

# Refined Processed Foods: The Enemy We Confront Every Day

## Introduction

For as long as humans have been cooking, processed foods have existed. When people preserve, ferment, freeze, or dry food, they have processed it.<sup>1</sup> There are many good reasons for this, and this paper is not trying to shed negative light on these practices.

The negative impacts of processed foods have more to do with the types of processed foods that are widely consumed than the concept itself.

There are refined foods, such as white bread, that have most of the healthy fiber removed from them. There are processed foods that have ingredients added for flavor and texture, such as sweeteners, oils, sodium, and preservatives. “Ready-to eat” foods, including deli meats, frozen pizza, and microwaveable meals, are more heavily processed and refined.

These types of processed and refined foods cause many of the problems associated with the standard American diet. It’s what food processors remove and what they insert that makes these food products what they are—tasty, addictive, and absolutely nonessential.

## The Period of Transition

At the turn of the 20th century, Americans mostly ate whole foods. This is not to say that there were no nutritional deficiencies then. Poverty, bad working conditions, lack of food, and a general misunderstanding about nutrition contributed to disease and malnutrition.

But by 1910, some of the more sugary, trans fat-laden, and refined processed foods, like hot dogs, syrup, mayonnaise, and cookies, became available.<sup>2</sup> Within the next 10 years there was a veritable explosion of foods for which taste and convenience were king. By 1920, food processing had become the largest manufacturing industry in the United States.<sup>3</sup>

Driving this increase were not only new methods for processing foods but a combination of new technology (electric stoves, refrigerators, other appliances) and the societal desire to spend less time in the kitchen preparing foods from scratch.<sup>4</sup> Safety and price also motivated sales, with products being promoted as modern, sanitary, and economical.<sup>5</sup>

The traditions around food that existed in the 19th century were being lost as people were embracing the more convenient experiences of the 20th century.

Brands of processed foods, many of which are still lining our supermarket shelves today, made permanent marks on American food culture during this period. A hungry public was drawn to very white and spongy bread, devoid of any real nutrition; cereals that promised strength but provided filler and sugar; drinks that combined artificial flavoring with more refined sugars; and sandwich spreads that sold texture and flavor over nutrition.<sup>6</sup>

Lifestyles were changing rapidly in the U.S., and refined foods were in the right place at the right time,

either driving the change or taking full advantage of it. In the short period between 1920 and 1925, the average weekly time devoted to meal preparation went from 44 hours to less than 30.<sup>7</sup> That decline continued over the following decades, and by 1975, less than 10 hours a week were spent on preparing meals and cleaning up.<sup>8</sup>

By the 1930s, American brands of sugary, highly refined, artificially flavored, trans fat foods were ubiquitous, even during the Great Depression. It was not enough that pasta was stripped of most of its nutrients. It had to be pre-cooked, canned, and flavored. Syrups advertised their maltose and dextrose as “ideal carbohydrates for growing children.”<sup>9</sup> Candy was everywhere, and cheap.

In the 1930s and 1940s, more and more families ate their meals while listening to their favorite radio shows. From the 1950s on, television became the permanent dinner guest.<sup>10</sup> The mobile tray dinner gave way to the TV dinner, highly preserved and frozen foods encased in plastic and aluminum.

After World War II, chemists predicted that almost all natural flavors would soon be chemically synthesized.<sup>11</sup>

The Cold War encouraged families to look for foods that could last longer than a nuclear half-life, promoting supplies such as crackers, biscuits, and “carbohydrate supplements,” otherwise known as hard candy, to store in their shelters.<sup>12</sup>

Teen culture came into its own in the 1950s, and drive-in movies along with drive-in restaurants laid the groundwork for the rapid rise of fast-food restaurants during the second half of the 20th century. During this period, sugar was promoted as a diet aid for healthy weight loss and energy lift.<sup>13</sup>

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## Nutrition, wherefore art thou?

At the turn of the 20th century, the field of nutrition was in its infancy. While protein was seen as important to the maintenance of muscles, early nutritionists had an interesting take on fresh fruits and vegetables: that there was little value in fruits and greens, and they weren't worth the energy expended to eat them.<sup>14</sup>

It was only in 1912 that the term "vitamin" was defined by Dr. Casimir Funk as vital factors in a diet. He wrote about these unidentified substances present in food, which could prevent the diseases of scurvy, beriberi, and pellagra. Vitamin was derived from the words "vital" and "amine" because vitamins are vital for life and they were originally thought to be amines, compounds derived from ammonia.<sup>15</sup>

Some of the most significant work was being conducted by the biochemist E.V. McCollum, PhD, from the Wisconsin Agricultural Experiment Station, attached to the University of Wisconsin. He established America's first colony of white lab rats for use in nutrition experiments. He discovered the first vitamins, fat-soluble vitamin A in 1913 and water-soluble vitamin B in 1919.

