such sway for years over these notoriously sceptical bodies

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strains credulity. It was the strength of the evidence, plus a pragmatic decision how best to reduce saturated-fat consumption, not Keys' "force of will," that inspired the dietary policies.

Teicholz even manages to get a special mention in the article.

Blackburn concludes the article with,

In addition to finding — and exploiting for profit — a common villain in Keys, these writers use a number of devices to promote what Nina Teicholz, author of "The Big Fat Surprise," advocates as a return to "tallow and lard." Innuendo, distortions and accusations may be good for media attention and book sales, but they can do real damage — not only to the reputation of a pioneering researcher, but to public understanding of the scientific method and the evolving science of nutrition. It's time to end the war on Ancel Keys.

Teicholz and Funding

Then there is a question of funding.

Nina Teicholz spoke at and received funding from the American Meat Institute at the 2015 Annual Meat Conference (AMC) in Nashville, Tennessee.

She also spoke at and received funding for the American Meat Science Association 68th Reciprocal Meat Conference on June 17th 2015 in Lincoln, Nebraska.

The BMJ Investigation

The BMJ published an article *The scientific report guiding the US dietary guidelines: is it scientific?* on 23rd September 2015. *The BMJ* issued a press release the following day (24th September 2015) stating, "BMJ investigation questions expert advice underpinning new US dietary guidelines".⁴³

The article was not a "*BMJ Investigation*", but a fully funded article. At the end of the article in *The BMJ*, written by Teicholz, it clearly states:

This article was fully funded with a grant from the Laura and John Arnold Foundation (www.arnoldfoundation.org). The analysis was conducted independently, and the report reflects the views of the author and not necessarily those of the foundation.

Clarification was requested from *The BMJ* as to the nature of the funding.

The BMJ editorial team have advised that this article was fully funded with a grant from the Laura and John Arnold Foundation. Therefore, BMJ would have used the grant to cover all expenses for this publication.

Confusion With Seven Countries Study

Popular commentators frequently confuse the "*Six-Countries Study*" with the *Seven Countries Study*.

The *Seven Countries Study* compared 16 contrasting regions in 7 countries. ***The surveys were carried out during 1958-1970.*** 12,763 men aged 40-59 participated with 95% of eligible men taking part. 15 local collaborators performed the surveys – not Ancel Keys.

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Below are two commentaries by self-styled health experts. They are both referring to the “*Six Countries Study*”.

Keys examined diet and heart disease trends in twenty-two countries. He was apparently more interested in headlines than science because he then published a study that included data from only the six countries that showed a scary link between diet and heart disease. Here are the facts: When the data from all twenty-two countries in Keys’ study is examined, they showed no relationship between fat intake and heart disease deaths. Keys selectively picked data and designed a headline-worthy conclusion.

Jonathan Bailor Self-described “Internationally Recognized Wellness Expert”

Georgia Ede, a medical doctor and psychiatrist made the following comment at a *Physicians for Ancestral Health Symposium* in 2016.

The misguided belief that saturated fats cause heart disease is rooted in a famous study published in 1970 called “*The Seven Countries Study*”, in which renowned scientist Ancel Keys claimed that people in countries where more animal fat was eaten had more heart disease than people in countries where less animal fat was eaten. The original study actually involved 22 countries, not 7; the data from the other 15 countries having been omitted for undisclosed reasons. When the data from all 22 countries were analysed, no correlation between fat and heart disease was found (Yerushalmy and Hilleboe 1957).

Both are completely confused. Ede states that the *Seven Countries Study* was published in 1970. It was published in 1980. |44|

Ede then claims that when Yerushalmy and Hilleboe examined the data that they found no correlation between fat and heart disease.

Yerushalmy and Hilleboe’s paper was published in 1957 – 23 years before the Seven Countries Study.

The *Seven Countries Study* did not involve 22 countries. It involved 16 regions in 7 countries.

As noted above, Yerushalmy and Hilleboe found substantial correlations between saturated fat and heart disease and an even greater correlation with animal protein consumption and heart disease.

Far too much attention is paid to one page of a minor discussion paper that was published in 1953.

Robert Lustig and The Men Who Made Us Fat

At the beginning of the three-part documentary *The Men Who Made Us Fat*, Jacques Peretti informs us, |45|

I am going to trace those responsible for a revolution in our eating habits. I’ll be looking at how decisions made behind closed doors transformed food into an addiction.

A brief shot of Ancel Keys and George McGovern are shown as the two of the perpetrators of this deed.

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Robert Lustig is a paediatric endocrinologist at the University of California, San Francisco. He is the author of *Fat Chance: Beating the Odds against Sugar, Processed Food, Obesity, and Disease*.
46

He specialises in childhood obesity and studying the effects of sugar in the diet. He is the director of the UCSF Weight Assessment for Teen and Child Health Program and a member of the Obesity Task Force of the Endocrine Society. Below are some comments by Lustig from the documentary:

This man, Ancel Keys, claimed he had the answer to heart disease. His theory had a decisive impact on what we would all eat. But it also had a devastating side effect— creating the conditions for obesity. Keys’s theory was that fat alone caused heart disease. [...] In 1952, Keys did a sabbatical in England where he saw the epidemic of heart disease himself and correlated it with the enormously poor British diet of fish and chips, etc.— you know what I’m talking about — and decided that saturated fat had to be the culprit. And he actually said that back in the fifties before he did any studies. And he spent the next fifty years attempting to prove himself right. Keys won the battle. Yudkin was thrown under the bus. And— well, he was discredited by numerous societies basically saying that he did not have the data to make his claims about the importance of sugar.

Much of what a rather chubby Robert Lustig states is false. Keys’s research was not the starting point for nutritional and cholesterol research, which had its foundations in the early years of the twentieth century. Keys’s early views on diet were formed in Italy and Spain, not in England. He developed his ideas about diet and heart disease when he was invited to Naples in the early 1950s. His studies showed dramatically lower rates of coronary heart disease in Italy and Spain. He introduced the concept of the Mediterranean Diet to America— a diet he described as mainly vegetarian. Initially, Keys did focus on fats in the diet— not saturated fats— as Lustig states above. Keys conducted many trials and experiments, both before and after he came to his initial conclusions regarding fat.

Keys noted in 1980,

Responsible students of the coronary problem long ago abandoned the idea of seeking the cause of the disease, agreeing that several, perhaps many, variables are involved in almost all cases.

As the title of this report (*Seven Countries: A Multivariate Analysis of Death and Coronary Heart Disease*) indicates, Keys and his colleagues were examining a number of different variables in relation to heart disease. 47

Lustig states,

Keys was already pretty famous in America because he was the originator, inventor, of the K-Ration. The K-ration was a way of getting 12,000 calories in a very small, compact little box.

Lustig had overestimated the amount of energy in the K-Ration by three to four times. The K-Ration was an emergency survival ration consisting of non-perishable food designed for a few days’ use only. As well as chocolate bars, it contained pemmican biscuits, veal meat, sausage, toilet paper, chewing gum, and cigarettes. The K-Ration was never designed for long-term use. 48

Dietary Deceptions

Lustig's claim that Keys made his assertion regarding the implications of fats in the diet with heart disease without the backing of research is not true.

In 1922, de Langen, working with Javanese men in the East Indies, showed that a diet high in eggs, butter, and meat raised serum cholesterol.

Keys performed studies with his wife, Margaret, in Naples and Rome in 1952.

A number of researchers studied the relationship of saturated fat to serum cholesterol during the 1950s. J Groen, LW Kinsell, EH Ahrens, A Keys, JM Beveridge and B Bronte-Stewart replaced saturated fats in the diet with polyunsaturated fats. All other components of the diet remained the same and the total fat content of the diet did not change.

When the unsaturated fats, such as corn or safflower oil, were replaced by the saturated fats of butter, lard, or coconut oil, the serum cholesterol rose. The serum cholesterol fell when the polyunsaturated fats were reintroduced. The experiments were repeated, and whilst there was variability with the amount of change for different individuals, the results were consistent for each individual. The changes occurred rapidly within one or two weeks. Ahrens's study kept the total fats at 40%, which was the average fat intake of the U.S. at that time.

The conclusion of part one of *The Men Who Made Us Fat* states, whilst showing a picture of Ancel Keys, that "another [Keys] gave the risk of sugar a clean bill of health." Keys disapproved of "the common high level of sucrose in many diets." [49]

He advocated a Mediterranean-style diet of traditional Greece, Spain, and southern Italy. This diet was high in unprocessed foods, consisted of "pasta in many forms, leaves sprinkled with olive oil, all kinds of vegetables in season," was "almost vegetarian (or lactovegetarian)," and was "much lower in meat and dairy product" than American diets.

At no stage did Keys give sugar a clean bill of health. He did indicate that sugar was not involved in the formation of heart disease.

Pure, White and Deadly – John Yudkin

John Yudkin was a British nutritionist. He was Professor of Physiology, Queen Elizabeth College, London 1945-54 and the founding head of the Department of Nutrition at Queen Elizabeth College, London University from 1954-71.

Yudkin wrote several books recommending low-carbohydrate diets for weight loss commencing with *This Slimming Business* (1958).

Added sugar consumption increased greatly from 1900 to 1960 in Britain and similar countries, more than any other food component. Yudkin proposed that this was responsible for the increase of heart disease. Sucrose could act by increasing plasma triglycerides. This hypothesis was presented in a popular best seller *Pure, White and Deadly* in 1972. [50]

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Pure, White and Deadly did not contain any references. His popular books and campaigning through the media weakened the medical positions on heart disease. Mortality from heart disease started reducing in 1966 in U.S., Finland, and Australia. It was another 10 years before this happened in the United Kingdom because of Yudkin's influence.

Yudkin supported his observations with a small case-control study where dietary histories for sugar in 20 men aged 45– 65 years soon after a myocardial infarct (MI). These results were compared with 25 middle-aged men as controls. Median for the MI group was 113g/day with the controls recording 56g sugar/day. Another group of 25 men with peripheral arterial disease had a sugar intake of 128g/day. This study was sufficient for Yudkin to link sugar consumption with heart disease. |51|

Yudkin did feeding experiments with rats. High sugar diets increased serum triglycerides; less consistently cholesterol. At this time, serum triglycerides were being suggested as a risk factor for heart disease. Yudkin's idea was warmly supported by the dairy, egg and meat industries who were beginning to feel the impact of "reduce saturated fats". He popularised his sugar theory through the media and a best-seller paperback with a striking title (but no references). |52|

This was the extent of Yudkin's research.

Yudkin's high media profile in the United Kingdom ensured that his views on sugar received a lot of publicity.

Stamler concluded that "several sets of evidence, animal-experiments, clinical and epidemiological render the hypothesis untenable that sucrose is a prime and decisive factor influencing atherogenesis". |53|

A report by the joint working party of the Royal College of Physicians and the British Cardiac Society (RCP/ BCS) (1976) (with Gerry Shaper, Michael Oliver and Geoffrey Rose among its members) considered that "*there was no firm evidence linking intake of dietary sugar and CHD*".

Ancel Keys published a paper in 1971, examining the evidence linking sugar consumption with heart disease. |54|

The widely publicised theory that sucrose in the diet is a major factor in the development of coronary heart disease has been examined. The theory is not supported by acceptable clinical, epidemiological, theoretical or experimental evidence. It has been claimed that the theory is supported by international statistics, by the time trend of the incidence rate, by comparison of dietary habits of coronary patients and "controls," and by experiments. Not one of these claims is justified by the actual evidence.

Keys did not give sugar a "*clean bill of health*".

Keys states that,

None of what is said here [in this paper] should be taken to mean approval of the common high level of sucrose in many diets.



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In 1981, Geoffrey Rose wrote in a British Medical Journal article,

In Britain, then, we are failing to prevent a preventable disease. If we had shared in the Australian and American decline each year in England and Wales there would be upwards of 25000 fewer coronary deaths. One can imagine the outcry if some shortcoming in therapeutic services were to cause even a tiny fraction of this number of unnecessary deaths. Why then, one may ask, do we not as a profession evince a corresponding alarm at a failure of prevention? Why do we not feel that it is our fault? Why is so large a part of our research devoted to the "mechanics of dying," and so little to the scientific, social, and economic basis of prevention?

Some reasons for dismissing the association of sugar consumption with heart disease include: | 55 |
Sucrose does not ordinarily raise plasma cholesterol.

- If starch is replaced in the diet with sucrose then plasma triglycerides are not increased.
- There is no mechanism where sucrose could lead to heart disease.
- Countries such as Costa Rica, Cuba, and Venezuela have high sugar consumption but low rates of heart disease.
- The consumption of sugar was much greater in Sweden than in neighboring Finland, but the age-specific cardiovascular death rate in Sweden is not much more than half that in Finland.

Yudkin's influence resulting in an increase of 25,000 deaths is not a great legacy.

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According to Gary Taubes,

Ancel Keys was ridiculing John Yudkin and his theory in papers, and just on the basis of that sort of personality and political struggle, the nutrition community embraced this idea that saturated fat was the problem, working through dietary cholesterol, and began to think of the idea that sugar could heart disease as akin to quackery, and Yudkin was eventually ridiculed.

Yudkin was not ridiculed - he simply could not produce any evidence to support his hypothesis.

Pure, White and Deadly was republished in 2012, with a foreword by the paediatric endocrinologist, Robert Lustig. |56|

Flawed Studies

Minnesota Coronary Survey

Professor Arne Astrup of the Department of Nutrition, Exercise and Sports at the University of Copenhagen is the lead author of the 2011 paper, *The role of reducing intakes of saturated fat in the prevention of cardiovascular disease: Where does the evidence stand in 2010?* and the 2019 paper *WHO draft guidelines on dietary saturated and trans fatty acids: Time for a new approach?* |57||58|

Astrup presented the *Minnesota Coronary Survey* as evidence that saturated fat is not involved in heart disease.

Reanalysis of the Minnesota Coronary Experiment (a double blind randomised controlled trial that tested whether replacing saturated fat with polyunsaturated fat reduced coronary heart disease and death) also supports the claim that serum cholesterol is not a valid surrogate biomarker for cardiovascular disease risk when making dietary changes.

The *Minnesota Coronary Survey* was a 4.5-year, double blind, randomised clinical trial that was conducted in six Minnesota state mental hospitals and one nursing home. |59||60|

The purpose of the trial was to examine the dietary effects of serum cholesterol levels and the incidence of heart attacks, sudden deaths and all-cause mortality.

This was conducted during the years 1968-1973.

It involved 9,000 institutionalised men and women. The trial compared the effects of a 39% fat control diet with a 38% fat treatment diet with saturated fats being replaced by polyunsaturated fats.

The following extract shows the amount of effort that was involved in making the control diet and experimental diet look and taste identical.

Procurement of suitable foods for the treatment diet, (with the desired polyunsaturated fat, which were yet palatable, stable, and indistinguishable from the corresponding components of the control diet) presented a great challenge.

It was achieved through the cooperation of the study nutritionists, the hospital dietitians, manufacturers of food products, and the Food Inspection Division of the Minnesota Department of Agriculture. Products that proved particularly useful were filled milk and ice

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cream, a whole egg substitute, soft margarine, whipped topping, filled cheese, low fat ground beef with added vegetable oil, and filled sausage products.

Filled milk is milk that has been reconstituted with added oils, usually from vegetable sources.

A diet of 40% fat is not healthy, irrespective of any other components. The margarine has a high proportion of trans-fats. It takes a lot of imagination to believe that such a diet constitutes a healthy regime.

Diet Group	Total fat calories	Sat fat calories	Polyunsat fat % calories	Chol mg/d	Poly/Sat ratio
Control	39.1	18.3	5.2	446.0	0.3
Treatment	37.8	9.2	14.7	166.0	1.6

The Astrup's paper refers to a 2016 paper that claims a re-evaluation of the data from the 1968-1973 trial supports their view that serum cholesterol is not a valid indicator of heart disease. Both the control diet and experimental diets are so unhealthy it is difficult to draw such a conclusion. [61]

Both diets certainly were not based on high levels of fruit, vegetables, whole grains, or beans and the experimental diet relied heavily on manufactured foods.

As we will show later, high levels of fat from any source (plant or animal) damages endothelial cells of arteries which is detrimental to our health.

It is fascinating that researchers find it necessary to re-examine a dietary trial from such an early period of nutritional research to discover apparent inconsistencies.

Robert Atkins and His Diet

His Life

Robert Atkins was born in 1930 in Dayton, Ohio. He received an undergraduate degree from the University of Michigan in 1951 and earned a medical degree from Cornell University. His cardiology residency was obtained at St. Luke's Hospital, New York. At the age of 33, he had his picture taken for an ID. He told Observer Food Monthly,

I looked at a picture of myself and realised I had a triple chin. [...] I was eating junk food. Nobody had ever told me junk food was bad for me. Four years of medical school, and four years of internship and residency, and I never thought anything was wrong with eating sweet rolls and doughnuts, and potatoes, and bread, and sweets.

An article examining Pennington's work, titled *A New Concept in the Treatment of Obesity*, [62] was published in 1963, and advocated for the complete elimination of sugar from the diet and a marked increase in both fat and protein. Atkins had recently read the article in the journal. He says,

It was so simple! I hadn't tried a diet before that. It was the only diet that looked like I'd enjoy being on it. I ate a lot of meat, and a lot of shrimp, and a lot of duck, and a lot of fish. And omelettes in the morning, and salad and vegetables.

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Atkins lost 12 kg in six weeks on a low-carbohydrate diet. 100% of his 65 patients who trialed the diet reached their target weights.

In 1970, he wrote an article for Vogue on his low-carbohydrate. In 1972, he published his book, *Dr Atkins' Diet Revolution*, which sold 15 million copies. His program was condemned by the American Medical Association.



His Death

Atkins died at the age of 72 in New York in 2003, after falling on ice. His report was mistakenly released to the public. The death certificate suggested that Atkins had “***a history of heart attack, congestive heart failure and hypertension.***” It also states that his death was caused by a “blunt impact injury of head” and records his weight and height at 258 pounds [117 kg] and 6 feet [182 cm] tall, which is classed as “obese”. ***At the request of his family, an autopsy was not performed.*** His supporters state Atkins suffered from cardiomyopathy, which was likely caused by a virus. [63]

Atkins's widow and Dr. Stuart Trager, the spokesperson for Atkins Physicians Council, both contend Robert Atkins weighed 195 pounds at the time of his accident, claiming,

During his coma, as he deteriorated and his major organs failed, fluid retention and bloating dramatically distorted his body and left him at 258 pounds at the time of his death, a documented weight gain of over 60 pounds.

That is, according to the Atkins Physicians Council, Atkins had a weight gain of 63 pounds [28 kg] in the 9 days following his fall, a gain of 7 pounds [3 kg] per day.

A gain of 7 pounds a day from fluid retention does seem rather excessive.



Michael Bloomfield was the mayor of New York city at the time of Atkins's death. He privately stated that Atkins was "fat" a few months prior to his death when he was invited to dinner at Atkins's Hamptons's home. Bloomfield later retracted the remark, but that does not negate the observation that Atkins was overweight.

Dr John McDougall made a similar observation after meeting Atkins, stating that he was "obese", in the months prior to his death.

After the coroner's report on Atkins' death was leaked, Veronica Atkins vehemently denied on Larry King Live that her husband had coronary artery disease. She did admit later that his cardiovascular system may not have been as fit as the public had been led to believe.

Robert did have some progression of his coronary artery disease in the last three years of his life, including some new blockage of a secondary artery.

Notice that Veronica used the word “***progression***”. Why did Atkins have progression of coronary heart disease and a new blockage of a secondary artery, the very conditions that his diet was supposed to eliminate?

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In a paper 2017 paper, *A perspective on diuretic resistance in chronic congestive heart failure*, the authors discuss the definition, prevalence, mechanism of development and management strategies of diuretic resistance in congestive heart failure patients. [64]

According to this paper,

Many patients with congestive heart failure have some impairment in renal function that makes it necessary to increase the diuretic dose to deliver the drug at its site of action in appropriate amounts. When salt intake is not adequately restricted, postdiuretic sodium retention is an important mechanism responsible for diuretic resistance as most loop diuretics are short acting. This postdiuretic salt retention can be overcome by more frequent administration of the diuretic (3 times daily or more) that results in reduction of the drug-free interval.

The paper concludes with,

We conclude that the high prevalence of renal impairment in congestive heart failure patients is associated with a higher risk of diuretic resistance. In addition to renal impairment, poor diuretic absorption, drug–drug interactions, chronic administration of diuretics and high sodium intake are other potential factors behind the development of diuretic resistance in congestive heart failure.

The question is why did Atkins have renal impairment and diuretic resistance - conditions which Atkins should have been able to avoid if his diet worked as he claimed.

The answers lie in his suggested recipes such as:

- Rolled bacon stuffed with scrambled eggs containing 6 large eggs, 18 slices bacon 2 cups shredded cheddar cheese
- Butter Pecan Fat Bombs with 1/2 cup pecans, 1/4 cup coconut butter, 1/4 cup butter, 1/4 cup coconut oil
- Amazing Cheese Sauce with 1/4 cup heavy whipping cream, 2 tbsp butter, 1/4 cup cream cheese, 1/2 cup grated cheddar cheese

What if It's All Been a Big Fat Lie?

The article, *What if It's All Been a Big Fat Lie?*, was published in the *New York Times Magazine* on 7 July 2002 by writer Gary Taubes. Taubes argues that consuming meats, cheese, cream and butter is essential a long, healthy life. [65]

“Influential researchers are beginning to embrace the medical heresy that maybe Dr. Atkins was right,” writes Taubes.

Taubes claims that it's not fatty foods that make us fat and raise our risk of disease. It's carbohydrates.

Taubes reports that:

Atkins allowed his readers to eat "truly luxurious foods without limit," as he put it, "lobster with butter sauce, steak with Bearnaise sauce . . . bacon cheeseburgers," but allowed no starches or refined carbohydrates, which means no sugars or anything made from flour.

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The 71-year-old Atkins, a graduate of Cornell medical school, says he first tried a very low carbohydrate diet in 1963 after reading about one in the Journal of the American Medical Association. He lost weight effortlessly, had his epiphany and turned a fledgling Manhattan cardiology practice into a thriving obesity clinic. He then alienated the entire medical community by telling his readers to eat as much fat and protein as they wanted, as long as they ate little to no carbohydrates. They would lose weight, he said, because they would keep their insulin down; they wouldn't be hungry; and they would have less resistance to burning their own fat. Atkins also noted that starches and sugar were harmful in any event because they raised triglyceride levels and that this was a greater risk factor for heart disease than cholesterol.

We ate more fat-free carbohydrates, which, in turn, made us hungrier and then heavier. Put simply, if the alternative hypothesis is right, then a low-fat diet is not by definition a healthy diet. In practice, such a diet cannot help being high in carbohydrates, and that can lead to obesity, and perhaps even heart disease.

Big Fat Lies: The Truth About the Atkins Diet

Bonny Leibman published a critique of *What if It's All Been a Big Fat Lie?* in the The New York Times Magazine in November 2002. The experts Taubes interviewed for his article were unanimous in their criticism of Taubes. |66|

Barbara Rolls, an obesity expert at Pennsylvania State University was interviewed by Taubes for six hours and "he didn't quote a word of it. If the facts don't fit in with his yarn, he ignores them."

Xavier Pi-Sunyer, director of the Obesity Research Center at St. Luke's-Roosevelt Hospital Center in New York said "The article was written in bad faith. It was irresponsible."

Gerald Reaven, the pioneering Stanford University researcher, now emeritus, who coined the term "Syndrome X [Metabolic Syndrome], stated "My quote was correct, but the context suggested that I support eating saturated fat. I was horrified. The article was incredibly misleading,"

Stanford's John Farquhar stated, "I was greatly offended at how Gary Taubes tricked us all into coming across as supporters of the Atkins diet."

"If you believe Taubes, it's not the 670-calorie Cinnabons, the 900-calorie slices of Sbarro's sausage-and-pepperoni-stuffed pizza, the 1,000-calorie shakes or Double Whoppers with Cheese, the 1,600-calorie buckets of movie theatre popcorn, or the 3,000-calorie orders of cheese fries that have padded our backsides."

Samuel Klein, director of the Center for Human Nutrition at the Washington University School of Medicine in St. Louis. "It's preposterous," says "There's no real evidence that low-fat diets have caused the obesity epidemic."

Judith Putnam, a USDA agricultural economist states that have been a decrease in the percentage of fat calories but a "greatly increased consumption of carbohydrates. We're eating roughly 500 calories a day more than we did in 1980. More than a third of the increase comes from refined grains, a fifth comes from added sugars, and a third comes from added fats."

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Walter Willett said he told Taubes several times that red meat is associated with a higher risk of colon and possibly prostate cancer, but he left that out.

Taubes simply ignored research that didn't agree with his conclusions. Taubes was asked why he made no mention of a review of nearly 50 studies on weight loss in the National Heart, Lung, and Blood Institute's 1998 Clinical Guidelines on treating obesity. The panel of experts was chaired by Columbia University's Pi-Sunyer, who has served as president of both the American Society of Clinical Nutrition and the American Diabetes Association. Taubes reply was "Anything that Pi-Sunyer is involved with, I don't take seriously. He just didn't strike me as a scientist."

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Treating Metabolic Syndrome

According to Robert Atkins, |67|

How to treat metabolic syndrome is controversial. Because there are several potential markers, the public health community has struggled with the decision of how best to define, diagnose and treat it.

Nutritional approaches have generally been downplayed in favour of multiple medications that target the individual markers.

Conventional recommendations tend to emphasise caloric restriction and reduced fat intake, even though metabolic syndrome can best be described as carbohydrate intolerance.

The most effective treatment for metabolic syndrome is to control the intake of carbs, not fat.

In fact, restricting dietary fat and replacing it with carbohydrate actually makes many of the problems of metabolic syndrome worse. The metabolic syndrome paradigm has therefore caused a great deal of distress—and pushback—among those advocating low-fat diet.

Some conclusions of a 21 page paper published in 2020, *Dietary Strategies for Metabolic Syndrome: A Comprehensive Review* are listed below. |68|

That there is a strong evidence for the effect of the Mediterranean Diet on obesity and on Metabolic Syndrome prevention in healthy or high-CVD risk individuals, as well as on the risk of mortality in overweight or obese individuals.

Plant-based diets have consistently been associated with beneficial cardiometabolic effects, specifically with a lower risk of developing MetS and all of its components. Moreover, these dietary patterns are associated with decreased all-cause mortality and a decreased risk of obesity, T2DM and CVD.

The Dietary Approaches to Stop Hypertension (DASH) diet with a pattern of eating vegetables, fruits, whole grains, low- or free-fat dairy products, legumes and nuts intake, while restricting the intake of red and processed meat and sugar-sweetened beverages.

The DASH diet is characterised by a low-fat content, especially saturated fats and dietary cholesterol and reduced sodium content but is rich in fibre (>30 g/day), potassium, magnesium and calcium compared to other dietary patterns.

The DASH diet has proven to be a useful strategy for the treatment of hypertension and several epidemiological studies have associated higher adherence to the DASH diet with a better cardiometabolic profile. A higher adherence to the DASH diet was associated with a significant reduction in the risk of all-cause mortality, the incidence of mortality by CVD and cancer and the incidence of T2DM.

Meat and meat derived products have been associated with a higher risk of developing T2DM, CVD and Metabolic Syndrome.

Dietary Deceptions

The DASH Diet

Professor Frank Sacks

Dr Frank Sacks is a medical doctor and Professor of Cardiovascular Disease Prevention, Department of Nutrition at the Harvard School of Public Health. |69|

He was:

- Chair of the Design Committee of the DASH study which lead to the DASH diet.
- Co-Chair of the OmniHeart Trial that showed that variations of the DASH diet that are higher in protein or unsaturated fat improved blood pressure and lipid risk factors when compared to the DASH diet.
- Principal Investigator of the *Pounds Lost* trial which compared 4 diets varying in protein, carbohydrate and fat content. 811 overweight people were studied for 2 years. All diets showed the same beneficial effects on weight loss and risk factors for heart disease. |70|

Early Blood Pressure Studies

The concept that diet and blood pressure are linked has been discussed since at least the 1920s. In 1926, Donaldson noted that “vegetarians, we believe, run a consistently lower blood pressure than those who use flesh foods.” |71|

In a paper Sacks co-authored in 1974 noted that,

The declared consumption of food of animal origin was highly significantly associated with systolic and diastolic BP after the age and weight effects were removed. |72|

In 1975, Sacks was the lead author in a paper studying blood pressure as well as lipids and lipoproteins in vegetarians. |73|

The study investigated the blood-pressure levels in a group of vegetarians, who were following a macrobiotic diet with some participants eggs and fish. Levels of diastolic and systolic pressure were found to be relatively low and significantly and positively associated with the amount of animal products ingested.

Another paper from 1981 states, |74|

The study suggests an adverse effect of consumption of beef on plasma lipid and BP levels.

There was a significant increase in systolic blood pressure and plasma cholesterol after a 4 week period of adding 250 g of beef per day to a strict vegetarian diet.

Another paper from 1988, |75|

Vegetarians have lower BP than do non-vegetarians in the United States and Australia.

The DASH Trial

In 1997, the results of the *Dietary Approaches to Stop Hypertension (DASH)* trial was published. This trial tested three types of diet with 459 people with elevated blood pressure to study the effects of diet on blood pressure. The participants with high blood pressure were excluded.

Dietary Deceptions

The trial was designed to study the effects of diet on blood pressure but people with high blood pressure were excluded.

Participants were randomly assigned to one of the three diets for an eight-week period. Normal blood pressure levels were defined as: systolic measurement less than 120 mmHg; and diastolic measurement less than 80 mmHg. |76|

The DASH diet was designed so,

That (it) would have the blood pressure lowering benefits of a vegetarian diet yet contain enough animal products to make them palatable to nonvegetarians. |77|

The “**control diet**” was “*typical of the diets of a substantial number of Americans*”.

The “**fruits-and-vegetables diet**” provided “*more fruits and vegetables and fewer snacks and sweets than the control diet but was otherwise similar to it*”.

The “**combination diet**” was “*rich in fruits, vegetables, and low-fat dairy foods and had reduced amounts of saturated fat, total fat, and cholesterol.*” This experimental diet was labelled “**ideal**”.

Compared with the control diet, the *combination diet* reduced systolic blood pressure by an average of 5.5 mmHg and the “*fruits-and-vegetables diet*” reduced systolic blood pressure by 2.8 mmHg.

Below is a comparison of the control diet, with the “*fruits and vegetables diet*” and the “*ideal combination*” diet. The amount of food is measured in grams per day. |78|

Food group	Control g/ day	Fruit & veg g/ day	Combo diet g/ day
Grains	342	245	283
Fruit	82	301	281
Vegetables	147	272	345
Meat (Meat, poultry, fish)	192	172	139
Dairy products	89	59	485
Nuts, seeds, and legumes	0	27	36
Sweets and snack foods	152	28	22
Fats, oils, and salad dressing	54	43	26

DASH Trial Comparison

The “*fruits-and-vegetables diet*” had a higher intake of red meat than the “*ideal combination diet*”.

The “*combination ideal diet*” had more vegetables than the “*fruits-and-vegetables diet*”.

The DASH diet is a high-protein, high-fat diet compared to the vegetarian diets that were evaluated during the 1970s and 1980s.

Dietary Deceptions

OMNI Heart Trial

The *Omni Heart Trial* compared the standard DASH diet with 2 variants. The first variant replaced some carbohydrate with protein and the second variant replaced some carbohydrate with unsaturated fat. The claim is that the “*OmniHeart Diets provide more options for heart health*”.

- Diet 1: (DASH Diet)
A carbohydrate-rich diet of 58% carbohydrate, 15% protein, and 27% fat. Despite the claim, this is a high-fat, low-carbohydrate diet.
- Diet 2: (Protein)
A higher protein diet that had 10% more protein and 10% less carbohydrate (48% carbohydrate, 25% protein, and 27% fat). The 10% protein increase in the higher protein diet emphasised plant protein. It was noted that the meat and dairy food sources were also increased “somewhat”.
- Diet 3: (Unsaturated fat)
A higher unsaturated fat diet that had 10% more unsaturated fat and 10% less carbohydrate (48% carbohydrate, 15% protein, and 37% fat). Olive oil, canola oil, and olive oil spread were used as the unsaturated fat source. The average American diet contains 33% fat.

The *Carbohydrate (DASH) Diet* with 58% carbohydrate is **not** a carbohydrate-rich diet.

The *Protein Diet* was achieved by a 10% reduction in carbohydrate from the *Carbohydrate (DASH) Diet*.

The *Unsaturated Fat Diet* was achieved by replacing some fruits with vegetables, reducing sweets, and using smaller portions of grain products.

These diets are more concerned with pampering to American preferences rather than offering best health outcomes.

Nutrient (% of calories)	Carbohydrate (DASH) Diet	Protein Diet	Unsaturated Fat Diet
Carbohydrates	58	48	48
Total fat	27	27	37
Monounsaturated fat	13	13	21
Protein	15	25	15

According to the study,

All three diets reduced blood pressure, total and low-density lipoprotein cholesterol levels, and estimated coronary heart disease risk and the partial substitution of carbohydrate with protein and unsaturated fat likely led to further improvement in CVD risk factors. [79]

Dietary Deceptions

The conclusion from this paper states that,

The OmniHeart diet patterns offer substantial flexibility in macronutrient intake that should make it easier to eat a heart-healthy diet and reduce cardiovascular disease risk.

*Despite the claims that the “**DASH diet is a carbohydrate-rich, reduced-fat diet**”, a diet consisting of 58% carbohydrate and 27% total fat is **not** a high-carbohydrate diet **nor** a low-fat diet.* |80|

Westman and Yancy

Eric Westman and William Yancy are medical doctors associated with Duke University School of Medicine in North Carolina, where they are associate professors.

They are prolific authors associated with ketogenic and high-fat, low-carbohydrate diets. They have both received funding from *Robert C. Atkins Foundation* which supports research into low-carbohydrate nutrition.

One frequently referenced paper compares two calorie restricted diets. This paper claims that carbohydrate restriction “may be one of the most effective dietary treatments for diabetes”. The study was over a 24 week (4.5 month) period. |81|

The *low-carbohydrate (ketogenic)* group were given,

“a lay-press diet book and additional handouts [and] a registered dietitian instructed participants to restrict intake of dietary carbohydrate to fewer than 20 grams per day, without explicitly restricting caloric intake. Allowed foods were unlimited amounts of animal foods and eggs; limited amounts of hard cheese, fresh cheese, salad vegetables (2 cupfuls per day), and non-starchy vegetables (1 cupful per day). Participants were encouraged to drink at least 6 glasses of permitted fluids daily.”

The energy intake was calculated to be 500 kcalories less than the participant’s calculated energy needs for the day. Dietary carbohydrate was limited 20 grams of carbohydrate – the amount contained in 1 small apple.

