



GRAINS

The Chinese characters for "fasting" literally translate into "avoiding grains".

**"It's a wonder we ever survived Wonder Bread."
- David Wolfe**



Table of Contents:

- GRAINS AND GLUTEN**
- GRAINS AND THE HUMAN BODY**
- SPROUTED GRAINS**
- REFINED SUGAR AND COOKED STARCH**
- JUNK SUGARS STUDIES**
- REDUCE GRAINS AND SUGAR TO LOSE WEIGHT AND IMPROVE HEALTH**
- GRAIN DAMAGE REVIEWS**
- CEREALS BY HERBERT M. SHELTON**

See also:

- Celiac Disease**
- Crohn's Disease**
- Candida and Candidiasis**
- Depression**

Books:

- [Grain Damage by Dr. Doug Graham](#)**
- [Dangerous Grains by James Braly, MD](#)**
- [Eating for Beauty by David Wolfe](#)**
- [The Body Ecology Diet by Donna Gates](#)**

Articles:

- [Cereals, chpt 12 in *The Science and Fine Art of Food and Nutrition* "Grains – Staff of Death" by Herbert Shelton](#)**

Websites:

- www.Mercola.com**

Publications:

Organizations:

People:

Integral Nutrition:

Conventional:

Terms: **Gluten**

GRAINS AND GLUTEN

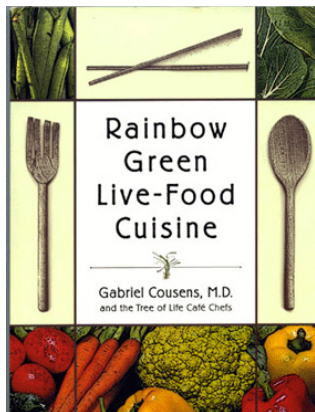
Source: "Non-Beautifying Plant Foods", [Eating for Beauty](#) by David Wolfe, pp. 254



Many cereal grain seeds (such as wheat berries) are so hybridized that they contain too much gluten. Gluten is an irritating inflammatory substance that can actually burn the sensitive lining of the intestines. Products made from wheat seeds (bread, pasta) can actually cause our face to become puffy. These products, like other starchy carbohydrates (baked potato), tend to make our skin pale and pasty in appearance.

GRAINS AND THE HUMAN BODY

Source: [Rainbow Green Live Food Cuisine](#) by Gabriel Cousens, M.D. (19-23), www.treeoflife.nu



GRAINS CONSTITUTE THE NEXT CLASS OF YEAST/FUNGI/MOLD-STIMULATING FOODS AFTER THE HIGH-SUGAR FOODS AND FRUITS IN PARTICULAR. Research shows that stored grains ferment in 90 days. Within that time many mycotoxins are produced. In essence, stored grains are a mycotoxic hazard. A correlation was found between 112 patients with esophageal cancer and eating of stored grains (*Cancer*, 1987). There was a particular risk factor for stomach cancer among Scandinavian and German men eating stored grains reported in *The Fungal/Mycotoxin Etiology of Human Disease*, vol. 2. Stored potatoes also represent a mycotoxic risk. The black spots on them are caused by the fungi *aspergillus* and *fusarium*, which produce the **mycotoxins** *aflatoxin* and *fumosium*. Some grains are not stored and therefore are not a

mycotoxic hazard. These include spelt, amaranth, quinoa, millet, buckwheat, and wild rice. Buckwheat is often thought of as a seed, but it is actually classified as a grain. Buckwheat and quinoa are the only

grain-like foods that we use on a regular basis at the Tree of Life Café because they can be sprouted and served live [The Tree of Life Café as of 2004 curtailed significantly the use of buckwheat, and ended the use of quinoa]. Our latest research shows that wild rice, widely believed to be raw, apparently is not. (See “The Secrets of Preparing Rainbow Green Live Food Cuisine” for more on wild rice.)

In discussing this topic, I do not want to be in a position of going “against the grain” of society, but as I look closely at this issue, I need to point out the effect of grain on our society and our health. For five million years, humans thrived without using grains. Explorers have found that many societies worldwide never really used grains, including the Polynesians and early Africans. As we look at global food needs, it is clear that compared to meat-eating, switching to grains would meet our worldwide food problems. You can feed forty times more people on grains before the grains are eaten by livestock than once they have been converted to meat. Grain consumption is certainly better for the world and personal health than eating animals and dairy. However, eating grains does not take us to the highest octave of health that we can achieve.