This initiated a period of vitamin discovery, and by 1939 the following had been isolated: thiamin; niacin; biotin; pantothenic acid; folate; riboflavin; and vitamins C, A, D, E, K, and B<sub>6</sub>.

In 1941, the recommended dietary allowance (RDA) was developed by the U.S. National Academy of Science in response to investigating how nutrition could affect national defense.<sup>16</sup> From this point on, the Food and Nutrition Board revised the RDAs every five to 10 years.

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## 3 Pioneers

### **Dr. Royal Lee**

Back in Wisconsin right after World War I, a young man by the name of Royal Lee saw a correlation between poor nutrition and health. While in dental school, he witnessed firsthand the effects that, he believed, refined foods were having on dental disease. He identified that when the wheat germ and bran in wheat is removed to make white bread, all that is left is starch. By reintroducing the discarded wheat germ and bran to his friends' and family's diets, he found striking results.

He developed a prototype for a whole food supplement and approached the Wisconsin Agricultural Experiment Station, which by then had become famous, to get some unbiased tests. The station directed him to the University of Wisconsin Department of Pharmacology, which planned on evaluating his formulation as a drug, not a food product. Dr. Lee fundamentally disagreed, and the relationship did not go any further.

What did evolve was Dr. Lee's whole food philosophy. He believed the health-giving properties of a whole food exceed its isolated vitamins and minerals. Nutrients as they appear in nature never function as single chemicals but as groups of interdependent compounds, such as phytochemicals, coenzymes, etc. Together they form a "nutrient complex" so intricate that only a living cell can create it.

### **Dr. Weston Price**

Dr. Lee was not alone in this holistic approach to nutrition. Another dentist, Dr. Weston Price, also discovered a correlation between dental decay and physical degeneration and nutrition in the 1920s. He took his investigation well beyond the laboratory, traveling the globe to study the diets of various cultures. In 1939, he published “Nutrition and Physical Degeneration,” a groundbreaking book in which he observed that many diseases endemic to Western culture during the first half of the 20th century were not present in nonindustrialized societies. His conclusion was that Western methods of commercially preparing and storing foods stripped away nutrients necessary to prevent these diseases.

He also determined that many ingredients in the modern Western diet, including flour, sugar, and processed vegetable fats, caused nutritional deficiencies.

### **Francis Pottenger**

In the 1930s, the American physician, Francis Pottenger researched the effect of processed diets on health. His most famous observations came from a long-running, multigenerational experiment involving more than 900 cats.

Over a 10-year period, Dr. Pottenger tracked physical changes that he attributed to the effects of the cooked and processed foods he fed the cats. By as early as the fourth generation, Dr. Pottenger observed that consumption of nutrient-deficient diets correlated to hereditary effects like facial deformities, frail bones, weakened ligaments, higher susceptibility to parasites, diseases, and difficult pregnancies. He thought that these findings suggested the potential of a hereditary link between nutrition and health.

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### **Refined Food Growth**

One of the interesting things that Dr. McCollum discovered with his laboratory mice was that the cause of certain diets’ nutritive failure was due to lack of “palatability.” The solution was to make the diet taste good to encourage the mice to eat more.<sup>17</sup>

The same can be said for Americans and their diets. The popularity of processed foods has always been tied to taste. At this point, most Americans are introduced to processed foods at a very young age, and these foods are chemically produced with artificial flavors and preservatives to make people crave them.<sup>18</sup>

One of the biggest additives to processed foods is sugar. According to The American Journal of Clinical Nutrition, people in western countries consume massive amounts of refined sugar, reaching 150 pounds per year. That averages out to 500 calories of sugar daily.<sup>19</sup>

The impact of our reliance on processed and refined foods has been dramatic, to say the least. Melanie Warner, author of “Pandora’s Lunchbox: How Processed Food Took Over the American Meal” and business writer for The New York Times, reports that processed foods make up close to 70 percent of the U.S. diet.<sup>20</sup> While this figure is high, it’s important to keep in mind that the U.S. Food and Drug Administration (FDA) defines processed foods as anything edible that’s not a raw agricultural commodity, so even frozen fruits and vegetables count.

