



### Excerpt from the Starch Solution (with TOC)

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#### Chapter 1

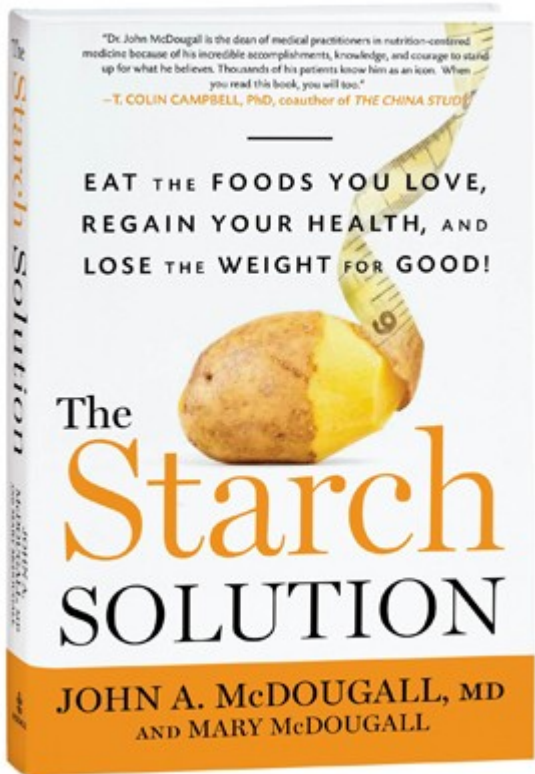
#### STARCH: THE TRADITIONAL DIET OF PEOPLE

*Have you had your rice today?*

This Chinese greeting—the equivalent of our how are you?—reminds us that, for the Chinese, whether or not you’ve eaten rice is the ultimate measure of well-being. Rice is that essential to the Chinese diet. Throughout most of Asia, the average person eats rice two to three times daily. Rice is also an important food in the Middle East, Latin America, Italy, and the West Indies. After corn it is the second most produced food worldwide, and the world’s single most important source of energy, providing more than 20 percent of calories consumed by humans around the globe.

In China, the word for rice and food are one and the same. Likewise, in Japan the word for cooked rice also means “meal.” Buddhists refer to grains of rice as “little Buddhas,” while in Thailand the call that brings the family to the table is “Eat rice.” In India, the first food a new bride offers her husband is not cake but rice. It is also the first solid food that will be offered to her baby.

The story is the same the world over. Whether rice in Asia, potatoes in South America, corn in Central America, wheat in Europe, or beans, millet, sweet potatoes, and barley around the globe, starch has been at the center of food and nutrition throughout human history.



**The American Diet**



- 20% starch
- 70% meat & dairy
- 5% fruits
- 5% vegetables

**The Starch Solution**



- 70% starch
- 0% meat & dairy
- 10% fruits
- 20% vegetables

Why then, here in the states and increasingly around the world, as all populations undergo economic development, have we become so afraid and ashamed of this most elemental food? And what price are we paying for shunning the most basic dietary staple known to humankind?

## STARCH IS THE KEY INGREDIENT

Diet and nutrition advice is often focused on *how much* we ought to eat, and misses the point: More important than how much, how often, and when we eat is *what* we eat. Different kinds of animals require different types of diets. We humans are built to thrive on starch. The more rice, corn, potatoes, sweet potatoes, and beans we eat, the trimmer, more energetic, and healthier we become.

Starch? Really? Isn't that for laundry? Yes, but it's also the key to optimum health and satiety. We hear a lot about carbohydrates and whether or not we should eat them, but we don't hear enough about the most valuable type of carbohydrate, starch.

There are three basic types of carbohydrates—sugar, cellulose, and starch—each made up of carbon, hydrogen, and oxygen in specific configurations. The simplest of these—sugar—includes sucrose (the granulated sugar you bake into cookies), fructose (which makes fruit taste sweet), lactose (found in milk), and glucose (the simple sugar that comes together in chains to make cellulose and starch). Sugar provides quick and powerful energy because it is so easily broken down in the body. (We'll learn more about sugar in Chapter 12.)

The second type of carbohydrate, cellulose, is made up of chains of glucose bonded together by indigestible linkages. It is found in the cell walls of plants and in wood and other organic matter. Our digestive system doesn't have the enzymes to break down cellulose to use it for fuel, but termites do, which is why they can eat through the wood beams of your home. Although we get no energy from them, indigestible carbohydrates like cellulose are valuable to us for their dietary fiber.

The gold medal for the carbohydrate most beneficial to humans goes to starch. Like cellulose, starches are made up of long-branching chains of glucose molecules. Starch is valuable to us because we can break it down into simple sugars that provide us with sustained energy and keep us feeling full and satisfied. Starchy foods are plants that are high in long-chain digestible carbohydrates—commonly referred to as complex carbohydrates. Examples include grains like wheat, barley, rye, corn, and oats; starchy vegetables like winter squash, potatoes, and sweet potatoes; and legumes like brown lentils, green peas, and red kidney beans. Starch is so important that an international scientific journal—*Starch*—is dedicated to its study. Starch is at the core of my health-enhancing diet. If you take away just one message from this book, it should be: Eat more starch. Basic to our human nature is the scientific fact that we are, and have always been, primarily starch eaters. According to the world-renowned anthropologist from Dartmouth College, Nathaniel Dominy, PhD, "A majority of calories for most hunter-gatherer societies came from plant-foods, not animal-foods, thus humans might be more appropriately described as starchivores." Think of yourself as a "starchivore," like a cat is a carnivore and a horse is an herbivore.

