



Nuts Come in Hard Shells—for Reasons

Growing up in a low-income family in the suburbs of Detroit we had nuts once a year. At Christmastime my father brought home a 5-pound bag of mixed nuts all firmly encased individually in rock hard shells. Over the next five days, with the aid of a mechanical nutcracker and a steel pick, the six members of the McDougall family ate almonds, Brazil nuts, cashews, hazelnuts, pecans, and walnuts. These days, eating nuts is as convenient as unscrewing the lid of a glass jar, and then pouring an ounce of

shelled, oil-roasted, nuts directly into your mouth. After seven chews and a swallow, in fewer than five seconds, 120 calories of fat are gulped down. Within three hours much of that fat is stored as metabolic dollars to be spent during the next famine.



Nuts (more accurately, tree nuts) act as “storage organs of energy” for a tree’s germ to sprout into a seedling and grow come springtime. Seeds, legumes, and grains serve the same purposes for their parent plants. One of the primary differences between these four organs for the origin of life is the amount of energy stored as either fats or carbohydrates. Nuts and seeds use mostly fats. Grains, such as corn, rice, and wheat, store their fuel as carbohydrates. Legumes, such as beans, peas, and lentils, also use carbohydrates for stored fuel. Peanuts, technically legumes, are typically included in the nut group because they have a similar nutrient makeup and are used in the same ways as tree nuts.

These storage organs are also rich in other nutrients, such

as proteins, vitamins, minerals, and many other phytonutrients, important for the seedling’s growth. The high nutrient density of these packages also has a major impact on human health when consumed.

No Population Has Lived on a Nut-based Diet

Primarily six foods (five of them grains): barley, maize (corn), millet, potatoes, rice, and wheat have fueled the caloric engines of human civilization. The bulk of the energy in these storage organ foods comes from carbohydrates. They contain only small amounts of fats. Human metabolism is designed to run primarily on carbohydrates, not fats. Proof of this begins with the recognition that the human tongue tastes with pleasure only one source of calories—carbohydrates—causing us to seek this goldmine of energy. There are no pleasure sensors for fats here. The primary digestive enzymes (amylases) in the human gut are for carbohydrates (starches), not for fats. Finally, almost exclusively, carbohydrates, not fats, fuel our major organs, including the blood, liver, kidneys, and brain.

To Live on Fat Would Mean Population Extinction

In order for populations to survive individuals must function at peak physical and mental performance. To do less means a greater chance of conquest by invaders, being



eaten by predators, succumbing to sicknesses, and annihilation by natural disasters. Laws of “survival of the fittest” dictate that those who are most productively fueled win.

Macronutrient Content of Plant Storage Organs			
As a percent of calories. Dry roasted, unless noted otherwise.			
Food	Fat	Protein	Carbohydrate
Tree Nuts:			
Almonds	79	11	17
Cashews	72	11	22
Coconut	85	4	17
Macadamia	95	5	8
Pine Nuts	87	7	12
Pistachios	79	10	18
Walnuts	83	16	8
Seeds:			
Sesame	78	12	16
Sunflower	77	13	16
Watermelon	82	20	11
Legumes:			
Beans (pinto)	3	24	75
Peas	3	28	72
Lentils	3	31	70
Peanuts	76	16	10
Peanuts (raw)	62	16	27
Grain Starches:			
Barley	6	13	84
Corn	10	12	92
Millet	7	12	79
Rice	7	9	83
Wheat	3	15	89

Endurance athletes demonstrate the survival advantages of choosing the right fuel. Through experience and research it has been discovered that eating mostly carbohydrate-rich foods means the difference between winning and losing during high-intensity exercise performances.¹⁻³ Research shows consuming a low-carbohydrate regime impairs performance.^{4,5} In general, three to four days of following a high-fat and/or high-protein, low-carbohydrate diet is enough to deplete the body of its stores of carbohydrate, resulting in a reduction in short-term performance.⁶ The feeling of *fatigue* that athletes experience occurs as carbohydrate reserves (glycogen stores) in the body are depleted.² An athlete fueled by nuts (high in fat and low in carbohydrate) participating in an endurance feat would be expected to perform

poorly.

Athletes have recently learned to choose foods that provide the most easily assimilated carbohydrates in the quickest time; those with a high glycemic index. The glycemic index measures the rise in blood sugar in a person over two to three hours after eating. Higher glycemic index foods replenish an athlete's energy stores more efficiently than those with a low value.^{8,9} Winners have learned to choose the same foods that have fueled all large successful civilizations of the past—barley, corn, rice, potatoes, pastas, and breads. They do not choose nuts and seeds, which are deficient in carbohydrates, filled with fats, and are also low on the glycemic index scale (between 7 and 23).¹⁰ Rice, corn, and potatoes have values over 100. The relatively low scores of legumes (30 to 40) may be one important reason that they have rarely served as a primary food source for large societies.