Historical records suggest that humanity thrived on a diet primarily composed of vegetables, fruits, nuts, and seeds. Grains were not included in this. The only natural grain eaters are birds. In hard-core reality, bread does not exist in nature. To eat grains, we usually have to cook them. Some grains, however, can be sprouted, and we can make some adjustments to make the grains taste good—but the question is: *“Do we need to make adjustments so we can eat grains?”* Foods that require cooking to be consumed probably are not very good nutritionally for humans, even before cooking. By cooking them, we further compromise their nutritional value, because the vitamins, minerals, enzymes, co-enzymes, carbohydrates, proteins, and fats are damaged or destroyed by the heat of cooking. What we get with grains after they have been cooked is the maximum amount of calories with the minimum amount of nutrients.

Most grains create acidity except for buckwheat and millet. Grains contain very little calcium and are also low in sodium, chlorine, iodine, sulfur, and other minerals. In fact, vegetables as well as fruits contain from ten to a hundred times more calcium and other base minerals per calorie than grains. But grains do contain high amounts of acid-forming minerals. Grains are primarily acid-forming. We must remember that acidity is one of the main things that push the recycle or rotting button. **In order to neutralize some of the uric acid from grains, our bodies use up available calcium and must pull calcium from our bones to replace the loss.** In order to deal with the poor or bland taste of cooked or even raw sprouted grains, we end up having to add flavoring agents such as salt, fats, oils, refined sugar, dried fruits, or other fruits and spices. Many of these condiments contribute to the pushing of the recycle button. There is a tendency to balance the grains with fats in our diet, and again we run into a bit of a problem because many of these fats tend to support fungal growth. We often see jelly or butter on toast, or sour cream on corn chips, or a cheese sandwich; all are things that we use to balance the taste of grain. So we find ourselves living through a high-grain and –fat diet. Neither is particularly good for health. Grains are especially noted for their high fiber content. However, humans have more sensitive systems, and we require what is given to us naturally in nature, which is the soft, **soluble fiber** found in fruits and vegetables. Grain fiber is coarse and sharp **non-soluble fiber**. While it helps to clear things out, it also acts as an irritant in our system, and irritating the colon can actually worsen certain conditions, such as irritable bowel. The presence of non-soluble grain fiber in the intestines causes food to move from the bowels more rapidly than usual. This reduces nutrient absorption.

Grains do not rot like fruit, but they do ferment. This fermentation is the mixture of the starch, sugar, and sometimes the yeast. The result of these products is alcohol and gas. The alcohol is a mycotoxic by-product and can create what we refer to by the phrase “**food drunk.**” Alcohol is a **protoplasmic poison**, which means that it has a negative effect on any cell in the body. Grains have generally been associated with a series of problems: allergies, asthma, gluten and gliadin intolerance, digestive disturbances, yeast infections, various mucous and congestive conditions, and several types of arthritis. These are, of course, linked with mycosis, either directly by eating grains, or indirectly through eating the animals that feed on them and drinking the animals’ milk. A high percentage of my clients have grain allergies and get much better when they stop eating grains. Grain allergies not only cause the typical mucous membrane irritation, congestion, asthma, and sinusitis, but can have an effect on the mental state as well. Gluten, an ingredient in many grain products, has been associated with several forms of mental and neurological disorders. **Some research has found that gluten contains fifteen different opioid sequences (morphine-like molecules).** These can add to the addictiveness and neurotoxic effect of the grains. I believe that these opioids are in some way connected to the addictive eating patterns associated with grains, as well as to some learning disorders and to schizophrenic reactions in some people.

Not only do grains on their own create problems, but many toxic chemicals are used in the processing of grains. These include mercury, cyanide, ammonium, salt, chlorine, fluorine, mineral oil, alum, and aspartame.

In my experience as a psychiatrist and holistic physician, I see many people with eating disorders. Many have problems with starches, especially the white-flour, white-sugar starches that we call pastries. The eating of these foods seems to be very much connected with blood-sugar imbalances, depression, and short-term highs. It seems that most people do not binge on vegetables, but they do binge on starches. Starchy foods are the number-one choice to “calm and comfort.” One name for this addiction is “starchaholic.” Additional symptoms of starchaholics include an immediate clarity they feel when they have their sweet or starch, which moves to confusion; and changes in mental state from well-being to negativity and depression, from cooperative to uncooperative, from peaceful to aggressive, from a sensitive, tuned-in person to one who is numb, from energetic (which may happen initially for a few minutes to one-half hour or an hour) to lethargic. These symptoms are very common. **As people begin to withdraw from these starches there often is emotional pain associated with the withdrawal,** which creates a tremendous drive to have that piece of cake or pizza in order to feel better. Sometimes after stuffing themselves with pastries, starchaholics fall asleep. The most common tip-off sign of being a starchaholic is the frequent use of and powerful cravings for starches. In America, people may be having starchy foods as often as three times a day, and then even more often as snacks. **There is also a tendency to overeat starchy foods such as pizza and pasta, because we get such a slow rise in the blood sugar that the appetite control is not turned off until we have already overeaten.** There is a tendency in starchaholics to put on a significant amount of weight.