Participants of the ketogenic group were instructed to drink “bouillon dissolved in water 2–3 times a day during the first two weeks to reduce possible side effects.” This is to supply sodium and potassium to treat the side-effects of the nutrient-poor ketogenic diet.

The low-glycemic group had a much higher level of black participants who are afflicted by diabetes at a lower threshold than white people.

Overall, the completion rate was not high. Completion rate was greater for the low-glycemic group.

Only 55% of the participants were able to complete the low-carbohydrate, high-fat ketogenic diet compared with 63% on the low-glycemic diet.

The low-glycemic index diet was 36% fat which is not a low-fat diet. The amount of fat was higher than the average US diet which is 33% fat by energy.

Dietary Deceptions

Criteria	Low-carb (Ketogenic)	Low-fat ("Medical")
BMI	38	38
Black	24%	52%
Fats (by energy)	59%	36%
Carbohydrates (by energy)	13%	44%
Completion rate	55%	63%
Insomnia	31%	19%
Constipation	53%	19%
Diarrhea	41%	37%
Headaches	53%	46%

Comparison of the Low-carb and Low-fat Diet Participants

Adverse events were reported for both groups with a greater prevalence occurring in the ketogenic diet group. The paper stated that there was no significant difference between two groups but the data supplied indicated otherwise.

Both the comparison and experimental diets are very unhealthy and the participants were miserable. They were very overweight and diabetic at the start of the trial and at the end of the trial.

The completion rate for ketogenic diet was only 55% compared with 63% for the “low-fat” group. which is not suggestive of a viable long-term strategy.

Funding for this study was obtained from the Robert C. Atkins Foundation.



The purpose of the *Systematic review and meta-analysis of clinical trials of the effects of low carbohydrate diets on cardiovascular risk factors*, was to: |82|

Study the effects of low-carbohydrate diet (LCD) on weight loss and cardiovascular risk factors. A total of 23 reports, corresponding to 17 clinical investigations, were identified as meeting the pre-specified criteria.

The conclusion of this study was:

Meta-analysis carried out on data obtained in 1,141 obese patients, showed the LCD to be associated with significant decreases in body weight, body mass index, abdominal circumference, systolic blood pressure, diastolic blood pressure, plasma triglycerides, fasting plasma glucose, glycated haemoglobin, plasma insulin and plasma C-reactive protein, as well as an increase in high-density lipoprotein cholesterol.

The authors claim that,

LCD was shown to have favourable effects on body weight and major cardiovascular risk factors; however the effects on long-term health are unknown.

Dietary Deceptions

Criteria	Units	< 6 months		6-11 months		12-23 months		> 23 months		All	
[Reference range]		n	Mean	n	Mean	n	Mean	n	Mean	n	Mean
BMI [<25]	kg/ (m•m)	3	-2.13	4	-2.06	3	-1.46	1	-1.50	11	-2.09
Diastolic BP [<80]	mmHg	5	-4.23	8	-3.53	7	-2.51	2	-1.48	22	-3.10
Systolic BP [<120]	mmHg	5	-6.64	8	-5.19	7	-4.39	2	-1.67	22	-4.81
Fasting glucose [70-110]	mg/dL	3	-0.67	7	-2.03	4	-3.56	2	3.50	16	-1.05
Fasting glucose [3.9-6.1]	mmol/L	3	-0.04	7	-0.08	4	0.20	2	0.19	16	-0.06
LDL Chol [65-135]	mg/dL	7	2.35	7	-0.30	6	-2.71	2	-3.27	22	-0.48
LDL Chol [1.7-3.5]	mmol/L	7	0.06	7	-0.01	6	-0.07	2	-0.08	22	-0.01
Insulin [5-20]	μIU/mL	2	-3.09	4	-2.56	3	-1.81	2	-1.07	11	-2.24
Insulin [35-145]	pmol/L	2	-22.00	4	-18.00	3	-13.00	2	-8.00	11	16.00
Weight change	kg	8	-6.82	9	-8.09	7	-6.33	4	-4.65	28	-7.04

- The average systolic blood pressure dropped 5 points. If a person has high blood pressure, that is not going to improve their health outcomes.
- The average fasting plasma glucose was reduced by 1.05 mg/dL (0.06 mmol/L). Given that the reference range is 70-110 mg/dL (3.9-6.1 mmol/L), do the authors really believe that such an insignificant difference is relevant?
- Similarly, the LDL cholesterol was reduced the minuscule amount of 0.48 mg/dL (0.01 mmol/L).
- For a number of the criteria (blood pressure, weight, BMI, glucose, insulin, triglycerides), the longer the study period, the amount of the improvement was less.
- Low-carbohydrate diets are usually restricted in energy so weight loss is inevitable.

At least one of the authors, William S. Yancy, has received funding from *Robert C. Atkins Foundation*, which is committed to “**low-carbohydrate nutrition**”.



A much bigger study investigated 17 studies involving 272,216 subjects. |83|

This investigation examined the impact of low-carbohydrate diets on all-cause mortality. There was a significant elevated risk of all-cause mortality compared with those on a standard western diet – the same diet that caused their health problems in the first place.

Dietary Deceptions

The risk of all-cause mortality with those with high low-carbohydrate score was significantly elevated with an increased risk of 1.31.

MARS Center For Cocoa Health Science

MARS Center for Cocoa Health Science is based at University of California – Davis Campus (which is near Sacramento). Ronald Krauss, one of the authors of Professor Arne Astrup's two papers, *The role of reducing intakes of saturated fat in the prevention of cardiovascular disease: where does the evidence stand in 2010?* and *WHO draft guidelines on dietary saturated and trans fatty acids: time for a new approach?*, is based at University of California – San Francisco campus.

MARS has contributed \$40 million to fund the institute

“Mars and the University of California, Davis have a long history of collaborative cocoa flavanol research dating back to the 1990s.” [84]

Between 2000 and 2021, the MARS institute has produced 157 articles extolling the benefits of chocolate and cocoa. [85]

Since raw cocoa is bitter and distasteful to most people, manufacturers add sweeteners, oils and dairy to ensure it is palatable.



MARS acknowledged “there is a risk its cocoa research could lead to confusion about chocolate’s health benefits.” *That is the intention.*

According to MARS, “chocolate should not be considered a health food. Chocolate is a treat and should be enjoyed as such, and in moderation.” [86]

Lyon Diet-Heart Study

The *Lyon Diet-Heart Study* was a “randomised, single-blind secondary prevention trial aimed at testing whether a Mediterranean-type diet, compared with a prudent Western-type diet, may reduce recurrence after a first myocardial infarction.” [87]

The study,

Consisted of 605 patients who had recovered from a myocardial infarction at a hospital in southern France. The experimental group emphasised “more bread, more root vegetables and green vegetables, more fish, less meat (beef, lamb and pork to be replaced with poultry), no day without fruit, and butter and cream to be replaced with margarine” which was high in alpha-linolenic acid (an omega-3 fatty acid).

At the end of the trial, the experimental group had 30% of the cardiac deaths of the control group, despite the fact that the average cholesterol measurements were similar for the two groups.

Dietary Deceptions

Source	Control Diet		Experiment Diet		Rate change
	Number	Rate / 100	Number	Rate / 100	%
Cardiac deaths	19	1.37	6	0.41	-68
Non-fatal heart attacks	25	27.0	8	0.83	-68
Non-cardiac deaths	5	0.36	8	0.54	+60
All-cause deaths	24	1.74	14	0.95	-42
Major secondary endpoints	46	4.96	13	1.35	-42
Minor secondary endpoints	90	9.71	68	7.04	-24
Total endpoints	180	18.74	95	9.63	-47

Lyon Diet-Heart Study – Comparison of Cardiac Outcomes

However, within the two cohorts, cholesterol did have a significant impact.

For each increase of 1 mmol/ L of total cholesterol increased the risk of recurrence by 20% to 30%. Epidemiological studies have consistently shown a positive correlation between plasma cholesterol levels and the incidence of (and mortality from) CHD in various populations. Thus, our population does not appear to be different from other low-risk populations. [88]

Given the extent of medication use in both groups, it is difficult (impossible) to determine the true effect of the dietary interventions.

The participants from both groups were overweight at the start of the study with an average weight of 74 kg and BMI of 25.8. ***At the end of the study, the average weight for both groups had increased by 1-2 kg.***

Whilst the reduction in cardiac events is significant and certainly indicates that diet is an important factor, the use of medications should not be required in controlling heart “disease” and heart “disease” should be non-existent in this population.

This study does highlight the shortcomings of the Mediterranean diet as defined by the study which is very different to the Mediterranean diet as defined by Ancel Keys.

Below is a comparison of biological markers and medication use in the control group compared with the experimental group at the end of the study. Very little change has occurred during the four year period of the study.

Criteria	Units	Control Diet (n=204)	Experiment Diet (n=219)
BMI	kg/(m ²)	26.9	26.3
Systolic blood pressure	mm Hg	128	128
Diastolic blood pressure	mm Hg	79	78
Total cholesterol	mmol/L	6.18	6.20
Triglycerides	mmol/L	1.75	1.94
HDL cholesterol	mmol/L	1.28	1.29
LDL cholesterol	mmol/L	4.23	4.17

Dietary Deceptions

Criteria	Units	Control Diet (n=204)	Experiment Diet (n=219)
Lipoprotein (a)	g/L	0.35	0.33
Albumin	g/L	47.10	47.28
Glycated hemoglobin	%	4.61	4.66
Creatinine	μmol/L	116	115
Uric acid	μmol/L	348	338
Leukocyte count	10 ^ 9	6.00	5.99
Current smokers	%	17.9	18.3
Anticoagulant agents	%	16.1	11.4
Antiplatelet agents	%	69.7	75.8
Beta-blocking agents	%	47.3	47.5
Calcium channel blockers	%	28.4	25.6
ACE inhibitors	%	17.4	18.3
Lipid-lowering drugs	%	34.0	26.5

Items marked in bold are similar in both cohorts at end of study

The use of anticoagulant and lipid-lowering (statins) medications were reduced and anti-platelet medication increased for the experimental group.

- Anticoagulant agents prevent blood from clotting. They perform the same function as antiplatelet therapy drugs but act in a different manner.
- Antiplatelet therapy drugs are used to decrease platelets from clotting. Platelets are involved in forming blood clots to prevent bleeding.
- Beta-blocking agents reduce blood pressure.
- Calcium channel blockers dilate blood vessels.
- Angiotensin-converting enzyme (ACE) inhibitors are a group of medications that dilate blood vessels. Nitric oxide is produced by the endothelial cells to produce the same effect.
- Statins are used to reduce the levels of cholesterol in the blood.

On the experimental diet, the participants had not only increased their weight but their medication use was essentially unchanged.

Whilst anti-coagulant medication use decreased, anti-platelet medication use increased from 69.7% to 75.8%. The study was designed to improve heart health but lipid-lowering drug use was decreased by only 22% in 4 years.

The participants were overweight and unhealthy at the start of the trial and, whilst the experimental group did not do as badly as the control group, 31% were still afflicted with cardiac events during the four-year trial which is not a great result for a condition which is mostly preventable. [89]

Dietary Deceptions

Women's Health Initiative

The Women's Health Initiative is a U.S. study involving 161,808 women aged 50-79. It investigated hormone therapy, dietary patterns, calcium, and vitamin D supplementation and their effects on the prevention of heart disease, cancer, and osteoporotic fractures.

The study involved two major components: Clinical Trials; and an Observational Study. The Clinical Trials studied three different aspects: a Hormone Therapy trial; a Dietary Modification trial; and a Calcium / Vitamin D trial.

The Dietary Modification trial evaluated the effect of a low-fat and high-fruit, vegetable-and-grain diet on the prevention of breast and colorectal cancers, and coronary heart disease in postmenopausal women. The participants followed either their usual eating pattern or a low-fat dietary pattern.



The women were randomly assigned to the control group or intervention group. The women self-reported their diets. According to the study, the intervention consisted of:

Intensive behaviour modification in group and individual sessions designed to reduce total fat intake to 20% of calories and increase intakes of vegetables/ fruits to 5 servings/ d and grains to at least 6 servings/ d. The comparison group received diet-related education materials. 90

This was achieved by holding 18 group sessions in the first year and quarterly maintenance sessions afterwards for the intervention group. It could be disputed that this constitutes intensive behaviour modification.



The widely-reported conclusion from this study informed readers that,

Over a mean of 8.1 years, a dietary intervention that reduced total fat intake and increased intakes of vegetables, fruits, and grains did not significantly reduce the risk of CHD, stroke, or CVD in postmenopausal women and achieved only modest effects on CVD risk.

Whilst the conclusion states that the mean period for the participants in the study was 8.1 years, the data shows changes at years 3 and 6.

Fibrinogen is a soluble protein that is an inflammation marker. Thrombin is a protein that causes fibrinogen to bind together to form fibrin which creates fibrous mesh to cover a wound. This can be seen under a microscope.

Whilst it is necessary to stop bleeding, it can also cause white and red blood cells, platelets, endothelial cells and low-density lipoprotein (LDL) particles to stick together and also adhere to artery and vein walls.

Carotenoids are yellow, orange, purple and red pigments that are produced by plants and algae. It is indicative of the amount of plant-based food consumed.

Dietary Deceptions

At the three year mark, there are NO relevant differences between the control group and the intervention group.

Dietary Deceptions

Criteria	Intervention Group			Control Group		
	Baseline	Year 3	Year 3 Δ	Baseline	Year 3	Year 3 Δ
Weight, kg	76.8	75.7	-1.4%	76.7	76.7	0.0%
Body mass index	29.1	28.8	-1.0%	29.1	29.2	0.3%
Waist circumference (cm)	89	88.2	-0.9%	89	89.3	0.3%
Blood pressure Systolic (mm Hg)	127.5	125.1	-1.9%	127.9	125.7	-1.7%
Cholesterol, (mg/ dL)	224	214.1	-4.4%	224	216.6	-3.3%
LDL Cholesterol (mg/dL)	133.3	123.2	-7.6%	134.2	127	-5.4%
Triglycerides (mg/dL)	138.6	142.3	2.7%	141.1	144.6	2.5%
Glucose (mg/dL)	100.4	98.8	-1.6%	100	99.5	-0.5%
Insulin (μIU/mL)	9.9	10.5	6.1%	10.2	11.2	9.8%
Carotenoids (μg/mL)	0.7	0.7	0.0%	0.7	0.6	-14.3%
Fibrinogen (mg/dL)	301.5	288	-4.5%	298.7	290.2	-2.8%

Changes made by the Intervention Group and the Control Group by Year 3

Dietary Deceptions

Dietary Intakes	Baseline		Change at Year 6			
	Int.	Control	Int.	Control	Diff.	%
Total energy, kcal/d	1790.2	1789.4	1431.8	1546.2	-114.3	-8.0
Total fat, % energy	37.8	37.8	28.8	37.0	-8.2	-28.5
Saturated fat, % energy	12.7	12.7	9.5	12.4	-2.9	-30.5
P/S fat ratio	0.6	0.6	0.7	0.6	0.0	14.3
Trans fats -% energy	2.7	2.8	1.8	2.4	-0.6	-33.3
Protein - % energy	16.5	16.4	17.7	17.1	0.6	3.4
Carbohydrate - % energy	45.6	45.6	53.9	45.9	8.1	14.8
Dietary fibre, g/d	15.4	15.4	16.9	14.4	2.4	14.8
Cholesterol, mg/d	260.5	260.0	193.6	243.5	-49.9	-25.8
Veg and fruit, serv/d	3.6	3.6	4.9	3.8	1.1	22.4
Grains - serv/d	4.7	4.8	4.3	3.8	0.5	11.6
Whole grains - serv/d	1.1	1.1	1.2	1.0	0.2	16.7
Soy - servings/d	0.1	0.1	0.3	0.2	0.0	33.3
Nuts - servings/wk	1.5	1.5	1.0	1.8	-0.8	-80
Fish - servings/wk	1.9	1.9	2.0	2.0	0.0	0.0

Difference in Food Intake in Control and Intervention Groups at 6 years

- There was very little change in both the control group and intervention group in the risk factors: body mass index; waist circumference; cholesterol; triglycerides; insulin resistance; and serum carotenoids.
- On average, the women were overweight at the start of the study and were overweight at the 3-year point, with an average weight loss of 1.29 kg. Their weight was not reported at the 6-year period.
- If the participants really did reduce the energy consumption by 20% then it would be expected that the weight loss would be much greater than indicated.
- The total fat consumption reduced from 37.8% to 28.8% - a 33% reduction. However, a diet obtaining 28.8% of energy from fat cannot be considered a low-fat diet. The stated goal of the study was to reduce that fat to 20% of the calories so that goal was not achieved.
- The amount of saturated fat consumed by the intervention group at 6 years (9.5%) is still higher than the recommended 8%.
- The optimal amount of trans fatty acids is zero. However, that would involve giving up margarine as well as red meat and dairy. [91][92]
- The reduction of 26% in cholesterol intake achieved by the intervention group is not sufficient to make a contribution to a healthy outcome.
- The serum cholesterol in the intervention group was reduced 4.4% from 224 mg/dL (5.8 mmol/L) to 214 mg/dL (5.5 mmol/L) which is insignificant.

Dietary Deceptions

- The serum cholesterol in the control group was reduced only slightly less by 3.3% from 224 mg/dL (5.8 mmol/L) to 216 mg/dL (5.6 mmol/L)
- The average dietary fibre intake was 16.9 g after 6 years, which is significantly below the (very low) recommendation of 25-30 g/ day.
- The goal of the study was to increase fruit and vegetable consumption to 5 servings per day. The achieved average was only 4.9 servings per day.
- The only significant change was carotenoids which shows that the intervention group *did NOT increase* their fruit and vegetable intake whilst the control group *reduced* their fruit and vegetable intake.
- Serum insulin was *increased* in both the control and intervention group.
- The goal was to increase the amount of grain consumption to 6 servings per day. The amount of grains consumed in the intervention group *was reduced— not increased*.
- The dietary intake was based on self-reporting which has a tendency to be unreliable. Participants are inclined to report findings that support the perceived goals of the researchers.
- **Important!** The goals for the study are the dietary recommendations for individuals. Everyone should be reaching these goals. Even if the group average reached the stated goal, there would still be a significant number who failed to reach that goal.

One of the conclusions of this large study was,

That more focused diet and lifestyle interventions may be needed to improve risk factors and reduce CVD risk.

Given that there was so little change in the diet of the intervention group over the six years then it is not surprising that the results did not show a reduction in the risk of heart disease and stroke.

To make a change you have to actually change something which the participants failed to do.

For any lifestyle change, participants and their families need to be committed to the concept. Such changes involve significant changes to shopping, cooking, socialising and family relationships. Randomly assigning participants to a particular group is not conducive to a positive outcome.

Do we really need a random trial that lasts for a number of years, wait for the results to be analysed and published to validate the hypothesis that diet is an important component of our health?

PREDIMED Study

The PREDIMED trial examined 7447 participants ranging from 55 to 80 years of age who were at high cardiovascular risk, but with no cardiovascular disease at enrollment, to one of three diets: |93|

- a “Mediterranean Diet” supplemented with extra-virgin olive oil
- a “Mediterranean Diet” supplemented with mixed nut or

Dietary Deceptions

- a control diet with advice to reduce dietary fat.

The “Mediterranean Diet” was the participants normal diet. For all three groups, the mean BMI at the start of the trial was 30 – that is, obese. The majority of the participants were receiving medications that conflicts with the claim that there was “no cardiovascular disease at enrollment”. 50% were receiving ACE inhibitors, 20% diuretics, 29% other antihypertensive agents, 40% statins, 20% antiplatelet therapy. This is not a full list of medications.

- Angiotensin-converting enzyme (ACE) inhibitors are a group of medications that dilate blood vessels and consequently lowers blood pressure and increase the flow of blood. Nitric oxide is produced by the endothelial cells to produce the same effect.
- Diuretics increase the amount of water and salt expelled as urine. They are most commonly used to treat high blood pressure.
- Other anti-hypertensive agents are used to treat high blood pressure.
- Statins are used to reduce the levels of cholesterol in the blood.
- Antiplatelet therapy drugs are used to decrease platelets from clotting. Platelets are involved in forming blood clots to prevent bleeding and are used to prevent stroke and heart attacks.

All participants received educational sessions and free provision of extra-virgin olive oil, mixed nuts or non-food gifts depending on group assignment.

Despite the fact that obesity is a major risk factor for cardiac disease, the average BMI at the end of the five year trial was not published. The change to medication use after five years was also omitted. The use of medications confounds and invalidates any results that may be due to dietary intervention.

After five years, the average absolute risk for a major cardiovascular event (heart attack, stroke, or death from cardiovascular causes) was 5.7% for the control diet. For the Mediterranean Diet with Extra Virgin Olive Oil, the average risk was 3.6% and 4.0% for the Mediterranean Diet with Nuts.

The relative decrease in the primary outcome for the Olive Oil diet was 37% and 34% for the Nut diet which may seem reassuring, it only resulted an absolute decrease in risk of 2.1% and 1.7% respectively.



After 4.8 years of follow-up, metabolic syndrome developed in 50.0% of the participants who did not have the condition at baseline. The risk of developing metabolic syndrome did not differ between participants assigned to the control diet or to either the two Mediterranean diets. |94|

Condition	Normal Diet		Med Diet + EVOO		Med Diet + Nuts	
	Baseline %	Final %	Baseline %	Final %	Baseline %	Final %
Metabolic syndrome	64.7	68.6	65.1	66.6	61.8	64.9
Central obesity	75.3	75.0	74.4	74.1	69.5	70.9

Dietary Deceptions

Condition	Normal Diet		Med Diet + EVOO		Med Diet + Nuts	
High triglycerides	32.5	33.4	34.3	32.6	32.5	30.6
High blood pressure	94.7	95.4	93.5	95.4	93.8	94.8
High fasting serum glucose	66.3	71.9	65.6	68.9	64.5	68.9

Prevalence (%) of participants with metabolic syndrome and their component conditions

After nearly 5 years of follow-up, both intervention diets had increased the markers of metabolic syndrome with the exception of triglycerides which was marginally reduced.

The average fat consumed for all three groups at the start of the trial was 40%. Since the participants were given free olive oil or free nuts, it is unsurprising that the consumption of these items were increased, resulting in an increase of fat consumption at 12 months to 41% for the olive oil group and 43% for the nut group. The control group, the misnamed **Low-fat Diet**, reduced their fat consumption to 38%.

The average US fat consumption is 33%.

To summarise, 50% of the participants that did not have metabolic syndrome at the start of the trial, were afflicted at the end of the trial.

The only dietary change that the participants made was the addition of either olive oil or nuts to their normal diet – a diet that led them to be very overweight with the majority having metabolic syndrome and taking medications in the first place.



A lead researcher of the PREDIMED trial was emailed asking if the medication use at the end of the trial was published. A response was received on the 28th August 2019, stating, in bold lettering, that

You are right. We have not published yet this information.

The same applies to the weight status. Given the large increase of consumption of both olive oil and nuts in the intervention diets, it is highly likely that both the extra olive oil and nuts groups increased their weight and medication use.

This was the experience in the Lyon Diet-Heart Study. |95|



The participants were very unhealthy at the start of trial and were worse at the end. The change in medication use is not recorded so this confounds the results – it is not possible to determine if the results are a reflection of medication use or dietary interventions.

This is not an endorsement of the Mediterranean Diet – or at least the Mediterranean Diet as defined by the PREDIMED study.

Dietary Deceptions

The PURE Study

Purpose

The PURE Study is an observational study in 27 countries that examined 225000 people. The study period is 20 years.

The purpose of the PURE study is to examine the impact of urbanisation on the development of risk factors such as physical activity, nutrition changes, obesity, high blood pressure, abnormal blood sugars, abnormal blood lipids and smoking on heart disease.

18 of these 27 countries (Argentina, Bangladesh, Brazil, Canada, Chile, China, Colombia, India, Iran, Malaysia, Pakistan, Palestine, Poland, South Africa, Sweden, Turkey, United Arab Emirates, Zimbabwe) were used to examine mortality and cardiovascular events and their relationship to nutrient intake of carbohydrate, fats, and protein.

Very different countries with very different cultures and levels of development. It is very difficult, if not impossible, to make valid comparisons. |96|

The conclusions of the PURE Study that gained widespread attention were:

- higher the intake of carbohydrate (as a percent of calories), increased the risk of total mortality
- higher intake of fats lowered the risk (as a percent of calories) decreased the risk of total mortality
- higher intake of saturated fats lowered the risk (as a percent of calories) decreased the risk of total mortality

However, it was noted that a higher intake of polyunsaturated fats also decreased the risk of total mortality.

Many researchers have doubts on the very large, expensive but flawed study. The Harvard School of Public Health wrote a newsletter that stated:

PURE study makes headlines, but the conclusions are misleading. Last week, The Lancet published results from the Prospective Urban Rural Epidemiology (“PURE”) study that made headlines: “Study Challenges Conventional Wisdom on Fats, Fruits, and Vegetables;” “PURE Shakes Up Nutritional Field;” “Huge New Study Casts Doubt on Conventional Wisdom About Fat and Carbs.” [...] However, its findings are not as novel or disruptive as these sensational headlines suggest. |97|

High-income countries (Canada, Sweden, United Arab Emirates) are being compared with low-income countries (Bangladesh, India, Pakistan, Zimbabwe).

In Bangladesh, the biggest source of carbohydrates, protein and fat was white rice which is inadequate and not conducive to healthy outcomes. That is, white rice, rice with most of the protein and nutrients removed through hulling, is the biggest source of protein for the people of Bangladesh. This is indicative of the very poor quality of the diet in Bangladesh. It is not valid to compare such a diet in with diets in European countries. Whilst the study details the percentage of energy from the macronutrients, it fails to document the most important item – the total amount of

Dietary Deceptions

energy consumed which would show the Bangladesh diet having only a fraction of the total energy consumed than their more wealthy counterparts.

The PURE study divided the study group into seven regions. The countries are not representatives of their regions. In the case of South Asia, the authors have selected three countries to represent their region and Malaysia is the sole representative of South East Asia. If Japan was included in the study, it would show different results.

- China
- South Asia (Bangladesh, India, Pakistan)
- Europe and North America (Canada, Poland, Sweden)
- South America (Argentina, Brazil, Chile, and Colombia)
- Middle East (Iran, occupied Palestinian territory, Turkey and United Arab Emirates)
- South East Asia (Malaysia)
- Africa (South Africa, Zimbabwe)

Comparing one middle income country in SE Asia (Malaysia) with three low income countries of South Asia (Pakistan, Bangladesh and India) and high income Europe is not conducive to meaningful results.

* * * *

In many countries, there is a large regional variations in the diet. China, Japan, France, Italy, India are some examples.

In the data below, diabetes was defined as a fasting plasma glucose level ≥ 7.0 mmol/L or ≥ 11.1 mmol/L for non-fasting participants. Hypertension as systolic blood pressure of at least 140 mmHg or diastolic blood pressure of at least 90 mmHg. The threshold for these definitions are high with optimal fasting glucose being 5.5-6.0 mmol/L and systolic blood pressure being less than 120 mmHg.

In India, there is a large variation between states in both dietary and non-dietary risk factors associated with health between the states. |98|

- Smoking - Women: Tamil Nadu (0.0%) to Mizoram (18%)
- Smoking - Men: Maharashtra (16%) to Mizoram (67%)
- Obesity (BMI ≥ 25): Madhya Pradesh (8%) to Kerala (27%)
- Hypertension: Andhra Pradesh (17%) to Madhya Pradesh (21%)
- Diabetes - Women: Mizoram (0.5%) to Kerala (5.3%)
- Diabetes - Men: Madhya Pradesh (0.6%) to Kerala (6.5%)

Age-standardised diabetes prevalence for men rose from 3.7% to 9.1% for women from 4.6% to 8.3% between the years 1980 to 2014. |99|

To attempt to relate health outcomes to primarily dietary factors is a pointless exercise.



Dietary Deceptions

There were two other papers, written by the same authors that were published in the same *Lancet* journal. One examined the that examined the role of *Fruit, Vegetable and Legume* (VFL) intake on heart disease and concluded:

Higher total fruit, vegetable, and legume intake was inversely associated with heart disease and total mortality. | 100 |

Some points to consider when evaluating this study.

- The role of trans fats has not been examined. In Asia, there is an increasing problem of trans fats. The use of hydrogenated vegetable oil (ghee) and shortening in the frying of samosa, paratha, bhatura, poori, and tikkies results in increased consumption of trans fats. There is a positive correlation between consumption of trans fats and cardiovascular disorders. | 101 |
- The PURE study showed that “Total carbohydrate consumption was associated to higher total and non-CVD mortality such as cancers and infections but not from heart disease.”
- All carbohydrates were grouped together with no distinction made with carbohydrates obtained from sugars added to food (cereals, yogurt, chocolate), refined pure sugar, fruit juice, fruits and complex carbohydrates such as starches, inulin, vegetable gums and pectins. Failure to differentiate between types of carbohydrates gives a misleading picture.
- Note that the study also stated that, “Fruit, vegetables and legumes containing complex carbohydrates were associated with a lower total mortality.”
- Dietary data was self-reported which under-report food intake, particularly fat consumption. Dietary data and blood samples were only collected once at the start of the study. Using self-reported data in such an important study is irresponsible and only collecting the data once is not going to provide valuable information.
- Regional variations in countries were not considered. There is a wide variation in diets of India and China. Variations in the regional variations of the diet of India is examined later.
- The role of poverty, disease and undernourishment has not been adequately taken into account. This is also examined in more detail later.
- The study authors did note that “While high-carbohydrate and low-fat diets might be a proxy for poverty or access to health care, all of our models adjusted for education and study centre (which tracks with country income and urban or rural location) and would be expected to account for differences in socioeconomic factors across intake categories.”

Despite the assurances that access to health care and education was taken into account, more than a cursory glance at the data shows that it was it was far from adequate.

Whilst the authors of *The PURE Study* noted that there was no association between total carbohydrate intake and heart attacks and stroke, it was noted that,

Higher fruit, vegetable, and legume consumption was associated with a lower risk of non-cardiovascular, and total mortality. Benefits appear to be maximum for both non-

Dietary Deceptions

cardiovascular mortality and total mortality at three to four servings per day (equivalent to 375–500 g/day). | 102 |

The people with the highest VFL intake were also smoking less, performed more physical activity, had a higher education level, a much better income and access to a much better health-care system.

Using multivariable analysis attempts to determine which factor is the most relevant in determining the observed lower total mortality that was associated with the VFL intake. The authors determined that having more than 3 – 4 servings of VFL is really not beneficial and that the other factors. This is a failure of multivariate analysis – not a failure of VFL intake to provide demonstrable health benefits.

Regional Variations were not Considered

India is divided into six dietary regions. Even within these regions there are significant variations in the consumption of rice, wheat, millet, animal products, dairy, added oils, sugar, fish, fruit and vegetables.

In the north-east, Jammu and Kashmir in the north-west, vegan diets are virtually non-existent, whereas in Gujarat in the 4.9% are consume no animal products. Despite its reputation for a healthy, vegetarian diet, Indian diets are frequently high in fat, sugar, dairy and meat.

In rural Orissa, 4% of the energy is obtained from added oils whereas in Gujarat it is 13%.

Food	China	South Asia	SE Asia
Carbohydrates	67.0	65.4	53.9
Fat	17.7	22.7	29.2
Protein	15.3	11.6	17.1
Saturated Fat	5.7	8.4	9.2
Monosaturated Fat	6.8	5.9	11.8
Polysaturated Fat	4.2	6.2	8.2
Animal Protein	5.6	1.9	7.3
Plant Protein	9.7	1.9	9.8
% Plant Protein of Total Protein	63%	50%	57%

Role of Infections Diseases and Health Care

The role of infectious disease, adequate health care and nutrition was not adequately taken into account. *Helicobacter pylori* is a gastric pathogen that colonises approximately 50% of the world's population. Infection with *H. pylori* is the highest known risk factor for gastric cancer, which is the second leading cause of cancer-related deaths worldwide. | 103 |

Dietary Deceptions

Country	Region	Income	Prevalence H. pylori
China	China	Middle	56%
India	South Asia	Low	63%
Pakistan	South Asia	Low	81%
Malaysia	SE Asia	Middle	29%
Denmark	Europe	High	22%

How can the impact of *Helicobacter pylori* on a European population be compared to that of Bangladesh, India, China and Pakistan?

Conclusions

There is a very long list of sponsors including pharmaceutical companies – all anxious to provide medications especially since they can now claim that the link between diet and heart disease is unproven.

The authors of The PURE Study make the following conclusions.

Consistent with most data, but in contrast to dietary guidelines, we found fats, including saturated fatty acids, are not harmful and diets high in carbohydrate have adverse effects on total mortality. We did not observe any detrimental effect of higher fat intake on cardiovascular events.

Current guidelines recommend a low fat diet (<30% of energy) and limiting saturated fatty acids to less than 10% of energy intake by replacing them with unsaturated fatty acids. In conclusion, we found that a high carbohydrate intake was associated with an adverse impact on total mortality, whereas fats including saturated and unsaturated fatty acids were associated with lower risk of total mortality and stroke.

Diets of less than 30% energy from fat is not a low-fat diet. It is only slightly less than the US and Canadian average and median of rates of 33% and is not nearly low enough to have any impact on health indicators.

Far too many nutrition researchers have a mistaken view that the health benefits of a diet can be determined by the percentage intake of the macronutrient – fats, carbohydrates and protein.

As David Katz commented, the real conclusion from the PURE Study is:

Very poor people with barely anything to eat get sick and die more often than affluent people with access to both ample diets, and hospitals. |104|

The above concerns preclude the study from serious consideration.

CSIRO Low-Carb Diets

A Very Low-carbohydrate Weight Loss Diet

The *CSIRO Low-Carb Diet* was developed in Australia by the CSIRO.

Dietary Deceptions

The diet is “low in carbohydrate and high in protein and unsaturated fat and claims improvement in metabolic health, blood glucose control and diabetes management”.

There is a tendency for low-carbohydrate studies to follow a particular pattern. A low-carbohydrate diet is compared with a “low-fat” diet with very overweight and diabetic participants. The diets are usually very energy restricted and the compliance rate for both diets are not high. Restricting energy intake confounds the results as energy restriction manifests certain outcomes independent of dietary components.

High-fat, low-carbohydrate diets raise cholesterol, LDL-cholesterol, lipoprotein(a), triglycerides, uric acid, C reactive protein, fibrinogen, cortisol, IGF-1, homocysteine, ketones (acetone, acetoacetate and β -hydroxybutyrate) whilst coronary blood flow, body temperature and blood pH (blood becomes more acidic) are reduced. |105|



High-fat, low-carbohydrate dietary trials focus on the macro-nutrient components of the diet—carbohydrate, fat and protein. Very rarely are other components considered. The quality of a diet is far more complex.

