

The Western Diet and Diseases of Civilization

The increased physical and psychological risks associated with the consumption of refined, processed, and sugary foods

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1. INTRODUCTION

The western diet – characterized by high quantities of simple carbohydrates, processed foods, and factory-farmed meat – has been associated with a host of major chronic diseases, many of which are unique to civilized cultures. Inhabitants of traditional cultures that maintain their time-honored diets tend to be relatively free of these "western diseases," and develop them only after adopting a diet that is more westernized.

In *In Defense of Food*, Michael Pollan describes how a group of overweight and diabetic Aborigines agreed to return to their traditional homeland and traditional ways of eating, to see if their health problems might be reversed. Since relocating to settlements near the town of Derby, Australia, they had become overweight and developed metabolic syndrome, a condition associated with diabetes, obesity, heart disease, high blood pressure, and cancer. Researchers attributed their health problems to a diet high in refined carbohydrates and a primarily sedentary lifestyle.

During their seven-week stay in the bush, the Aborigines had no access to processed foods; they were completely reliant on foods they hunted and gathered themselves. Their diet consisted of traditional foods such as fish, shellfish, birds, kangaroo, yams, figs, and bush honey. This contrasted starkly to the western diet they had been eating, which consisted mainly of "'flour, sugar, rice, carbonated drinks, alcoholic beverages (beer and port), powdered milk, cheap fatty meat, potatoes, onions, and variable contributions of other fresh fruits and vegetables' – the local version of the western diet." (Pollan pgs 86-87)

After the seven-week experiment, nutrition researcher Kerin O'Dea reported that all subjects had lost weight and experienced significant health improvements. Their triglycerides and blood pressure had fallen, and the metabolic abnormalities associated with their diabetes had either improved or resolved.

Pollan notes that these diseases of civilization – obesity, diabetes, heart disease, hypertension, and certain diet-related cancers – have long been recognized as products of the typical western diet, but

O'Dea's study was the first that showed these health effects can be reversed by a return to traditional hunter-gatherer diets.

The following studies examine various aspects of traditional and industrialized diets, including the effects of these diets on psychological disorders in women.

2. ORIGINS AND EVOLUTIONS OF THE WESTERN DIET: HEALTH IMPLICATIONS FOR THE 21ST CENTURY

This 2005 report, published in the *American Journal of Clinical Nutrition* and headed by Dr. Loren Cordain – Professor of Health and Exercise Science at Colorado State University and author of *The Paleo Diet*, one of the preeminent books on ancestral diets – examines seven crucial dietary changes introduced since the rise of agriculture and animal husbandry: glycemic load, fatty acid composition, macronutrient consumption, micronutrient density, acid-base balance, sodium-potassium ratio, and fiber content (Cordain). Cordain argues that these changes occurred too recently (approximately 10,000 years ago) for the human genome to adapt, and that they are the cause of many of our diseases of civilization.

2.1. Overview

Cordain begins by examining nutritional characteristics of both modern and pre-agricultural diets. He identifies five food groups that would not have been available to pre-agricultural hominins yet now make up 72.1% of the total daily calories consumed by all people in the United States: dairy products, cereals, refined sugars, refined vegetable oils, and alcohol. (See Table.) Combinations of these foods also make up the processed foods (cookies, cake, baked goods, crackers, chips, pizza, soft drinks, candy, ice cream, etc.) that are ubiquitous in the American diet. The modern diet also contains high levels of salt and fatty domestic meats – foods that were not a part of ancestral diets.

Table: Industrial Era Foods

Food or food group	Percentage of daily energy in the U.S. diet
Dairy products (milk, cheese, butter, other)	10.6
Cereal grains (whole grains, refined grains)	23.9
Refined sugars (sucrose, high-fructose corn syrup, glucose, syrups, other)	18.6
Refined vegetable oils (salad and cooking oils, shortening, margarine)	17.6
Alcohol	1.4

2.2. Methods

The *American Journal of Clinical Nutrition* report reviewed 172 different articles and studies on ancestral diets, the evolution of the western diet, and Western diseases, which were published between 1967 and 2004. Topics ranged from "Diet and nutrition of hunter-gatherers" to "Salt and gastrointestinal cancer."

2.3. Results

Cordain et al concluded that the prevalence of the above foods in the modern Western diet is directly linked to "diseases of civilization" such as obesity, type 2 diabetes, hypertension, coronary heart disease, and high cholesterol, as well as common Western health conditions such as acne, polycystic ovary syndrome, certain cancers, and skin conditions. The study states that "diet-related chronic diseases represent the single largest cause of morbidity and mortality." Although rare or non-existent in hunter-gatherer cultures and those who maintain traditional diets, these diseases are present in 50-65% of the adult population in western cultures.