I Once Ate a Nut-Based Meal

In 2002, Mary and I were invited by a couple who had attended the McDougall (10-day live-in) Program in Santa Rosa, California to dine with them at the very popular raw-food restaurant, Roxanne's, in Larkspur, California. We each had a non-alcoholic drink, an appetizer, a soup, an entrée, and a dessert. For my main course, I ordered the lasagna and Mary ordered the curry dish. The "cold" uncooked lasagna was about the size of four postage stamps and was made with raw cashew "cheese" and coconut "noodles."¹¹ I prolonged my mealtime by taking small bites. My usual size forkfuls would have left my plate empty in four bites. Halfway through dinner my host asked me how I was enjoying my meal. In my usual not so politically-correct manner, I responded, "Tasty, but this is barely enough food to get me to Taco Bell." I understand one of the reasons for the small portion served. A full plate of Roxanne's nutty lasagna would have meant a thousand calories just for my entrée. I am happy my host picked up the \$500 check after the meal. Roxanne's restaurant is no longer open.



Of Course, Nuts Are Fattening

A casual review of the scientific literature might lead the reader to conclude that eating nuts does not cause weight gain. How could eating so many concentrated fat calories be OK for any weight loss plan? A careful review of the methods used reveals that the trick is to restrict the subjects' calorie intake and/or limit the amount of nuts they are allowed to eat to about an ounce a day.¹²

Still, the addition of an ounce of nuts a day should cause some weight gain when the daily calories are otherwise unrestricted. An ounce of nuts means an additional 150 calories daily—that's 4500 calories a month, which could repre-

sent a monthly gain of a pound and a half of body fat. Many reasons are given for this unexplainable effect of little or no weight gain with added nuts: the high satiety of nuts causes people to eat less, added nuts displace more fattening foods (cakes and pies), their monounsaturated and polyunsaturated fatty acids are more readily burned off (diet-induced thermogenesis), and an increase in fecal losses of fat due to incomplete mastication of whole nuts (nut butters would be much more readily digested and more fattening).

Even though an ounce of nuts a day may not cause appreciable weight gain, nuts do not violate the laws of thermodynamics and the evidence shows adding more than an ounce daily without other calorie restrictions does cause weight gain.¹² And excuse me! Who, when given permission, eats only one mouthful of nuts a day?

Nuts May Hurt the Bones Too

High-protein foods in Western diets, especially hard cheeses, meat, poultry, eggs, fish, shellfish, and foods made with isolated soy proteins, generate a large amount of acid in the body after eating them.¹³ This acid must be neutralized, primarily by the release of alkaline materials from the bones; and thus begins bone loss and osteoporosis.¹⁴⁻¹⁷

The storage organs—nuts, seeds, legumes, and grains—are rich in nutrients, including proteins, which result in the delivery of a small net acid load to the body. (The amount of acid caused by animal food consumption is 6 to 10 times greater than that caused by plant storage organs.)¹³ A study of people on a Mediterranean diet supplemented with an ounce of nuts (walnuts, hazelnuts, and almonds) daily for three months, found evidence of adverse effects on their bones.¹⁸ There was an elevation in their parathyroid hormone levels and a slight increase in breakdown products of bone (deoxypyridinoline) found in the nut-eaters' urine.

Fortunately, most healthy plant-food-based meal plans also include foods that are alkaline, meaning fruits and vegetables, which neutralize the small amount of dietary acids that come from eating nuts, seeds, legumes, and grains.¹¹ However, this observation should also serve as a word of caution that even a whole foods vegetarian diet has the potential to cause problems of over-nutrition from excess calories, fat, protein, and dietary acids, and adding in green and yellow vegetables and fruits is important.



Nuts Are a Delicacy on the McDougall Diet

We must eat, and when properly informed, we do have a choice when it comes to the amounts of carbohydrates and fats we consume. People are starch-eaters—meaning we thrive on a high-carbohydrate, low-fat diet. For our best appearance and performance we must remain true to our nature. However, most of us are also resilient. Thus, an occasional rich food is no serious threat for otherwise trim and healthy people—especially when this delicacy is from a whole plant origin, such as nuts. The problems begin when occasional holiday treats become the center of a meal plan everyday.

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