The food we eat is a complex combination of many components— many different types of fat, carbohydrates, amino acids, and dietary fibre along with a multitude of vitamins, minerals and phytonutrients such as carotenoids, and polyphenols.

The vast majority of our nutrients is obtained from fruits, vegetables, greens and whole grains. A whole-food, plant-based diet will contain approximately 80% carbohydrate, 10% fat and 10% protein. The goal, however, is not to meet a prescribed macro-nutrient profile.

A 52 week Ketogenic Weight Loss Trial

A long-term (52 weeks) trial was undertaken by the Australian CSIRO to determine the weight loss and cardiometabolic effects of a very-low-carbohydrate, high-saturated-fat diet and a high-carbohydrate, low-fat diet. |106|

Below is the macronutrient profiles of the two diet groups. Note that the objective is to study long-term effects but the study is only lasted 12 months.

Macro-nutrient	Low-Carb	Low-Fat
Carbohydrate	4%	46%
Protein	35%	24%
Fat	61%	30%

The compliance rate for the low-carbohydrate diet was 60% and 70% for the low-fat diet.

Low-carbohydrate diets increases LDL cholesterol. The authors note that, “the increase in LDL cholesterol with the LC diet suggests that this measure should be monitored”.

Dietary Deceptions

The “low-fat” diet was 30% energy from fat. This is not a low-fat diet. The current average fat consumption is approximately 33%.

An approximation of the amount of protein consumed can be obtained by taking the midpoint of the energy consumption (6.5 MJ / 1550 kCal) and calculating the amount of energy obtained from protein from both diets. Since each gram of protein yields 17 MJ or 4 kCal of energy, then the low-carbohydrate group is consuming in the vicinity of 135 g protein with the “low-fat” group consuming 90 g protein.

This far exceeds the recommended dietary intake of close to 50 g based on the RDI of 0.84 g of protein for each kg of body weight.

Consuming more protein than you need is detrimental. There is an increase in blood urea, blood becomes more acidic, vitamin D levels are lowered and blood cholesterol is increased.

At the end of the year-long study, both groups were still overweight with a BMI of 28.4 for the low-carbohydrate group and 29.2 for the low-fat group.

Ketones were present in the low-carbohydrate group. Ketosis occurs during starvation. It is not a normal, healthy condition. No animal species or human society normally lives in a state of ketosis. Ketosis occurs when fat in the body is utilised to obtain energy in the absence of glucose. Glucose is normally obtained from the digestion of carbohydrates. Ketosis results in the production of ketones—acetone being one of the three types of ketones produced during ketosis. Blood acidity rises with an increase in ketones.

During pregnancy, ketosis has been linked to adverse outcomes for the unborn child.

The CSIRO Healthy Diet Score

The *CSIRO Healthy Diet Score* survey is an extension of the *Short Food Survey* which was developed by CSIRO and the University of South Australia. The *Healthy Diet Score* collates self-reported dietary intakes. |107|

The *Short Food Survey* is a series of 38 short questions. The scoring reflects the daily amount of fruit, vegetables, breads and cereals, meat and alternatives, dairy and dairy substitutes and discretionary foods to dietary recommendations. For the quality components, the frequency of whole-grains consumption, reduced fat dairy consumption, frequency of trimming meat, fat type of spreads used, and water consumption (as a proportion of total fluids) as well as the variety of foods.

Category	Daily criteria : min score	Daily criteria : max score		Score
		Men	Women	
Fruit	0 servings	> 2	> 2	10
Vegetables (starches, salad, cooked)	0 servings	6	5	10
Grains (bread, cooked cereals, breakfast)	0 servings	6	6	5
Meat and alternatives (red meat, poultry, fish, legumes, tofu, nuts, seeds and other meat alternatives, eggs)	0 servings	3	2½	10
Dairy (milk, cheese, yogurt)	0 servings	2½	2½	5

Dietary Deceptions

Category	Daily criteria : min score	Daily criteria : max score		Score
Beverages (water, fruit juice, soft drinks)	0% Water	100% water	100% water	10
Discretionary Choices (fried foods, savoury snacks, crackers, sweet biscuits, cakes, bars, chocolate, lollies, ice-cream, alcoholic drinks)	≥ 3 (M) or 2½ (F) servings	< 3 servings	< 2½ servings	20
Food Quality				
• wholegrain breads	0	Always	Always	5
• low-fat milk	0	Always	Always	5
Use of healthy fats				
• trimmed meat	0	Always	Always	5
• margarine	0	Always	Always	5
Variety				
• Fruit	0	≥ 4	≥ 4	2
• Vegetables	0	≥ 5	≥ 5	2
• Dairy	0	≥ 5	≥ 5	2
• Protein foods	0	≥ 13	≥ 13	2
• Grains	0	≥ 9	≥ 9	2

Categories of the Healthy Diet Score

Below is a summary of the responses to the CSIRO Healthy Diet Score Survey.

Sample Characteristics	Count	% Sample	% Aust Pop
Male	23,506	27.1	49.4
Female	63,105	72.9	50.6
18-30 years	22,090	25.5	13.8
31-50 years	32,607	37.6	28.1
51-70 years	28,443	32.8	22.6
71+ years	3,471	4	9.7
Underweight	2,165	2.5	1.7
Normal weight	40,937	47.3	35.5
Overweight	26,587	30.7	35.3
Obese	16,922	19.5	27.5

Responses of CSIRO *Healthy Diet Score* Survey May 2015 to June 2016



Below are the scores for each of the nine result categories for both male and females.

Dietary Deceptions

Female	Score	Male	Score
Fluids	93	Fluids	88
Vegetables	73	Fruit	67
Meat and Alternatives	70	Meat and Alternatives	66
Fruit	69	Variety	65
Variety	66	Bread and Cereals	62
Bread and Cereals	61	Vegetables	61
Healthy Fats	55	Healthy Fats	52
Dairy and Alternatives	49	Dairy and Alternatives	47
Discretionary Foods	33	Discretionary Foods	26

Scores of CSIRO *Healthy Diet Survey* for the nine result categories

Dietary Deceptions

Discretionary Food	Daily		Weekly	
	Male	Female	Male	Female
Alcohol	1	0.5	6.6	3.8
Cakes and biscuits	0.4	0.3	2.5	2.3
Chocolate and confectionery	0.4	0.5	2.9	3.5
Fried potato products	0.2	0.1	1.1	0.7
Ice-cream	0.2	0.1	1.1	0.8
Muesli and snack bars	0.2	0.1	1.3	0.9
Processed meat and products	0.3	0.2	2.3	1.2
Savoury pies and pastries	0.1	0	0.7	0.3
Savoury snacks	0.3	0.2	1.8	1.6
Sugars, sweetened beverages	0.4	0.2	2.5	1.5
Takeaway foods	0.1	0.1	1	0.7
Total	3.4	2.4	23.9	17.1

Average servings per day and week

Below are some observations regarding the sample results.

- 73% of the participants are female.
- 47% of the participants are normal weight compared with 35% of the Australian population.
- 50% of the participants are overweight or obese compared with 63% of the Australian population.
- The dietary information is obtained by self-reporting which is unreliable.
- The sample is not a representative sample of the Australian population.
- Based on the weight status, the sample population is healthier than the Australian population.
- It is likely that health conscious people are more likely to participate in such a survey.
- The only health outcome measured is weight status.
- The discretionary food items have no nutritional value and are not beneficial. However, 20 points are added to the Healthy Diet Score for males that have less than 3 servings a day and females that have less than 2½ servings a day.
- 5 points are allocated if you trim fat from your meat – the same as if you always eat whole-grain breads. Are the health benefits of these two activities equivalent?

The reliability and validity of the *Healthy Diet Score* is discussed in a paper published in *Nutrition & Dietetics* (2017) |108|

Dietary Deceptions

The score is used to “assess compliance with the 2013 Australian Dietary Guidelines”. In this context, reliability refers to the comparisons of two self-reported surveys performed one week apart. The validity is measured by “comparing the first administration [of the self-reported dietary survey] to the average of three 24-hour [self-reported] dietary recalls”. A better test of validity is to ensure that the *Healthy Diet Score* is a true reflection of health outcomes.



According to the paper, the “validity analysis showed moderate correlation between SFS#1 and 24-hour recalls (ICC = 0.43 (0.21:0.62, $P < 0.001$)), with 51% agreement in allocation to tertiles of diet quality between methods ($k = 0.262$, $P = 0.004$). The survey overestimated the diet index score by an average of 12.7 points out of 100 [-20.11:42.94] in comparison to recalls”.

The ICC refers to Intra-class Correlations. The ICC shows how well two sets of data match each other. The result of 0.43 is usually interpreted as a fair correlation—not a moderate correlation as stated. Less than 0.40 is usually considered to be a poor correlation. There is only a 51% agreement in tertiles. This means that if the two set of results are divided into three categories (low, medium and high), then there is only a 51% agreement into which category the result lies. The survey overestimated the diet score by an average of 12.7 points which is a significant difference in the participant’s *Healthy Diet Score*. The range of discrepancy is -20.11 to 42.94 which is very large difference given that the HDS is a value between 0 and 100.

It is important to note that ICC only measures the how well two sets of scores match. It does not measure the most important criteria—how well the scores measure actual health outcomes.

The real test of validity, which is not addressed, is how closely the actual food intakes relate to health outcomes, as opposed to a theoretical dietary index.

Eggs are OK Every Day

Australians’ usual egg consumption is a document prepared by researchers at the CSIRO. The CSIRO is the premier Australian government-funded research organisation.

The conclusion of this document states,

Eggs provide a low cost, convenient source of protein and other key nutrients. Our results [from the Healthy Diet Score survey] suggest their inclusion in the diet is associated with a higher diet quality, in particular higher consumption vegetables and lower consumption of discretionary foods.

I sent an email on 28th October 2017 to the lead author of this document, Dr Gilly Hendrie, stating that I have concerns regarding the methodology and conclusions of the study and requested some clarification. Hendrie is also the lead author of a number of journal articles relating to the *Healthy Diet Index*.

This survey was used to justify the *Eggs are OK Every Day* campaign. |109|

Dietary Deceptions

This is despite the fact that there is only a fair correlation between two different self-reported dietary surveys that were performed a week apart and despite the fact that the *Healthy Diet Score* only measures compliance to dietary guidelines and not actual health outcomes.

The following table shows categories of the average daily egg consumption with the average of the *Healthy Diet Score*.

Daily Egg Consumption	HDS
Low (0-.0.3)	55.6
Low-Medium (0.3-0.4)	58.2
Medium (0.4-0.6)	59.7
Medium-High (0.6-1.0)	60.5
High consumption (> 1.0)	61.3
Non consumer	57.7

Daily egg consumption compared with average HDS

The justification for “*Eggs are OK Every Day*”, is that the as the egg consumption increases, so does the *Healthy Diet Score*. However, the *Healthy Diet Score* has not been shown to be associated with an increase in health outcomes. Consider how minor the differences are in the HDS, especially given that the average discrepancy was 12.7 points between two self-reported surveys separated by only one week.

If the weight status is compared with the egg consumption and *Healthy Diet Score*, a different observation is shown.

Weight Status	Eggs per day - male	Eggs per day - female	Mean Diet Score
Underweight	1.04 (2.24)	0.62 (1.20)	59.6 (14.4)
Normal weight	0.83 (1.34)	0.77 (1.28)	60.5 (12.6)
Overweight	0.89 (1.65)	0.83 (1.45)	58.1 (12.5)
Obese	0.98 (1.84)	0.88 (1.58)	55.7 (13.2)

**The mean egg consumption and mean HDS compared with weight status.
The standard deviation is shown in brackets.**

The only measured health outcome shows an increase in body weight as the number of eggs consumed increases and a decrease in the mean of the *Healthy Diet Score*.

Dairy, meat, fish, poultry are given positive ratings in the *Healthy Diet Score* despite Seventh-day Adventists’ studies consistently showing an improvement in health status as the diet becomes more vegan. |110|

Low-Carbohydrate Diets and All-Cause Mortality

A much bigger study investigated 17 studies involving 272,216 subjects. This examined the impact of low-carbohydrate diets on all-cause mortality. Their conclusion was, compared with the standard western diet, |111|

Dietary Deceptions

The risk of all-cause mortality with those with high low-carbohydrate score was significantly elevated with an increased risk of 1.31 times.

Personality Matters

The CSIRO has determined that there are six common diet type personalities. |112|

- Thinker: thinks deeply about situations
- Battler: battles for cravings
- Craver: suffers from food cravings
- Pleaser: friendly, likeable anxious to please
- Foodie: loves trying new foods
- Socialiser: needs flexibility so their diet will not interfere with the social life

These people make up 52% of the population. The CSIRO offer diet plans and support materials to help people meets their goals based on their personality.

The remaining 48% comprise of 325 diet type combinations. Sounds complicated.

The Total Wellbeing Diet

The *Total Wellbeing Diet Online* program was commenced in 2015 by CSIRO and SP Health. SP Health develop diet-based solutions to companies in the weight loss, fitness and wellness industries.

The *Total Wellbeing Diet Online* is a 12-week dietary program based on a high-protein and low-GI eating plan.

The brand new Protein Balance Power meal plan features all new delicious and healthy recipes that are higher protein and low GI. There's more protein-packed goodness coming from beans, lentils and fish, without taking meat off the menu. Plus you'll get a greater variety of snacks, as well as healthy indulgence recipes for when you need that treat.

The stated advantages of the diet are,

- Higher protein diets boost fat loss
- Protein reduces cravings and helps control appetite
- Protein requirements increase during weight loss
- A personalised approach to protein intake is required

Since Australians get,

Significant amounts of protein from foods not considered good sources of protein. Animal source foods (meat, dairy, eggs) are the most nutritious protein sources. Whole food proteins are nutritionally superior to processed proteins.

In general, animal source foods contain higher concentrations of protein than plant derived foods. Nuts and cheese contain moderately high amounts of protein per 100g but are also higher in kilojoules than meat, poultry and fish.

The amino acid profile of protein sources differ with animal source foods containing all the essential amino acids. However, proteins from non animal sources, particularly legumes and grains, can be combined to achieve the right balance.

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Food Item	Unit	Protein (g)	KJ	Cal
Lean Beef	150 g	33	915	220
Chicken	150 g	33	660	160
White Fish	150 g	33	720	170
Tuna	95 g can	19	710	170
Milk	1 cup	10	5550	130
High protein milk	1 cup	15	535	130
High protein yogurt	1 tub	15	575	140
Cheese	35 g	9	600	140
Eggs	2 x 50 g	12	530	130
Tofu	100 g	12	530	130
Nuts	30 g	7	745	180
Legumes	½ cup	7	450	100

High Protein Foods

To justify a high-protein diet to assist in weight loss, the authors quote a 2006 study. | 113 |

The purpose of the study was to determine if,

Dietary protein produces higher acute satiety relative to carbohydrate.

The conclusions were,

Whey, soy, and gluten reduced food intake 3 hours later in lean and overweight males relative to glucose. [Whatever that means.] This "may contribute to this higher satiety after protein consumption".

Consumption of mixed meals of 5 MJ (1200 Calories) high in plant (soy, pea, or gluten) or animal (egg albumin, casein, gelatin) proteins did not affect the amount of calories consumed 8 hours after the test meal.

Consuming glucose syrup is not going to help with satiety. Consuming starchy foods will.

The *Total Wellbeing Diet Online Protein Balance Eating Plan* includes 25 g protein at breakfast, 25 g at lunch, 40 g at dinner and 10 g at other occasions such as snacks making a total of 100 g protein per day.

The authors state that the recommended protein requirement of 0.84 g protein per kg of body weight per day is far too low and should be increased to 1.2-1.6 g protein to both prevent or treat obesity.

These recommendations are two standard deviations above the estimated average requirements (EAR). This means that they are already meeting the needs of 98% of the population.

You do not need to add more protein to meet your daily requirements.

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The Pioppi Diet

What is the Pioppi Diet?

The *Pioppi Diet* movie and book by Aseem Malhotra, a London cardiologist and Donal O'Neill, an Irish film-maker that receives a great deal of publicity. A review in the British Journal of General Practice quotes Professor Dame Sue Bailey, the Chair of the Academy of Medical Royal Colleges, who describes the book as a “***must have for every household and a must read for every medical student and doctor***”,

Andy Burnham, current (2021) mayor of Greater Manchester and former UK Secretary of State for Health writes, “This book has the power to make millions of people healthier and happier.”

Pioppi is a small village on the Tyrrhenian Sea which is located on the west coast of Italy. It is approximately 150 km (90 miles) south of Naples. Ancel and Margaret Keys resided here for over 25 years. Martii Karvonen of Finland and Jerimiah Stamler of the USA are other well-known medical researchers who resided in the village.



The foreword for the book is written by Professor David Haslam of the UK National Obesity Forum. This is what he has to say about the book.

Aseem Malhotra and Donal O'Neill trace the modern Mediterranean Diet back to its authors, Margaret and Ancel Keys, in a rather fond, nostalgic way, despite current scientific analysis demonstrating that much of Ancel's work was flawed.

One of the last great and sensible medical textbooks was written in 1951 by Raymond Greene (the novelist Graham's brother). After this, falsehoods and misperceptions were peddled ubiquitously. Greene wrote, with regard to obesity:

Foods to be avoided:

1. Bread and everything else made with flour
2. Cereals, including breakfast cereal and milk puddings
3. Potatoes and all other white root vegetables
4. Foods containing much sugar
5. All sweets

You can eat as much as you like of the following foods:

1. Meat, fish, birds
2. All green vegetables
3. Eggs, dried or fresh

This is the perfect advice for a healthy diet and to counteract obesity.

Haslam does not say (and is unable to say) why Keys's work is flawed.

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In the introduction, Malhotra claims:

Be prepared for everything you know and believe to be true to be turned on its head. Misguided public health messages and the marketing campaigns that push them continue to mislead doctors, the public and politicians, but it's time for that to change.

The following chapters will explode several myths, including why you need to stop fearing saturated fat and cholesterol.

The solutions of the Pioppi Diet are driven by the best available modern scientific evidence. This book is based on the 2016 documentary film *The Big Fat Fix*, which was co-produced by me and former international athlete and film-maker Donal O'Neill. The former Secretary of State for Health and current Mayor of Greater Manchester, Andy Burnham, has publicly recognised the film's potential 'to help millions and save thousands of lives'..

Guidelines from the McGovern Report to increase the consumption of fruits and vegetables and whole grains and decrease the consumption of refined and other process sugars and foods high in such sugars" were not followed and cannot be held responsible for the current health crisis. |114|

Malhotra states in the book that,

When he [Keys] visited the region after the Second World War (he had, famously, invented the K-ration, a portable, non-perishable ration containing enough calories to sustain a soldier for up to two weeks), Keys was so taken with Pioppi that he would return years later, to conduct the research that has ultimately framed our modern, albeit skewed, interpretation of the traditional Mediterranean lifestyle.

Keys and his wife, Margaret, would live and work among the people of Pioppi for four decades before his death in 2004. His name is still spoken with reverence and no short measure of affection there.

The K-ration was originally designed to last for 15 meals – not two weeks as stated. |115|

Malhotra claims that Keys's interpretation of the Mediterranean diet is skewed, without saying why.

Keys did not do research at Pioppi. This is where Ancel and Margaret lived after he retired from the University of Minnesota and where he wrote.

The Mediterranean diet as described by Ancel and Margaret Keys is *based on* the diets of Greece, southern Italy and the Mediterranean coasts of Spain and France of the 1960s. Below is how Keys described the diet.

The heart of what we now consider the Mediterranean diet is mainly vegetarian [or lactovegetarian]: pasta in many forms, leaves sprinkled with olive oil, all kinds of vegetables in season, and often cheese, all finished off with fruit, and frequently washed down with wine. I say "leaves." Near our second home in southern Italy, all kinds of leaves are an important part of the everyday diet. There are many kinds of lettuce, spinach, Swiss chard, purslane, and plants I cannot identify with an English name such as *lettuga*, *barbabietole*, *scarola*, and *rape*.

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Whole grain bread is an important part of the diet in these regions, consisting of 30-40% of energy intake. Bread consumption was less in Italy because “they eat so much pasta”. |117|

Malhotra’s version of Pioppi’s Mediterranean diet includes the following advice.

- Don’t fear fat
- Sugar and refined carbs are the enemy
- Extra virgin olive oil is medicine, 2-4 tablespoons a day (30-60ml)
- A small handful of nuts every day
- Eat 10 eggs a week – they’re satiating and full of protein
- Oily fish at least 3 times a week
- Two portions of vegetables in at least two meals a day
- Fast once a week for 24 hours after dinner
- Eat the local eat pasta – but only in small quantities
- full-fat dairy
- coconut oil
- dark chocolate

Coconut oil, dark chocolate, no bread, only four portions of vegetables a day? This advice is far removed from the actual diet of Pioppi and from the Mediterranean diet as described by Keys.

Pasta and bread as well as fruit and vegetables were the major components of the southern Italian diet – not eggs, dairy, chocolate, dairy, fish and definitely not coconut oil. Ancel and Margaret Keys lived in Pioppi for 26 years – not 4 decades. For decades, Keys worked with leaders of nutritional research in Greece, Italy and Spain.

Malhotra believes he has the right to call Keys’s version of the Mediterranean diet “skewed” – based on what information?

It is Malhotra that is misrepresenting the diet of the village of Pioppi and the Mediterranean Diet – not Keys.



Malhotra and Types of Fats

Malhotra published an article in The BMJ, *Saturated Fat is not the Major Issue*. He starts his article by writing, |118|

Scientists universally accept that trans fats—found in many fast foods, bakery products, and margarines—increase the risk of cardiovascular disease through inflammatory processes.

He give a citation for that statement to the paper, *Trans-fatty acids and nonlipid risk factors*, which has a completely different conclusion.

Consumption of industrially produced trans-fatty acids (TFA) is associated with substantial risk of coronary heart disease (CHD). The magnitude of this relationship [...] cannot be fully

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explained by the well-established adverse effects of TFA on serum lipids. We review the evidence for effects of TFA intake on nonlipid risk factors. [...] These include effects on systemic inflammation, endothelial dysfunction, visceral adiposity, insulin resistance, and arrhythmic risk. [...] The multiple adverse effects and implicated pathways are consistent with the observed strong associations of TFA consumption with CHD risk. |119|

Popular commentators state that inflammation is the cause of heart disease whilst neglecting to explain what causes the inflammation in the first place.

LDL particles, which contain cholesterol, enter the space inside the lining of the arteries. The cholesterol becomes oxidised. White blood cells recognise this as a foreign particle and engulfs the intruder and plaques develop inside the artery wall. Plaques consist of dead white blood cells (macrophages), fats, cholesterol, and smooth muscle tissue. The plaques intrude into the arteries. Thrombosis (blood clot inside a blood vessel) at the site of a ruptured plaque precipitates most heart attacks.

Without high levels of blood cholesterol, there is no inflammation.

Malhotra also states,

Now two thirds of people admitted to hospital with a diagnosis of acute myocardial infarction really have metabolic syndrome—but 75% of these patients have completely normal total cholesterol concentrations. Maybe this is because total cholesterol isn't really the problem?

Malhotra quotes a newspaper report for this information. The article quotes Dr. Gregg Fonarow from the UCLA, who states, ***“that the current guidelines may not be low enough to cut heart attack risk in most who could benefit”***. Having “normal” cholesterol levels when it is normal to die from a heart attack is not a healthy choice. |120|

Malhotra completely misrepresents the newspaper article's message, which is the cholesterol guidelines are too high.

William Roberts is a leading cardiovascular pathologist. He is the current editor (at 2021) of the *American Journal of Cardiology*—a position he has held since 1982. Dr Roberts has also suggested cholesterol goals should be less than 150 mg/dL (3.9 mmol/L) for total cholesterol and less than 60 mg/dL (1.5 mmol/L) for LDL cholesterol. He also contends that the HDL-cholesterol is largely irrelevant and that there is only one risk factor for heart disease—that is, “It's the cholesterol, stupid”. |121|



Malhotra and the Mediterranean Diet

Trichopoulou and colleagues conclude that the major components of the traditional Mediterranean diet are: |122|

- high monounsaturated to saturated fat ratio—the main fat consumed is olive oil
- moderate alcohol consumption, consumed with meals
- high consumption of legumes

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- high consumption of cereals (including bread)
- high consumption of fruits
- high consumption of vegetables
- low consumption of meat and meat products
- minimal consumption of milk and dairy products



Malhotra aversion to wheat results in him ignoring the role of bread and pasta in the Mediterranean Diet of Pioppi.

The popular view that wheat and bread is a major health issue is misplaced. Celiac, wheat allergies and non-celiac gluten sensitivity are important issues but their prevalence is overstated. A review, published in *The Journal of Nutrition*, of 45 prospective cohort studies and 21 randomized-controlled trials between 1966 and February 2012 found that an increase in the intake of whole grain foods is associated with lower risk of type 2 diabetes, cardiovascular disease, and weight gain. |123|

Eggs are also problematic. David Jenkins, the Toronto-based researcher of glycaemic index fame, was a co-author of a paper, *Egg yolk consumption and carotid plaque* that concluded, |124|

Our findings suggest that regular consumption of egg yolk should be avoided by persons at risk of cardiovascular disease.

Given that approximately 30% of Australians and Americans die of heart disease, that would place the majority of people at risk.

Jenkins is now advocating a whole-food, plant-based diet for optimal health.

A key finding of the *Physicians' Health Study* is that physicians consuming 7 or more eggs per week had a 31% increase in all-cause mortality compared with those consuming less than 1 egg per week. For diabetic physicians, the association was much higher with the increase in mortality slightly more than doubled. |125|



A British study followed 10,802 health-conscious men and women in the UK with an average follow-up period of 13.3 years. This study reported a 2.7 times increase in risk of death from heart disease with an egg consumption greater than 5 eggs per week compared with those who ate eggs less than once a week. |126|

Malhotra is a high-fat, low-carbohydrate diet advocate and is desperately trying (unsuccessfully) to combine a high-fat, low-carbohydrate diet into a distorted view of the Mediterranean diet.

WHO's Recommendations Are Out of Date

WHO's guidelines on saturated fats

On the 4th July 2019, the ABC published this news item as its top news story.

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World Health Organisation's recommendations on saturated fat are out of date, expert team says.

It was based on an article published in THE BMJ the *previous day*, written by Arne Astrup and 17 colleagues, *WHO draft guidelines on dietary saturated and trans fatty acids: Time for a new approach?*

I made a complaint to the ABC regarding the accuracy of both the original BMJ article, and ABC's article. I sent the journalist a 70 page A5 document, outlining many errors.

I received an email from the journalist on 24th September stating that,

I very much appreciate the time you've taken to get in touch and share your research with me, however, it's not something I can act on at the moment.

As a result I wrote a formal complaint to the ABC's Investigation Unit, and was told it **NOT** the responsibility of ABC's journalists to fact check journal articles, that are printed in reputable journals such as the *BMJ*. I can appreciate that journalists may not have the expertise to fact check article such as this. That is why I provided an 80 page document highlighting the errors.

Whilst the links to the dairy and beef industries are noted in the *BMJ* article, it is not mentioned in the ABC's article. There is no mention that the researchers have been paid millions of dollars by the Dairy, Beef, and Chocolate industries.

It is not responsible to leave the information published in ABC's article to be uncorrected. The majority of readers will only see the statement,

A global team of researchers has taken aim at World Health Organisation draft guidelines that recommend people reduce their saturated fat intake.

The picture shows burger, chips, eggs, and baked beans.

The readers' conclusion - eating bacon and eggs is no longer considered to be unsafe.

People do not need to read any further. They have already received the information that the wish to know.

The ABC's editorial guidelines state,

Reasonable efforts must be made to ensure that material facts are accurate and presented in context." and "factual content must not be presented in a way that will materially mislead the audience."

At the end of Astrup's article, the evidence for including eggs, chocolate, cheese, and meat is listed, which matches the needs of their corporate sponsors.

Funding Sources

At least 13 of the 18 authors of this paper, have received funding from the dairy, and beef industries.

Arne Astrup is a member of the Communications and Scientific Advisory Board of The Global Dairy Platform.

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Arne Astrup's "department receives funding and food provision for our experimental supermarket from more than 100 food producers".

Astrup is a director of the Nordea Foundation OPUS Research Centre which is responsible for developing and testing the New Nordic Diet.

The New Nordic Diet is based on the diets of the Scandinavian countries - Denmark, Finland, Iceland, Norway and Sweden. It is a plant-based diet (berries, root vegetables, nuts, legumes, whole-grains) with the addition of cold-water, fatty fish such as salmon and mackerel and low-fat dairy. The concept is based on the Mediterranean diet but with a much greater emphasis on low-fat dairy and fish. It substitutes olive oil for canola oil.

Despite the claim that it is similar to the Mediterranean Diet, there are significant differences.

Hanne Bertram has received financial support for research activities from Danish Dairy Research Foundation, and Arla Food – a multinational Scandinavian dairy co-operative – the largest dairy producer in Scandinavia.

Emma Feeney has received research funding from Food for Health Ireland, a dairy technology organisation and has received speaking expenses from the National Dairy Council and European Milk Forum.

Ian Givens has received funding from Estonian BioCompetence Centre of Healthy Dairy Products, consultant to the Dairy Council, received travel expenses from the (UK) Dairy Council, Dutch Dairy Association, Global Dairy Platform and the International Dairy Federation.

Frans Kok has been a member of the Scientific Advisory Panel of the International Dairy Platform and has received research funding from the Dutch Dairy Association and several food companies.

Ronald Krauss has been funded by the National Dairy Council since 1989, National Cattleman's Beef Association and the Robert C. Atkins and Veronica Foundation. The Atkins Foundation has funded 42 research programs and endowed eight university chairs. The foundation researches "low-carbohydrate nutrition".

Benoit Lamache is Chair of Nutrition at Laval University, which is supported by private endowments from Pfizer. He has received funding the Agriculture and Agri-Food Canada which is supported by the Dairy Farmers of Canada Canola Council of Canada. Other organisations include the [Indian] Dairy Research Institute, Dairy Australia and Merck Frosst.

Jean-Michel Lecerf works for the Centre National Interprofessionnel de l'Économie Laitière (CNIEL), Yoplait, Syndifrais (Yogurt manufacturer), Lactalis Alliance 4.

Philippe Legrand has received research grants from the French Dairy Council. He has received funding from *Lactalis*, which is a French-based dairy products organisation – the world's largest producer of dairy product. His research is focused on changing the saturated fatty acid profile of meat by changing the feed of the animals.

Michelle McKinley has received travel expenses for presentations given at conferences organised by the Dairy Council for Northern Ireland and the European Milk Forum.

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Marie-Caroline Michalski is a paid consultancies for CNIEL (French Dairy Interbranch Sector) and, Sodiaal-Candia Research and Development and Danone Research.

Dariusz Mozaffarian is a consultant to Danone; scientific advisory board, consultant and owns shares with Elysium Health (a nutrition supplement manufacturer).

Sabita Soedamah-Muthu has received funding from Global Dairy Platform, Dairy Research Institute and Dairy Australia. She received The Wiebe Visser International Dairy Nutrition Prize from the Dutch Dairy Association.

Lesser and colleagues explored the relationship between funding and the study results in a *paper* titled *Relationship between Funding Source and Conclusion among Nutrition-Related Scientific Articles*



This debate will not be won by a rational dialog in medical journals but by holding these industry-funded researchers to account for their deceptions – misrepresentations made necessary by the need to obtain funding.

As well as blindness being introduced by funding, personal preferences also greatly influence results.

Sir Ronald Fisher was a legendary statistician, well known to all who has any association with statistics.

Richard Doll and Bradford Hill co-authored a paper in 1950, *Smoking and Carcinoma of the Lung*. The conclusion was that,

[...], smoking is an important factor in the cause of carcinoma of the lung.

This was aggressively attacked by Fisher. As well as being funded by the tobacco industry, Fisher was a chain smoker. He wrote extensively about the weak links between cigarette smoking and lung cancer.

[This leads] to the almost shrill conclusion that it was necessary that every device of modern publicity should be employed to bring home to the world at large to this terrible danger [of smoking].

What is not so much the work of a good citizen is to plant fear in the minds of perhaps a hundred million smokers throughout the world - to plant it with the aid of all means of modern publicity backed by public money, without knowing for certain that they have anything to be afraid of in the particular habit against which the propaganda is to be directed. After all, a large number of smokers are not very clever, perhaps not very strong-minded.

As well as the well-publicised influence of funding on study outcomes, nutritional researchers are also influenced by their dietary preferences. They are much less likely to find evidence against food items that they consume and enjoy.

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Astrup's 2019 "Time for a New Approach" Article

Arne Astrup and 17 colleagues published a paper, *WHO draft guidelines on dietary saturated and trans fatty acids: Time for a new approach?* in 2019 that examined the question, "**How robust is the evidence linking saturated fat to cardiovascular disease?**"

Their answer was "very little".

This paper was enthusiastically embraced by the media and health professionals including a number of academics.

This booklet examines the validity of this claim.

The main points addressed in the Astrup's paper are listed below.

- Changes in lipoprotein profiles (such as the reduction of cholesterol and LDL cholesterol) do not translate into a reduction in cardiovascular events.
- The US dietary guidelines published in 1980, and international guidelines ever since, have focused on reducing intake of saturated fat at the expense of advocating healthy foods which according to the list at the end of the paper includes eggs, dark chocolate, cheese and meat.
- There is a great deal of variety of saturated fats. Some are much healthier than others. Only 3 types of saturated fat raise cholesterol.
- Trans fat, produced by the partial hydrogenation of vegetable oils, is the main contributor to avoidable cardiac events.
- The evidence linking saturated fat to heart disease is sparse.
- By avoiding eggs, dark chocolates, cheese and meat that contain a substantial amount of saturated fats, we are missing out on many essential nutrients.

Astrup's 2011 "Role of Saturated Fats" Article

Arne Astrup was the lead author a very similar article, *The role of reducing intakes of saturated fat in the prevention of cardiovascular disease, Where does the evidence stand in 2010?*

A symposium brought together all 17 authors at The University of Copenhagen, Denmark in May 2010. This symposium was supported by unrestricted grants from:

- The Beef Checkoff (USA)
- CNIEL - (French Dairy Industry Organisation)
- The Danish Agriculture & Food Council
- Dairy Australia
- The Dairy Council for Great Britain
- The Dairy Council of California
- The Dairy Farmers of Canada
- The Global Dairy Platform
- Milchindustrie-Verband (German Dairy Industry Association)
- The National Dairy Council (USA)
- Svensk Mjolk (Swedish Milk)

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There are a number of common authors with Astrup's latest paper: Arne Astrup, Frans Kok, Ronald Krauss, Jean-Michel Lecerf, Philippe Legrand.

One of the co-authors of this paper, Tom Sanders,

- is a member of the Scientific Advisory Panel of the International Dairy Platform
- is a former chair of the Global Nutrition Advisory Panel of Cadbury.
- receives research funding mainly from the UK Food Standards Agency but his division is also in receipt of funding or materials in kind from several food and pharmaceutical companies, notably Tate & Lyle, which donated £4.5 million.