2.4. Analysis

The *AJCN* report is remarkably thorough in its analysis of the differences between ancestral diets and the modern Western diet. Less attention is paid to the characteristics of ancestral diets than to evidence

that Industrial era foods (dairy products, refined grains, refined sugars, refined vegetable oils, fatty meats, salts, and combinations of these foods) are relatively new to the human diet. In some cases, these foods were introduced within the past two centuries, such as highly refined grain flours. The report shows convincing evidence that there is no single dietary element that can be labeled as the cause of chronic disease (such as saturated fat), but rather that Western diseases are the product of a combination of dietary elements. No specific ancestral diet is defined or identified as being the ideal diet for all cultures.

3. NON-TRADITIONAL WESTERN DIETS

This report by Elizabeth Lipski, PhD, CCN, was published in *Nutrition in Clinical Practice* and takes a closer look at the health benefits and characteristics of several traditional diets, including Tohono O'odham Indians, Eskimos in Ladrado, the Maori in New Zealand, Gaelic in Outer Hebrides, and the Hunza in the Himalayas. Lipski notes that "whenever people living traditionally mesh with western culture, noninfectious diseases of modern culture soon follow" (Lipski).

3.1. Overview

Lipski's report offers a review of the diets and health status of various traditional cultures around the world. She cites the work of Albert Schweitzer, Weston Price, and others who studied the dietary habits and health status of indigenous populations in the earlier part of the twentieth century. Physicians living in eastern and central Africa, Australia, New Zealand, the southern Pacific, and other isolated regions saw few or no instances of dental caries, cancer, heart disease, appendicitis, diverticulitis, diabetes, infectious disease, and other common maladies in the West. Many of these sources reported that the health of the natives degenerated when introduced to European diets.

3.2. Methods

Using 60 different articles and studies, Lipski examines early observations about the health of indigenous populations, contemporary research on indigenous diets, traditional cooking methods,

functional foods in traditional diets, and the trend towards increased health when traditional diets are restored.

3.3. Results

Lipski notes that although traditional diets varied widely, nearly all traditional cultures used cooking methods that "enhance digestion and nutrient availability," such as soaking, fermentation, pounding, and sprouting. Use of traditional cooking methods decreased when a family's wealth increased.

Traditional cultures also employed the use of "folk functional foods" for medicinal and healing properties. She cites several studies that observed improvements in health after the return to a traditional diet, including O'Dea's study of the ten Australian Aborigines. A similar study of overweight Hawaiians who returned to a traditional Hawaiian diet for 21 days saw significant improvements in weight, glucose levels, serum triglycerides and total cholesterol levels, and systolic blood pressure.

3.4. Analysis

Lipski's research supports Pollan's position, as stated in *In Defense of Food*, that traditional diets vary widely in their nutritional composition, yet are all effective at safeguarding against the diseases of modern civilization. However, returning to a traditional diet is not always feasible. As Lipski notes, traditional foods, skills, and practices "are slowly vanishing as the elders die." Although some populations understand the role of traditional foods in preventing or improving disease states, many have lost access to traditional foods or the knowledge and skills to identify or prepare them. In other cases, traditional foods have become more contaminated with mercury, pesticides, and other pollutants, as is demonstrated by the Arctic Dilemma, where traditional, high-fat foods are less beneficial than they once were due to environmental contaminants. The challenge, then, is to determine how to increase the availability of unpolluted traditional foods in both traditional and modern cultures.

4. ASSOCIATION OF WESTERN AND TRADITIONAL DIETS WITH DEPRESSION AND ANXIETY IN WOMEN

Although the typical Western diet is commonly recognized as a factor in health conditions such as obesity, cardiovascular disease, obesity, and type 2 diabetes, less scientific evidence exists on the relationship between diet and psychological health. Authors of this study, which was published in the *American Journal of Psychiatry*, note that diet affects biological processes that influence psychological health, including inflammation, brain plasticity and function, the stress response system, and oxidative processes (Jacka). Study authors also note that previous studies examining the association between diet and psychological health focused on individual nutrients or food groups, which provide an incomplete picture of the effects of diet on mental health.

4.1. Overview

Rather than focusing on individual nutrients or food groups, the *American Journal of Psychiatry* study examined the effects of habitual diet quality on mental health in more than 1,000 Australian women between the ages of 20 and 92.