From an ecological point of view, grain consumption is significantly better than consuming livestock, but when compared to fruit orchards and vegetable growth we see that almost 250% more people can be fed with an acre of orchard than with an acre of grain. So even though it is an improvement it is still not the most beneficial path. It is really the same with health: from the vegetarian and vegan point of view, clearly grains are a more healthy food than flesh and dairy. But compared to live, raw vegetables and a little bit of fruit, nuts, and seeds, grains are a very poor second choice. Not only are most grains stored, which is why we have the mycotoxin problem, but once the grains are harvested and milled, they lose a significant amount of their nutritive value. There is no such thing as “fresh

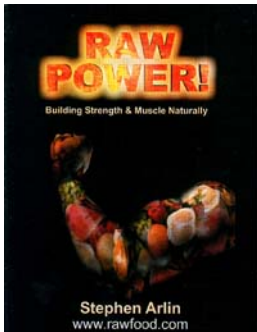
bread." Most flour may be years old before it is used. Not only am I concerned about the mold and fungus in storage, but infestation of insects and rodents. The freshest foods are, of course, vegetables, nuts, fruits, and seeds that are picked directly from the garden.

The bottom line is simply this: from the perspective of how to create a low-mycotoxin diet, stored grains feed the mycotoxicity and therefore create a highly mycotoxic diet. They do this because: (1) most grains create acidity, which further alters the biological terrain, and (2) most grains are kept in storage, giving them the chance to begin the fermentation process and, therefore, are filled with mold and fungus and a high amount of mycotoxins.

For these two reasons, the Rainbow Green Live-Food Cuisine does not include grains, except for a moderate amount of sprouted quinoa and sprouted buckwheat.

SPROUTED GRAINS

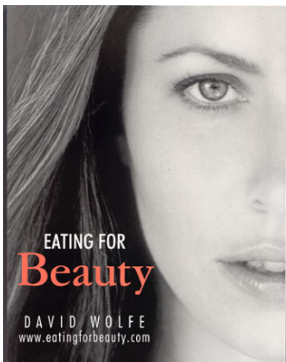
Source: Arlin, Stephen. [Raw Power!](#) pp. 60



"Even though they are traditionally thought of as starchy foods, some grains can add a substantial amount of protein to one's diet **when they are sprouted**. As opposed to the breakdown of cooked grains, the complex carbohydrates in sprouted grains, along with their available protein, break down into simpler sugars and readily absorbed amino acids. Whole grains are also a source of vegetable lignans, those great anti-cancer, hormone balancing, health promoting phytochemicals."

REFINED SUGAR AND COOKED STARCH

Source: Refined Sugar and Cooked Starch in [Eating For Beauty](#) by David Wolfe (29)



It seems that the most unhealthy-looking people eat refined sugar and white flour products. Candy, sweets, cake, and sodas destroy the teeth and complexion while adding layers of unwanted weight. Starchy cooked carbohydrates make the skin dry and pasty-white in color.

Cooked starchy foods, such as bread, rice, pasta, ricecakes, potato chips, corn chips, baked potatoes, and sweet soy drinks tend to **be low in minerals and high in sugar**. This is the exact characteristic we should avoid in food. This characteristic influences blood sugar levels making cooked starchy foods quite

addicting.

Types of food containing high carbohydrates (sugars) and low amounts of minerals also run minerals out of the body. This is because minerals are heavily used by the pancreas to create insulin to balance the blood sugar fluctuations caused by eating starchy food.

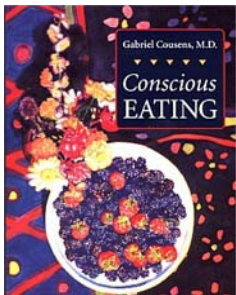
This characteristic of a food containing high carbohydrates and low minerals can lead to a fungus, yeast (candida), and mold overgrowth in the body. Because candida is such a common issue, I dedicated an entire section to it in my book *The Sunfood Diet Success System*.

This low quantity of minerals found in cooked starchy carbohydrates is due to hybridization of crops and abysmal commercial farming practices. Standard commercial farming occurs in mineral deficient soil using weak seeds. Without minerals and strong genetics, plants become subject to pestilence (insects, fungus, mold, etc.) (See *Sea Energy Agriculture by Maynard Murray and Fertility From the Ocean Deep* by Charles Walters, published by Acres, U.S.A. in Austin, TX) This has brought about the destructive use of pesticides in a fruitless attempt to remedy the situation. These foods, even after cooking, processing, and packaging are still subject to attack by fungus, yeast, and mold. When digested, these foods can feed fungus, yeast, and mold already within the digestive system.

Everything we eat should be as densely mineralized as possible; therefore we should eat organic foods grown from strong seed strains in mineral-rich soils.