Tate & Lyle is a food manufacturer producing Beverages, Dairy Products and Soups, Sauces and Dressings.

The Role of Trans-Fats

Astrup considers trans-fats to be instrumental in cardiac mortality. Trans-fatty acids are made when unsaturated fats is partially converted into saturated fat during the manufacture of margarine. This is termed industrial trans-fats. Trans-fats are also found in animal fats such as meat and butter. Astrup advocates legislation to reduce the consumption of industrial fats.

Consensus exists on the health benefits of eliminating industrially produced trans fatty acids—that it will reduce incidence of cardiovascular disease and mortality.

Astrup believes the role of trans-fats to be much more important than saturated fats.

Astrup quotes a paper, *Effectiveness and cost effectiveness of cardiovascular disease prevention in whole populations: modelling study*, written by Barton and colleagues to support this view.

Barton states that, |127|

The widespread consumption of trans fat is considered [...] to have caused about 2700 deaths annually and loss of 570 000 life years in the UK every year.

The same paper states that,

[By] reducing the cardiovascular risk of the population by just 1% sustained over 10 years would prevent approximately 25 000 new cases of cardiovascular disease and 3500 deaths from cardiovascular disease.

Reducing population blood pressure levels or total cholesterol concentrations by 5% would result in correspondingly larger health gains. Annual equivalent savings would be approximately £100 million for blood pressure and £80 million for cholesterol.

These authors believed that small decreases to blood pressure and total cholesterol resulted in significant outcomes, a conclusion that Astrup chose to ignore.



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US government advisers say that that have decided not to set limits for trans-fats because it would be too hard for people to meet them.

According to the renowned Harvard nutritional epidemiologist, Eric Rimm,

If a limit for all trans-fats were to be set it should be zero. We can't tell people to stop eating all meat and all dairy products. Well, we could tell people to become vegetarians. If we were truly basing this only on science, we would, but it is a bit extreme. | 128 |

The Role of Heptadecanoic acid

Astrup contends that we should be eating more red meat, eggs and dairy and that the saturated fats in these foods are very different – saturated fats should not be regarded as a homogeneous group. Some are healthy and some are not.

A healthy diet is the sum of all we eat.

Astrup specifically states that “heptadecanoic acid in dairy have completely different physiological effects [to other fatty acids].”

Moreover, high plasma concentrations of the heptadecanoic acid (17:0) are associated with a reduced risk of coronary heart disease. Thus, saturated fatty acids cannot be viewed as one homogeneous group with regard to effects of diet on disease risk.

The article cited | 129 | does **not** mention heptadecanoic acid by name or any other alternative nomenclature. Heptadecanoic fatty acid is a very minor component of milk products and meat only.

The 2015 paper that Astrup cites, written by researchers who wish to find a role for heptadecanoic and pentadecanoic fatty acids in the prevention of heart disease, state that heptadecanoic (17:0) and pentadecanoic (15:0) fatty acids can be utilised as a tentative markers for dairy fat intake. Heptadecanoic and pentadecanoic are the main odd-chained saturated fatty acids in milk.

However, the authors of this paper conclude, that their low levels in milk fat (1.5%-2.5%) precludes their use in "any statistical analysis and therefore no correlations can be deduced". | 130 |

Astrup's statement regarding heptadecanoic acid cannot be substantiated.



Data from 32826 participants in the *Nurses' Health Study* was used to assess dairy fat intake to heart disease. The indicators of dairy fat in the blood and red blood cells included trans-fatty acids and pentadecanoic acid (15:0). This study showed that higher intake of dairy fat is associated with a greater risk heart disease. | 131 |

Dietary Goals of the United States - McGovern Report

The first edition of the Dietary Goals of the United States (the McGovern Report) was released in February 1977. This document linked heart disease and food and caused such a tumult that major revisions were required before the second edition was released in December 1977.

As the report stated,

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In the early 1900's almost 40 percent of our caloric intake came from fruit, vegetables and grain products. Today only as little more than 20 percent of these calories comes from these sources.

The dietary suggestions from the second edition were:

1. Increase consumption of fruits and vegetables and whole grains.
2. Decrease consumption of refined and other processed sugars and foods high in such sugars.
3. Decrease consumption of foods high in total fat, and partially replace saturated fats, whether obtained from animal or plant sources, with poly-unsaturated fats.
4. Decrease the consumption of animal fat, and choose meats, poultry and fish which will reduce saturated fat intake.
5. Except for young children, substitute low-fat and non-fat milk for whole milk, and low-fat dairy products for high fat dairy products.
6. Decrease consumption of butterfat, eggs and other high cholesterol sources.[...]
7. Decrease consumption of salt and foods high in salt content.

The first edition stated,

2. Decrease the consumption of meat and increase the consumption of poultry and fish, which was unacceptable to the beef industry.

The following note was included in the second edition.

Two industries – meat and egg producers – requested additional hearings to express their views. [...] In addition, the National Live Stock and Meat Board sent the Select Committee the names of 24 experts, “whose professional background and experience suggest intimate knowledge of the fact, fallacies and controversy which surround the concepts or hypotheses of diet as a precursor to atherosclerosis and other of the degenerative diseases in America or elsewhere.”

George McGovern was the senator of South Dakota from 1963 to 1980. McGovern believed that he and five other senators from agricultural states lost seats in November 1980, partly as a result of this report. McGovern was not re-elected to office - any office - after the November 1980 senate elections.

Recordings of the US Senate Select Committee on Nutrition hearings, chaired by Senator George McGovern show an unnamed scientist imploring that the guidelines be deferred - “that’s why I have pleaded in my report and will plead again orally here for more research on the problem before we make announcements to the American public.” The scientist was Robert (Bob) Olson, professor of medicine and chairman of biochemistry at St. Louis University and a consultant to the American Egg Board.

As a member of the National Academy of Sciences, Olson co-authored a 1980 report *Toward Healthful Diets* in response to the McGovern Report. According to this report:

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The recent Surgeon General's report [of 1979] on healthy people has stated that the population of the United States has never been healthier.

The American food supply on the whole is nutritious and provides adequate quantities of nutrients to protect essentially all healthy Americans from deficiency diseases. The excellent state of health of the American people as documented in the Surgeon General's report could not have been achieved unless most people made wise food choices.

It was not that he disagreed with cholesterol being involved with heart disease. In his biography, *The Making of a Clinical Nutritionist*, Olson writes,

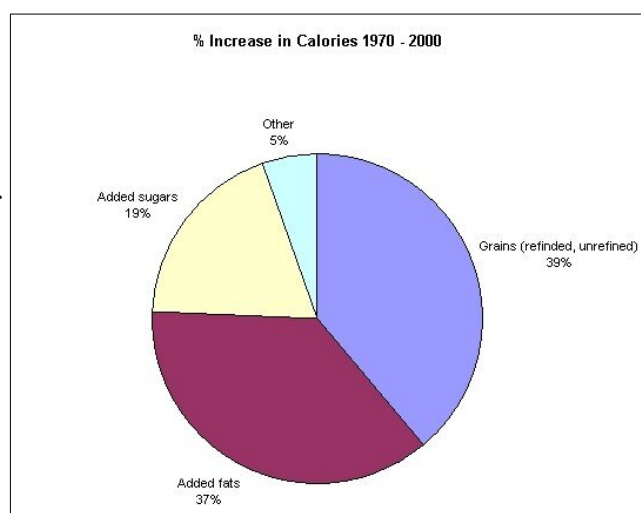
When dietary protein was reduced to 25 grams per day of vegetable protein, serum cholesterol fell. [...] I propose that the beta lipoproteins could be considered the agent of atherosclerosis.

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The Big, Fat Surprise

The Book

The Big Fat Surprise: Why butter, meat, and cheese belong in a healthy diet | 132 | and the revised edition of 2015 | 133 | is another book telling us that everything that we have been taught about nutrition is since the 1950s is wrong. Red meat, eggs and dairy are essential components of our diet, and all medical authorities that have been telling us to reduce saturated fat have conspired to keep us unhealthy. The real culprit is sugar and that Ancel Benjamin Keys is the person primarily responsible for creating the current epidemic of obesity and diabetes.



It is curious that Teicholz insists on referring to Keys as “*Ancel Benjamin Keys*”.

The book does not provide any evidence as to ***Why butter, meat, and cheese belong in a healthy diet***. Even the chapter ***Why Saturated Fat is Good for You*** does not provide any evidence.

The book is about “*why a low-fat diet is bad for you*”.

From the conclusion of *The Big Fat Surprise*, Teicholz proclaims:

The advice that comes out of this book is that a higher-fat diet is almost assuredly healthier in every way than one low in fat and high in carbohydrates. [...] Moreover, we now know that there are many good reasons to eat animal foods like red meat, cheese, eggs, and whole milk: they are particularly dense in nutrients— far more so than fruits and vegetables. [...] And after all, red meat, cheese, and cream are delicious! Not to mention eggs fried in butter, cream sauces, and the drippings from a pan of roasted meats.

From the introduction of *The Big Fat Surprise*, Teicholz claims that,

Unaware of the flimsy scientific scaffolding upon which their dietary guidelines rest, Americans have dutifully attempted to follow them. Since the 1970s, we have successfully increased our fruits and vegetables by 17 percent, our grains by 29 percent, and reduced the amount of fat we eat from 43 percent to 33 percent of calories or less.

Teicholz neglects to inform us that for the period 1970 – 2000, the consumption of total added fats (up 40%), dairy products (up 8%), cheese (up 107%), low fat milk (up 79%), all meat products (up 10%), poultry (up 89%) and fish (up 22%) increased. All of these food products, even low fat milk, are high fat foods.

The total calories consumed also rose significantly by 24%. (Data from United States, Department of Agriculture • Agriculture Fact Book 2001-2002) | 134 |

The same publication shows the increase in different food groups from the 1950s.

Dietary Deceptions

Item	1950-1959	2000	% change
Total Meats	138.2	195.2	41
Poultry	20.5	66.5	224
Fish	10.9	15.2	39
Added Fats and Oils	44.6	74.5	67
Total Calorific Sweeteners	109.6	152.4	39

USA Per Capita Annual Average (lbs)

The claim that the American people have been eating a “low-fat, near vegetarian diet for the last half-century” is absurd. Beef consumption may have reduced 20% but all meats have risen 10% and poultry 89%.

33% of calories from fat is NOT a low-fat diet.

Early Heart Disease Research

It is reasonable to suggest that cholesterol and heart disease research originated with Nikolaj Anitschkow. This is how Nina Teicholz reports the situation in the early part of the 20th century.

In 1913, the Russian pathologist Nikolaj Anitschkow reported that he could induce atherosclerotic-type lesions in rabbits by feeding them huge amounts of cholesterol. This experiment became quite famous and was widely replicated on all sorts of animals, including cats, sheep, cattle, and horses, leading to the widespread view that cholesterol in the diet—such as one finds in eggs, red meat, and shellfish—must cause atherosclerosis.

This research did NOT become famous. It was neglected for over 30 years. |135|

It was not replicated on cats (or rats or dogs) for decades because thyroid function in carnivores converts cholesterol into bile salts and does not raise serum cholesterol levels. Dietary cholesterol does increase serum cholesterol in humans that have comparative low initial serum cholesterol levels. “Normal” serum cholesterol levels are much higher in humans than other species. |136|

Teicholz claims that:

The hypothesis that saturated fat causes heart disease was developed in the early 1950s by Ancel Benjamin Keys.

This another rewrite of the actual history of cardiovascular research. In the early 1950s, Keys implicated fats, not saturated fats, as being implicated in heart disease. (The causes are more complex and the role of saturated fats was discovered several years in the future.)

Keys was certainly not the first person to link diet and fats to heart disease.

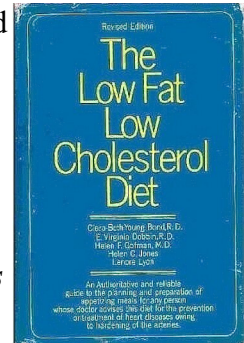
Cornelius de Langen worked as a doctor in the Dutch East Indies from 1916-1922, (yes 1916). He linked diet, serum cholesterol and heart disease by comparing diets of native Javanese and Europeans. He also noted low cholesterol content of bile and the rarity of gallstone in Javanese.

|137|

Dietary Deceptions

Lester Morrison in 1946 also linked diet, cholesterol and heart disease before Keys. |138||139|

Dr John Gofman, a nuclear physicist, was a leading pioneer researcher in the field of lipoproteins who was familiar with Anitschkow's work. His work showed that both cholesterol and low-density lipoproteins were both indicators of coronary heart disease risk. This work and other evidence convinced Gofman that blood cholesterol, and the dietary determinants of blood cholesterol, was centrally important in atherosclerosis. His wife, Dr. Helen F. Gofman co-authored the *Low Fat Low Cholesterol Diet* recipe book that was published in 1951- *prior to Keys's paper*. John Gofman wrote the preface for the book. |140|



Teicholz and the Inuits

Teicholz uses both the Inuit and Masai as examples of healthy populations that thrive on a high fat diet.

Inuit are far from being a healthy population.

Mummified remains show that they suffered from osteoporosis, kidney disease, atherosclerosis, spina bifida, staphylococcal and streptococcal infections, cribra orbitalia (sieve-like lesions in cavities of skull), iron deficiencies, porotic hypersplasia (spongy bones). |141|

Spina bifida is a severe defect where a newborn baby has part of the spinal chord exposed because of damage to the backbone.

Some mummies, including those of children, show evidence of death by starvation.

Parasitic infections lower blood cholesterol.



Toxoplasma gondii evolved in the Amazon region of South America. It arrived in the polar regions in the 1980s.

The prevalence of *Toxoplasma* has been recorded at 8% in Nunatsiavut (far north region of Newfoundland and Labrador), 28% in Nunavut (province west of Hudson Bay) and 60% in Nunavik (province east of Hudson Bay).

Toxoplasma is associated with the consumption of raw meat and organic meats. Most people infected do not develop symptoms. It may cause flu-like symptoms. For infants born to infected mothers and for people with weakened immune systems, toxoplasmosis can cause serious complications. It can affect the baby's eyesight and hearing and cause stillbirth. |142|



Teicholz describes the experience of Vilhjalmur Stefansson who lived in the Arctic with the Inuit in the early 1900s.

Dietary Deceptions

In 1906, Vilhjalmur Stefansson, the son of Icelandic immigrants to America and a Harvard-trained anthropologist, chose to live with the Inuit in the Canadian Arctic. He was the first white man these Mackenzie River Inuit had ever seen, and they taught him how to hunt and fish. Stefansson made a point of living exactly like his hosts, which included eating almost exclusively meat and fish for an entire year. For six to nine months, they ate nothing but caribou, followed by months of exclusively salmon, and a month of eggs in the spring. Observers estimated that some 70 to 80 percent of the calories in their diet came from fat.

According to Stefansson,

They should have been in a wretched state. . . . But, to the contrary, they seemed to me the healthiest people I had ever lived with.” He witnessed neither obesity nor disease.

Teicholz misrepresents the diet of the Inuit that Stefansson lived with. Their diet was virtually plant-free, dominated by seal and caribou meat, supplemented by large salmon-like fish and occasional whale meat. *Stefansson found that cooking was the nightly norm.*

Every wife was expected to have a substantial cooked meal ready for her husband when he returned from the hunt. During summer, the time of the husband’s return could not be predicted. Anthropologist Diamond Jenness who accompanied Stefansson wrote:

Woe betide the wife who keeps him waiting after a day spent in fishing or hunting! . . . Her husband will probably beat her, or stamp her in the snow, and may even end by throwing her household goods after her and bidding her begone forever from his house.

Stefansson wrote in 1910,

I have never seen Eskimo eat partly cooked meat so bloody as many steaks I have seen devoured in cities— when they cook, they usually cook well.

Since it was impossible to cook food during a hunt because of lack of fuel and time, the hunters would sometimes eat fresh fish raw, either the flesh or in the case of large fish, just the intestines. Hunters also made caches of excess fish, which they could recover later for a cold meal. However, even though these foods were uncooked they were affected by being stored: fish from the cache became “high”— in other words, smelly because they were partially rotten. Most people liked the strong taste. Jenness saw “a man take a bone from rotten caribou meat cached more than a year before, crack it open and eat the marrow with evident relish although it swarmed with maggots.”

|143|

Stefansson’s hosts were horrified to hear of a distant group, the Puipirmiut, who supposedly collected frozen deer droppings off the snow and ate them like berries. They said that was a truly repulsive habit, and anyway it was a waste of a good dropping. Those pellets were a fine food, they said, when boiled and used to thicken blood soup. The only vegetable food that was regularly eaten raw was the lichen eaten by caribou, which the Copper Inuit ate when the lichen was partially digested. In summer they would take it directly from the rumen and eat it while cutting up the carcass. As the cold closed in during the fall, they were more likely to allow the full stomach to freeze intact with the lichens inside. They would then cut it into slices for a frozen treat.

Dietary Deceptions

These diets are not easily transferable to modern Western societies.



In 1928, Stefansson and his colleague Karsten Anderson spent one year at Bellevue Hospital in New York, eating nothing but meat and drinking water. This experiment was funded partly by Institute of American Meat Packers.

According to Teicholz,

After some three weeks on the diet, during which they underwent a constant battery of hospital tests, the still-healthy men were released to their homes under close supervision. During the ensuing year, Stefansson fell ill only once—when experimenters encouraged him to eat only lean meat without the fat. “The symptoms brought on at Bellevue by an incomplete meat diet (the ration of lean without fat)” came on fast: “diarrhoea and a feeling of general baffling discomfort,” he recalled, and were quickly cured by a meal of fat sirloin steaks and brains fried in bacon fat. At the end of a year, both men felt extremely well and were found to be in perfect health.

However, McCellan and Bois, who reported on the study in 1929 found that,

They suffered constipation, their muscles were “soft and flabby” and suffered from glucose intolerance and acetonuria. Their urine acidity increased. Anderson suffered from glycosuria.
144

However, the researchers, sponsored by the meat industry, reported “no ill-effects”.



In 1823, Father Ioann Veniaminov moved to the island of Unalaska in the Aleutian Islands of Alaska. His parish included the island of Unalaska and the neighbouring groups of Fox and Pribilof islands. He was proficient in six local dialects. 145

In 1834, Father Ioann was transferred to Sitka Island, to the town of Novoarkhangelsk, later called Sitka. He devoted himself to the Tlingit people and studied their language and customs. Sitka Island is off the coast of southern Alaska, south-west of Juneau.

The local population were not yet influenced by European dietary customs.

According to Veniaminov, “excluding infant mortality, about 25% of their population lived past 60”.

This is not an endorsement of the traditional Inuit diet.

Teicholz and the Masai

Similarly, Teicholz cites the Masai as a healthy population that had a high meat diet. She quotes the work of George Mann, a doctor and medical researcher from Harvard and Vanderbilt Universities. According to Teicholz, Mann found that “he could identify almost no heart disease at all”.

However, according to George Mann’s paper, *Atherosclerosis In The Masai*, 146

Dietary Deceptions

Measurements of the aorta showed extensive atherosclerosis with lipid infiltration and fibrous changes but very few complicated lesions. The coronary arteries showed intimal thickening by atherosclerosis which equalled that of old U.S. men.

Masai also have a very low energy intake in the foods, are active and suffer from parasitic infections – all which contribute to low serum cholesterol and lower the risk of heart disease.

The Anti-Coronary Club

Teicholz cites Norman Jolliffe's 1957 study, *The Anti-Coronary Club*, as further evidence of the failure of a low-fat diet to arrest heart disease.

The objective of this study was to:

Determine that a favourable change in the serum cholesterol level produced and maintained by diet would be associated with a favourable change in morbidity and mortality from coronary heart disease." | 147 |

The Anti-Coronary Club existed for 14 years— from 1957 until November 1972. There were **814 active experimental male participants and 420 control participants**.

It is strange that Teicholz places so much emphasis on a study that was completed more than 50 years ago.

The control group was started after 2 years after the commencement of the trial. According to the authors of the study, the intervention with the "prudent diet" was instrumental in achieving "significant and sustained drop in serum cholesterol levels" and "significantly decreased [the] incidence of coronary heart disease." | 148 |

According to Teicholz,

A decade into the trial, however, investigators discovered that 26 members of Jolliffe's diet club had died, compared with only six men from the control group. Eight members of the club had died of heart attacks.

However, according to the paper *The Anti-Coronary Club – A Dietary Approach To The Prevention of Coronary Heart Disease – A Seven-Year Report*, states that the incidence of new cases in the

- Active Group was 339 per 100,000 and the
- Control Group was 980 per 100,000.

The same report states that there was **8 new events for the Active Group** (note that it is 8 new events, not deaths) and **12 new events for the Control Group**.

Again, according to Teicholz:

But then, a decade into the trial, investigators began to find "somewhat unusual" results: twenty-six members of the diet club had died during the trial, compared to only six men from the controls. Eight members of the club had died of heart attacks, but not one of the controls. In the discussion section of the final report, the authors [...] emphasised the improved risk factors among the men in the diet club but ignored what those risk factors had blatantly failed to predict: their higher death rate.

Dietary Deceptions

Despite Teicholz's claims, *the number of deaths was not reported.* | 149 |

Note that the report Teicholz quotes is the *Seven Year Report*. She claims the result regarding the mortality rate "was buried in the study report", that was published in 1966. The trial ended in November 1972 - and the referenced paper is not the final report.

In 1966, the authors were reporting the results for six years of the experimental group and four years of the control group - the control group having started two years later than the experimental group. The number of *non-coronary deaths was 18 for the experimental group and 6 for the control group.*

Teicholz makes a habit of claiming that results are buried in reports when in reality the results are explicitly stated for all to see.

There were 8 new coronary events, which included deaths, for the experimental group and 12 for the control group. This gave an incidence for new coronary events of

- 339 per 100,000 person-years for the experimental group and
- 980 per 100,000 person-years for the control group.

The control group (the group with no intervention) had new cardiac events at a rate of **290% greater than the active group**. Given that there are 420 men in the control group and 814 in the experimental group, the number of deaths and incidents cannot be directly compared.

Only two deaths occurred in the younger 40-49 age experimental group.

Despite Teicholz claims, *26 members did not die in the experimental group:*

- 26 deaths reported by Teicholz is obtained from adding *18 non-coronary deaths* to *8 new coronary events*, which included incidents other than deaths.
- The 8 deaths reported by Teicholz in the control group related only to non-coronary deaths - *the coronary deaths were not included.*



Other papers relating to the trial were also published in 1966.

- Summary of the research activities of the anti-coronary club. | 150 |
- Effect of the Anti-Coronary Club Program on Coronary Heart Disease Risk-Factor Status. | 151 |

A later report, published in 1980, shows the incident rates at the end of the study in 1972. | 152 |

- For males aged 40-49, the incidence for new events was *465 per 100,000 in the experimental group* compared with *784 per 100,000 in the control group.*
- For males aged 50– 59, the incident rate was *1,309 per 100,000 in the experimental group* and *2,010 per 100,000 in the control group.*



Dietary Deceptions

Only 19% of the experimental group had no risk factors for heart disease compared with 34% for the control group. The three risk factors, associated with heart disease, were: cholesterol 260 mg/ dL (6.7 mmol/ L) and greater; diastolic high blood pressure 95 mmHg or greater; and obesity. Despite the experimental group having a much higher level of risk factors, their participants had much better outcomes than the control group. The goal was to reduce total fat intake from 40% calories to 33% of calories and reduce saturated fats. Note that these risk factors and goals were very conservative - optimal goals are lower.



Using absolute numbers instead of the incident rate to compare results is being deceitful.

Adding 18 non-coronary deaths to 8 new coronary events to obtain 26 total deaths is wrong.

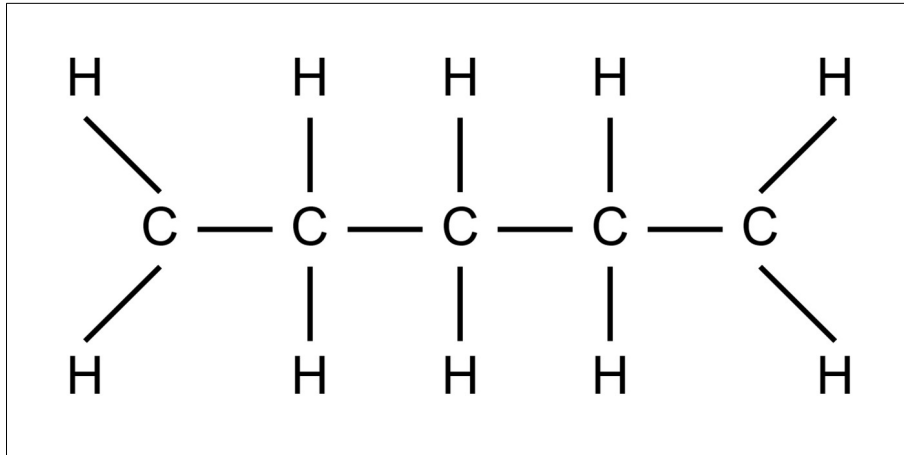
Reporting 8 total deaths in the control group which only referred to non-coronary deaths is incorrect.

Dietary Deceptions

What is a Fatty Acid?

Teicholz states a “Fatty Acid is a Chain of Carbon Atoms Surrounded by Hydrogen Atoms”.

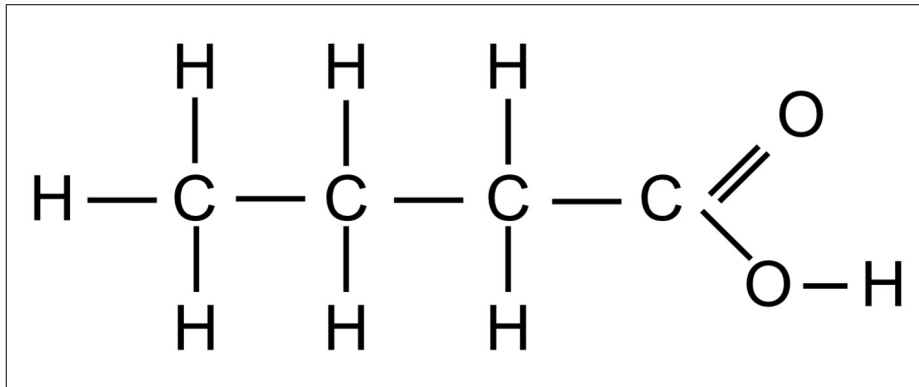
A fatty acid has a terminating carboxyl group which has been omitted from Teicholz diagram. This is what defines a fatty acid. A carboxyl group consists of a carbonyl group with an oxygen atom bonded to the terminating carbon (C=O) as well as a hydroxyl group (-O-H).



Remember high school chemistry. Each carbon atom has 4 bonds, nitrogen 3, oxygen 2 and hydrogen one bond.

Two carbon atoms only have 3 bonds.

Below is a real fatty acid, butyric acid, with a terminating carboxyl group.



Dietary Deceptions

Teicholz and Canola Oil

Teicholz describes cholesterol as being “yellow”— it is white.

Teicholz also states,

The oils from linseed and rapeseed, in a genetically modified form, are blended to make “canola” oil. The “can” in canola is named for its origin, in Canada.

Canola did originate in Canada in the 1970s. This is before the time of genetically modified foods or organisms. It was “developed by researchers from Agriculture and Agri-Food Canada and the University of Manitoba in the 1970s, using traditional plant breeding techniques.” It was bred from rapeseed, which is a *Brassica*, the genus which includes cabbages, kale, broccoli, and Brussels sprouts - *linseed is not involved*. |153|

The Seven Countries Study

Teicholz writes in *The Big, Fat Surprise*,

Critics have pointed out that Dr. Keys violated several basic scientific norms in his [Seven Countries] Study. For one, he didn’t choose countries randomly but instead selected only those likely to prove his beliefs, including Yugoslavia, Finland and Italy.

Excluded were France, land of the famously healthy omelette eater, as well as other countries where people consumed a lot of fat yet didn’t suffer from high rates of heart disease, such as Switzerland, Sweden and West Germany.

Note that Keys and his colleagues were not studying countries. Paul Dudley White, the esteemed cardiologist, was involved in the selection of the regions. They selected 16 different, contrasting regions in 7 countries.

There are wide regional variations in the diets of France with 8 distinct dietary regions. Similarly, there are wide variations in diet in rural and coastal areas, with Finland being particularly notable.

According to a paper in the *Dialogues of Medicine – Vol 13 No 3 2008*, the French paradox is indeed a myth. |154|

The clear conclusion, driven by the facts as summarized by Pierre Ducimetière, is that the rates of CHD are not so low in France, animal fat intake is not so high, and the diet-heart concept is not so unique that the existence of a ‘French paradox’ can be sustained, except for satisfying cultural fantasy or for wine enthusiasm and marketing. Thus, the real paradox is why the French paradox continues to exist as a concept, when it should be replaced by the less mystifying view, namely, ‘the more Mediterranean, the better’.

Teicholz states,

As it turns out, Dr. Keys visited Crete during an unrepresentative period of extreme hardship after World War II.

Dietary Deceptions

There were 3 rounds of surveys in Crete in 1960, 1965 and 1970 which were many years (decades) after the end of World War II. Keys did not work isolation. He worked with teams that included native speaking researchers.

Earlier in her book, Teicholz criticises Keys for excluding data from the "*Six Countries Study*" for northern Europe. The data was obtained from FAO for the year 1949 and Keys excluded this because of the impact of WW2. Now, some 15 years later, Teicholz criticises Keys for including this data in the *Seven Countries Study*. The countries Switzerland, Sweden and West Germany dietary and mortality statistics are consistent with other countries that were considered.

Random clinical trials are a useful tool to determine the effectiveness of an intervention such as the prescription of a drug, the effectiveness of a procedure, or the intake of a vitamin. Participants are randomly assigned to a control (no intervention) group or to an experimental (intervention) group. A comparison of the outcomes between the two groups can then be evaluated.

The *Seven Countries Study* did not compare countries. It compared sixteen contrasting regions in seven countries. The first two countries selected for the *Seven Countries Study* were Finland and Japan. They were selected because, at the time, they were the countries with the highest and lowest mortality rates from heart disease. North Karelia in Finland was selected because it had the highest mortality rate in Finland. North Karelia is an inland region in East Finland that borders Russia. A contrasting region was chosen on the coast in south-west Finland.

The two Japanese regions were located on the southern island of Kyushu. Tanushimaru is a rural farming community and Ushibuka is a contrasting coastal village with a high fish intake.

Other factors that were considered included the associations with local speaking collaborators and availability of funding.

Randomly selecting the countries is not a useful or appropriate methodology for such a study. In the introduction of *Seven Countries* (1980) publication and *Coronary heart disease in Seven Countries* (1970) *I. The Study Program and Objectives*, Keys documents in great detail how the sixteen contrasting regions in the seven countries were selected.

The eligible participants in the study were all men of the ages 40–59. An average of 95.9% of all eligible men participated in the study—except for the cohorts in the Netherlands and the U.S.

Netherlands was included, despite the anticipation that it would uncover results contrary to their expectations. It was included later in the program because government agencies in that country offered personnel and financial help and because the official statistics of the Netherlands in the mid-1950s were interesting. Mortality ascribed to CHD was very low, although the Dutch were pictured as growing fat on a diet high in saturated fats; after all, the Netherlands has long been a major producer of butter fat, and the national breakfast is supposed to include cheese, eggs, and sausage as well as lots of butter. |155|

There are wide regional variations in diet and disease distribution in France with eight different dietary regions including the Mediterranean region of south-east France. |156|

Dietary Deceptions



Teicholz claims she has uncovered a “stunning and troubling error”.

I looked more closely into the dietary data on Greece, because it became the exemplar for the Mediterranean diet (see Chapter 7), and I found one of the most stunning and troubling errors. In that country. Keys had sampled the diets on Crete and Corfu more than once, in different seasons, in order to capture variations in the food eaten. Yet in an astonishing oversight, one of the three surveys on Crete fell during the forty-eight-day fasting period of Lent.

It was the local collaborators, Christ Aravanis and Andy Dontas and their colleagues, who carried out the surveys in Greece— not Ancel Keys, as stated by Teicholz. The Greek researchers were well aware of dietary regimes of the Greek Orthodox Church.

The seasonal comparisons in Crete and Corfu were of interest because the survey in Crete in February and part of the survey in Corfu in March-April were in the 40-day fasting period of Lent of the Greek Orthodox Church, but strict adherence did not seem to be common in the populations of the present study.

Performing the dietary surveys during Lent was not a mistake or astonishing oversight.

Teicholz states that the survey in question was during the 48-day fasting period of Lent (***Note that Lent is a 40-day period not 48 day period as claimed by Teicholz***).

Another point to consider is that the Orthodox Church specifies dietary restrictions for 180-200 days each year— not only for the 40-day period of Lent so the period of fasting during Lent is not as significant as suggested. More than 95% of the eligible population participated in the survey. Keys and Henry Blackburn stated a number of times that they were studying the health of populations and that within those populations there could be a large variation with individuals.



Teicholz claims that he tried to hide the data, claiming that he published most of it in the Dutch journal, *Voeding*, where it would go unnoticed. She claims that when she tried to track down the papers, “he had done everything to bury its problems”.

This is ludicrous and bizarre.

- The *Circulation* journal, published a supplement, dated 1st April 1970, containing more than 200 pages and 18 chapters that document the study program and objectives, the data collection methods and five year follow-up for each of the cohorts. The follow-up reports were written by the local collaborators. Unfortunately, this journal is no longer available. These colleagues would not be impressed that after spending weeks and months organising and collecting the data the Keys would disregard the results once it was sent to him in Minnesota. |157|
- A 382 book, published in 1980, that documented the 10 year deaths and incidence of heart disease as well as factors that influenced the results. This included 9 factors including diet – there is no missing data. |158|

Dietary Deceptions

- There are hundreds of journal articles available from the *Seven Countries Study* website that is maintained under the guidance of Professor Daan Kromhout, the Dutch investigator of the *Seven Countries Study*.



The *Seven Countries Study* highlighted the high death rate, particularly from heart disease, in North Karelia and Finland. North Karelia is an inland region in Eastern Finland that borders Russia. The North Karelia Project is documented in a 300-page document produced by Finland's National Institute for Health and Welfare (THL), in collaboration with the North Karelia Project Foundation.

In 1973, Finland had the highest country death rate for men from cardiac heart disease and North Karelia had the highest rate in Finland.

As a direct result of the *Seven Countries Study*, a project, the *North Karelia Project*, was instigated in 1971. Following its success, the project was expanded to include all of Finland.

By 2007, the heart disease death rate for men dropped by 80%. Saturated fat intake decreased from 22% of dietary energy intake to 13% and total fat from 38% to 31–32%.

Over the period from 1971 to 2006, life expectancy at birth rose 8.2 years for males and 7.0 years for females.