In addition to wheat flour and sugar, technology has made possible the growth of new ingredients, including refined starches, gums, fats, proteins and sweeteners.<sup>21</sup>

The FDA does not know how many additives go into our food, but Warner estimates 5,000 different additives. Americans spend 10 percent of their disposable income on fast food<sup>22</sup> and spend more on overdraft fees than on fresh vegetables.<sup>23</sup> Even though there is a lot of press about local food and foodies seem to be everywhere, statistical trending toward healthier diets is not in evidence. While overall grocery spending is flat, worldwide snack sales rose 2 percent in 2014.

These foods have become part of what is referred to as the standard American diet. This diet is:

- » High in animal fats
- » High in unhealthy fats: saturated, hydrogenated
- » Low in fiber
- » High in processed foods
- » Low in complex carbohydrates
- » Low in plant-based foods<sup>24</sup>

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## Dangerous Side Effects

The side effects of the standard American diet have been dramatic. Nutritional and epidemiological research has implicated this kind of diet is a major cause of chronic conditions like heart disease, cancers, and diabetes.<sup>25</sup>

The U.S. Centers for Disease Control and Prevention (CDC) reports a number of chilling statistics: 29.1 million or 9.3 percent of the U.S. population has diabetes<sup>26</sup> one in four people in the United States die from heart disease, by far the leading cause of death;<sup>27</sup> and more than one-third of U.S. adults are obese (not just overweight),<sup>28</sup> with an estimated and associated annual medical cost of \$147 billion in 2008 U.S. dollars.<sup>29</sup>

The CDC states the following as medical conditions and lifestyle choices that put people at risk for heart disease:

- » Diabetes
- » Being overweight or obese
- » Poor diet
- » Physical inactivity
- » Excessive alcohol use<sup>30</sup>

When it comes to weight and obesity, the \$60 billion diet industry feeds off of the desire for a quick fix to produce weight loss. Unfortunately, this is often not about good nutrition, as many solutions include processed foods or promote questionable alternatives such as drinking diet soda.<sup>31</sup>

## Change Is Hard

Changing diets is very hard. Many how-to articles from reputable mainstream sources about how to change bad eating habits readily admit how hard it is to give up old habits.<sup>32</sup>

One of the more prominent examples of this came from Jamie Oliver, a British chef. He was motivated to help Americans fight obesity so they could live healthier and longer lives. His plan was to change their eating habits, and his first target was the U.S. school lunch programs. His reality television series “Food Revolution” showed how difficult and painful it is to change habits that are a part of a regional food culture.

For the first season of the show, he focused on Huntington, Virginia, statistically one of the unhealthiest cities in the country. He met with strong resistance at first, and while he made some headway by the end of the six-episode show, his efforts unraveled when he left. Keep in mind this was a high-profile undertaking, with television crews and Hollywood money behind the effort, and still it had little to no lasting impact.

As stated earlier, making dietary changes even harder is the fact that many processed and fast foods are actually addictive.<sup>33</sup> To add a bit of humor to this sad state of affairs, a 2012 study showed that 52 percent of Americans polled believed doing their taxes is easier than figuring out how to eat healthy.<sup>34</sup>

## Countering the Standard American Diet

Clearly, one way to combat the standard American diet is to change to a whole food diet. Depending on which website, nutritionist, dietitian, or doctor one goes to, there are countless options to choose from. They include vegetarian, weight control, crash, detox, belief-based, paleo, blood type, Mediterranean, raw food, and on and on and on.

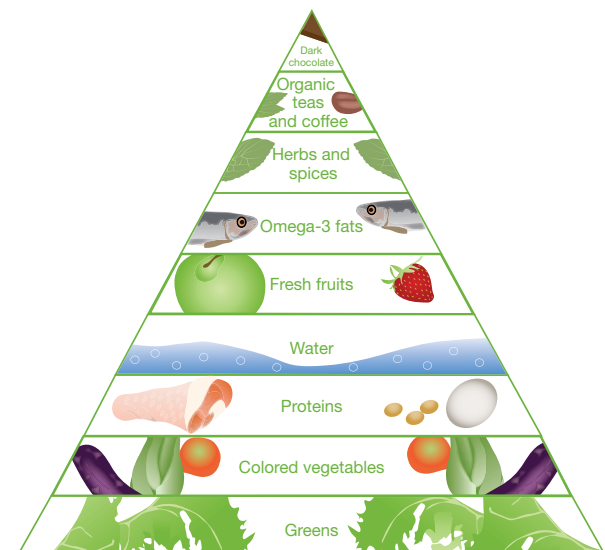
Looking at a mainstream resource, the Mayo Clinic suggests that people seek a diet that:

- » Includes a variety of foods from the major food groups (fruits; vegetables; whole grains; low-fat dairy products; and lean protein, like beans and other legumes, nuts and seeds, and healthy fats)
- » Provides guidelines for how much food to choose from each group
- » Includes foods that can be found in the local grocery store rather than only at specialty or gourmet stores
- » Fits the individual’s tastes, lifestyle, and budget<sup>35</sup>

For those who look more toward organic foods, Whole Foods Market offers four pillars to eating healthier:

- » Focus on whole foods.
- » Fill the plate with plants.
- » Consider calorie density.
- » Choose healthy fats.<sup>36</sup>

Standard Process, which was founded in 1929 in response to nutritional deficiencies caused by the growing processed food industry, has developed a health pyramid that is ideal for nutritional support. Based on greens and other plant-based foods as well as quality proteins, a diet modeled after this pyramid supplies the body with nutrients, vitamins, and minerals in their natural form.



## Conclusion

Highly refined, processed foods are not going away. This multibillion-dollar industry is deeply embedded in the fabric of the American economy and culture.

By some accounts there have been signs of a shift. The amount of full-calorie soda consumed by Americans has dropped 25 percent since the late 1990s.<sup>37</sup> Obesity rates have stopped rising.<sup>38</sup> Awareness about healthier foods has risen, due to more scientific research and public health campaigns.<sup>39</sup>

Conversely, however, a 2013 report card on the changing American diet from 1970 to 2010 showed that over this 40-year period the consumption of fruits and vegetables barely budged, and Americans increased their intake by 450 calories more per day.<sup>40</sup>

There are many people who are dedicated to changing the American diet, and every day countless people change the way they eat for the better.<sup>40</sup>

Interestingly the “descendants” of the pioneers who have been battling highly processed foods are still at it. The Weston Price Foundation is dedicated to restoring nutrient-dense foods to the human diet through education, research, and activism. The foundation supports a number of movements that contribute to this objective, including accurate nutrition instruction, organic and biodynamic farming, pasture-feeding of livestock, community-supported farms, honest and informative labeling, prepared parenting, and nurturing therapies.<sup>41</sup>

The Price-Pottenger® Nutrition Foundation is on a mission to “teach the public and professionals about foods, lifestyle habits, healing modalities, and environmental practices that can help people attain vibrant health.”<sup>42</sup>

Standard Process, founded by Dr. Royal Lee, is dedicated to “applying systems thinking to holistic nutrition that empowers practitioners to transform lives.”

As Dr. Royal Lee said, in the end it is about determining what is essential food and what is not. During his lifetime, he focused on deficiencies that occurred as a direct relationship to the lack of essential foods. He defined essential food as “a substance normally found in food that is necessary for life and health. Without such a component, a specific reaction of specialized starvation occurs in the way of some disease syndrome.”<sup>43</sup>

In contrast, he pointed out that there were many other widely used foods that were not essential. He listed these nonessential food components as refined carbohydrates, such as candy, white flour, starch, and processed cereals, and synthetic fats, such as hydrogenated oils. For him, these nonessential foods were not necessary for life and were often used as fillers and carriers.

He stated quite accurately, “No disease can result from the deficiency of nonessential food components.”<sup>44</sup>

Much has changed in terms of public opinion since that writing by Dr. Lee. The mainstream medical consensus now points to consumption of these nonessential food components found in the standard American diet as the cause or influencer of chronic conditions. The positive side to all of this is that awareness of the value of whole foods has grown. Greater emphasis is placed on educating people about the negatives of refined foods and the positives of a well-balanced diet. While highly processed foods are still readily available, more people are making educated choices about which foods to eat. *That* is progress.