JUNK SUGARS STUDIES

Source: [Conscious Eating](#) by Gabriel Cousens, M.D. (166)



Case Study: Mrs. Barbara Reed, Probation Officer

The link between a tamasic-type diet [junk-food diet] and social violence has been supported by consistent research findings on teenage offenders. When teenagers' diets were changed from their typical high white sugar, fast-food, tamasic-type diet, a marked decrease in the teens' acting-out, violent behavior occurred. For example, Mrs. Barbara Reed, a probation officer in Cuyahoga Falls, Ohio, found that when she switched offenders from what was essentially a tamasic diet of fast foods, et cetera, to a diet higher in fruits and vegetables, every one of the 252 teenagers in her case load stayed out of court as long as they maintained themselves on a healthy diet.

Study: Juvenile Delinquent White Sugar Consumption

A two-year, scientifically precise study with 267 subjects by Steven Schoenthaler, Ph.D., published in the *Journal of Biosocial Research*, showed that while **the average American eats approximately 125 pounds of white sugar per year, juvenile delinquents in custody averaged about 300 pounds per year**. When this sugar intake was significantly reduced, junk food was reduced, and fruits and vegetables were increased, there was a 48% decrease in antisocial behavior of all types, including violent crimes, crimes against property, and runaways. This was true for all ages and races. This amazing result was achieved simply by changing the diet with no cost to the taxpayer.

A tamasic diet of fast and junk convenience foods can cause vitamin deficiencies, which can disrupt the proper working of the brain, not to mention create a disharmonious lifestyle. Our bodies may shift into an unbalanced state, in large part due to vitamin deficiencies, especially of vitamins B1, B3, B6, and B12. A deficiency of these vitamins has been shown to create a number of mental and nervous system imbalances.

REDUCE GRAINS AND SUGAR TO LOSE WEIGHT AND IMPROVE HEALTH

Source: Dr. Joseph Mercola, <http://www.mercola.com/article/insulin.htm>

For several million years, humans existed on a diet of animals and vegetation. It was only with the advent of agriculture a mere 10,000 years ago - a fraction of a second in evolutionary time - that humans began ingesting large amounts of sugar and starch in the form of grains (and potatoes) into their diets. Indeed, 99.99% of our genes were formed before the advent of agriculture; in biological terms, our bodies are still those of hunter-gatherers.

While the human shift to agriculture produced indisputable gains for man - modern civilization is based on this epoch - societies where the transition from a primarily meat/vegetation diet to one high in cereals show a reduced lifespan and stature, increases in infant mortality and infectious disease, and higher nutritional deficiencies.

Contemporary humans have not suddenly evolved mechanisms to incorporate the high carbohydrates from starch- and sugar-rich foods into their diet. In short, we are consuming far too much bread, cereal, pasta, corn (a grain, not a vegetable), rice, potatoes and Little Debbie snack cakes, with very grave consequences to our health. Making matters worse, most of these carbohydrates we consume come in the form of processed food.

That 65% of Americans are overweight, and 27% clinically obese, in a nation addicted to sesame seed buns for that hamburger, with a side of French fries and a Coke, is no coincidence. It is not the fat in the foods we eat but, far more, the excess carbohydrates from our starch- and sugar-loaded diet that is making people fat and unhealthy, and leading to epidemic levels of a host of diseases such as diabetes.

If you are experiencing any of the following symptoms, chances are very good that the excess carbohydrates in your body are, in part or whole, to blame:

- Excess weight
- Fatigue and frequent sleepiness
- Depression
- Brain foginess
- Bloating
- Low blood sugar
- High blood pressure
- High triglycerides

We all need a certain amount of carbohydrates, of course, but, through our addiction to grains, potatoes, sweets and other starchy and sugary foods, we are consuming far too many. The body's storage capacity for carbohydrates is quite limited, though, so here's what happens to all the excess: they are converted, via insulin, into fat and stored in the adipose, or fatty, tissue.

Any meal or snack high in carbohydrates generates a rapid rise in blood glucose. To adjust for this rise, the pancreas secretes the hormone insulin into the bloodstream, which lowers the glucose. Insulin is, though, essentially a storage hormone, evolved over those millions of years of humans prior to the agricultural age, to store the excess calories from carbohydrates in the form of fat in case of famine.

Insulin, stimulated by the excess carbohydrates in our overabundant consumption of grains, starches and sweets, is responsible for all those bulging stomachs and fat rolls in thighs and chins.

Even worse, high insulin levels suppress two other important hormones - glucagons and growth hormones - that are responsible for burning fat and sugar and promoting muscle development, respectively. So insulin from excess carbohydrates promotes fat, and then wards off the body's ability to lose that fat.