Although mortality has declined significantly, there is still room for considerable improvement. Smoking rates are still high: in North Karelia - 52% of men were smokers in 1972 and 31% in 2007.

Lowering Cholesterol Causes Colon Cancer

According to Teicholz,

By 1981, nearly a dozen sizeable studies on humans had found a link between lowering cholesterol and cancer, principally for colon cancer. In the Framingham study, men with cholesterol levels below 190 mg/dL were three times more likely to get colon cancer than men with cholesterol greater than 220 mg/dL.

Teicholz cites a 1981 journal article, *Serum cholesterol and human colon cancer*, to support her claim. | 160 |

The article does NOT support Teicholz's claim.

The following direct quotes from the article state:

- dietary cholesterol is highly correlated with colon cancer mortality
- there is no significant association [of colon cancer] with dietary fat or fibre after controlling for cholesterol intake
- direct evidence in experimental animals has shown dietary cholesterol to be carcinogenic for colon cancer

Dietary Deceptions

- colon cancer patients to have significantly lower serum cholesterol levels than controls. The observed differences may partially reflect the metabolic influence of advancing disease and
- our data suggest that low serum cholesterol levels in colon cancer patients do not necessarily precede tumour formation but may be a consequence thereof.

Cholesterol, Peanuts and Colon Cancer

Teicholz writes in *The Big, Fat Surprise*,

Not until 1992, in fact, did a Framingham study leader publicly acknowledge the study's findings on fat. "In Framingham, Mass, the more saturated fat one ate . . . the lower the person's serum cholesterol. . . and [they] weighed the least" wrote William P. Castelli [...]

The above quote was taken from a humorous editorial in the *Archives of Internal Medicine*. |161|

Castelli continues, quoting his own 1988 paper. |162|

Eventually, diet intervention trials were done, and where the follow-up got out beyond 3 years, they all show the same thing. The larger the percentage fall in cholesterol, the larger the percentage fall in CHD.

Castelli writes,

The big finding was nuts. Nuts, eaten five or more times a week, apparently independently (Cox proportional hazard model analysis adjusted by age, sex, smoking, exercise, relative weight, and high blood pressure) lowered the coronary fatal and nonfatal end points in half. But these are the Seventh-Day Adventists who already have a seventh of our heart attack rate, live 7 years longer than we do.

As to what other factors associated with nut eating explain the benefit, the authors give us a preview of a feeding trial, using walnuts, that at least shows a favourable change in the blood lipids eating nuts. Is this due to the polyunsaturated or monounsaturated fat in nuts? Is it some exotic fibre component? Hopefully, this anecdote will allay speculation about some other exotic co-founder like television watching, nose-picking, or any myriad number of factors not routinely measured in this study.

Should dietitians everywhere tremble? Has the magic bullet arrived? Is it the humble nut? Should fat people eat fat-rich nuts to lose weight and atherosclerosis, or do nuts only work in vegetarians?

This article is about peanuts – not colon cancer. It showed that the people who eat the most nuts weighed the least.

According to Castelli, "If Americans adopted a vegetarian diet, the whole thing [heart attacks] would disappear."

Conclusion

This is not an exhaustive list of the errors found in *The Big, Fat, Surprise*.

A subsequent chapter highlights some of the findings of the *Seven Countries Study*, free of the prejudices, taste preferences and funding obligations of Nina Teicholz.

Dietary Deceptions

TIME Magazine – Eat Butter *Ending the War on Fat*

The TIME magazine published two articles on 12th June 2014, titled *Ending the War on Fat*, and 23rd June 2014 titled *Don't Blame Fat*. The articles were written by long-time TIME magazine writer Bryan Walsh. The magazine dated 12th June had an artistic roll of butter adorning the front cover.

The articles attack the integrity of Ancel Keys. Walsh states he manipulated the data from his studies that showed that saturated fat in the diet is the leading cause of heart disease in Western civilisation. This is simply a repeat of arguments and the relentless attacks which started with Gary Taubes and continued with Nina Teicholz.

I will address three of the bizarre arguments raised by Walsh that was not covered in the *Big, Fat Surprise* chapter rather than attempting to address all the errors in the two articles.

Walsh writes,

Keys' work became the foundation for a body of science implicating fat as a major risk factor for heart disease. The Seven Countries Study has been referenced close to 1 million times.

If the book has really been “referenced close to a million times”, it means that it has been referenced close to 80 times every day, including weekends, since the book was published in 1980.

This is clearly not true.

This research did NOT become famous. It was neglected for over 30 years. It was not replicated on cats (or rats or dogs) for decades because thyroid function in carnivores converts cholesterol into bile salts and does not raise serum cholesterol levels. Dietary cholesterol does increase serum cholesterol in humans that have comparative low initial serum cholesterol levels. “Normal” serum cholesterol levels are much higher in humans than other species. | 163 |

Walsh continues,

But Keys' research had problems from the start. He cherry-picked his data.

It is evident that Walsh has confused with Keys's 1953 paper Keys' paper, *Atherosclerosis, A Problem in Newer Public Health* and his later study *Seven Countries, A Multivariate Analysis of Death and Coronary Heart Disease*. This misunderstanding has been covered in previous chapters.

Walsh fails to elaborate on how Keys “cherry picked” his data. Commencing in 1957, the *Seven Countries Study* studied 12,763 men in 16 regions in seven countries. What data was omitted from this study? How was the data “cherry-picked”?

Keys collaborated with a number of highly regarded researchers, people who spoke the native language of the areas studied. He lists 15 collaborators in *The Seven Countries* book. According to Henry Blackburn, | 164 |

Dietary Deceptions

At this time, Keys's match up with great clinicians completed the picture – such leaders as Paul Dudley White of Boston, Vittorio Puddu of Rome, Noboru Kimura of Japan, John Brock of Capetown, Martti Karvonen of Helsinki, and Christ Aravanis of Athens. All saw beyond the clinic and beyond the individual patient – to the origins of common diseases – in the population and in society.

Paul Dudley White was a highly regarded and renowned cardiologist and is frequently viewed as a leader in preventive cardiology.

TIME magazine article contends that Keys manipulated data for his own purposes and at the same time managed to deceive for decades his collaborators who actually collected the data.



Fluffy Cholesterol

The article states that there two kinds of LDL particles: small, dense ones and large, fluffy ones. The assertion is that *“the large ones seem to be mostly harmless—and it’s the levels of those large particles that fat intake raises. Carb intake, meanwhile, seems to increase the small, sticky particles that now appear linked to heart disease”*.

According to Ronald Krauss,

Those observations led me to wonder how strong the evidence was for the connection between saturated fat and heart disease. There’s a risk that people have been steered in the wrong direction by using LDL cholesterol rather than LDL particles as a risk factor.

LDL consists of several subclasses of particles with different sizes and densities, including large buoyant ("lb" or "fluffy") and intermediate and small dense ("sd") LDLs.

There are some suggestions that sdLDL is a better marker of for prediction of cardiovascular disease than that of total LDL-Cholesterol. | 165 |

The same article also states that “oxidation in blood plasma is one of the first atherogenic modifications of LDL particles that have been proposed”.

Daniel Steinberg wrote in 1989, | 166 |

It appears that the LDL must be modified within the intima of arteries, not in the plasma. “If oxidised LDL were generated in the plasma it would be swept up within minutes by the liver, and oxidation is inhibited by plasma so would require the favourable conditions of a sequestered microenvironment”

This means that the fluffy cholesterol must be able to pass through the endothelial wall.

According to Evan Stein, | 167 |

Subclass studies (of LDL) have proliferated over the last few years, but many of these studies were funded or subsidised either by suppliers of the assays as a method to expand their use and move them into mainstream practice, or by pharmaceutical companies in an attempt to claim some advantage over other therapeutic agents, especially when the LDL-C or Apo B reducing

Dietary Deceptions

ability of their drug was less competitive. Although these studies have created more heat, they provide little additional light.



Astrup states,

Maintaining general advice to reduce total saturated fatty acids will work against the intentions of the guidelines and weaken their effect on chronic disease incidence and mortality.

Aro and colleagues (Aro, 1997) published a paper to establish the validity of this statement. | 168 |

The purpose of this study was to compare the effects on serum lipids (cholesterol and triglycerides) and LDL lipids when the subjects consumed diets either high of stearic acid or trans fatty acids.

Cholesterol and triglycerides were measured as total serum values as well as the various classes of LDL particles (VLDL, LDL, HDL). These classes of LDL particles are determined by their size with VLDL being the largest and HDL being the smallest.

All subjects consumed a dairy fat-based diet for 5 weeks. The fat in the baseline diet was mainly dairy fat (butter), with some meat fat (lard) and coconut oil.

Important: The authors note that all three diets were artificial. The amounts of stearic acid was 3 times higher and trans-fatty acids 10 times higher than those in the baseline diet.

Those on the two experimental diets consumed a high trans-fatty acids (8.7% of energy) or a high stearic acid diet (9.3% of energy) for another 5 weeks - quantities that do not occur normally in food that we normally consume.

The three diets differed only in the saturated and trans fatty acid compositions, containing similar proportions of energy from fat (33% of energy), carbohydrate (50%), protein (15%), mono-unsaturated fats and polyunsaturated fats.

Stearic acid is the second most common fatty acid that occurs in animal fats up to 30% of total energy. Stearic acid in vegetable fats is usually less than 5%. It is, however, a large component of cocoa butter and shea butter.

Despite the fact the study was artificially designed to elicit a response that favoured saturated fats over trans-fats, it failed to do so.

Dietary Deceptions

Intervention	Total Chol	LDL Chol	HDL Chol	apoA	apoB
stearic acid	13	8	11	12	10
trans-fatty acid	12	0	17	15	0

% change of the 2 experimental diets from the control diet

Intervention	Total Chol	LDL Chol	HDL Chol	apoA	apoB
Units	mmol/L	mmol/L	mmol/L	g/L	g/L
stearic acid	4.71	2.89	1.42	1.32	1.47
trans-fatty acid	4.67	3.13	1.22	0.82	0.74

Results of the 2 experimental diets after completion of the trial

These reductions, which are statistically significant, are clinically insignificant and are not going to have an impact on the health of the participants.

The author's conclusion is that “dietary fats low in both saturated fatty acids and trans fatty acids should be favoured.”

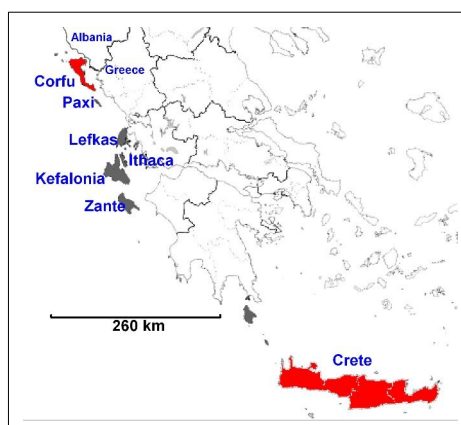
This is another example of Astrup deliberately ignoring the conclusion that does not suit the view that trans-fatty acids are the prime cause of cardiovascular diseases and “eggs, chocolate, cheese and meat” are essential for our health.

Even if a “better” marker was found, why is it relevant? It tells us nothing about what is required to to improve our cardiovascular health.



As Professor William Roberts wrote in his editorial in the *American Journal of Cardiology*, “It’s the cholesterol, stupid”.

Differences in Crete and Corfu Dietary Consumption



According to Walsh:

Keys highlighted the Greek island of Crete, where almost no cheese or meat was eaten and people lived to an old age with clear arteries. But Keys visited Crete in the years following World War II, when the island was still recovering from German occupation and the diet was artificially lean. Even more confusing, Greeks on the neighbouring isle of Corfu ate far less saturated fat than Cretans yet had much higher rates of heart disease.

Corfu and Crete are separated by over 600 km of ocean and dozens of islands – it is not a neighbouring island. |169|

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Surveys for the *Seven Countries Study* were conducted in Greece in 1960 and 1965. This is clearly not in the years immediately following World War II. It is false to state that the diet was “artificially lean”. It is simply not true that “almost no cheese or meat” was eaten.

Significant differences in Cretan and Corfu diet include egg, fish, alcohol, milk, cereal and potato consumption, which is ignored in Walsh’s article. There is also a difference in smoking habits which is also ignored in Walsh’s article. |170|

Cohort	Meat (g/day)	Fish (g/day)	Eggs (g/day)	Cheese (g/day)	Milk (g/day)
Crete	35	18	25	13	235
Corfu	35	60	5	14	70

Walsh claims that people of Corfu ate far less saturated fat than the Cretans. Where did this information come from? Below is a comparison of data from Crete, Corfu and East Finland with 10-year death rates. |171|

Cohort	Sample Size	All Causes Deaths	All Causes Death Rate	CHD Deaths	CHD Death Rate	Fat %	Sat Fat %
Crete	686	42	656	1	9	39	8
Corfu	529	43	833	8	144	33	7
East Finland	817	147	1864	75	992	38	22

CHD Aged Standardised Death Rate per 10,000

Before we get to excited about the very low Cretan deaths, just one more death in Crete will double the CHD death rate. With such low figures in both Crete and Corfu attempting to make such meaningful comparisons is somewhat difficult.

The amount of saturated fat consumed was very similar. Cretans ate more fat, in the form of olive oil.

The Consultants

The dietary consultants interviewed by Walsh were the well-known low-carbohydrate and ketogenic diet advocates.

According to Peter Attia, the president and director of the *Nutrition Science Initiative (NuSi)*, an independent obesity-research center, the research "was highly flawed. It was not on the level of epidemiology work today."

The Nutrition Science Initiative is not an independent obesity-research center. Attia is a co-founder of NuSi along with Gary Taubes. It was funded by the Laura and John Arnold Foundation which is committed to low-carbohydrate and ketogenic diet



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research, committing \$45 million to the endeavour. There has been NO research originating from this organisation.

Peter Attia is not qualified to pass judgement.



"It's undeniable we've gone down the wrong path," says Jeff Volek, a physiologist at the University of Connecticut. At least he has produced a research paper, even if it was supported by a grant from The Dr. Robert C. Atkins Foundation, New York, NY. Volek writes,

Foods commonly consumed on the [Very Low-calorie Ketogenic] diet were beef (e.g., hamburger, steak), poultry (e.g., chicken, turkey), fish, oils, various nuts/seeds and peanut butter, moderate amounts of vegetables, salads with low-carbohydrate dressing, moderate amounts of cheese, eggs, protein powder, and water or low-carbohydrate diet drinks. Low-carbohydrate bars and shakes (Atkins Nutritionals, Inc., Hauppauge, NY) were provided to subjects during the VLC diet. A daily multivitamin/mineral complex that provided micronutrients at levels = 100% of the RDA was given to subjects during both experimental diets. | 172 |

Supplements are essential on such diets to provide adequate nutrition to the participants.

In 2013, University of Connecticut completed a project, led by Volek, *The Effect of incremental increases in dietary carbohydrate on saturated fat levels and blood borne risk markers for Cardiovascular Disease*.

According to the project documents, the expected outcome was:

To demonstrate that plasma saturated fat levels are a function of dietary carbohydrate intake rather than saturated fat intake, which would help neutralise the negative image of beef, dairy and eggs (all naturally low carbohydrate foods) by showing their intake per se is associated with favourable metabolic health effects.

This study, funded by the beef and egg industries, is attempting to prove that plasma saturated fat levels are determined by carbohydrate intake despite that fact that there is no plausible explanation.



Walsh quotes Westman and Lustig. The research of these two is examined in greater detail in later chapters.

"This is a huge paradigm shift in science," says Dr Eric Westman, the director of the Duke Lifestyle Medicine Clinic, who works with patients on ultra-low carb diets. "But the studies to support it do exist."

"The argument against fat was totally and completely flawed," says Dr Robert Lustig, a paediatrician at the University of California, San Francisco, and the president of the Institute for Responsible Nutrition. "We have traded one disaster for another."



Dietary Deceptions

Walsh references a paper by Rajiv Chowdhury, *Association of Dietary, Circulating, and Supplement Fatty Acids With Coronary Risk*. |173|

Professor Stewart Truswell and Professor Walter Willett both criticise this paper for leaving out important papers in the meta-analysis.

Professor Walter Willett of the Harvard School of Public Health states that,

The controversy should serve as a warning about meta-analyses. Studies to reach a clear-cut conclusion. But these days meta-analyses are often done by people who are not familiar with a field, who don't have the primary data or don't make the effort to get it. The results of drug trials can be more easily combined because they are similar in design but nutritional studies are more diverse. Often the strengths and weaknesses of individual studies get lost ... It's dangerous.

Truswell writes, |174|

In my detailed examination of this publication and the associated supplementary material (57 pages in total), in which I focused on the data for omega-6 PUFAs, I also identified a number of problems. In particular, studies were omitted, and the findings of those included were often incorrectly reported.

In their review of dietary and supplements trials, Chowdhury et al made no distinction between these two very different types of investigation. Most of the trials analysed in this section reported simple supplementation with fish oil or capsules containing eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) capsules. It seems inappropriate, however, for supplements trials to be pooled with dietary trials in which participants consumed both less saturated fats and more PUFAs.



The *Dialogues in Cardiovascular Medicine* *Dialogues in Cardiovascular Medicine* - Vol 13 . No. 3 . of 2008 lists the ***Seven Countries Study as one of the 10 most important studies of all time***. |175|

Who is correct? Professor Hugh Tunstall-Pedoe or Peter (Praise the Lard) Attia?

The same journal has an 18 page article *The French Paradox: Are "They" Really so different?* explaining why *The French Paradox* is a myth.

The clear conclusion, driven by the facts as summarised by Pierre Ducimetière, is that the rates of CHD are not so low in France, animal fat intake is not so high, and the diet-heart concept is not so unique that the existence of a “French paradox” can be sustained, except for satisfying cultural fantasy or for wine enthusiasm and marketing.

Thus, the real paradox is why the French paradox continues to exist as a concept, when it should be replaced by the less mystifying view, namely, “the more Mediterranean, the better”.



A 2017 article, titled *The Seven Countries Study*, was published in the *European Heart Journal*. |176|

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The authors included Walter Willett, Professor of Epidemiology and Nutrition Harvard T.H. Chan School of Public Health and Erkki Vartiainen, Professor National Institute for Health and Welfare Helsinki, Finland.

The paper opens with,

Modern critics of the Seven Countries Study (SCS), routinely writers of books and blogs for the general public, and occasionally genuine content-experts citing these, question the conclusions, methodology, motives, and propriety of Ancel Keys and his fellow SCS researchers.

Indeed, the word ‘conspiracy’ has been used in association with the study. These criticisms of Keys and the SCS are of outsized importance because they are routinely referenced in efforts to discredit not just the study itself, but prevailing views in the field of nutritional epidemiology, predicated both on research inspired by the SCS, as well as fully independent research that followed.

The paper continues with,

Those impugning the methods and motives of the SCS frequently make one or more of the following four allegations: (i) The SCS team had access to data from 22 countries and chose the data from only seven for the study. (ii) Countries with higher saturated fat and low heart disease rates, particularly France, were purposefully excluded. (iii) Dietary data in Greece were artificially low in saturated fats due to data collection during Lent. (iv) Keys and the SCS team ignored or suppressed analyses suggesting sugar was more highly correlated with heart disease than saturated fat.

For most of these contentions, the original source is elusive, as they have been repeated for many years. Accordingly, sources cited here are representative, and may not be the originating material. In each case, the allegations prove to be false upon review of the primary source material.

Bryan Walsh has performed a great disservice to TIME magazine readers by presenting popular views that have now become “facts”.

Astrup, Lustig and Insulin Resistance

Who is Robert Lustig?

Robert Lustig is a paediatric endocrinologist at the University of California, San Francisco. He is the author of *Fat Chance: Beating the Odds against Sugar, Processed Food, Obesity, and Disease*.

|177|

He specialises in childhood obesity and studying the effects of sugar in the diet. He is the director of the UCSF Weight Assessment for Teen and Child Health Program and a member of the Obesity Task Force of the Endocrine Society.

Below are some quotes from Lustig. There is a recording of him saying this – otherwise it would not be possible to believe that a nutrition expert could actually make such statements.

Dietary Deceptions

Sugar – because of its unique composition is the only food on the planet that is both fat and carbohydrate at the same time.

Is there one reaction in your body that actually requires sugar? Zero.

Even fatty fruits – coconut, olives, avocado – have no carbohydrates.

There is no foodstuff on this planet that have both fat and carbohydrate at the same time. It is one or the other because that is evolution – that is nature – that is what God did.

Sugars are carbohydrates – they are not fats. This is basic chemistry. Fatty acids contain a carboxyl group (COOH) – sugars do not.

It is simply wrong to state that coconut, olives, avocados have no carbohydrates.

Below is a table showing the macronutrient composition of 100 g of food. |178|

Nutrient	Olives	Coconut dried	Avocado
NDB No	09194	12108	09037
Water (g)	84	3	73
Protein (g)	1	7	2
Fat (g)	7	65	15
Carbohydrate (g)	6	24	9
Fibre (g)	2	16	7

In *Fat Chance*, Lustig states that the browning of bananas is caused by the Maillard reaction due to its fructose content. Browning of freshly cut fruit and vegetables is a reaction caused by enzymes. Maillard reaction is a non-enzymatic reaction between reducing sugars (glucose, fructose, galactose, maltose, lactose) and amino acids that occur from around 140°C to 165°C. At higher temperatures, caramelisation occurs. The golden crust of bread is due to Maillard reactions.



Lustig and Keys

Lustig featured in the BBC's documentary, *The Men Who Made Us Fat*, written by Jacques Peretti. At the beginning of the documentary, Peretti informs,

I am going to trace those responsible for a revolution in our eating habits. I'll be looking at how decisions made behind closed doors transformed food into an addiction.

Brief images of Ancel Keys and George McGovern are shown as two of the perpetrators of this deed.

Below are some comments by Lustig from the documentary.

This man, Ancel Keys, claimed he had the answer to heart disease. His theory had a decisive impact on what we would all eat. But it also had a devastating side effect—creating the conditions for obesity. Keys's theory was that fat alone caused heart disease. [...]

Dietary Deceptions

In 1952, Keys did a sabbatical in England where he saw the epidemic of heart disease himself and correlated it with the enormously poor British diet of fish and chips, etc.—you know what I’m talking about—and decided that saturated fat had to be the culprit. And he actually said that back in the fifties before he did any studies. And he spent the next fifty years attempting to prove himself right.

Keys won the battle. Yudkin was thrown under the bus. And—well, he was discredited by numerous societies basically saying that he did not have the data to make his claims about the importance of sugar. | 179 |

Much of what a rather chubby Robert Lustig states is false.

Firstly, Keys’s research was not the starting point for nutritional and cholesterol research, which had its foundations in the early years of the twentieth century.

Keys’s early views on diet were formed in Italy and Spain, not in England. He developed his ideas about diet and heart disease when he was invited to Naples in the early 1950s. His studies showed dramatically lower rates of coronary heart disease in Italy and Spain. He introduced the concept of the Mediterranean diet to America—a diet he described as mainly vegetarian.

Initially, Keys did focus on fats in the diet—not saturated fats—as Lustig states above. Keys conducted many trials and experiments, both before and after he came to his initial conclusions regarding fat.

A number of other researchers, including Jeremiah Stamler, Gerry Shaper, Michael Oliver, and Geoffrey Rose, were of the opinion that “*there was no firm evidence linking intake of dietary sugar and CHD.*” | 180 |

The claim that “*Keys’s theory was that fat alone caused heart disease*” is false and deceptive. Keys noted in 1980,

Responsible students of the coronary problem long ago abandoned the idea of seeking the cause of the disease, agreeing that several, perhaps many, variables are involved in almost all cases.” | 181 |

As the title of this report (*Seven Countries: A Multivariate Analysis of Death and Coronary Heart Disease*) indicates, Keys and his colleagues were examining a number of different variables in relation to heart disease.

Lustig states,

Keys was already pretty famous in America because he was the originator, inventor, of the K-Ration. The K-ration was a way of getting 12,000 calories in a very small, compact little box.

Lustig had overestimated the amount of energy in the K-Ration by three to four times. The K-Ration was an emergency survival ration consisting of non-perishable food designed for a few days’ use only. The program claims that the K-Ration contained a lot of sweet food like chocolate, “never for one moment [realising that] it could be harmful.

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As well as chocolate bars, it contained pemmican biscuits, veal meat, sausage, toilet paper, chewing gum, and cigarettes. The K-Ration was never designed for long-term use.



Lustig's claim that Keys made his assertion regarding the implications of fats in the diet with heart disease without the backing of research is not true.

In 1922, de Langen, working with Javanese men in the East Indies, showed that a diet high in eggs, butter, and meat raised serum cholesterol.

In 1947, Keys commenced the Minnesota Business and Professional Men Study to determine why apparently healthy middle-age men were dying from heart attacks. A number of variables were examined, with serum cholesterol being the most significant variable.

Keys performed studies with his wife, Margaret, in Naples, Rome and Madrid in 1952.

In 1955, Brian Bronte-Stewart, John Block (professor of medicine at University of Cape Town), Ancel and Margaret Keys and colleagues published a paper examining serum cholesterol, diet, income and cardiovascular mortality in Europeans, "Coloured" and Bantu groups in Cape Town. |182|

The mean values for total cholesterol were 234 mg/dL (6.1 mmol/L), 204 mg/dL (5.3 mmol/L) and 166 mg/dL (4.3 mmol/L) respectively. Heart disease for Europeans was more than twice that of Cape Coloured and among Bantu it was "exceedingly rare as a cause of death". This was the first study to show that the increase in LDL cholesterol was related to the consumption of animal fats.

In 1958, Keys and his colleagues published a paper examining serum cholesterol, diet and cardiovascular disease in Japanese living in Japan, Hawaii and Los Angeles. In Japan,

Heart disease is rare, in Hawaii, where it is fairly common but less so than among local Caucasians, and in California, where the local Japanese are similar to the local Caucasians in regard to the frequency of the disease. In middle age, coronary heart disease is at least 10 times as common in the United States as in Japan. |183|

The inter-racial survey in Cape Town involving Bantus, Asians and Europeans and the Japanese Migration Studies are examined in later chapters.

A number of researchers (J Groen, LW Kinsell, EH Ahrens, A Keys, JM Beveridge and B Bronte-Stewart) studied the relationship of saturated fat to serum cholesterol during the 1950s using controlled feeding studies.



Lustig and Yudkin

Lustig's admiration for Yudkin is unfounded. Yudkin was unable to produce the data to support his contention that sugar causes heart disease.

During the 1960s, John Yudkin noted that the consumption of sugar increased in Britain more than any other food item in the last 100 years. Both sugar consumption and total fat consumption (note

Dietary Deceptions

the correlation is with total fat and not saturated fat) correlated with heart disease but Yudkin concluded that sugar was the more likely cause. |184|

Yudkin performed a small study recording the intakes of sugar 70 men: 20 with a recent first heart attack, 25 with peripheral arterial disease and 25 healthy men. The mean daily intakes were 132, 141 and 77 g, with medians 113, 128 and 56g, respectively. The intakes of the patients were significantly higher than those of the healthy controls. Both groups of patients took more sugar in more cups of tea or coffee per day than controls. |185|

Yudkin also performed a feeding experiments with rats. A diet high in sugar increased serum triglycerides. Triglycerides are no longer considered to be a high risk factor for heart disease.

This was the extent of Yudkins's research.



His best-selling book *Pure, White and Deadly: the problem with sugar* contained no references. |186|

Lustig wrote the introduction for the reissue of the book in 2012.

Ansel Keys, Geoffrey Rose and many others criticised Yudkin because “*he did not have the data*” to support his contention that sugar caused heart disease. Mortality from heart disease started reducing in 1966 in U.S., Finland, and Australia. It was another 10 years before this happened in the United Kingdom because of Yudkin's influence. |187|

Rose believed that there would have been 25,000 fewer deaths in England and Wales if the gains made in Australia and America were duplicated in the United Kingdom. |188|

This does not mean that Keys approved of the high level of sugar consumption:

None of what is said here should be taken to mean approval of the common high level of sucrose in many diets. But there are plenty of good arguments to reduce the flood of dietary sucrose without building a mountain of nonsense about coronary heart disease. |189|

The DIETFITS Study

The Purpose

The purpose of the DIETFITS Trial was: |190|

To determine the effect of a healthy low-fat (HLF) diet vs a healthy low-carbohydrate (HLC) diet on weight change and if genotype pattern or insulin secretion are related to the dietary effects on weight loss.

It a popular area of research to determine if there are genetic causes of obesity, diabetes, heart disease, autoimmune disease, depression and any other illness or condition that is plaguing our society.

This area of research ignores the fact that often our genetics does not determine health outcomes. Ignoring this will not solve the problems of our society's rapidly failing health.

Dietary Deceptions

Frequently the problem is not that complicated.

PPARG, ADRB2 and FABP2 Genes – DIETFITS Trial

The DIETFITS Trial, conducted by Christopher Gardner and colleagues, chose three genes: PPARG (PPAG-gamma), ADRB2 and FABP2. They claimed that variations in these genes result in a low-fat responsive genotype and a low-carbohydrate responsive genotype. |191|

PPARG |192| is associated with fat cell differentiation. Mutations in PPARG may be a cause of type 2 diabetes and hypertension. |193|

A variation of the ADRB2 |194| gene is associated with a reduced ability to breakdown fatty acids, and in women, a reduced ability to oxidise fat. |195|

A hypothesis is that this variation of the ADRB2 gene “may be an important factor in the development or progression of obesity and obesity-related disorders”.

The FABP2 |196| gene encodes a protein that is involved in long-chained fatty acid metabolism and transport. Some authors suggest that variations of this protein can have an effect on fatty acid assimilation resulting in an increase fat oxidation and a reduction in insulin resistance.

The *Diet Intervention Examining The Factors Interacting with Treatment Success* (DIETFITS) study was a clinical trial including 609 adults aged 18 to 50 years without diabetes with a body mass index between 28 and 40. |197|

The objective was to determine if a healthy low-fat (HLF) diet compared to a healthy low-carbohydrate (HLC) diet affected weight and if this was impacted by the genotype pattern.

The authors claim that the participants were healthy despite being overweight and obese. Obese is defined as BMI is 30 or greater. Overweight is 25 or greater but less than 30. The concept of being overweight or obese and being healthy is not valid. |198|

The following information given about the diets in the DIETFITS study was given at the baseline and at 3, 6 and 12 months. The information below is at the completion of the study at 12 months.

- the amount of energy consumed
- amount of carbohydrate
- fat
- protein
- saturated fat
- fibre
- sugar

Some conclusions can be made from these figures but it is not sufficient to determine how healthy a diet is. What foods were they consuming?

Important! A healthy diet is the result of everything that we eat.

Dietary Deceptions

Criteria	Units	Low-Fat Diet 12 month	Low-Carb Diet 12 months
Energy Intake	kcal	1716	1697
Carbohydrate	g	213	132
Carbohydrate	% kcal	48	30
Fat	g	57	86
Fat	% kcal	29	45
Protein	g	85	93
Protein	% kcal	21	23
Saturated Fat	g	18	28
Saturated Fat	% kcal	9	15
Fibre	g	23	19
Added Sugar	% kcal	33	23
Sugar	g / 1000 kcal	19	13

The energy intake is much lower than the usual intake. The participants would have been miserable which accounts for the high attrition rate. This was 17% for the low-fat diet and 13% for the low-carbohydrate diet. This does not include those who were lost to follow-up. 24 participants in the low-fat diet and 29 in the low-carbohydrate diet could not be contacted.

The authors conclusion was:

In the 12-month study, there was no significant difference in weight change between a healthy low-fat diet compared with a healthy low-carbohydrate diet.

Neither of the 2 hypothesised predisposing factors [genotypes] was helpful in identifying which diet was better for whom.

During the trial, there were 7 serious adverse events, all requiring hospitalisation. According to the authors, 2 of these could have been related to the study (kidney stones and diverticulitis requiring surgery. There were 18 adverse events or serious adverse events that were evenly distributed across the 2 diet groups.

At baseline, both groups consumed a comparable percentage of daily calories from fat: 34.8% for the low-fat group and 36.0% for the low-carbohydrate group.

After 12 months, the percentage of daily calories from fat was 28.7% in the low-fat group and 44.6% in the low-carbohydrate group.

A diet of 28.7% in the low-fat group is a high-fat diet NOT a low-fat diet.

Many studies attempt to define how healthy a diet is simply based on the levels of macro-nutrients. Foods are much more than the sum of fats, protein and carbohydrates. Whole-food, plant-based diets automatically removes added sugars and oils. This results in a diet high in fibre, complex carbohydrates, micronutrients, antioxidants, vitamins, minerals and thousands of phytonutrients

Dietary Deceptions

such carotenoids and flavonoids. Individual components do not work in isolation but work synergistically.

Note the prevalence of metabolic syndrome after completion of the study. Even participants free of the condition at the start of the study managed to acquire metabolic syndrome by the study's end. Given the seriousness of the adverse effects and the lack evidence for the two dietary genotypes the only conclusion from the study is that both diets are equal appalling under all conditions.

Criteria	At start	After 12 months	Low-fat diet	Low-carb diet
Metabolic syndrome	Yes	No	11.8%	11.8%
Metabolic syndrome	Yes	Yes	12.8%	11.8%
Metabolic syndrome	No	No	42.0%	45.1%
Metabolic syndrome	No	Yes	4.3%	3.6%

Last two columns indicate the percentage of people that meet the conditions of the first three columns after 12 months

Another paper that was attempting to find a link with variations in the ADRB2 gene has concluded that the ADRB2 gene polymorphisms studied do not contribute in any important way to the risk of essential hypertension or heart attacks in subjects of European ancestry. ^[199]

FABP2 Gene

Pima people (The River People) are native Americans from New Mexico, central and southern Arizona and NW Mexico.

The Pima Indians of Arizona reportedly have the highest prevalence of type 2 diabetes of any population which afflicts more than half of the population over 35. ^[200]

A group of overweight, non-diabetic participants from Arizona was examined for the presence of 3 FABP2 alleles. An allele is a different version of the same gene. The 3 alleles are referred to AA, AT and TT. Average weight for participants with the three alleles were 99kg, 96kg and 103kg respectively.

Details of their diet was not disclosed.

There was no significant correlation between the presence of the three alleles and the weight of the participants. However, the AT and TT alleles “may potentially be more deleterious in individuals who consume a diet high in saturated long-chain fatty acids, which is characteristic of the modern, ‘Westernised’ diet.”

Therefore, the variation in the FABP2 alleles is not associated with an increase in body weight but “may be” associated with greater health risks in those who are obese.



Dietary Deceptions

Two Japanese studies did not find any association with FAPB2 gene in health outcomes.