### MCDUGALL'S CLASSIFICATION OF COMMON FOODS:

#### STARCHES:

Grains: Barley, buckwheat, corn, millet, oats, rice, rye, sorghum, wheat, wild rice

Legumes: Beans, lentils, peas

Starchy Vegetables: Carrots, Jerusalem artichokes, parsnips, potatoes, salsify, sweet potatoes, winter squashes (acorn, banana, butternut, Hubbard), yams

GREEN, YELLOW, AND ORANGE (NONSTARCHY) VEGETABLES: Bok choy, broccoli, Brussels sprouts, cabbage, cauliflower, celery, chives, collard greens, eggplant, garlic, green beans, kale, leeks, lettuce, mustard greens, okra, onions, peppers, radishes, rhubarb, scallions, spinach, summer squashes, turnips, zucchini

FRUITS: Apples, apricots, bananas, berries, cherries, figs, grapefruit, grapes, loquats, mangoes, melons, nectarines, oranges, papayas, peaches, persimmons, pineapples, plums, tangerines, watermelons

You've probably heard about the benefits of a plant-based diet—one that reduces or eliminates animal foods like meat, dairy, and eggs. This concept does not go far enough. Without the addition of starch, a diet of low-calorie leafy greens like lettuce and kale, crucifers like broccoli and cauliflower, and fruits like apples and oranges will leave you feeling hungry and fatigued. Nonstarchy green, yellow, and orange vegetables are good for you to eat, but on their own do not give you enough calories to sustain your daily activities and keep you feeling satisfied. Your natural hunger drive may lead you to fill up on something else at the expense of your weight and health.

## THE REAL PALEOLITHIC DIET

Look at a globe: Any region with a large population of trim, healthy people reveals the same truth: Healthy populations get most of their calories from starch. Eat a traditional meal in Japan, China, or most any Asian country and you will find your bowl filled with rice, possibly alongside sweet potatoes and buckwheat. The same truth dates back throughout recorded human history. The Incas of South America centered their diet on potatoes. The Incan warriors switched to quinoa for strength prior to battle. The Mayans and Aztecs of Central America were known as “the people of the corn.” The Egyptians' starch of choice was wheat. Throughout civilization and around the world, six foods have provided our primary fuel: barley, maize (corn), millet, potatoes, rice, and wheat.

If the map hasn't convinced you, science documents it well: Over at least the past 13,000 years, starch has been central to the diets of all healthy, large, successful populations. In fact, new discoveries show evidence of starch-based diets even earlier.

At Ohalo II, an Israeli site dating back 23,000 years, archeologists found wheat, barley, acorns, almonds, pistachios, berries, figs, and grapes among the huts, hearths, and a human grave.<sup>1</sup> Other documentation shows that bulbs and corms (an underground plant stem similar to a bulb; taro is an example) were a major food source for Africans almost 30,000 years ago.<sup>2</sup>

Countering the widely held belief that the European Paleolithic diet consisted predominantly of animal foods, starch grains from wild plants recently were found on grinding tools at archeological sites dating back to the Paleolithic period in Italy, Russia, and the Czech Republic. These findings suggest that processing vegetables and starches, and possibly grinding them into flour, was a widespread practice in Europe as far back as 30,000 years ago, or even earlier.<sup>3</sup> Other recent evidence suggests that those living in what is now Mozambique, along the eastern coast of Africa, may have followed a diet based on the cereal grass sorghum as long as 105,000 years ago.<sup>4</sup>

Recent studies show that even the Neanderthals ate a variety of plant foods; starch grains have been found on the teeth of their skeletons everywhere from the warm eastern Mediterranean to chilly northwestern Europe.<sup>5</sup> It appears they even cooked or otherwise prepared plant foods to make them more digestible.

## THE DIETS OF WEALTHY ANCIENT EGYPTIANS

Proponents of a high-protein diet have suggested that reports showing heart disease in Egyptian mummies proves that their largely vegetarian diet was responsible for putting them in their graves.<sup>6</sup> Is this true?

CT technology uses multiple x-rays to give scientists a three-dimensional view of the body that's almost as good as peering inside. An April 2011 report in the *Journal of the American College of Cardiology: Cardiovascular Imaging* used CT scans to show that 20 out of 44 Egyptian mummies whose cardiovascular systems could be viewed had evidence of atherosclerosis, or hardening of the arteries.<sup>7</sup> The same kinds of calcification from atherosclerosis can frequently be seen in the CT scans of modern Americans and Europeans.

You would think that people in such early times, around 3,500 years ago, would have been reasonably healthy, with no fast food or tobacco and plenty of exercise. Yet the evidence shows that those selected to be embalmed as mummies ate a diet far richer than that of their less wealthy contemporaries.<sup>8</sup> In addition to atherosclerosis, these wealthy ancient Egyptians showed signs of other diseases we associate with modern diets, such as obesity, dental disease, and gallstones.<sup>9-11</sup> (continued)

## Caloric Engines of Human Civilization



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