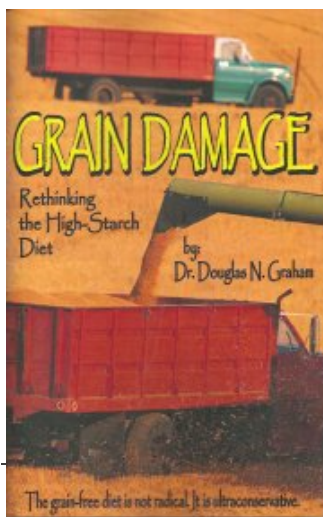
Excess weight and obesity lead to heart disease and a wide variety of other diseases. But the ill effect of grains and sugars does not end there. They suppress the immune system, contributing to allergies, and they are responsible for a host of digestive disorders. They contribute to depression, and their excess consumption is, in fact, associated with many of the chronic diseases in our nation, such as cancer and diabetes.

The bottom line is this: Americans need to reduce their intake of grains, including corn-based foods, and all sweets and potatoes, dramatically.

"Grains are often an unidentified risk. Most grains break down to sugar very rapidly and can cause the same problems with insulin dysregulation". **Dr. Joseph Mercola**

GRAIN DAMAGE by Dr. Graham: REVIEWS

"Grain Damage: Rethinking the High Starch diet.



"Grains are a recent addition to our diet, one that has not served us well. They seem to have an addictive quality. After working with people for many years I have found they thrive better on a grain free diet. It was only by eliminating grains completely from my diet that 'i was unable to resolve my chronic allergy problems." **Jeff Novick, M.S., R.D., L.D. /Director Nutrition, Pritikin Longevity Center.**

"My speed, endurance, strength, recovery, coordination, and flexibility have all improved tremendously since going on the starchless diet. My overall fitness has never been better. I have been on Dr. Graham's program for two

years, am playing my best basketball, and I am not looking back" **Ronnie Grandison, age 34, New York Knicks**

"Having had extensive experience working with hundreds of food addicts, I know this to be the first and only publication that exposes the real physiological cause of eating disorders. It belongs on the shelf of every health care professional." **Prof. Rozalind Grubin, AHSI, RSA**

"As Dr. Graham has shown, grain crops are not a natural food for humans...grain farming has stripped the fertile Earth of its minerals. Grain crops are processed, cooked, eaten, and eliminated into the sewers and waterways of civilization. Erosion wears down unstable grain fields washing minerals away. Jungles are turned into rice paddies. One way or the other the soil minerals end up at the bottom of the ocean. Your choice to go "against the grain" radically helps the planet." **David Wolfe, Author, Nature's First Law; the Raw Food Diet.**

CEREALS

Source: Herbert M. Shelton, CHAPTER XII, *The Hygienic System*

<http://www.soilandhealth.org/02/0201hyglibcat/020126shelton.orthotrophy/020126.toc.html>

Cereals, after Ceres, goddess of the harvest, are grains. Oats, wheat, rye, rice, barley, millet, and similar grass seed, used as foods, are denominated cereals. They grow and mature in short seasons, can be grown in parts of the world that have short growing seasons, will grow almost everywhere, may be produced with a minimum of effort and will keep almost indefinitely. For these reasons they have been the mainstay of whole populations, despite the many objections that may be offered to their use. Until recent modern times, they were used almost wholly as whole grain and not as refined products.

I should not have to remind my readers that the only grain products that are permissible in the diet of an intelligent and informed individual are whole grains in the dry state. But after this has been said, it is necessary to sound a warning against the use of grains in the *Hygienic* diet. At their best, grains are inferior articles of food and they certainly form no part of the normal diet of man. Every man, woman and child in the land will be better off by leaving them out of their diet.

Dr. Emmet Densmore was the first to raise a voice against the use of cereal products. He pointed out that man is a frutarian animal, not adapted to the use of cereals, and traced many evils to the employment of grains, even whole grains, as food. He declared bread to be the "staff of death" instead of the "staff of life" as it is usually referred to.

Considering man a frutarian and finding that fruits (ripe) contain plenty of sugar, but little or no starch, whereas the cereal and vegetable diet of civilization is largely starch, he began to investigate the subject still more. He soon found that starch requires much more time and energy to digest than fruit and that cereals are the most difficult of all to digest. "Fruits are best, cereals are worst" he declared. He quotes, approvingly, Dr. Evans as saying: "Cereal and farinaceous foods form the basis of the diet of so-called vegetarians, who are not guided by any direct principle, except that they believe it

is wrong to eat animal food. For this reason vegetarians enjoy no better health, and live no longer than those around them'."

Declaring man not to be naturally a grain-eating animal, Densmore says: "The only animals that may be truly said to be grain-eating are birds. Many species of birds eat a considerable portion of grass seeds (and all cereals are developed from grass) * * * birds are the animals for which starchy seeds are the natural food, and birds have altogether a different digestive apparatus from other animals." Even birds do not feed their young on grains--"They generally feed their young on insects and molluscs, while feeding themselves on fruits and seeds," declares Densmore.