The first paper stated there was “no evidence for the role of the common FABP2 A54T gene polymorphism in increased plasma levels of asymmetric dimethylarginine in patients with carotid stenosis.” [201]

The second paper stated,

Our data suggested that Ala54Thr polymorphism of the FABP2 gene is not a major contributing factor for obesity and obesity with dyslipidemia in Japanese children. [202]

The conclusion is that in normal-weight individuals, the FABP2 gene does not affect health outcomes.

The DIABEGG Study

The Study

DIABEGG is an Australian study that compared the effects of a high-egg diet with a low-egg diet over a 12 month period. [203]

The high-egg diet participants consumed 2 eggs/day for six days a week with the low-egg diet consuming 2 egg/week for breakfast. To ensure an equivalent amount of protein, those on a low-egg diet added meat, chicken, fish, legumes or dairy.

There were no significant differences in fasting serum concentrations of LDL cholesterol, total cholesterol, triglycerides, or inflammation markers between the 2 groups from start of the weight-loss intervention at 3 months to the end of the study at 12 months.

Similarly, there were no significant differences in waist circumference, total body fat, fat-free mass, radial pulse rate or systolic blood pressure at the end of the study.

After 12 months on two equally unhealthy, high-protein, high-fat, high-animal based diets, the participants from both groups were still overweight and unhealthy.

After 12 months on their 2 egg / day diet, resulted in the following changes.

Criteria	Units	Baseline	12 month change	Change	Goal
Cholesterol	mm/L	5.0	-0.07	-1%	<= 4.2
C-Reactive Protein	mg/L	4.8	0.58	12%	<= 3.0
HbA1c	%	6.5	0.33	5%	<= 5.6
Systolic Blood Pressure	mmHg	134.7	-6.18	-5%	90-120

The C-Reactive Protein inflammation marker rose from its already elevated average as did the elevated HbA1c diabetes marker. The other changes are negligible.

The study was funded by a research grant from the Australian Egg Corporation.

Dietary Deceptions

It certainly does not warrant Astrup's claim that,

Random clinic trial data show that two eggs a day has beneficial effects on cardiovascular disease biomarkers.



Benefits of Eggs Two Eggs a Day

Astrup claims that two eggs a day are beneficial for heart disease and type 2 diabetes, (Astrup, 2019)

RCT [random clinic trial] data show that two eggs a day has beneficial effects on cardiovascular disease biomarkers and improved glycaemic control in type 2 diabetes. |204|

The 2013 article quoted states,

Higher consumption of eggs (up to one egg per day) is not associated with increased risk of coronary heart disease or stroke. The increased risk of coronary heart disease among diabetic patients and reduced risk of hemorrhagic stroke associated with higher egg consumption in subgroup analyses warrant further studies. |205|

Only eight articles with 17 reports (nine for coronary heart disease, eight for stroke) were eligible for inclusion in the above meta-analysis.

This meta-analysis, contrary to Astrup's, states that "**up to one egg a day is NOT associated with increased risk of coronary heart disease or stroke**".

That is NOT the same as stating the "**two eggs a day has a beneficial effects on cardiovascular disease biomarkers and improved glycaemic control in type 2 diabetes**."



Astrup is a co-author of a 2018 article that states, (Flint, 2006)

Seven eggs per week can safely be consumed, but in patients with established CVD or T2D **only with special emphasis on a prudent diet** and proper medical treatment. |206|

This is contrary to Astrup's assertion that "two eggs a day are beneficial for heart disease and type 2 diabetes".



A Harvard study included 2258 women from the *Nurses' Health Study* and 1840 men from the *Health Professional Follow-Up Study* who had survived a first heart attack. |207|

This study showed adherence to a low-carbohydrate diet, high in animal sources of protein and fat, was associated with higher all-cause and cardiovascular mortality (hazard ratios of 1.33 for all-cause mortality and 1.51 for cardiovascular mortality) comparing first and fifth quintiles.

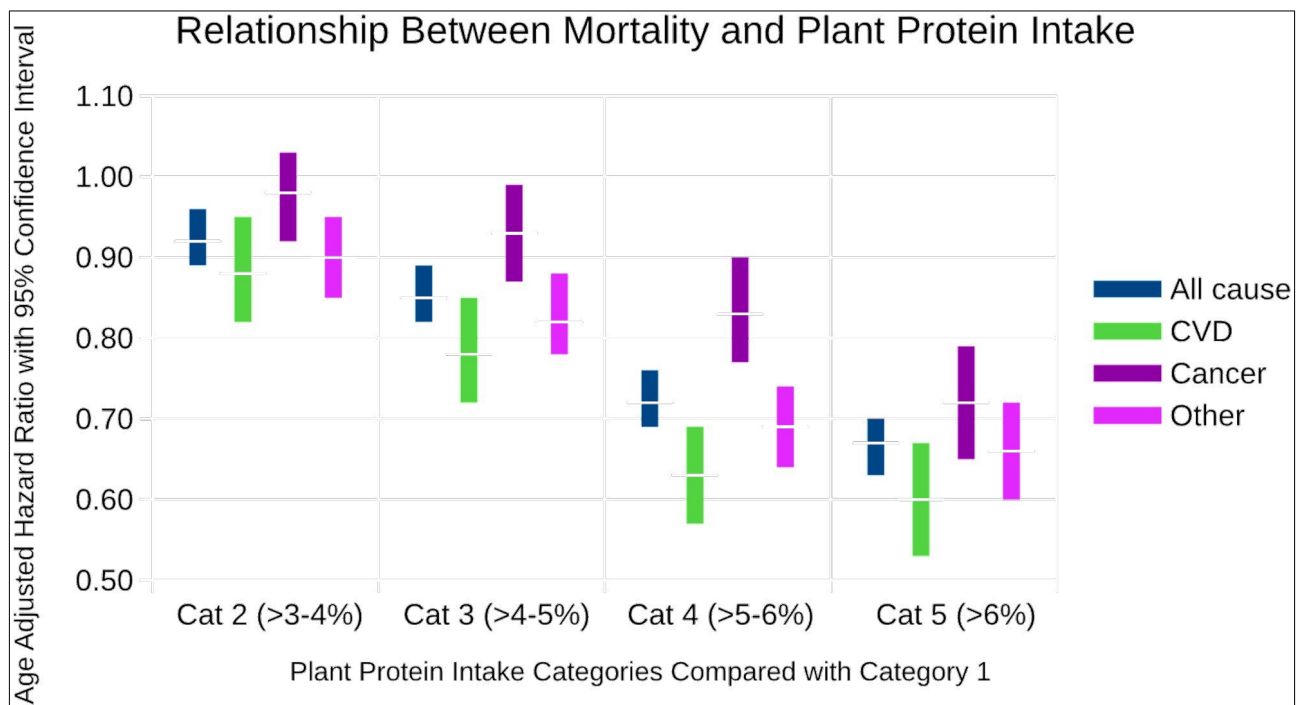
A low-carbohydrate diet resulted in a significant increase in all-cause mortality when comparing the diets of those who have already suffered a heart attack - a diet that contributed to their demise.

Dietary Deceptions



Another Harvard Study that included 131342 participants from the *Nurses' Health Study* and *Health Professionals Follow-up Study* examined the intake of animal and plant protein intake and the risk of mortality. Validated food questionnaires assessed the reliability of the food consumption. [208]

This study compared five categories of plant protein intake with all-cause, cancer, heart disease and other cause mortality.



CSIRO and Two Eggs a Day is OK

The CSIRO, Australia's premier government-funded scientific research organisation, produced a marketing document for the Australian Egg Corporation Limited titled, *Australians' usual egg consumption*. [209]

According to this CSIRO document,

The Australian Egg Corporation Limited (AECL) is preparing to launch a new campaign with a creative logo to promote eggs as “OK every Day” for consumption. Through this campaign, AECL are aiming to: • Establish an environment of credibility and trust in the “Eggs are OK Every Day” program; • Progress the “myth busting” of outdated nutritional beliefs.

The document continues with,

The launch of the OK Every Day campaign aims to provide a platform to provide expert insight to break through the confusion and provide credible interpretation of the Australian Dietary Guidelines and communicate a core narrative around the role – and permissibility – of eggs being eaten every day.

Dietary Deceptions

It also provides an opportunity to promote the consumption of whole foods against the backdrop of increased consumption of junk food, according to latest ABS figures.

The target audiences for the campaign are health care professionals and consumers. Specifically the campaign aims to:

- Remind Dietitians/nutritionists that eggs can be eaten every day. The launch of “*OK Every Day*” program provides an opportunity for fresh “news”, engagement and to keep the healthiness of eggs top of mind.
- Encourage General Practitioners to think about eggs as a healthy food. GPs are busy, and many have poor training in the latest nutrition guidelines. GPs knowledge of eggs is variable and for many don’t think to recommend eggs to patients as part of a healthy diet.
- Promote to Consumers the permissibility of egg consumption every day.

As shown above, the evidence provided by Astrup and colleagues do not support the claims.

There are many of studies, some are examined in detail in this document, that show even a ***TINY*** amount of eggs is detrimental.

- Chiu, T. H. T., Huang, H.-Y., Chiu, Y.-F., Pan, W.-H., Kao, H.-Y., Chiu, J. P. C., Lin, M.-N., & Lin, C.-L. (2014). Taiwanese Vegetarians and Omnivores: Dietary Composition, Prevalence of Diabetes and IFG. *PLoS ONE*, 9(2), e88547.
- Le, L., & Sabate, J. (2014). Beyond Meatless, the Health Effects of Vegan Diets: Findings from the Adventist Cohorts. *Nutrients*, 6(6), 2131–2147.
- Fraser, G. E., & Shavlik, D. J. (2001). Ten Years of Life—Is It a Matter of Choice? *Archives of Internal Medicine*, 161(13), 1645–1652.
- Djoussé, L., & Gaziano, J. M. (2008). Egg consumption in relation to cardiovascular disease and mortality: The Physicians’ Health Study. *American Journal of Clinical Nutrition*, 87(4), 964–969
- Shi, Z., Yuan, B., Zhang, C., Zhou, M., & Holmboe-Ottesen, G. (2011). Egg consumption and the risk of diabetes in adults, Jiangsu, China. *Nutrition*, 27(2), 194–198.

The CSIRO is not serving the Australian people by promoting the consumption of eggs in the absence of credible evidence. The arguments presented by Astrup and colleagues have been shown to be fraudulent and motivated by the funding.



You would think that the authors could at least place the apostrophe in the correct place in the title *Australians’ usual egg consumption*.

Frying Food With Vegetable Oils

Whilst watching the news back in November 2015, I saw a banner stating *New study shows saturated fats are healthy*. Intrigued, I found the source of this information – an article titled

Dietary Deceptions

Cooking with vegetable oils releases toxic cancer-causing chemicals, say experts, which appeared in the London Telegraph. |210|

The article actually stated that frying food in vegetable oils creates more aldehydes (a cancer causing chemical) than frying food in saturated fats. According to the article,

Cooking with vegetable oils releases toxic chemicals linked to cancer and other diseases, according to leading scientists, who are now recommending food be fried in olive oil, coconut oil, butter or even lard. The results of a series of experiments threaten to turn on its head official advice that oils rich in polyunsaturated fats – such as corn oil and sunflower oil – are better for the health than the saturated fats in animal products.

The research did not indicate that saturated fats are better for your health than vegetable oils. It stated that if you fry foods in oils then you are better off if you use saturated fats as they are less reactive.

Using any added oils is undesirable

Using any type of added oil (olive oil, coconut oil and saturated fats) is undesirable. Fats contain 2¼ times more calories than the same weight of carbohydrates. They are not as filling so you can eat more.

All fats damage the endothelial lining of the arteries – cells cannot produce nitric oxide which is essential for vascular health. Nitric oxide dilates the blood vessels which increases blood flow.

Frying foods is undesirable

In addition to the aldehydes mentioned in the article, frying also produces peroxides, heterocyclic amines, polycyclic aromatic hydrocarbons and other undesirable substances. Frying foods in any type of oil is not desirable.

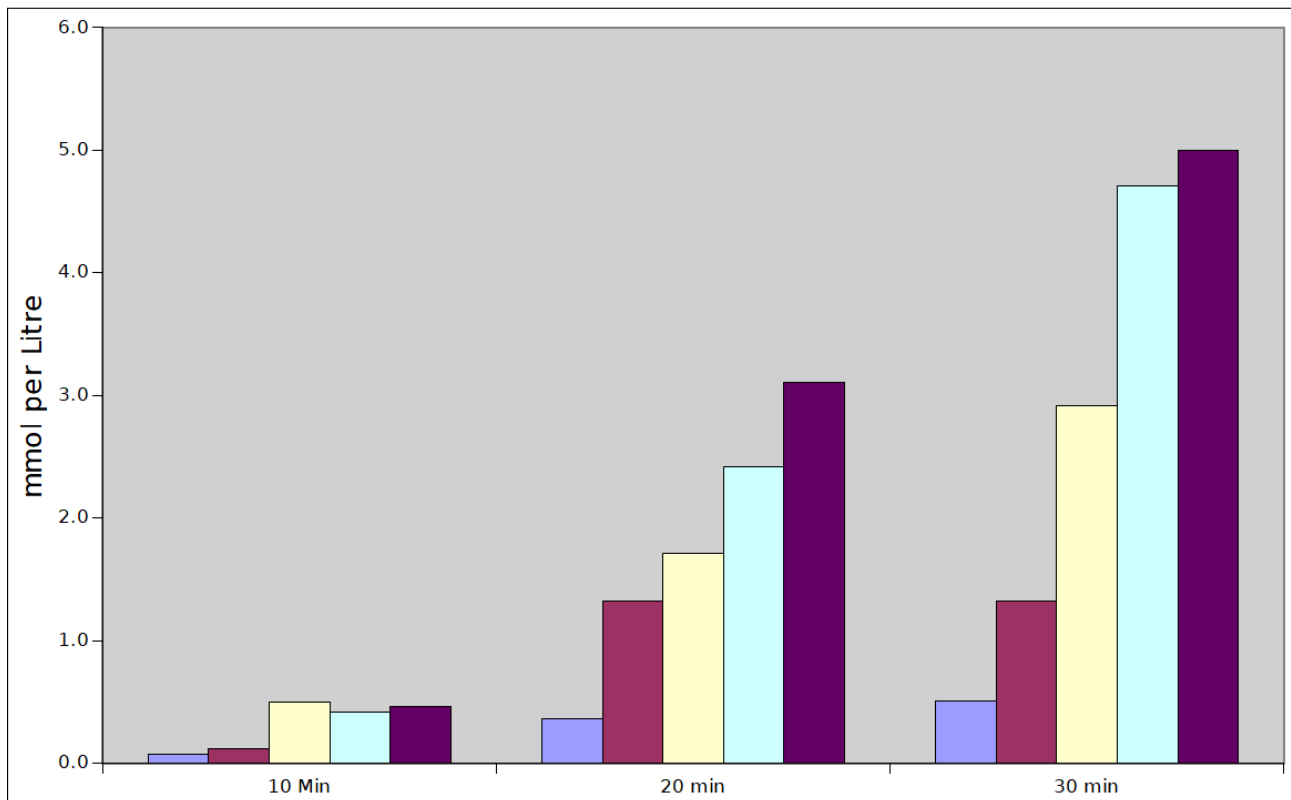
Frying foods results in a much higher cooking temperature than steaming or boiling. It also adds significantly to the amount of calories consumed. Boiled potatoes contain 78 kcal / 100 g whereas French fried potatoes contain 166 kcal / 100 g.

Cooking times are significant

The amount of time the oil is heated has a significant impact on the amount of toxic substances produces. Below is a graph derived from data presented in the article.

Dietary Deceptions

Aldehyde Concentration After Frying at 180°C



If you insist on using added oils and frying foods then do not fry them for any length of time.

After 10 minutes of frying, the aldehyde concentration for all oils is relatively low. After that it rises substantially for all oils with the exception of coconut oil.

Consuming fried fish or potato chips from commercial premises where the oil has been heated and reheated frequently must be a cause for concern.

Plant-based Diets are Healthy

Cornelius de Langen

Popular commentators who attempt to cure diabetes, diabetes and other modern ailments with a high-fat, high animal-based diet ignore the evidence of over 100 years.

Cornelis De Langen was born in 1887 in the Netherlands.

In 1914 De Langen was hired by the Dutch government to combat the plague in the Dutch East Indies, where he worked for 20 years teaching medicine, directing a clinic, and conducting research in to the role of diet in heart disease. He observed the lack of angina, gall bladder disease and high blood pressure in the Javanese. His work influenced Ancel Keys. ^[211]

The Javanese ate a largely vegetarian diet, based on rice. Their serum cholesterol levels were much lower than in the Javanese. However, the Javanese stewards who worked on Dutch passenger ships had serum

Dietary Deceptions

cholesterols nearer to the European levels. In 1922, (yes, 1922) de Langen fed 5 Javanese subjects a diet rich in eggs, butter and meat for 3 months. Their mean serum cholesterol rose 30% from 3.3 mmol/ L (128 mg/ dL). |212|

J. S. Sweeney's Experiments of 1927

In 1927, Sweeney assigned healthy, young medical students into four dietary groups: |213||214|

- high-carbohydrate diet consisting of sugar, candy, syrup, baked potatoes, bananas, and oatmeal, rice, and white bread
- high-fat diet consisting of olive oil, butter, mayonnaise, egg-yolks, and cream
- high-protein diet consisting of lean meat, lean fish, and egg-whites
- the fourth group was placed on a fasting regime

The students were fed their diets for two days and a glucose tolerance test was performed on the morning of the third day.

After only two days on their improbable, experimental diets, the only group showing a normal, healthy response to the glucose tolerance test was the high-carbohydrate group.

The protein group had slightly impaired glucose tolerance whilst the high-fat and starvation diets showed a marked decrease in their tolerance for sugar.

It was more than 80 years later that the reason was discovered. If you type “*intramyocellular lipids diabetes*” into a Google Scholar search, you will receive hundreds of search results that documents the cause of type 2 diabetes.

“*Intramyocellular lipids diabetes*” refers to fats inside muscle cells. Despite Muecke claims, diabetes has very little to do with sugar consumption.

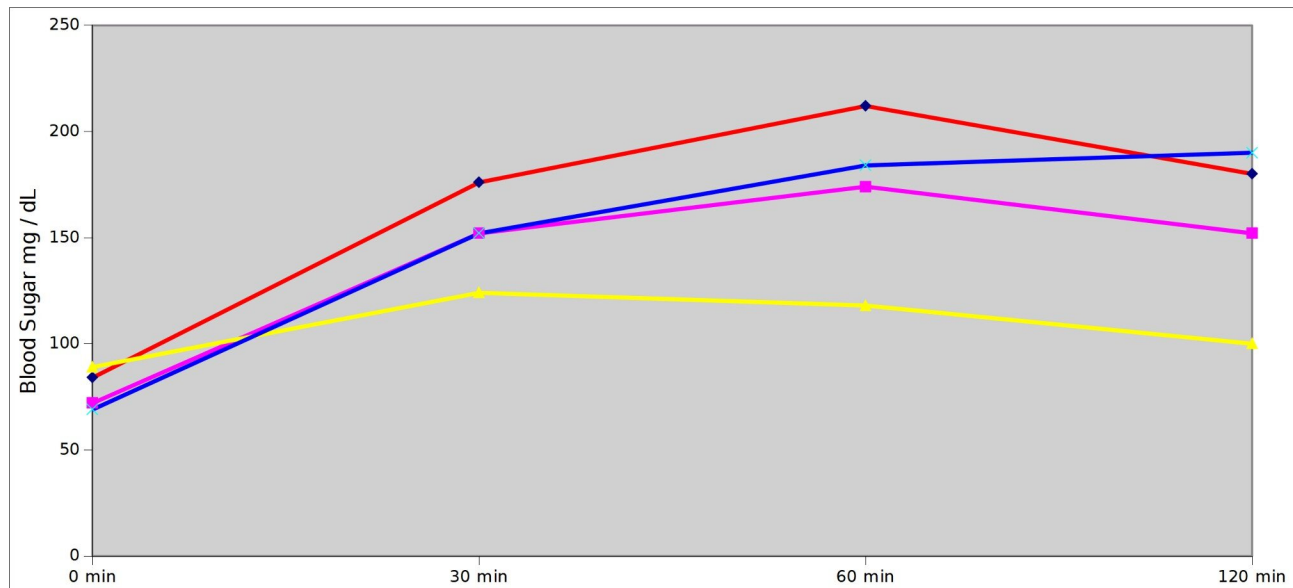
- Diabetes (2001) Effects of Intravenous and Dietary Lipid Challenge on Intramyocellular Lipid Content and the Relation With Insulin Sensitivity in Humans. |215|
- Diabetes (1999) Association of Increased Intramyocellular Lipid Content With Insulin Resistance in Lean Nondiabetic Offspring of Type 2 Diabetic Subjects. |216|
- Diabetologia (1999) Intramyocellular lipid concentrations are correlated with insulin sensitivity in humans: A 1H NMR spectroscopy study. |217|
- Diabetes (1999) Rapid impairment of skeletal muscle glucose transport / phosphorylation by free fatty acids in humans. |218|
- Journal of Clinical Investigation (1996) Mechanism of free fatty acid-induced insulin resistance in humans. |219|

Normally, insulin attaches to protein receptors on the cell's surface and signals the cell membrane to allow glucose to enter. If there is an accumulation of fat in the cell, it interferes with insulin's signaling process and glucose cannot enter the cell. Fat can accumulate inside muscle cells even in slim people. The real cause of type 2 diabetes is not an excess of sugar or carbohydrates. It is an

Dietary Deceptions

accumulation of fat inside the cells that interferes with the muscle cells' ability to respond to insulin. The muscle cells are unable to access glucose, which is required for energy production.

Dietary Factors That Influence The Dextrose Tolerance Test - Sweeny 1927



Sir Harold Himsworth (1905-1993)

Sir Harold Himsworth (1905–93) was a renowned medical doctor and researcher. He was appointed Professor of Medicine at the University of London in 1939. He is best known for his work on diabetes although he had many other interests including the effects of radiation, tropical medicine and epidemiology.

He was awarded a KCB in 1952 and in 1953 was appointed Honorary Physician to the Queen. He was elected a fellow of the Royal Society in 1955. [220][221]

Himsworth presented a paper in 1935,

Showing the different diets eaten by different races, nations and social classes throughout the world and a close correlation has been demonstrated between dietary preference and the incidence of diabetes mellitus. [...] A high proportion of carbohydrate and low proportion of fat were found in all cases to be associated with low diabetic incidence, whilst a low proportion of carbohydrate and a high proportion of fat were associated with a high incidence. [222]

Himsworth's conclusions after a lifetime of diabetic experimental work, research and study was:

It is now established that the sugar tolerance is impaired by starvation or the taking of diets with a high content of fat, whilst it is improved by taking diets containing an excess of carbohydrate. [223]

and

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In comparison with the diet of normal subjects, contained the same amount of protein, a diminished amount of carbohydrate and an increased amount of fat. It is pointed out that such a diet impairs sugar tolerance and sensitivity to insulin in nondiabetic subjects, and would favour the appearance of diabetes in the potential diabetic. |224|

This is in direct contrast with the popular views that high intake of carbohydrates are responsible for the alarming rise of diabetes.

Six Countries Study

Popular commentators frequently accuse Keys of manipulating data in his 1953 paper, *Atherosclerosis, A Problem in Newer Public Health*. This study is sometimes referred as the “*Six Countries Study*”.

A number of popular commentators think this is the *Seven Countries Study*—they count England & Wales as two countries.

This paper was presented in Amsterdam in late 1952 and in New York in January 1953.

On page 4 of this paper, Keys lists 16 countries (which includes France, The Netherlands, Switzerland, and Sweden) and compared their all-cause death rates to the United States for the age groups 40-44, 50-54 and 60-64 for males and female. The mortality data was for the years 1947–1949.

The only countries that have a higher all-cause mortality rate for males are South Africa for 50-54 years old and Portugal for 40-44 year old which have mortality rates of 102% and 139% of the US mortality rate respectively. Portugal’s mortality rate was attributed to tuberculosis and violence.

On page 17 of this 22-page paper there is a graph showing the mortality rate for degenerative heart disease and fat intake for six countries. The food data was obtained from FAO for the year 1949.



Yerushalmy and Hilleboe criticised this paper in the publication *Fat in the Diet and Mortality* from Heart Disease claiming that Keys only choose 6 countries (Japan, Italy, England & Wales, Australia, Canada, US) that supported his hypothesis instead of using the World Health Organization data from the 22 countries that was available. It is not mentioned where the data was available from.

The data for the 22 countries that Yerushalmy and Hilleboe listed were for the years 1951-1953, a period which is after the publication of Keys’s paper in 1953, and well after his presentation in Amsterdam in late 1952. The data was published by the WHO in 1956, so clearly the data was not available for Keys. It was the data from 1951-1953 that was used in Yerushalmy and Hilleboe’s paper in 1957.

Nina Teicholz has superimposed a completely different set of data onto Keys’s graph. Teicholz replaced the data for *England and Wales* with that of *Great Britain*.

The reason Keys did not submit the data shown by Teicholz because it was not available.

Dietary Deceptions

Teicholz changed the year in heading of the graph in her book, *The Big Fat Surprise*, to indicate that the data was from the year 1950, instead of the years 1951-1953. This gives the false impression that the data was available to Keys.



Keys used B-26 code with sub-categories 420 and 422 which relates to atherosclerotic heart disease and other myocardial degeneration. He left out sub-category 421 (chronic endocarditis not specified as rheumatic). Endocarditis is an infection of the inner lining of the heart chambers and valves.

Yerushalmy and Hilleboe acknowledged that this group appears to be the “most specific and relevant group.”

However, Yerushalmy and Hilleboe included sub-category 421 in their evaluations.

Yerushalmy and Hilleboe examined other groupings, including B-25 (chronic rheumatic heart disease,) B-27 (other diseases of the heart), and B-28 (hypertension with heart disease) to determine which grouping would “provide the most sensitive measure”.

Yerushalmy and Hilleboe were not disputing the correlations between heart disease and diet. They were disputing which categories and sub-categories of heart disease were most appropriate to compare.

Below are two tables that were published in Yerushalmy and Hilleboe’s paper. The first shows the correlations between total calories consumed from the dietary components and the second shows the percentage.

As a generalisation, 90% indicates a very strong correlation, 70-90% a strong correlation and 50-70% a moderate correlation. The claim that there is no correlation (even with all the countries included) is simply false.

Grouping of Categories of Diseases of the Heart				
Dietary Component	B-26	B-26 – B-27	B-26 – B28	B-25 - B28
<i>Number of calories</i>				
Total Calories	0.723	0.593	0.619	0.637
Calories from fat	0.659	0.470	0.508	0.523
• Animal fat	0.684	0.562	0.610	0.604
• Vegetable fat	–0.236	–0.282	–0.187	–0.186
Calories from protein	0.709	0.694	0.691	0.692
• Animal protein	0.756	0.695	0.708	0.708
• Vegetable protein	–0.430	–0.153	–0.197	–0.181
Calories from carbohydrate	0.305	0.423	0.390	0.411

and

Dietary Deceptions

Grouping of Categories of Diseases of the Heart				
Dietary Component	B-26	B-26 – B-27	B-26 – B28	B-25 - B28
<i>Per cent of total calories</i>				
Total Calories	0.723	0.593	0.619	0.637
Calories from fat	0.587	0.390	0.426	0.436
• Animal fat	0.677	0.557	0.640	0.604
• Vegetable fat	-0.468	-0.509	-0.526	-0.531
Calories from protein	0.472	0.465	0.421	0.411
• Animal protein	0.643	0.608	0.616	0.608
• Vegetable protein	-0.651	-0.483	-0.519	-0.411
Calories from carbohydrate	-0.562	-0.386	-0.415	-0.423

Note the correlations with heart disease and the following dietary components.

- Total calories consumed (72%)
- Total calories from fat (66%)
- Total consumption of animal protein (75%)
- Percentage of calories from vegetable protein (-65%)
- Percentage of calories from carbohydrates (56%)

That is, the greater the percentage of carbohydrates and vegetable protein results in less heart disease.

Popular commentators neglect that fact that the greatest correlation occurred with the consumption of animal protein. The fact that there are associations with each of the categories of heart disease, with the total amount of calories from animal protein, is clearly documented by Yerushalmy and Hilleboe.

Whilst Yerushalmy and Hilleboe states that there are strong associations between dietary protein and heart disease, they state that this does not imply that these dietary factors are implicated in heart disease.

Yerushalmy was later involved in a disagreement with researchers who claimed that women who smoked had lower birth-weight infants. He suggested that smoking was not the cause of the lower birth weight but a result of “*mode of life*” differences between the smoking population and non-smoking population.

According to Yerushalmy, [225]

In this case, that means that testing alternative hypotheses, such as the biological or ‘mode of life’ differences between smokers and nonsmokers, may explain the results. Indeed, compared with nonsmokers, smokers in the CHD study were less likely to use contraceptive methods, less

Dietary Deceptions

likely to plan the pregnancy, more likely to drink hard liquor, beer and coffee and more likely to indulge in these behaviours to a greater extreme.

Yerushalmy was also a consultant to the tobacco industry.

Far too much attention is paid to one page of a minor discussion paper from the early 1950s.

Inter-racial Survey in Cape Town

In 1955, Brian Bronte-Stewart, John Block (professor of medicine at University of Cape Town), Ancel and Margaret Keys and colleagues published a paper examining serum cholesterol, diet, income and cardiovascular mortality in Europeans, "Coloured" and Bantu groups in Cape Town.

|226||227||228|

They designed a study to investigate the relationship of diet and blood cholesterol in three distinct populations Cape Town.

Cape Coloured consisted of immigrants from several Asian countries (primarily from India, Pakistan, and Malaysia) and a group who were descendants of several groups of Europeans who migrated to South Africa beginning with the Dutch in the mid-1600s.

Race	Bantu	Mixed Race	European
Serum Cholesterol (mg/dL)	166	204	234
Serum Cholesterol (mmol/L)	4.3	5.3	6.1

Heart disease for Europeans was more than twice that of Cape Coloured and among Bantu it was "*exceedingly rare as a cause of death*".

Margaret Keys also measured the cholesterol in the alpha and beta fractions of blood. It showed the the increase in cholesterol occurred primarily in the beta fraction, which is now known as LDL cholesterol.

The levels in the α -lipoprotein fraction were almost identical for the groups at approximately 40 mg cholesterol per 100 ml.

Bantus of Southern Africa consumed maize, wheat, "kaffir corn" (sorghum), legumes such as "cow peas" (*Vigna unguiculata*), "sugar beans" (*Phaseolus vulgaris*), "Jugo beans" (*Voandseia subterranea*) which are the staple sources of energy. The consume a low fat diet with an intake of 19%-23% of energy.

This was the first study to show that the increase in LDL cholesterol was related to the consumption of animal fats.

Japanese Migration Studies

The 1954 congress of the International Society of Cardiology was held in Washington, DC. Dr Noboru Kimura, a young heart specialist from Japan had previously met Ancel Keys at Minnesota.

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His autopsies reports showed the heart health of the Japanese was much better than those in the US. |229|

Nils Larsen, as the head of physicians for the sugar plantations, indicated that that the Japanese were much less susceptible to cardiovascular disease than the white population. Both doctors were met with scepticism.

As a result, Paul White, Nils Larsen, Noboru Kimura, Brian Bronte-Stewart conducted surveys in Japan, Hawaii and San Francisco to study the cardiovascular health of Japanese after they migrated. Surveys were performed in 1955 and 1956.



Japan has the lowest mortality from coronary heart disease (CHD) of any industrialised country, and the USA has one of the highest CHD rates. |230|

Among men of Japanese ancestry, there is a gradient in the occurrence of coronary heart disease (CHD). It is lowest in Japan, intermediate in Hawaii, and highest in California.

Paul White spent a month in Fukuoka and on the island of Kyushu searching autopsy reports and only found one incident of heart disease. The man was a medical doctor who resided in Hawaii for thirty years before returning to Japan.

Source	Fat Calories (% of energy)	HDL Chol (mg/dL)	LDL Chol (mg/dL)
Shime	1.3	40.3	120.3
Honolulu	32.0	40.4	183.0
Los Angeles	40.0	35.2	212.7

Lipid intake from Shime (Japan), Honolulu and Los Angeles

Source	Japanese			Caucasians	
Location	Shime	Honolulu	Los Angeles	Honolulu	Los Angeles
Meat, Eggs and Dairy	3.3	20.2	28.1	33.7	28.0
Fish and Other Marine Animals	5.9	1.4	0.8	0.8	0.5
Vegetable Sources	2.8	10.2	10.2	6.7	13.9
Total	12.0	31.8	39.1	41.2	42.4

Food Intake as a Percentage of Total Energy Consumed

Japanese do have a high level of mortality from strokes due to a very high salt diet.

The article concludes,

The low incidence of atherosclerosis and coronary heart disease in Japan is clearly established. Among Japanese, as among other peoples, the incidence of coronary heart disease is directly related to the average level of serum cholesterol, and it is unnecessary to invoke racial or other factors in explanation.

Dietary Deceptions

The serum cholesterol level in Japanese men is directly related to the percentage of calories provided by fats in the diet. The effect of the fats is dominated by the saturated fats of meats and dairy products. Among Japanese, as in most of the world's populations, when the diet is increased in fats, this increase is mainly accounted for by increasing consumption of the more saturated types of fats, as represented in beef, pork and dairy products.

These findings do not constitute proof of the hypothesis that dietary fat is a major factor in the development of coronary heart disease. But the findings are consistent, in detail, with the theory.

The China-Cornell-Oxford Project

Colin Campbell was a nutritional biochemist at Cornell University. In the 1960s, he was involved in nutritional programs in the Philippines to help families provide for their critically undernourished children. Peanuts were one of their preferred sources of protein. It is a legume - great for improving the soil, easy to grow, and is nutritious and tasty. [231]

At the same time, children younger than 10, were dying at alarming rates from liver cancer. Normally liver cancer is an adult disease— and the children dying from the disease were from the most affluent suburbs in Manila. These are the families that could afford the best housing and the best food. Whilst in the Philippines, he read a paper in an obscure medical journal. Rats were fed aflatoxin— one of the deadliest carcinogens known. One group of rats was given a diet of 20% protein —and they all died of liver cancer. The second group was given a diet of 5% protein— and they all lived. 100% deaths compared to zero deaths. They were all fed aflatoxin— but only those rats that had a high protein diet died.

A 20% diet of wheat protein, gluten, or pea protein did not result in liver cancer deaths whereas casein, which comprises of 80% of the protein found in cow's milk, and albumin, which is found in egg white, did result in liver cancer deaths. Plant-based diets are often considered to be lysine deficient. However, adding the amino acid lysine to the wheat protein to match the level found in casein also resulted in cancer deaths.

Significantly, peanuts and corn in the Philippines were often contaminated by aflatoxin— and the wealthy ate Western-style diets, one rich in protein. A few years later, in the early 1970s, the premier of China, Chen En-lai, was dying of cancer. Late in his life, he instigated a survey of cancers, heart disease, and infectious diseases throughout China.