4.2. Methods

Study participants, who were randomly selected from the population, were required to complete a comprehensive food frequency questionnaire and the 12-item General Health Questionnaire (GHQ-12). Higher scores on the GHQ-12 indicate more health problems. For the purpose of the study, "traditional" dietary patterns were defined as those high in fruits, vegetables, meat, fish, and whole grains; "western" diets were those composed mainly of processed or fried foods, refined grains, and sugar.

Participants also underwent a clinical interview to assess psychological health, with researchers interested in the high-prevalence mental disorders of major depressive disorder, mild chronic depression, and anxiety disorder.

4.3. Results

Results were adjusted for age, socioeconomic status, education, and health behaviors. Traditional diets were associated with lower rates of depression and anxiety disorders, and better diet quality further decreased the risk of psychological symptoms. Participants eating a western diet exhibited higher GHQ-12 scores. The western diet was also associated with an increased risk of major depression or mild chronic depression. Study authors also noted that, due to adjustments for overall caloric intake, the amount of unhealthy food may be more relevant to psychological health than that amount as a percentage of the overall diet.

Although traditional diets are associated with better psychological health, the association does not prove causation. The authors recommend further studies to rule out reverse causality and confounding.

4.4. Analysis

While further research is necessary to prove causation, study authors note that the results are consistent with other research that shows associations between habitual diet quality and medical outcomes, including risk of major chronic diseases such as cardiovascular disease and cancer. Individuals suffering from psychological issues or those diagnosed with depression or anxiety disorders would be prudent to increase their intake of fruits and vegetables and decrease their consumption of processed, refined, and sugary foods.

5. CONCLUSION

Health risks associated with the typical western diet are undeniably extensive and severe; however, a transition to a more traditional, plant-based diet is problematic for many people due to higher costs, limited access to unprocessed foods, or food insecurity. In addition, problems such as the Arctic Dilemma, in which traditional foods are increasingly contaminated with environmental pollutants, compound the difficulty of sourcing healthy, whole foods.

Adopting a set of "food rules" such as those outlined in *In Defense of Food* can assist with the transition to a healthier diet. Buying whole grains in bulk and buying produce in season can help keep food costs down. While organic produce is preferable to conventionally grown foods, conventional produce is still preferable to refined, processed foods, and individuals can reduce their exposure to chemicals and pesticides by choosing produce with the lowest pesticide residues, such as asparagus, sweet peas, mangoes, and cantaloupe (Environmental Working Group).

Improvements in nutritional education are critical to effecting a movement towards healthier dietary habits. Nine in 10 Americans say their diet is healthy, according to a Consumer Reports Health poll from early 2011, but only a quarter limit the amount of fat and sugar in their diet, and only one-third of participants reported eating five or more servings of fruits and vegetables daily (Mann). The discrepancy reveals a lack of understanding about what constitutes a healthy diet, which puts people at risk of major chronic disease and psychological problems.

Individuals would also be wise to ignore dietary fads and trends and remain dubious about "new" scientific research regarding healthy dietary habits. As Pollan illustrates, emerging research – especially that which relates to specific nutrients or food groups – often only creates more confusion surrounding healthy food choices and can in fact lead to more health problems. Perhaps the most important food rules to follow are to avoid processed foods as much as possible, choosing foods with few or no ingredients; keep the diet simple and choose quality foods over quantity; and to focus the diet on whole fruits and vegetables. Or, as Pollan puts it in *In Defense of Food*, "Eat food. Not too much. Mostly plants."

REFERENCES:

Cordain, Loren et al (2010). "Origins and evolution of the Western diet: health implications for the 21st century." *The American Journal of Clinical Nutrition*.

<http://www.ajcn.org/content/81/2/341.long>

Environmental Working Group: Shopper's Guide to Pesticides in Produce

<http://www.ewg.org/foodnews/summary/>

Jacka, Felice et al (2010). "Association of Western and Traditional Diets with Depression and Anxiety in Women." *American Journal of Psychiatry*.

<http://ajp.psychiatryonline.org/cgi/content/full/167/3/305>

Lipski, Elizabeth (2010). "Traditional Non-Western Diets." *Nutrition in Clinical Practice*.

<http://ncp.sagepub.com/content/25/6/585.full.pdf+html>

Mann, Denise (2011). "Americans Say Their Diet is Healthy, but Is It?" *WebMD Health News*.

<http://www.webmd.com/food-recipes/news/20110104/americans-say-their-diet-is-healthy-but-is-it>

Pollan, Michael (2008). *In Defense of Food*.