Squirrels often are forced, from scarcity of food, to eat cereals. They bite off the end containing the germ and eat this, leaving the rest of the grain. Berg says "the proteins of most seeds, and especially those of cereals, are especially characterized by inadequacy due to a lack of cystin and lysin. In like manner, it is a common characteristic of seeds, not only to contain an excess of acid, but also to exhibit a deficiency of calcium. For lime is almost always present in the soil, so that seeds need not contain any more calcium than is requisite to provide for the growth of the first rootlet. In animal organisms, on the other hand, the need for calcium is very great. Cereals, consequently, quite apart from the fact that they contain an excess of acid, are about the most unsuitable food we can force upon the growing animal organism. The best proof of this is that even graminivorous birds collect insects to nourish their young. The fledglings of the most strictly vegetarian birds are carnivora."

All experimenters seem to agree that the much vaunted cereal diet is inadequate. Funk, Simmons, Pitz, Hess, Unger, Hart, Halpin, Steenbock, Davis, Hogan, Mendel, Wakeman, Parsons and others of equal standing agree with Berg who agrees with Densmore. Oats are deficient in basic salts. Wheat is deficient in sodium and calcium, while the germ of the wheat is inadequate as a growth-factor. Rice is deficient in salts, and especially in calcium. It does not contain enough calcium to support an adult hog. It is also deficient in sodium and chlorine. They are all lacking in iodine.

Mineral deficiency is a common fault in the diet of young animals fed largely on cereals and it has long been known to farmers and stockmen that their animals must have grass and other green foods--that they will not thrive well on an all-cereal diet. In his laboratory experiments with whole wheat bread, Milo Hastings found that the animals used thrived better and grew more rapidly as the percentage of green foods was increased and the percentage of whole wheat bread was decreased in their diet. If the green foods constituted well over half their diet, they thrived best.

"We have learned," says Berg, "that all cereals have certain defects which may be looked upon as characteristic of these nutriment. As regards inorganic salts, they are deficient in sodium and calcium; they are also poorly supplied with organically combined sulphur and with bases generally; but they contain a superabundance of inorganic acid-formers and of potassium. The cereals are also poor in A, B and C, the poverty being more marked in proportion to the fineness of the flour. Finally, the proteins of the cereals are always inadequate; they are lacking to some extent in the ringed amino-acids, and are especially poor in lysin and cystin."

The contention, so frequently heard, that whole wheat is a perfect food, is a foolish statement of over-enthusiastic salesmen. A few years ago an acquaintance of the writer's made an effort to walk from New York to San Francisco on a diet of whole raw wheat alone. Before starting, however, he consulted me and I advised him not to try it, but to have an abundance of lettuce and celery and some fruit in addition to his wheat. He would not hear of such a plan. Whole wheat is a perfect food and he

was going to prove that one could accomplish such a walk on a whole wheat diet. He didn't get as far on his wheat as George Hassler Johnston got on his water diet (fasting) before he discovered that whole grain wheat is not the perfect diet that the "health" food exploiters and amateur dietitians say it is.

"It has long been known," says Berg, "that when herbivores, and still more when rodents, are fed exclusively on grain, acidosis rapidly ensues. In rabbits on a maize diet, for example, the acid urine contains far more phosphorus than is being introduced in the food. (Showing that phosphorus is being lost from the animal's tissues.--Author). * * * Rats, again, can only endure an exclusive grain diet for a short period, speedily succumbing to such a regime. An abundant addition of protein to the grain does not help. Hogan, however, tells us that that an addition of alkalies preserves life and has a marvellous effect in furthering growth."

McCollum fed rats on a diet restricted to grains--only one kind of grain being used at a time--and found that they became restless, irritable and apprehensive. They were "on edge," rather than "full of pep." He inclines to the belief that the "obstreperousness" of the horse that "feels his oats" is due to the fact that he is suffering from an "attack" of nerves; that he is displaying pathological irritability and apprehensiveness, rather than healthy activity.

There are vegetarians who might more properly be called *cerealists*; that is, they drop flesh from their diet and substitute large quantities of cereals therefor. Usually they do this because they are told that whole wheat, for example, is an almost perfect food--"has all the elements the body needs in about the right proportion." These people not only consume too much cereal for which they suffer, but they eat their cereal in forms that tend to ferment before it digests.

Take for example, the mush dish of boiled oat-meal, to which has been added milk and sugar, so commonly eaten. It is one of the worst abominations that ever slipped down the human throat. It is practically indigestible. No saliva and no ptyalin are poured out upon such a dish and it may remain in the stomach for hours, undergoing little or no digestion, before it is permitted to pass into the intestine. Fermentation is inevitable. Cracked wheat, soaked and boiled, and then served with milk and sugar, milk and honey, milk and sweet fruits, is equally indigestible.