As a result, the China Atlas was produced, which shows the mortality rates in more than 2,400 counties. Some regions showed cancer rates over 100 times greater than the counties with the lowest rates. To study these results, the China-Cornell-Oxford Project was formed.

The principle researchers were: Colin Campbell, professor of nutritional biochemistry at Cornell; Chen Junshi, Deputy Director of Institute of Nutrition and Food Hygiene at the Chinese Academy of Preventive Medicine in Beijing; Li Junyao of the China Cancer Institute; and the epidemiologist Sir Richard Peto from the University of Oxford. Li Junyao was one of the authors the China Atlas. Richard Peto is one of the world's leading epidemiologists.

Dietary Deceptions

Surveys were conducted in 1983– 1984 and 1989– 1990. The study consisted of 6,500 people in 65 counties which were associated with 26 provinces. In each county, two villages (xiang) were selected with 25 men and 25 women from different families selected from each village. Blood, urine, and food samples were obtained for analysis, questionnaires were completed, and three-day diet information was recorded. They looked at over 360 different health, lifestyle, and nutrition factors and found over 8,000 significant correlations.

Below are some comparisons of diets in rural China with average American diets.

Dietary Deceptions

Nutrient	China 232				U.S. Percentiles 233				
	Mean	Min	Median	Max	Mean	5	50	95	1
Energy Intake M (kcal/day)	2609	1707	2608	3578	2734				
Energy Intake F (kcal/day)	2406	1579	2433	3066	1841				
Carbohydrate M (g/day)	476	292	467	740	331	193	324	491	
Carbohydrate F (g/day)	429	256	433	588	239	135	233	364	
Fibre M (g/day)	17	4.8	14	44.7	18.6	8.1	17.8	30.1	
Fibre F (g/day)	12.7	4.8	11	38.8	14	6.3	13.1	25.3	
Protein M (g/day)	64.6	42.2	64.3	98.7	98.6	67	103	151	2
Protein F (g/day)	59.1	40.7	58.1	82.8	67	14	66	101	
Animal Protein / Protein M (%)	8.4	0.3	6.8	32.8	68				3
Animal Protein / Protein F (%)	12.2	0	8.6	47.5	65				
Fat / kcal M (%)	14.6	5.9	14.3	25.4	33				
Fat / kcal F (%)	18.3	7.4	18.4	32.6	32.9				
Sat Fat / Fat M (%)	11.85	3.27	11.67	28.26	32				
Sat Fat / Fat F (%)	13.91	5.18	13.23	28.18	32				
Vitamin C M (mg / day)	142.5	10.4	128.3	429.4	102	29	89	225	
Vitamin C F (mg / day)	120.2	28.9	111.4	344.9	77	26	68	158	
Calcium M (mg / day)	543	241	514	923	1021	446	961	1802	
Calcium F (mg / day)	543	352	519	1056	955	414	722	1206	
Iron M (mg / day)	34.3	17.1	34.3	59.3	18.5	10.4	17.7	29.3	
Iron F (mg / day)	32.5	14.7	32.5	50.6	13.1	7.6	12.4	20.7	
Fat M (g / day)					96.2				
Fat F (g / day)					69.0				
Sat Fat M (g / day)					30.9				
Sat Fat F (g / day)					22.3				

- (1) For the China statistics, the min and max values represent the average of the counties with the lowest and highest values. A percentile of 5% indicates the value, below which 5% of the observations may be found.
- (2) The U.S. values calculated from g/ kg body weight values using 76 kg weight for males and 61 kg for females.
- (3) Of the 65 counties, 42 counties had plant / animal protein ratio of 90% or greater, 27 counties were 95% or greater and 14 counties were 98% or greater.

Even allowing for greater physical activity in China, the Chinese consume more calories but weigh significantly less. Total energy intake in rural China was about 30% higher per kg of body weight than in the U.S. Despite this, obesity was far less prevalent in China than in the U.S. Iron consumption was much greater in the Chinese population, despite consuming less animal products. Fibre intake is significantly higher whilst fat, protein, and animal-based foods are less.

Dietary Deceptions

Breast cancer is much less common in rural China. It was significantly associated with dietary fat and higher levels of reproductive hormones such as estrogen and testosterone as a result of high meat and dairy rich diets found in Western countries.

The China-Cornell-Oxford Project [234] shows that a higher level of dietary fat and animal-based animal-based foods is associated with higher blood cholesterol. These factors are associated with a higher life-time exposure to female hormones, which are associated with more breast cancer and earlier age of menarche. The range for the villages in the study was fifteen to nineteen years, with an average of seventeen years. The U.S. average was about eleven years. These findings also support the idea that young girls on Western-style diets reach menarche more quickly due to increased growth rates. They sustain higher levels of steroid hormones during their reproductive years, extend their time for menopause, and incur a higher risk of breast cancer.

Colon and rectum cancers in China are much less common than in the United States. These cancers are associated with lower intakes of a wide variety of dietary fiber components only found in plant based foods.

Stomach cancer is much more common in China than in the U.S. because of the effects of *Helicobacter pylori* infection upon the stomach wall. This bacteria is also associated with stomach ulcers.

Liver cancer is about 30 times more common in China than the U.S. due to hepatitis infections.

The consumption of animal products and subsequent increase of blood cholesterol levels result in a higher level of IGF-1 related cancer risk. One of the chief findings was its significant correlation with breast cancer mortality with dietary fat over a range of 6-24% of calories consumed, although this range is much less than that of Western countries. Even at this relatively low range, the greater the consumption of fat, the higher the incidence of breast cancer.

Other significant findings are the positive association of animal protein with blood cholesterol (both total and LDL) and the inverse association with blood cholesterol and with plant protein.



There is a wide variation of environments, from the freezing plains of Inner Mongolia to the island of Taiwan.

The nomadic people of Inner Mongolia consumed wheat, rice, potatoes, garden vegetables, mutton, beef, horse meat, milk, butter, chicken and eggs. There is significant seasonal variation in the diet when they migrate to valleys where they consume more green vegetables and fruits than the high-meat diet when they are living in the arid regions with very little consumption of fruit or vegetables.

The lowest serum cholesterol value was 80 mg/dL (2.1 mmol/L) from a xiang in the central province of Sichuan. The highest 181 mg/dL (4.7 mmol/L) from a xiang in the coastal province of Fujian. The island of Taiwan lies off the coast of Fujian.

Of the 65 counties, 42 counties had plant / animal protein ratio of 90% or greater, 27 counties were 95% or greater and 14 counties were 98% or greater.

Dietary Deceptions

Seven Countries Study

Ancel Keys and colleagues posed the hypothesis that differences among populations in the frequency of heart attacks and stroke would occur as a result of physical characteristics and lifestyle and diet. Surveys were carried out between 1958 – 1970 in populations of men aged 40-59, in sixteen areas of seven countries. Follow-up surveys were continued until the 1990s. Most of the areas were stable and rural and had contrasts in their usual diets. [235][236][237][238][239][240]

Preliminary studies were carried out in Nicotera and the Greek island of Crete in 1957. Nicotera is a small village on the Tyrrhenian coast, 120km from the southern toe of Italy.

Preliminary studies were also performed in Hawaii in 1956 and 1957 with American men of European background being compared with Japanese living in Japan and Hawaii. The Japanese, who consumed a traditional Japanese diet had cholesterol levels of 4.1 mmol/ L (160 mg/ dL) whilst Americans in Hawaii had similar cholesterol to those on the mainland.

Women were excluded because cardiac disease was less common and because of the invasiveness of physical examinations. The *Seven Countries Study* was the first to explore associations among diet, risk, and disease in contrasting populations. Central chemical analysis of foods consumed among randomly selected families in each area, plus diet-recall measures in all the men, allowed an effective test of the dietary hypothesis. The study was unique for its time, in standardisation of measurements of diet, risk factors, and disease; training its survey teams; and central, blindfold coding and analysis of data.

The study areas were:

- US railway employees in the mid-west and northwest of the US.
- Two contrasting regions in east and south-west Finland – a inland rural village in North Karelia near the border with Russia and a rural region, Loima, in the south-west of the country.
- Zutphen in the Netherlands
- Crevalcore in northern Italy, Montegiorgio which is more “Mediterranean” and a railway employee group from Rome.
- two areas in Croatia in the former Republic of Yugoslavia. Dalmatia which consisted of a number of villages along the Adriatic Sea and Slavonia which consisted of villages centred on Dalj. Dalj is on the Danube River on the border with Serbia in the east of Croatia.
- three areas in Serbia, also in the former Republic of Yugoslavia – faculty members of the University of Belgrade, Zrenjanin, an agricultural-industrial cooperative north of Belgrade and Velika Krsna, a rural village south of Belgrade.
- two areas in Greece – consisting of villages along the northern coast of Crete and a northern area of Corfu.
- two contrasting areas on the island of Kyushu in southern Japan – Tanushimaru, a farming community and Ushibuka, a fishing village.

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A total of 12,763 men aged 40-59 were enrolled in the program with a participation rate of over 90%.

Food questionnaires are unreliable. The *Seven Countries Study* collected actual foods eaten for a full week among randomly selected families and chemically analysed their nutrient content in the standardised laboratory in Minnesota. Repeat food collections were scheduled in different seasons during different years to provide a valid estimate of the nutrients consumed by an entire population.

Personal data collected included:

- serum cholesterol
- demographic factors including occupation
- smoking, physical activity and dietary pattern
- medical history
- height, weight, skinfold measurements, mid-arm circumference
- blood pressure
- heart and lung auscultation, peripheral pulses, fundus [eye] examination
- electrocardiogram and resting heart rate

Follow-up examination surveys after five and ten years were part of the initial plan and were performed in all regions except for the 5-year examination in Japan and the 10-year examination of the U.S. railroad personnel.

The follow-up surveys were continued until the 1990s.

Ansel Keys wrote *Seven Countries: A Multivariate Analysis of Death and Coronary Heart Disease* (1980), a 380-page book, which documented the results of the 10-year follow-up. There was a significant correlation between the 10-year incidence of coronary deaths and the percentage of saturated fat in the diet ($r = 0.84$). The relationship between the 10-year incidence of coronary deaths and the percentage of total fat in the diet is not nearly as significant ($r = 0.50$).

The differences found in the Seven Countries Study were partly explained by differences in the blood pressure, serum cholesterol, and the typical diets of the cohorts.

Note the Keys used the word partly in his overview of the conclusions following the ten-year follow-up.

Cardiovascular risk factors were also examined by repeat surveys in nine European regions after 25, 30, 35, and 40 years follow-up. The *Seven Countries Study* provided evidence: for the concept of sick and healthy populations; that the major cardiovascular risk factors are universal; for the diet-heart hypothesis; that cardiovascular disease is preventable; and that a healthy lifestyle may promote different aspects of health.

According to Harry Blackburn, one of the collaborators in the study.

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The Seven Countries Study provided evidence confirming the original hypotheses, that elevated mean blood cholesterol levels and intake of saturated fatty acids is a major and apparently necessary factor in the population burden of atherosclerotic diseases. Populations with saturated acid intake less than 10 percent of daily energy have little coronary heart disease or thrombotic stroke despite widely varying total fat intake or usual levels of blood pressure or high rates of tobacco use. Multivariate analysis of population rates and risk factors reveal that diet and smoking “explain” most of the differences in population rates and that the “standard” CVD risk factors operate universally within populations.

Roy Swank and Multiple Sclerosis

Roy Swank discovered a dietary connection with multiple sclerosis in the late 1940s following studies in Norway. He instigated a study that followed a group of multiple sclerosis patients for 34 years. He wrote a book, *The Multiple Sclerosis Diet Book: A Low-Fat Diet for the Treatment of M.S.* |241|

No other treatment plan has come close to achieving the results that Swank achieved.

Roy Swank was born in 1909 in Washington, USA. He obtained a Bachelor of Science from University of Washington in 1930 followed by a medical degree in 1935 as well as PhD in anatomy. He worked at Montreal Neurological Institute which resulted in trips to Norway.

In 1954, he returned to his native state, where he worked, for the rest of his long life, as the head of the Division of Neurology at Oregon Health & Sciences University. |242|

This is how Swank described the development of MS in a patient.

These people are all energetic before they get the disease—they are driven people, always wanting to be busy. Once they get the disease they can't be that active. So fatigue becomes a very important symptom. Then they begin to have neurologic symptoms, with repeated exacerbations, until they become quite disabled. They may have double vision or blindness at one time or another. They may lose control of their bladder, arm or leg. There is usually a partial recovery from these attacks, but they reoccur and become more severe. Soon patients have difficulty walking, they lose their balance and become clumsy; they have numbness and tingling, and sometimes burning. These things continue on and the course is steadily downhill.

At about 10 to 15 years they often end up confined to a bed or wheelchair. Because of the disability and fatigue, they lead a very frustrated life. Patients go from a cane to a wheelchair to bedridden. Only about 5 to 10% of patients have a milder type of disease that does not result in this gloomy future. |243|

Swank continues, describing how he came to the conclusion that multiple sclerosis is caused by diet. Note that this was in the 1950s.

At that time doctors thought MS had something to do with geography, because as you got further away from the equator the disease became more common. Scientists thought it might be due to magnetic fields, but I reasoned it could be a matter of food. The further north you go, the less vegetarian people become, and the more carnivorous they are. Looking at the literature and going over the United Nations food intake throughout the world after WW II, it was quite obvious that multiple sclerosis and heart disease both occurred in areas where large amounts of

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saturated (animal) fat were consumed. It was surprising to find that those populations with a high incidence of MS were those who consumed more than 100 grams of fat a day; where the disease was uncommon they consumed less than 50 grams of fat a day.

For example, there was no MS in the Orient. I soon discovered that during World War II people in Western Europe, when food was scarce, had less MS and fewer attacks if they already had the disease. People living in prison camps during the war had no MS, but when they got out and returned to meats and dairy products they started developing MS.

At one point we did a survey in Norway, which showed a high incidence of the disease in the small dairy farming areas in the mountains where the fat intake was very, very high. Along the coastal fishing villages, the saturated fat intake was very low, and they had very few cases of multiple sclerosis. When you compared the two areas there were eight times as many MS cases in those mountainous, high-saturated-fat consuming areas than along the coast where they were primarily fishermen.

One McDonald's Big Mac with 2 meat patties contains 8 g of saturated fat and 52% of energy is derived from fat. [244]

Swank followed 150 patients with multiple sclerosis over a period of 34 years between the years of 1949-1984.

Minimally disabled patients who followed diet recommendations deteriorated little if at all, and only 5% failed to survive the 34 yr of the study, whereas 80% who failed to follow diet recommendations did not survive the study period. [...] In general, women tended to do better than men. [245]

Swank does note that,

But, they have to follow the diet strictly because even small amounts of fat make a big difference. In the study we published in *The Lancet* in 1990, we found that a difference of eight grams of saturated fat intake daily resulted in a threefold increased chance of dying from multiple sclerosis. [246]

As Swank explains, his findings do not generate much interest.

Most people in this country expect to be cured by a pill, and have a cure that is almost instantaneous. With the low-fat diet, the people actually have to work to get better, and have to cure themselves. And as far as the MS Society, John, they don't mention it because they didn't discover it. It wasn't their research dollars that found this treatment. So they're not going to tell anybody. I discovered it in my small office here, in the basement of the University of Oregon Medical School. [247]

A study examined the relation between the mortality rates from multiple sclerosis for the years 1983-1989 obtained from 36 countries, and the intake of dietary fat and latitude. The more saturated fatty acids, animal fat, animal minus fish that people consumed resulted in an increase in multiple sclerosis mortality. [248]

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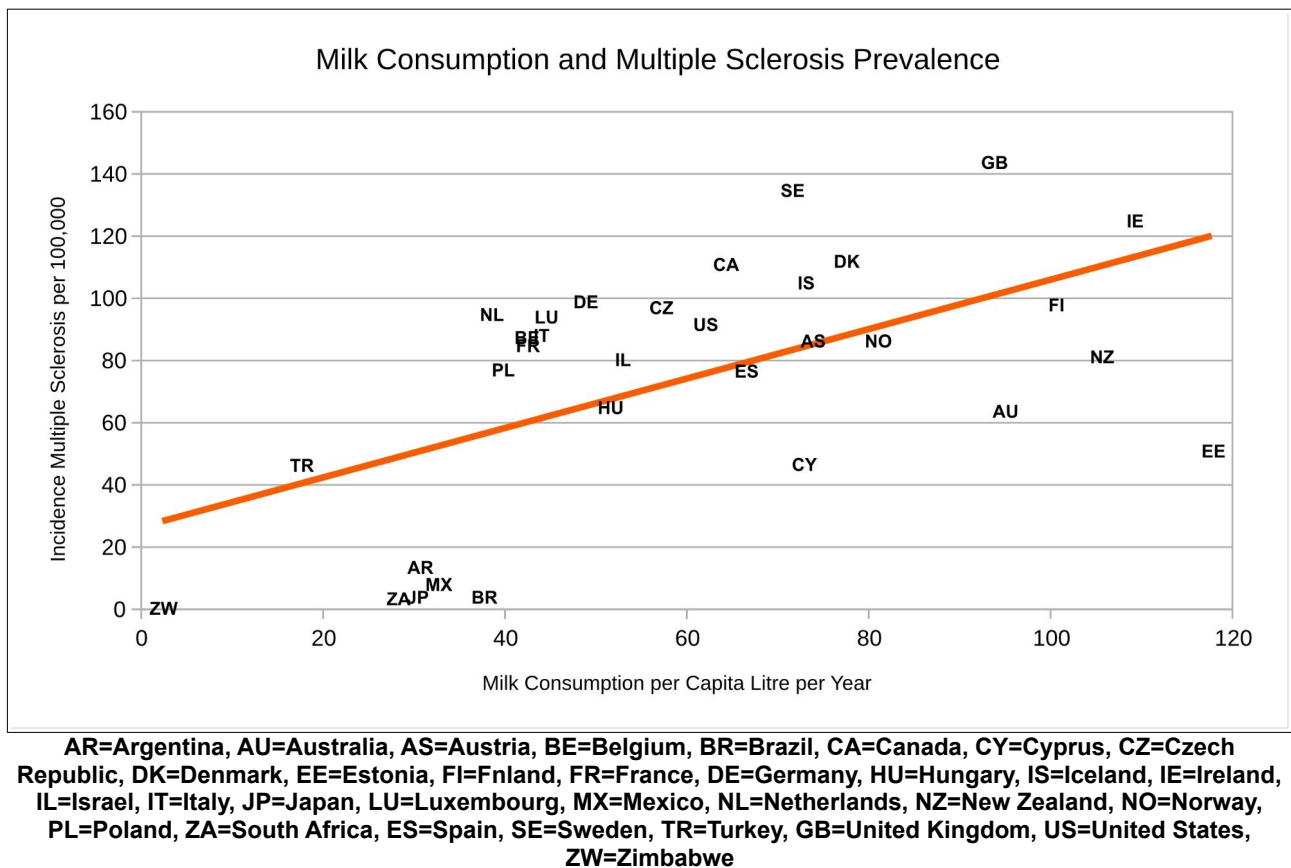
The higher the ratio of polyunsaturated fatty acids to saturated fatty acids (P/S ratio) and the ratio of unsaturated fatty acids to saturated fatty acids (U/S ratio) resulted in a decrease of multiple sclerosis mortality.

Canadian Milk, a government department, publishes milk, butter and cheese consumption by country. |249|

Using multiple sclerosis mortality data coefficient of determination (r) of of 57%, 50% and 31% was found with milk, cheese and butter., respectively. |250|

A coefficient of correlation (r) of 80% or greater indicates a strong correlation between the independent variable and the dependent variable. A coefficient of correlation (r) between 20% and 80% indicates a good correlation between the variables. A coefficient of correlation (r) of less than 20% indicates a weak correlation between the variables.

Below is a graph of twenty countries showing the relationship between dairy consumption and multiple sclerosis.



Ancel Keys and his colleagues found similar results for heart disease in the *Seven Countries Study*. In 1973, Finland had a highest country death rate for men from cardiac heart disease and North Karelia had the highest rate in Finland. North Karelia is an inland farming community on the border

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with Russia. There was a significant difference in heart disease mortality rates in North Karelia in the east and the coastal fishing regions on the west coast. |251|

Comparison of Plant and Animal Protein

Lysine and Arginine

Lysine is an indispensable dietary amino acid for all vertebrates and is required for protein synthesis. |252|

The arginine requirement is influenced by many factors that vary between species. There is an antagonism that can occur between lysine and arginine in some species where excessive intakes of one of these amino acids will adversely affect the metabolism of the other amino acid thereby increasing its requirement.

Lysine is a dietary indispensable amino acid in all species that have been studied.

Lysine is the first limiting amino acid in most grain and cereal-based animal diets so it also defines the protein intake required to meet the amino acid requirements. The protein requirement for most species is the protein intake required to meet the need for lysine.



David Kritchevsky was one of the early investigators of the relationship of cholesterol and heart disease in the 1950s. He linked different types of proteins to heart disease, determining that protein of animal origin leads to an increase of cholesterol in the blood. |253||254|

Casein is a protein found in all milk from mammals.

The addition of lysine to soy protein, sufficient to change its normal lysine/arginine ratio to that of casein, significantly increases its atherogenicity.

Addition of arginine to casein to lower its lysine/arginine ratio to that of soy protein decreases its atherogenicity.

Foods high in lysine include meat, poultry, fish, cheese, yoghurt and eggs. Wheat and oats are relatively low in lysine.

Another 1997 study suggests that low lysine diets as measured by the low lysine to arginine ratio “exert hypocholesterolemic effects”. |255|

Leucine and Telomeres

Leucine is an amino acid that is much more prevalent in animal-based diets than plant-based diets. The leucine is found in the high concentrations, measured in grams per kCal of energy, in beef (0.021), egg white (0.021), isolated soy protein (0.020), poultry (0.018) fish (0.018), spirulina (0.017), lamb (0.014) Parmesan cheese (0.010), tofu (0.008), soy beans (0.007). |256|

Aglets are the caps on shoelaces that stop them from unravelling. Our chromosomes have telomeres that perform the same function - they stop our chromosomes from unravelling. The longer they are, the longer the cells survive and the longer we live. An animal-based diet results in shorter telomeres than those on a plant-based diet. Leucine is the amino acid responsible for this. |257|

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Another 2013 paper also implicates leucine in the ageing process because of the effect it has on our telomeres. |258|



Caloric restriction is the most reliable intervention to prevent age-related disorders and extend lifespan. The reduction of calories by 10-30% compared to an ad-libitum diet is known to extend the longevity of many species including yeast, worms, fruit flies, cows, dogs, rhesus monkeys as well as humans. |259|

Caloric restriction is not very popular. We get hungry and grumpy.

An easier way to achieve the same effect is protein restriction - or at least limit the amount of protein from the 16% of total energy that is consumed in the average US diets. More specifically, it is the restriction of leucine that is mostly responsible for this result. |260|



A 2011 paper implicates leucine in the development of diabetes and an increased risk of “various” cancers”. |261|

A 2012 paper implicates leucine in the development of diabetes and obesity. |262|

Methionine

Animal foods contain about four times as much methionine compared with plant-based foods.

Major sources are eggs, cheese, fish, beef, pork and poultry. It is an essential amino acid that is also contained in seeds, oats and beans. The high level of sulphur produces rotten egg gas when eggs decay.

Methionine in the diet is metabolised into homocysteine and sulphur dioxide. One effect of this is to increase the acidity of the blood.

Reference range for homocysteine is less than 12 $\mu\text{mol} / \text{L}$. An optimal level is probably 8 $\mu\text{mol} / \text{L}$ or less.

Comparison of Dairy Milks with Human Milk

The Problem With Cow's Milk

The name Casein is derived from the Latin word for cheese. Casein is the curds portion of milk (as in curds and whey) which is insoluble portion that is formed in acid conditions or by the action of rennin.

The main nutritional function of casein is the transport of calcium and phosphorus. Fast growing species (rodents and cattle) have a much higher casein content than humans and elephants which are slower growing. |263|

Casein is only found in milk whilst whey proteins are also found in the blood.

Digestion of casein curds is much slower than that of whey proteins.

Since casein is insoluble in water, it forms globules (micelles) which vary in size and composition according to species.

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With its smaller micelle size, human milk precipitate is finer and more easily digestible than the firm curds of cow's milk. They contain less calcium and phosphorus than that of cow's milk.

The need for protein is the greatest in the first year of life. Human milk contains only 6-8% of protein (by energy). This is the lowest of any mammal that has been studied. Other dairy species contain approximately 20% protein.

The amount of casein as a proportion of protein is lower in humans than other dairy species. This varies throughout lactation. Whey to casein ratios vary from 80:20 in early lactation to 50:50 in late lactation. [264]

The amount of lactoferrin is higher in humans than other species. In humans, 30% of whey proteins is lactoferrin compared with 2% in cows. As well as providing iron, lactoferrin has antimicrobial activity and is important in growth of beneficial bacteria. Many other factors in human milk are also involved in immune response.

It is fascinating that breast milk contains a significant concentration of amylase. Amylase is involved in the digestion of starches which are not present in milk. This suggests that breast milk aids in the digestion of complex carbohydrates when solids are introduced. This is consistent with the view that starches are important in human nutrition. [265]

Skin and intestinal reactions to cow's milk was described by Hippocrates (460-370 B.C.) and Galen of Pergamum (130-210 AD). Both are ancient Greek physicians so there has been an awareness of problems with cow's milk for a considerable period of time.

Cow's milk is the most common form of allergic reactions, although the actual prevalence is disputed.

Digestion of Cow's Milk

In cattle, digestion of casein proteins is initiated by rennin, which produces a curd. In humans, since rennin is not present, curds are not formed. The precipitate formed from human milk is much finer and softer and easier to digest.

Casein from cows binds to bile acids which limits the ability to make fatty acids soluble. Calcium, iron, zinc magnesium and magnesium bind to casein which possibly limits their availability.

There is a considerable difference in the content of cows milk and human milk. A lot of effort is involved in "humanising" cows milk for use in baby formula so that it is suitable for consumption. [266]

The net protein utilisation of whey protein, irrespective of source, is superior to that of casein, 95% compared to 80%. A significant amount of effort has been made in "humanising" cow's milk infant formula. The amino acid profile of pre-term newborn babies fed a whey-predominant formula more closely resemble those of breast-fed infants. [267]

Babies fed a casein-predominant formula have:

- higher levels of blood urea nitrogen
- higher levels of amino acids phenylalanine, methionine, tyrosine

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- lower levels of taurine and cystine
- higher levels of ammonia
- lower serum pH – blood is more acidic

Since the 1950s, it has been known that “that breast-fed babies are relatively resistant to gastroenteritis”. Breast-fed babies have greater amounts of *Lactobacillus* due to higher levels of lactose, low protein and low phosphate content. [268]

β-Casomorphins

Casomorphins are formed from casein when mammal milk is digested. They bind to opiate receptors which results in calming the infant and most likely assists in bonding with the mother.

A 2009 paper studying the effects of breast feeding on motor development, showed that elevated levels of antibodies to bovine β-casomorphins-7 was associated with a “*a risk factor for delay in psychomotor development and other diseases such as autism*”. The study concluded that “*breast feeding has an advantage over artificial feeding for infants’ development during the first year of life*”. [269]

Bovine β-casomorphins has also been associated with apnoea (the suspension of breathing) and sudden infant death syndrome (SIDS). [270]

Recently, significantly higher levels of bovine β-casomorphins have been detected in the urine of children that have impaired early child development. Their hypothesis is that casomorphins interact with opioid and serotonin receptors and thereby “*setting the stage for autistic disorders*”. [271]

Lactose Intolerance

Milk is toxic to approximately 75% of the world’s population. [272]

Adults do not produce the enzyme lactase which is required to break down lactose (milk sugar). Children have this ability but the ability is lost by 7 or 8 years. [273]

The production of cheese and yogurt around 9,000 BCE in the Middle East, allowed adults to consume dairy products without the ill-effects of bloating and diarrhoea.

By approximately 5,500 BCE, herders reached central Europe, a genetic mutation allowed lactase to be produced into adulthood, allowing milk to be consumed without discomfort.

As well as northern Europe, western Africa (Algeria, Mauritania, Senegal, Guinea), Arabia, Pakistan & Gujarati have independently developed populations that are lactose tolerant as adults.

Lactose comprises of two simple sugars: glucose and galactose.

Research funded by The National Dairy Promotion and Research Board, and the US Department of Agriculture, tested a treatment for lactose intolerance by feeding patients with *Lactobacillus acidophilus*, which is found in yogurt. The study failed to show that *Lactobacillus* had any benefit. [274]

Since galactose is routinely used by researchers to promote ageing in animal experiments, it is apparent that evolution (or nature, if you prefer) has a good reason to ensure that our consumption of galactose is limited.

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Differences in Protein Composition

Milks are complex lipid emulsions in water containing protein, fat, lactose, vitamins and minerals, as well as enzymes, hormones and immunoglobulins which provide initial immunity functions.

There is approximately 5,500 species of mammals which initially supply their young with milk. There are vast differences in milk composition among the mammal species.

Species	Protein % Energy	Fat Energy	Carb % Energy
Human	6	56	38
Monkey	13	52	35
Goat	20	51	30
Pig	20	64	17
Cow: Ayrshire	21	53	27
Horse	22	29	49
Rat	24	70	6
Sheep	25	54	21
Rabbit	26	69	5
Cat	28	63	9
Dog	30	59	12
Kangaroo	57	43	0

Mammals provide milk for their growing infants that provide a unique collection of proteins, carbohydrates and fats.

Human milk is markedly different to other mammals, in particular to its protein content.

Proteins in human milk provide sufficient of protein to sustain infants for the first six months without any additional food, as well as supplying the means of establishing suitable environment for the growth of healthy intestinal bacteria.

Mammals have evolved over millions of years to provide nutrition for their infants in the first stage of life. There are significant difference between species depending upon factors such as rates of growth.



With its smaller micelle size, human milk precipitate is finer and more easily digestible than the firm curds of cow's milk. They contain less calcium and phosphorus than that of cow's milk.

The need for protein is the greatest in the first year of life. Human milk contains only 6-8% of protein (by energy). This is the lowest of any mammal that has been studied. Other dairy species contain approximately 20% protein. Rats, needing to grow from babies to adults in only six weeks, have a much greater protein requirement.

The amount of casein as a proportion of protein is much lower in humans than other dairy species.

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The amount of lactoferrin is higher in humans than other species. In humans, 30% of whey proteins is lactoferrin compared with 2% in cows. As well as providing iron, lactoferrin has antimicrobial activity and is important in growth of beneficial bacteria. This is additional evidence that red meat is not required to meet out iron requirements. |275|

It is fascinating that breast milk contains a significant concentration of amylase. Amylase is involved in the digestion of starches which are not present in milk. This suggests that breast milk aids in the digestion of complex carbohydrates when solids are introduced. This is consistent with the view that starches are important in human nutrition. |276|



Next time someone asks where do you get your protein (or iron or calcium), tell them you get them from leafy greens – similar to elephants, mountain gorillas, aurochs and the brontosaurus.

Nutrient	Units	Soy	Kale	Mushroom	Chickpeas	Potato	Pumpkin	Tomato	Wheat	Rye
Energy	kcal	141	28	29	164	78	20	18	339	338
Protein	g	12.35	1.9	3.28	8.86	2.86	0.72	0.95	13.68	10.34
Energy from protein	%	35%	27%	45%	22%	15%	14%	21%	16%	12%

Human milk is supplied to babies when the need for protein is at the greatest. Babies double in size during the first 6 months of our lives. The ideal food for a baby is mum's milk where 5% – 6.5% is protein. This should offer reassurance that as long as we a consuming an adequate diet, we so not need a high protein diet.

As the very quotable Mark Twain once wrote, "Truth is mighty and will prevail. There is nothing wrong with this, except that it ain't so."

Protein Quality

There are a number of indices that measure protein quality: Amino acid scoring, PDCAAS, Biological Value, net protein, utilisation, protein efficiency ratio.

Vegetarian and vegan diets score poorly on these measures.

Dr D Joe Millward of the Centre for Nutrition and Food Safety at the University of Surrey, examined the following question along with the answer. |277|

The question posed is: are the meat-free or low-meat plant-based diets consumed currently by minorities of vegetarians in the developed world and the majority of populations of the developing world adequate as sources of protein and amino acids for the various age-groups consuming them?

Plant protein sources provide 65 % of the world supply of edible protein, with cereal grains (47 %) and pulses, nuts and oil seeds (8 %) as the other major sources. Plant protein sources in the developed countries constitute a lower proportion of intake compared with animal protein, but are the major source in the developing countries, with cereals predominant.

Of the cereals, wheat (43 %), rice (39 %) and maize (12 %) are the main contributors.

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It is nevertheless the case that the misconception persists that they are nutritionally inferior to animal proteins.

Heart Disease in 20 Countries

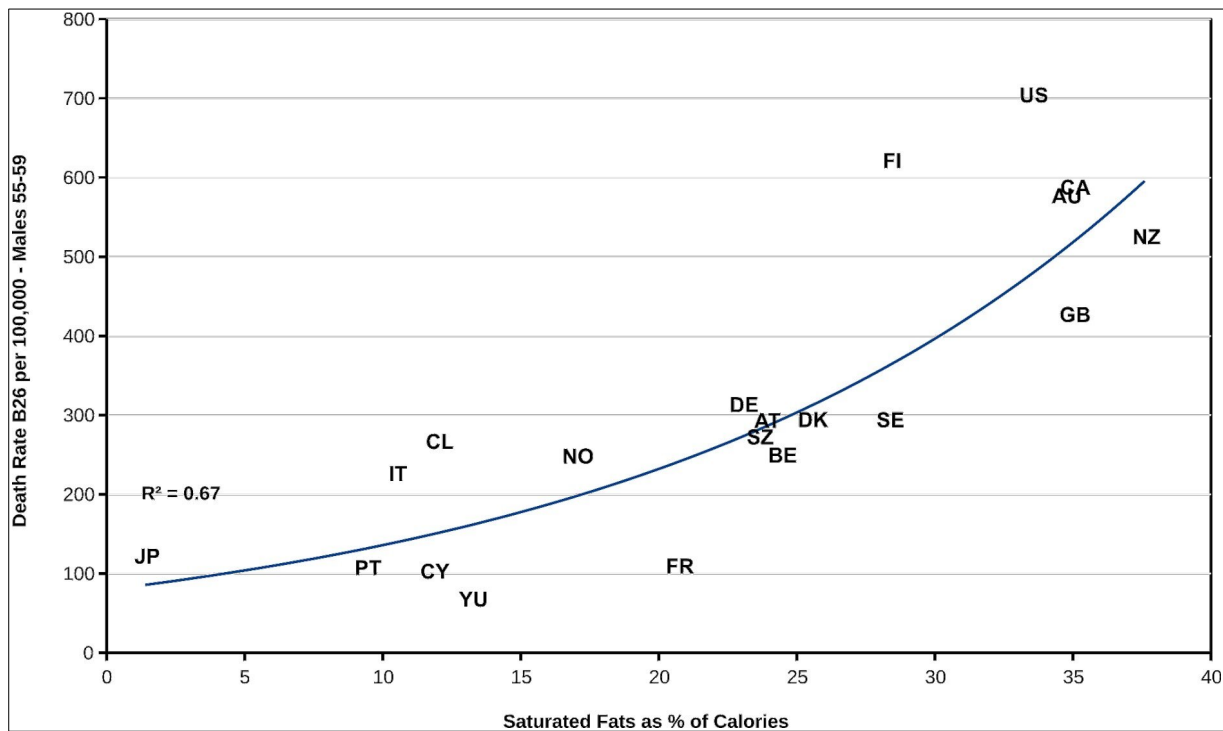
In 1959, Norman Jolliffe and Morton Archer published a paper, *Statistical associations between international coronary heart disease death rates and certain environmental factors*, that examined Yerushalmy and Hilleboe's conclusions. [278]

Jolliffe and Archer state that Yerushalmy and Hilleboe erred in disregarding the distinction between saturated fat and polyunsaturated fat, in relation to heart disease. This distinction was not known when Keys wrote his original paper. Jolliffe and Archer state that,

The intake of saturated types of fat was most important in accounting for the differences in coronary heart disease death rates. Of somewhat lesser importance, the *intake of animal protein* also accounted for a large proportion of the explained variance in these death rates.