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## Endnotes

1. <http://www.scientificamerican.com/article/processed-food-a-two-million-year-history>.
2. <https://modernpionermom.com/2012/07/05/processed-foods-history-1910s-to-1950s>.
3. Lyons, Kathy, and William D. Evers. 2000. "How America's Eating Has Changed Since the Beginning of the 20th Century." *Food Review*. 10(15).
4. See note 2 above.
5. <http://www.foodtimeline.org/fooddecades.html>.
6. See note 2 above.
7. See note 3 above.
8. See note 3 above.
9. See note 5 above.
10. Ibid.
11. Stitt, Paul A. *Fighting the Food Giants*. Manitowoc, WI: Natural Press, 1993. See more at <http://www.westonaprice.org/health-topics/dirty-secrets-of-the-food-processing-industry/#sthash.xmKCrFxx.dpuf>.
12. <http://www.civildefensemuseum.com/cdmuseum2/supply/food.html>.
13. <http://www.buzzfeed.com/copyrater/one-of-the-biggest-con-jobs-in-advertising-history-part-2#.xp9B9rJRg9>.
14. See note 3 above.
15. Carpenter, Kenneth J. 2003. "A Short History of Nutritional Science: Part 3 (1912-1944)." *The Journal of Nutrition* 133(10):3023-3032.
16. Harper, A. E. 2003. "Contributions of Women Scientists in the U.S. to the Development of Recommended Dietary Allowances." *The Journal of Nutrition* 133(11): 3698-702.
17. See note 15 above.
18. <http://www.bistromd.com/healthy-eating/why-do-processed-foods-taste-so-good>.
19. Johnson, R. J. et al. 2007. "Potential Role of Sugar (Fructose) in the Epidemic of Hypertension, Obesity and the Metabolic Syndrome, Diabetes, Kidney Disease, and Cardiovascular Disease." *The American Journal of Clinical Nutrition* 86(4): 899-906.
20. Warner, Melanie. *Pandora's Lunchbox: How Processed Food Took Over the American Meal*. Scribner, 2013. Print.
21. Welch, R. W., and P. C. Mitchell. 2000. "Food Processing: A Century of Change." *British Medical Bulletin* 56(1):1-17.
22. Clauson, Annette. "Despite Higher Food Prices Percent of U.S. Income Spent on Food Remains Constant." *Research in Agricultural and Applied Economics*. Accessed April 14, 2014.
23. Delevingne, Lawrence, Business Insider, Oct 7, 2009. <http://www.businessinsider.com/overdraft-fees-are-bleeding-americans-2009-10>.
24. <http://www.askdrsears.com/topics/feeding-eating/family-nutrition/standard-american-diet-sad>.
25. See note 21 above.
26. <http://www.cdc.gov/diabetes/pubs/statsreport14/national-diabetes-report-web.pdf>.
27. CDC, NCHS. Underlying Cause of Death 1999-2013 on CDC WONDER Online Database, released 2015. Data are from the Multiple Cause of Death Files, 1999-2013, as compiled from data provided by the 57 vital statistics jurisdictions through the Vital Statistics Cooperative Program. Accessed Feb. 3, 2015.
28. Ogden, Cynthia L. et al. 2014. "Prevalence of Childhood and Adult Obesity in the United States, 2011-2012." *The Journal of the American Medical Association* 311(8):806-814.
29. Finkelstein, Eric A. et al. 2009. "Annual Medical Spending Attributable to Obesity: Payer-and-Service-Specific Estimates." *Health Affairs* 28(5): w822-w831.
30. See note 27 above.
31. <http://money.usnews.com/money/personal-finance/articles/2013/01/02/the-heavy-price-of-losing-weight>.
32. <http://www.webmd.com/diet/obesity/6-steps-to-changing-bad-eating-habits>.
33. Johnson, Paul M., and Paul J. Kenny. March 28, 2010. "Dopamine D2 Receptors in Addiction-Like Reward Dysfunction and Compulsive Eating in Obese Rats." *Nature Neuroscience*: 635-641.
34. <https://www.dosomething.org/us/facts/11-facts-about-american-eating-habits>.
35. <http://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/basics/healthy-diets/hlv-20049477>.
36. <http://www.wholefoodsmarket.com/healthy-eating/four-pillars-healthy-eating>.
37. <http://www.nytimes.com/2015/07/25/upshot/americans-are-finally-eating-less.html>.
38. See note 28 above.
39. See note 37 above.
40. [https://cspinet.org/new/pdf/changing\\_american\\_diet\\_13.pdf](https://cspinet.org/new/pdf/changing_american_diet_13.pdf).
41. <http://www.westonaprice.org/about-the-foundation/about-the-foundation>.
42. <http://ppnf.org/about/ppnfs-mission>.
43. Lee, Royal. *Manual of Clinical Trophology*, Lee Foundation for Nutritional Research.
44. Ibid.