The oatmeal, or cracked wheat or other soaked or boiled cereal does not undergo salivary digestion, even when, and if, eaten without milk and sugar. When eaten in the usual combination, digestion is doubly impossible.

Flaked cereal foods (various types of corn flakes and other such foods) are much in use. Chemical analysis shows them to be possessed of abundant food value, though, actually, they are largely charcoal. They are said to be ready-cooked and predigested. This is a fallacy that the public must outgrow. They are pressed between rollers at intense heat and are rendered practically valueless as foods.

Whole wheat alone will not sustain life, health and growth in an ideal manner. After a shorter or longer period on such a diet, the rate of growth slackens unless, in addition to the whole wheat, the animal is also fed some green foods. Furthermore, if growth is to continue in an ideal manner, the amount of green foods must be greater than the amount of whole wheat. Hasting's experiments only serve to corroborate the correctness of the long-time observations of farmers that their horses, mules,

etc., must be given grass or other green foods and cannot be fed exclusively upon grains or other dry foods for any considerable time without harm.

Wheat is the most acid-forming of the cereals. Oats seem to have the worst effect on the teeth. Rice which is probably the best of the cereals, is the staple article of food in the diet of more than half the world's human inhabitants. Cases of beri-beri in human beings have been reported in which whole and not polished rice constituted the bulk of the diet.

I have repeatedly referred to the dangers of attempting to feed man after the results of experiments on animals. For, as Berg says, "The same nutriment has very different effects on different species of animals." Maize proves harmless to fowls and pigeons. Rats maintain health on it. It produces marked polyneuritis in rabbits and scurvy in guinea pigs. Pigs fed on maize die from general malnutrition. Fowls fed on wheat maintain health while pigs and rats develop polyneuritis on this diet, and guinea pigs develop scurvy thereon.

Says Berg: "The varying reactions of different species of animals to an identical diet is still a complete enigma, and in my opinion insufficient attention has been paid to the matter. Speaking generally it would seem that graminivorous birds thrive on whole grains, but suffer from polyneuritis when the grain is hulled. In mammals, on the other hand, grain feeding may cause polyneuritis in certain circumstances, especially in rodents (except for the omnivorous rat), which are highly susceptible to acidosis. In many mammals, however, a grain diet induces scurvy instead of polyneuritis; while some animals perish from general malnutrition owing to the inadequate supply of inorganic nutriments in the grain. When grain has been thoroughly hulled, almost all animals, human beings included, become affected with polyneuritis. Are these variations due to varying requirements in respect to vitamins; or are the polyneuritic disorders due to the absence of various vitamins which act differently in different species of animals, or are essential to different species in varying degree?"

This last question of Berg's completely ignores the mineral deficiencies of grain and the varying requirements of various animals for these minerals. It completely ignores the individuality of the organization and functions of the various species. It is enough for us, at this point, that we note the evils of the largely grain diet and the confirmation of Densmore's earlier claims. While fowls thrive on a grain diet (this is only true of adult fowls), we must not overlook the fact that in a state of nature the graminivorous birds all consume large quantities of green grasses, and even consume most of the seeds or grains in their green or "milk" state, when they are alkaline and not acid.

Corn, while green and still growing, contains almost no starch, but considerable sugar. During the last two or three weeks of its maturing period, this sugar is converted into starch which, unlike sugar, is insoluble in water and therefore not readily fermentable. What is true of corn is true of other grains.

Green corn is not classed as a starch. It ranks relatively high as a base-forming food. Some of our State Agricultural Experiment stations have shown that, when green corn is detached from the stalk, it immediately begins to ripen and will accomplish as much of the ripening process in twenty-four hours, as it would have done in several weeks, had it been left on the stalk. So rapid is the transformation of the sugar into starch that in twenty-four hours, it is changed from an alkaline-ash to an acid-ash food.

Germinated grains make better food than dry grains. Grains "in milk," this is, before they have been matured, are alkaline foods, but the matured grains are acid. Fresh corn on the cob, not off the stalk for twenty-four hours or longer, is an alkaline food.

Never before in history have as much cereals and refined flours been consumed, as in America and parts of Europe, since the perfection of the rolling mill process in 1879. Bread is consumed in enormous quantities. Breakfast foods (denatured cereals) are eaten in considerable quantities in almost every household. "Health" food stores and "health" food factories turn out more cereal products than all other products combined. The advocates of whole cereals, in preference to the denatured kinds, did their work too well. Vegetarians are usually great eaters of cereals. They would receive less harm from moderate amounts of meat.

Cereal (denatured) with cream (pasteurized) and sugar (white) is a staple breakfast in most households. A predominantly acid forming breakfast, a horrible combination--and plenty of sickness as a result. The physicians continue to tell us that germs cause our diseases!