Norman Jolliffe published data for death rates of B-26 category of deaths. B-26 category referred to *Arteriosclerotic and degenerative heart disease*. Jolliffe used data for 20 countries from *World Health Organization: Annual Epidemiological and Vital Statistics* for the year 1955.

Dietary Deceptions



AT Austria; AU Australia; BE Belgium; CA Canada; CL Chile; CY Ceylon; DE Germany; DK Denmark; FI Finland; FR France; GB United Kingdom; IT Italy; JP Japan; NO Norway; NZ New Zealand; PT Portugal; SE Sweden; SZ Switzerland; US United States; YU Yugoslavia

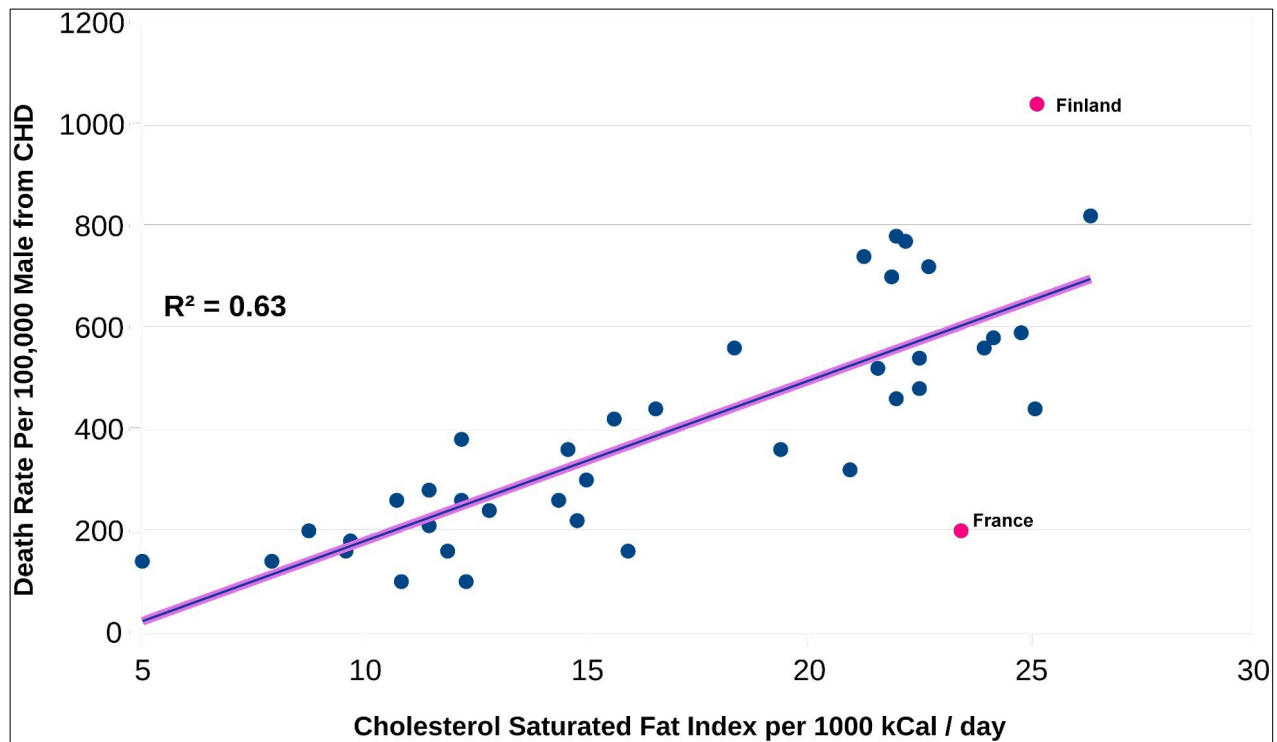
The graph shows an exponential correlation between the death rate and saturated fat consumption. The coefficient of determination (R^2) is 0.67, which is a significant correlation. A similar correlation ($R^2 = 0.66$) exists with the death rate and animal protein consumption. [279]

Coronary Mortality in 40 Countries

Artaud-Wild and colleagues et al (1993), [280] using data from 40 countries, showed a strong correlation with the Cholesterol-Saturated Fat Index per 1000 kcal/ day. [281]

Even though Artaud-Wild is the lead author of this paper, it is known as the Connor study with William and Sonja Connor being two of the contributors.

Dietary Deceptions



However, France and Finland were outliers in this correlation with Finland having a higher than expected death rate and France a lower rate.



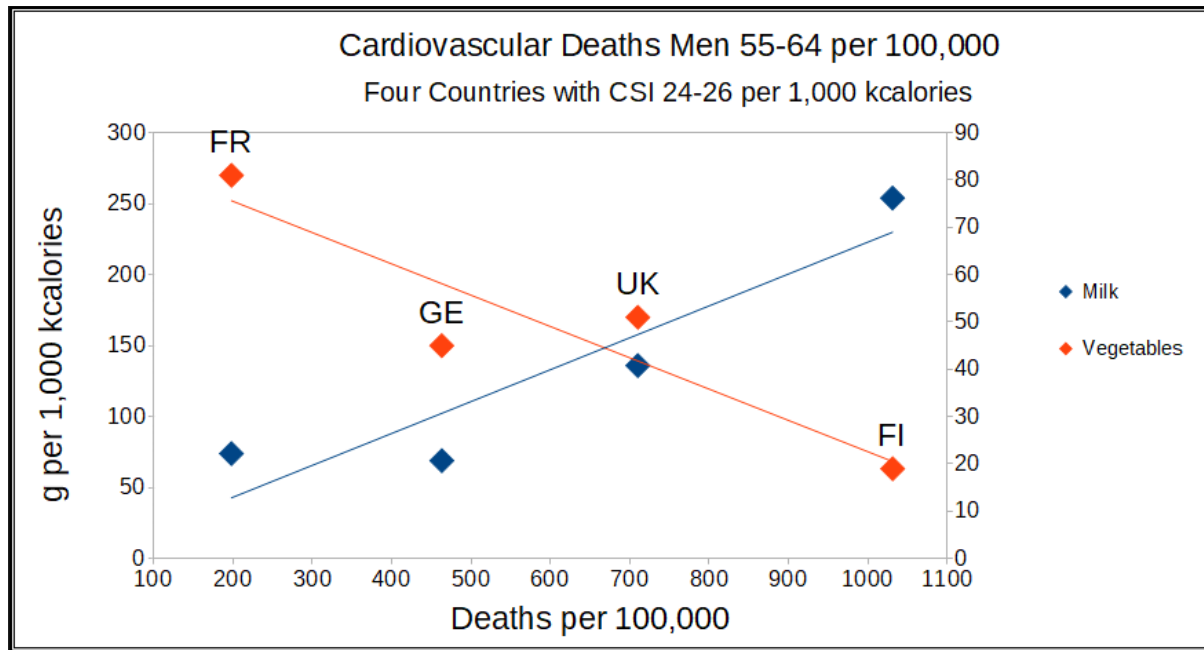
The Finnish population consumes 3.5 times more milk than the French, and the French consume 4 times more vegetables, measured in grams per 1000 kcalories. The French also consume less food. Note that the items are measured per 1000 kcalories. The total amount consumed during the day is more significant.

Food Item	Units	France	West Germany	United Kingdom	Finland	Finland / France
CHD Mortality	per 100,000	198	463	710	1031	5.2
CSI	CSI/1000 kcal	24	24	24	26	1.1
Milk	g/1000 kcal	74	69	136	254	3.4
Vegetable Oils	g/1000 kcal	8	4	5	1	0.13
Vegetables	g/1000 kcal	81	45	51	19	0.23

Food Intakes of Countries with Similar Cholesterol-Saturated Fat Intake

Whilst France, West Germany, the United Kingdom and Finland have similar CSI values (24-26), it is the differences in milk consumption and vegetable consumption that account for the CHD mortality rate. Mortality rate increased as milk consumption increased and decreased as vegetable consumption increased.

Dietary Deceptions



The Connor Study dismisses the claims that the French or Finns are different from other countries when considering the role of diet and its impact on heart disease.

The conclusions of the Connor study are,

The country in which people also consume more plant foods, including small amounts of liquid vegetable oils, and more vegetables (more antioxidants) had lower rates of CHD mortality” and that “diets high in cereals, legumes, and vegetables have been consistently associated with low plasma cholesterol levels, and a low incidence of CHD.

The French Paradox – The Myths

“Everyone knows” about the French Paradox – that is, the French consume lots of saturated fat in the form of meat, butter, cheese and eggs and yet have a low risk of heart disease. This proves that the health advice regarding the role of fats and saturated fats in causing heart disease is wrong.

The French Paradox has only been with us for a short period of time but it quickly resonated with the general population – we no longer need to be concerned about the amount of meat, butter, cheese and eggs that we consume.

In 1992, when the Frenchmen, Serge Renaud and Michael de Lorgeril published the article *Wine, alcohol, platelets, and the French paradox for coronary heart disease* that propelled the concept of the French Paradox onto a receptive public. It was not the first time that the phrase was used but *The Lancet* gave the phrase credibility. [282]

The article’s conclusion was:

In most countries, high intake of saturated fat is positively related to high mortality from coronary heart disease (CHD).

Dietary Deceptions

However, the situation in France is paradoxical in that there is high intake of saturated fat but low mortality from CHD. This paradox may be attributable in part to high wine consumption. Epidemiological studies indicate that consumption of alcohol at the level of intake in France (20-30 g per day) can reduce risk of CHD by at least 40%.

In 2008, the journal, *Dialogues in Cardiovascular Medicine*, devoted a 76 page issue addressing the history and myths of the French Paradox. [283]

The conclusion of this investigation is,

The clear conclusion, driven by the facts as summarised by Pierre Ducimetière, is that the rates of CHD are not so low in France, animal fat intake is not so high, and the diet-heart concept is not so unique that the existence of a “French paradox” can be sustained, except for satisfying cultural fantasy or for wine enthusiasm and marketing.

Thus, the real paradox is why the French paradox continues to exist as a concept, when it should be replaced by the less mystifying view, namely, “*the more Mediterranean, the better*”.

Comparisons of Vegan Diet with ADA diet

David Jenkins, the Toronto-based researcher who created the glycaemic index and Neal Barnard are amongst the co-authors of a trial studying the impact of vegan diets on the management of type 2 diabetes. [284][285]

Results were evaluated at 22 weeks and 74 weeks. The results below are from 22 weeks because these results distinguish between those participants that did not reduce their medication so it does not confound the results.

Nine vegan (completion rate 82%) and seven (completion rate 86%) from the ADA diet group did not complete the 74 week program, which is much higher than the completions rates for studies comparing high-fat, low-carbohydrate diets with “low-fat” diets.

Note that 16 of the 49 vegan-group participants did not strictly adhere to their diet. Their cholesterol intake was reduced by 77% from an average of 159 mg/day. The ADA group increased their intake by 1% from an average 168 mg/day. A vegan diet contains no cholesterol.

The total energy intake was reduced by the same amount for both groups (23-24%).

Dietary Deceptions

Food Item	Vegan			ADA		
	Start	74 weeks	% Δ	Start	74 weeks	% Δ
Intake						
Energy (kcalories)	1798	1366	-24%	1840	1422	-23%
Fat (% energy)	36	22	-39%	35	34	-3%
Saturated Fat (% energy)	12	5	-56%	11	10	-8%
Cholesterol (mg/1000 kcalories)	159	36	-77%	168	170	1%
Carbohydrate (% energy)	48	66	39%	46	47	0%
Protein (% energy)	17	15	-13%	19	21	11%
Fibre (g / 1000 kcalories)	11	22	100%	11	13	22%

The plant-based diet outperformed that ADA diet and showed a significant improvement in all markers measured over the first 22 weeks of the trial. The first 22 weeks distinguished between those who reduced their medication and those who did not. This more relevant as it removes the confounding effects of the medication.

Criteria	Vegan			ADA		
	Start	22 weeks	% change	Start	22 weeks	% change
% participants that reduced cholesterol medications	-	-	20%	-	-	18%
% participants that reduced diabetic medications	-	-	51%	-	-	34%
Weight (kg)	97.0	91.1	-6%	35.9	95.0	-4%
HbA1C	8.00	7.10	-13%	7.90	7.40	-8%
HbA1C (Exc those who reduced medication)	8.07	6.84	-15%	7.88	7.50	-5%
Total cholesterol	4.84	4.13	-15%	5.15	4.52	-12%
Total cholesterol (Exc those who reduced medication)	4.93	4.06	-18%	5.05	4.56	-10%
LDL cholesterol	2.70	2.28	-16%	3.07	2.67	-13%
LDL cholesterol (Exc those who reduced medication)	2.78	2.19	-21%	2.99	2.71	-9%
Urinary albumin (mg/24 h)	33.0	14.6	-56%	55.0	43.7	-21%

Dietary Deceptions

Some Independent Markers of CVD

Methionine, Homocysteine and Methylmalonic Acid

What is Vitamin B12?

B12 is a group of cobalt-containing vitamins. Hydroxocobalamin and cyanocobalamin are synthetic forms of vitamin B12. The two forms of vitamin B12 naturally occurring in foods are methylcobalamin and adenosylcobalamin. These forms are biologically equivalent.

B12 is produced by a number of different species of bacteria which is found in the soil, on the surface of some plants and some red and green algae. [286]

With increased awareness of the importance of hygiene such as washing food and cooking, the amount of bacteria has been reduced since the beginning of the twentieth century. It is fortunate that death from typhoid (191), diarrhoea (1101) and puerperal septicaemia – childbirth fever (71) have been eliminated in Australia. It has, however, reduced the amount of B12-producing bacteria. The number in brackets represent the number of deaths in 1907. [287]

B12 is involved in: [288]

- Activation of folate to its active form
- Conversion of homocysteine to methionine
- Fat metabolism
- Synthesis of DNA
- Synthesis of myelin, component of nerve cells
- Acts as an antioxidant by reducing the amount of glutathione

Determining deficiency can be problematic. Some indications are:

- Definite deficiency is indicated by serum vitamin B12 < 150 pmol/ L.
- Creatinine > 5 micro g/ mg indicates deficiency.
- Access to a microscope can show hyper-segmentation of the nuclei of neutrophils. More than 25% of neutrophils having 5 or more lobes indicate deficiency. [289]
- If urinary methylmalonic acid (MMA) is less than 0.5 micromol/L then vitamin B12 deficiency is unlikely.

Some practitioners are concerned with cyanocobalamin because of the presence of the cyano-group attached to the single cobalt atom (Co-C≡N). The cyano-group is not cyanide. Hydroxocobalamin is used to treat cyanide poisoning as it converts cyanide to non-toxic cyanocobalamin.

Sources in Diet

Seventh-day Adventist Health Study-2 (AHS-2) shows that the major sources of vitamin B12 in the diet are: [290]

- Beef, lamb, goat, pork, poultry
- Fish, seafood
- Milk, yogurt, cheese, ice cream, cream
- Foods made with milk and eggs such as cakes and desserts

Dietary Deceptions

- Fortified cereals
- Fortified meat substitutes
- Fortified milk substitutes
- Brewer's yeast, torula yeast
- B12 supplements

Health Risks of Low Vitamin B12 and Elevated Homocysteine

Seventh-day Adventist health studies (AHS-2) show that:

The prevention of low and marginal vitamin B12 status is important because inadequate vitamin B12 can lead to serious neurologic and neuropsychiatric abnormalities among adults and the elderly, even without associated anaemia. A marginal vitamin B12 deficiency has been shown to be associated with a higher homocysteine level and increased risk of vascular disease, which can lead to cardiovascular disease and neurological deficits. [291]

Folate deficiency and maternal low B12 status and B12 deficiency during pregnancy and lactation can have serious consequences for the offspring which includes neural tube defects. [292]

People with a low intake of B12 in the diet that are supplemented with folic acid “may aggravate their B12 deficiency”. [293]

Similarly, a combination of low levels of B12 and increased levels of folate was associated with higher concentrations of methylmalonic acid and total plasma homocysteine. [294]

Studies have consistently shown that mean serum vitamin B12 is reduced and homocysteine is elevated in vegetarians, particularly among vegans. [295][296][297]

Previously, it was believed that excess vitamin B12 was excreted by the kidneys. A number of recent studies have indicated that excess vitamin B12 can have serious health consequences.

However, care needs to be taken when examining such papers that there are no confounding factors and that the conclusions are not blemished by “reverse causation”. One example of “reverse causation” is the observation that people who watch more TV and are physically inactive are more likely to be unhealthy. The reverse is also true and more relevant – people who are unhealthy and unable to be physically active end up watching more TV. A number of nutrition studies adjust for TV watching, physical activity and even BMI which is inappropriate.

The conclusion of a 2020 paper stated:

These findings suggest that higher levels of plasma concentrations of vitamin B12 were associated with increased risk of all-cause mortality after adjusting for age, sex, renal function, and other clinical and laboratory variables. [298]

Consequences of Mismanaged Treatments

High levels of serum vitamin B12 levels is a frequent and underestimated anomaly which can be paradoxically accompanied by signs of deficiency. This may be related to defects in uptake and action of vitamin B12. [299]

Dietary Deceptions

Practitioners may prescribe additional B12 which exacerbates the problem. A number of products contain riboflavin, pyridoxine, folate, B12 and methionine way in excess of dietary requirements in an attempt to resolve B12 metabolism problems.

Many magnesium supplements contain pyridoxine which is usually unnecessary and possibly detrimental.

Great care needs to be exercised to determine our bodies real requirements instead of haphazardly self-prescribing medications.

A number of recent studies show that elevated B12 is associated with a much reduced life expectancy. Folate is rarely deficient in western diets, especially with the mandatory supplementation of cereals and flours. The mandatory fortification with folic acid of wheat was introduced in Australia in September 2009. This resulted in a 77% reduction in the in the prevalence of low serum folate levels from 9.3% to 2.1%. There was a 31% increase in mean serum folate level from 17.7 nmol/L to 23.1 nmol/L. The introduction of mandatory fortification with folic acid has significantly reduced the prevalence of folate deficiency in Australia. [300]

Lack of vitamin B12 can cause serious neurological effects and babies have been born with permanent and crippling spinal defects. We need such a tiny amount of B12 and it is stored in the liver for years. Using a B12 spray once or twice a month is usually more than sufficient.

A Personal Example

A recommendation from a naturopath included advice to increase the supplementation of B12 to overcome a perceived lack of B12. A product was also recommended that included high amounts of riboflavin, pyridoxine, folate, B12 which was not taken. Taking this product would have greatly exacerbated the problem.

B12 and pyridoxine results were significantly more than the reference range and the folate far exceeded the usual intakes.

Test	Result	Unit	Ref range
B12	1090	pmol / L	135 - 650
TSH	21.0	mIU / L	0.40 - 5.00
PTH	9.8	pmol / L	1.6 - 6.9
Thyroid antibodies	10.3	IU / L	< 4.1
Vit B6 (P5P)	1370	nmol / L	20 - 190
Folate	28.7	nmol / L	> 7.0

Dietary Deceptions

A MMA pathology test was 0.181 micromol/L with a reference range of < 0.5. The homocysteine result was 7.1 micromol / L with a reference range of 5.0 – 12.0 with the accompanying comment ***“methylmalonic acid level indicates that Vitamin B12 deficiency is unlikely”***.

A pathology test for vitamin B6 (pyridoxal-5-phosphate) revealed a result of many times above the reference range. The pathology comment indicated that the high levels of B6 “may be associated with sensory neuropathy. Symptoms will gradually resolve after B6 supplements are ceased”.

This demonstrates the potential dangers of using B12 supplements haphazardly without adequately determining the status of B12, folate and pyridoxine (vitamin B6).

Effect of Single High Fat Meal on Blood Flow

Flow-mediated brachial artery vasoactivity is a sensitive, nitric oxide–dependent index of endothelial function. This study compared to the effect of a single high-fat meal (Sausage and Egg McMuffin with 50 g fat) on the arterial blood flow compared to a meal that had no fat. [301]

Brachial artery vasoactivity was measured hourly for 6 hours after eating the above meals. Each hour, a baseline measurement was taken. Another was taken 1 minute after the release of 5 minutes pressure of a blood pressure cuff on the upper arm. The percentage change is the measure of flow-mediated vasoactivity.

Before the high-fat meal, the measurement was 21%. The vasoactivity decreased at 2, 3 and 4 hours to 11%, 11% and 10%. It takes about 6 hours to recover a normal flow rate in the artery – which is not enough time to fully recover before your next high-fat meal.

With the low-fat meal, the measurement prior to the meal was 18% with the 2, 3 and hour measurements all being 17%.

Meal	Before	1 hour	2 hours	3 hours	4 hours	5 hours	6 hours
High fat	21%	15%	11%	11%	10%	13%	15%
Low fat	18%	18%	17%	17%	17%	17%	16%

According to the study,

These results demonstrate that a single high-fat meal transiently impairs endothelial function. These findings identify a potential process by which a high-fat diet may be atherogenic independent of induced changes in cholesterol.

High levels of blood glucose also causes an acute but transient decrease in blood flow caused by a reduction in endothelial function. [302]

The “oral glucose loading” was 75g (15 teaspoons). These findings do NOT suggest that drizzling maple syrup over your pancakes is causing any harm.

Gut Bacteria, Eggs and TMAO

Foods are more than simple the sum of their fat, protein, carbohydrate and cholesterol components.

Dietary Deceptions

There is an increasing awareness of the importance of gut flora and its role in health. [303][304][305][306]

Microbes in the intestines are essential for the breakdown of complex carbohydrates, the production of short chain fatty acids and synthesis of vitamins. More than 1000 different species have been identified.

Despite the vast number of bacteria species and people, there are only two types of bacteriological ecosystems in the gut, called enterotypes. Those that are dominated by *Bacteroides* genus bacteria, and those by *Prevotella* genera. Enterotypes are strongly associated with long-term diets, with *Bacteroides* bacteria being associated with protein and animal-fat based diets, and *Prevotella* being associated with carbohydrate-based diets.

Bacteria are responsible for producing short-chain fatty acids (acetate, propionate, and butyrate) by the fermentation of dietary fibre. Short chain fatty acids increase intestinal pH (becomes more acidic), are important in maintaining the integrity of the lining of the intestine and prevents growth of dangerous pathogens. Short-chain fatty acids that are consumed do not have these benefits.

Gluten-free diets also have a significantly detrimental effect on the intestinal microflora and immune function in healthy people. The level of beneficial organisms are reduced, detrimental organisms are increased along with an increase in health risks. It is estimated that approximately 5-6% of the population have a need for a gluten-free diet. v



Eggs contain choline. Choline is converted by our gut bacteria into trimethylamine (TMA) which is then converted into trimethylamine N-oxide (TMAO) in our liver.

Recent human studies have established that the levels of TMAO in serum are positively correlated with impaired renal function, colorectal cancer, and cardiovascular disease (CVD). TMAO exacerbates atherosclerosis [...].

In addition, TMAO exacerbates impaired glucose tolerance, obstructs hepatic insulin signaling, and promotes adipose tissue inflammation of mice maintained on a high-fat high-sugar diet.

[307]

The choline in foods, such as eggs, can be turned by gut bacteria into TMA. However, it is only produced by the *Bacteroides* bacteria that are prevalent in high-fat, low-fibre, animal-based diets.

Carnitine is similar in structure to choline and the major food source is red meat. Unlike choline, which is an essential nutrient, we have no need to consume carnitine. It is also found in dietary supplements and carnitine-energy drinks.

The choline in foods, such as eggs, can be turned by gut bacteria into TMA. It is only produced by the *Bacteroides* bacteria that are prevalent in high-fat, low-fibre, animal-based diets. If your gut bacteria do not produce TMA then you will be free of TMAO.

Dietary Deceptions

Corporate Funding

Given our distrust of authorities, we want to hear that we have been deceived by the medical establishment into believing that their advice on fats and saturated fats is based on myths.

The Dietary Guidelines for Americans are revised jointly by the US Department of Agriculture (USDA) and the Department of Health and Human Services every 5 years. Originally, the USDA was responsible. The US Department of Agriculture represents the interests of the agricultural industry.

In 2002, dietary guidelines report emphasised that total dietary protein as high as 35% of total diet calories would “minimise risk for those chronic diseases”. This was not based on scientific evidence.

A lawsuit forced the committee to reveal that the majority of its members at the time had an association with the dairy industry.



The message of the Astrup’s paper is that we should be adding healthy foods to our diet to overcome heart disease and type 2 diabetes.

Consuming dairy, chocolate, eggs - or a much, much more profitable nutraceutical supplement is not going to change an unhealthy diet into a healthy meal – no matter how desperately that we wish that it would.

A nutraceutical is a manufactured product that is derived from food or part of a food that purportedly provides health benefits.

Professor Manohar Garg was one of the authors of Astrup's paper (Astrup, 219) that advocated eating more red meat, eggs, dairy and chocolate.

In 2017, the University of Newcastle and the Hunter Medical Research Institute (HMRI) were performing 5 trials to investigate nutraceuticals.

- A four week intervention trial to investigate the effects of plant sterols and curcumin combined in a dip. According to Professor Garg, “the foods we use will be delicious and versatile so volunteers can easily add them to their regular diet. We hope blood cholesterol, blood pressure and inflammation markers will all reduce – these are the three main risk factors for coronary disease”.
- A study involving people with a BMI ranging between 25 and 45. They will receive two fish oil tablets each day for 12 weeks to determine whether omega-3 fatty acids can improve insulin signaling and reduce risk factors for the development of type 2 diabetes.
- A study that examines participants who have type 2 diabetes to determine the heart health benefits of curcumin and/or fish oil capsule supplementation, over and above their usual medications and management.

Dietary Deceptions

- A similar study for those with pre-diabetes that examines whether the participant's risk of developing the disease has been minimised with the curcumin and/or fish oil capsule supplementation, over and above their usual medications and management.
- A trial involving expectant mothers and gestational diabetes which occurs in 10% of pregnancies. Professor Garg stated that, "expectant mothers will receive omega 3 supplementation to improve the quality of fatty tissue gained during pregnancy".

The only outcome that these expensive nutraceuticals will deliver is an increase in corporate profits. For many people, the concept of changing diet and lifestyle is such a big challenge that they prefer to seek an easier but ineffective solution.



Agricultural, food and retail companies have merged into large transnational corporations. The challenge for these corporations is how to continue to make profits when the market for food is saturated in developed countries. In the United States, the food supply contains 15.9 MJoule for every adult and child in the United States which is nearly twice what is needed.

Companies address this by:

- convincing people to "consume more, and more highly energy dense foods through relentless advertising and ubiquity of outlets"
- "increasing serving size and adding price inducements to order the larger sizes"
- opening up markets in transitional and developing countries"
- substitution of low-cost agricultural products (such as fruit, vegetables, whole-grains and beans) with high-value processed products

Food industry is constantly attempting to increase demand. Use of industry-funded research to supply misinformation, to create conflicting evidence where none exists and hiding negative data are part of the tactics used to ensure a continued expansion of their markets.

About Richard

I have been a lecturer in nutrition in Newcastle, Australia at WEA Hunter and has been involved in the design of nutrition courses for degree and diploma qualifications in Health Sciences.

My qualifications include:

- Certificate in Plant-based Nutrition – e Cornell University
- BSc – Chemistry, Mathematics (Pure & Applied), Information Technology (University of Sydney)
- Certificate IV in Training and Assessment

I have worked in the pathology and information technology industries before turning to preventative medicine – prevention should be the prime focus of our health care.

I worked in the IT industry since the 1970s as a computer programmer, system designer and project manager for companies



1974

Dietary Deceptions

such as CBC Bank, National Australia Bank, Burroughs Australia and Unisys working on projects for ANZ Bank, State Bank of NSW, Health Insurance Commission (Medicare), NRMA, Reserve Bank of Australia, City Bank, North Power, Chase Manhattan Bank and ACIRL (Australian Coal Industry Research Laboratories).

I have worked as the system manager for a large pathology business that had a network of 10 pathology laboratories online 24 hours a day for 6 days a week.



My website consists of over 150 web pages and with more than 1400,000 words. Most are related to health and nutrition with others relating to the environment, agriculture, philosophy and psychology. Many issues that the ancient Greeks wrestled with are still relevant today.

In The Republic, Book 2, Plato describes a “rustic picture” of a way of life. The inhabitants “spend their days in houses which they have built for themselves; they make their own clothes and produce their own corn and wine. Their principal food is barley-meal and flour of wheat, and they drink in moderation. They live on the best of terms with each other, and take care not to have too many children. [...] They will have salt and olives and cheese, vegetables and fruits, and chestnuts to roast at the fire.”

Plato continues that those “who want the comforts of life”, will create a state where “living in this way we shall have much greater need of physicians than before. [...] Then a slice of our neighbours’ land will be wanted by us for pasture and tillage, and they will want a slice of ours.”

Some 500 years later, in Plutarch’s Morals. Vol. V, Plutarch writes at great length against the mistreatment, exploitation and killing of animals.

But for the sake of some little mouthful of flesh, we deprive a soul of the sun and light, and of that proportion of life and time it had been born into the world to enjoy.

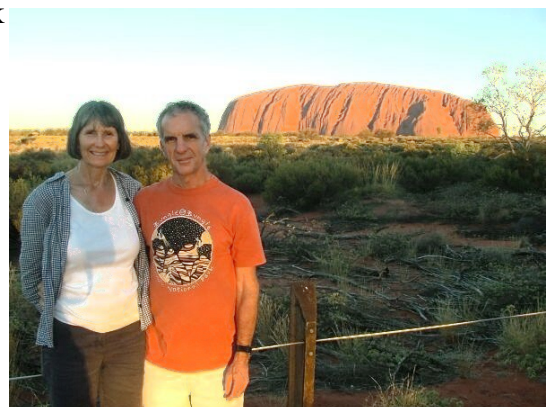


Every year in January a school friend, John and I did a canyon trip in the Blue Mountains of NSW. At the same time, I visit my local doctor.

In 2014, just after my 60th birthday, the results came back with abnormal red and white blood cell counts and an elevated bilirubin. Elevated bilirubin is a sign that the liver is not functioning as well as it should.

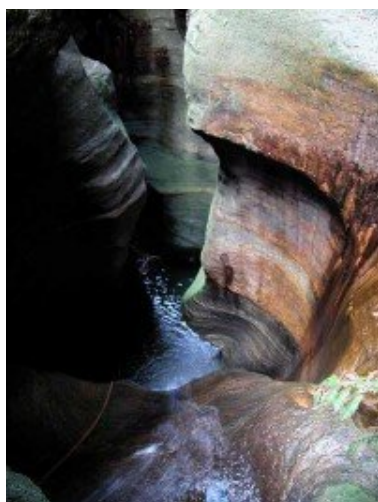
It took 8 months to diagnose what the problem was. I have myeloma which is a cancer of the bone marrow that can no longer properly produce red and white blood cells. As a result, the immune system is compromised.

Even after I was diagnosed the doctor said, “If you are going to get cancer, myeloma is one of the best to get.” I was booked into the regional myeloma clinic for treatment. I had pneumonia at the time he made



Uluru - April 2010

Dietary Deceptions



Claustral Canyon, Blue Mountains, NSW

that assessment which is what nearly killed me. Twice Ruth was told that I would not be coming home. If he told me the truth, that is, “You are really sick. Go home and pack your bags and go to hospital this evening”, the outcome would be different. In September 2014, I ended up in hospital for 9 weeks, including 7 weeks in intensive care. I was 68 kg (150 pounds) before admission – the same weight when I was at high school. I lost 21 kg (46 pound) in 4 weeks and lost 20 cm (8 in) in height. Myeloma also damages bones resulting in abnormal bone growth, bone deformity, crushed vertebrae and many broken ribs. I am still 15 kg lighter and 20 cm shorter than my pre-sickness days.

Myeloma appears to be associated with environmental and agricultural toxins. Even as a teenager, I was conscious of what I ate and have not eaten animal products for decades. I kept a skipping rope outside the back door and would do 1,000 skips a couple times a day when it was

time to have a break. Now, I cannot do one.

I live with my wife Ruth in the Hunter Valley of NSW. We have a big vegetable garden, keep geese and chickens and have planted hundreds of trees in what was an empty paddock. Other interests include Rural Fire Service, music (play piano), photography.

A Quest For Truth

A quest for truth is not simply to confirm your view of the world. It is a continual challenge where every belief, every contradiction, every cherished ideal that can be the very basis of who we believe that we are, must be questioned.

Almost the truth simply does not work.

Did your search result in a more restricted view of the world simply to confirm what you dearly wish to believe?

Or is there a more expansive view that includes all that has been discovered? Does the world become more coherent and complete?

A quest for truth is only valid if you are prepared to change your beliefs based on what you have found.

A quest for truth is only useful if you are prepared to take action on what you have discovered.



Much publicity is given to the longevity of the people of Japan and Okinawa (an archipelago that stretches from southern Japan to Taiwan). However, it is vegetarian Californian Seventh-day Adventists that have the longest lifespan and the highest levels of health on the planet.

Dietary Deceptions

Vegetarian Californian Adventists have a higher life expectancy at the age of 30 years than other white Californians by 9.5 years in men and 6.1 years in women, giving them the highest life expectancy of any formally described population. [308]

Note that Californians are much healthier than the average American being in the top five states for longevity with an average life expectancy of 5-6 years greater than the Mississippi states.

Fortunately, the diets that are optimal for our health are also the best for the environment and for the animals that we share the earth with.

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