Bread eating is one of the great curses of modern life. Made of cereals, largely of denatured cereals, mixed with salt, soda, yeast, lard and often other ingredients and subjected to a high degree of temperature, in cooking, and then eaten three and four times a day, in considerable quantities, mixed indiscriminately with all classes of foods and taken in addition to much other starch food, bread is one of our chief sources of woe.

The so-called enrichment of white flour has given people a false sense of security. Various states have passed laws requiring the "enrichment" of all flour manufactured in or shipped into them. The people are lead, by this requirement, to believe that the "enriched" flour is good food. Never was a greater fallacy entertained. These laws were lobbied through the state legislatures by the milling companies, in an effort to head off the rising demand for wholewheat flour. They seem to have temporarily succeeded.

This "enriching" process adds a small quantity of "synthetic vitamins" but does not return to the flour the minerals that have been extracted. Seventy-five percent of the minerals of the wheat are extracted in the process of making white flour. All of the vitamins, and not just one, are removed. The present process of "enrichment" is similar to the process of sixty and seventy years ago of adding phosphorus to the flour to replace the phosphorus extracted in milling.

In the milling process organic salts are extracted. These are not returned by the "enriching" process. In the milling process real vitamins are removed. Part of these are replaced, by the "enriching" process, with fraudulent or imitation vitamins. What folly to remove the vitamins in the first place! Why not leave them in the flour and why remove them at all?

Dr. Anton J. Carlson, noted physiologist of the Department of Physiology of the University of Chicago, recently uttered a warning about this very matter in which he said that the term "enriched" applied to white flour to which a little vitamin B is added is misleading. "Such flour is still impoverished," he said. Referring to the fact that the idea is "put across" that "enriched" flour is better than whole grain flour he pointed out that refining actually takes out salts, vitamins and proteins, only a small part of which are replaced by the "enrichment" process. The learned physiologist added that the theory that some races cannot physiologically tolerate whole grain is without foundation. He declared it to be not a matter of toleration but of acceptance, adding that food acceptance is a

question of what a person is used to from childhood. "You cannot overnight change the diet of a healthy people," he declared, although, since he never saw a healthy people, it would be interesting to know how he came to this conclusion.

Grain alone was shown, by experiments conducted by the Defensive Diet League, to be a much safer food than grain and meat--the combination of these at the same meal being the chief trouble-maker. We know that too much bread, if taken alone, will break down one's health. But the combination of bread and meat causes even more trouble. Such a diet, when fed to experimental animals (young ones), resulted in high blood pressure, Bright's disease and troubles which usually accompany these conditions in man. Neither do the animals grow as they should.

Cereals are about the most difficult to digest of any habitual sources of starch except beans and peas. They are difficult for the infant and growing child. They ferment easily and cause much gas and intoxication.

Cereal starches require from eight to twelve times as long to digest as does potato starch. Grierson found that two full hours are required to digest the starch of wheat, corn and rice, and eighty minutes to digest the starch of oats, whereas the same amount of potato starch digests in ten minutes.

Doctors frequently recommend the feeding of cereals to infants and children. Densmore declared: "Cereal or grain and all starch foods are unwholesome for all human beings; but this diet is especially unfavorable for children, and more especially for babies. The intestinal ferments which are required for the digestion of starch are not secreted until the babe is about a year old; and these ferments are not as vigorous for some years as in adults. All starch foods depend upon these intestinal ferments for digestion, whereas dates, figs, prunes, etc., are equally as nourishing as bread and cereals, and are easily digested--the larger proportion of the nourishment from such fruits being ready for absorption and assimilation as soon as eaten." No starch and, more particularly, cereals, should be given any child before it is two years old.

Dr. Percy Howe, of Harvard University, says: "Mrs. Mellanby and Dr. Pattison, in England, have just concluded a very interesting experiment on 71 children in a bone-tuberculosis hospital, for a period of 28 weeks, which may help to establish the fact that cereals, especially oatmeal, exert an anti-calcifying influence." Calcification is the deposit of lime salts in the tissues. Cereals would prove a distinct evil in rickets, tuberculosis and in growing children, if this is proven to be true. Of course, these people had no right to experiment on these children, but since human vivisection goes on in every hospital and sanatorium in the world, they probably thought they had as much right to flirt with human health and life and produce suffering, as do the other physicians, surgeons and "research" workers.

We may state a few conclusions about cereals from the above facts:

(1) Cereals do not form any part of the natural diet of man and are not necessary to health and life. (I believe geologists and anthropologists are agreed that man did not become a cereal eater until late in his history).

(2) They are best omitted from the diet entirely and especially from the diet of infants and children.

(3) Where they are eaten, only the whole, undenatured, unprocessed cereal should be taken.

(4) They should form but a small amount of the diet and should be offset with an abundance of fresh fruits and green vegetables--properly combined.

(5) To insure the conversion of their starches into sugar they must always be eaten dry and not as porridges and mushes.