

Whole grains redeem carbohydrates from recent bad press

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Carbohydrates have been taking a beating lately, blamed for the growing obesity epidemic, a raised risk of heart disease and diabetes, among other things. To be sure, the carbs that predominate in the U.S. diet -- sugars and refined starches -- deserve much of this unsavory reputation.

But there is another, far more wholesome kind of carbohydrate -- whole grains, which make up only 5 percent of Americans' carbohydrate consumption.

Whole grains contain health-enhancing bran (the outer layer) and germ (the internal embryo) found naturally in all grains. When grains are refined to make white flour and white rice, for example, the bran and germ and all their healthful nutrients, antioxidants and other disease-fighting plant chemicals are removed.

The surgeon general's goal is for all Americans to consume at least three servings a day of whole grains. The nation's daily average is now only about half a serving. Only 13 percent of Americans include at least one serving of whole grains in their daily diets.

The Food and Drug Administration allows food manufacturers to claim health benefits for products with at least 51 percent whole grains by weight and less than 3 grams of fat per serving.

Whole grains contain no cholesterol, are low in fat and high in dietary fiber and vitamins and are also a good source of minerals. They are 10 to 15 percent protein. Although they are concentrated packets of starch, it is the indigestible fiber and phytochemicals (plant-produced compounds) in whole grains that render them stars in disease prevention.

Refined grains are almost pure starch. Most foods made from refined grains are rapidly digested and absorbed into the bloodstream, causing an abrupt rise in blood glucose and prompting the pancreas to spew out insulin to move the excess glucose out of the blood and into cells for energy and storage.

But too much insulin can be produced, resulting in enough of a drop in blood glucose to stimulate a return

of hunger in an hour or two. Hunger prompts people to eat between meals -- often snacks of sugars and refined starches.

Slowing metabolism

But when a food contains all or mostly whole grains, digestion and absorption are slowed by the fibrous bran, protein and fat, increasing satiety and delaying the return of hunger. People who eat more whole grains tend to weigh less than those who consume fewer.

For example, in a study of 3,627 men and women followed for seven years, those who ate the most whole grains -- more than nine times a week -- weighed five to eight pounds less, on average, than those who consumed the least (no more than twice a week) of these foodstuffs, Dr. Simin Liu of Brigham and Women's Hospital in Boston reported.

People who eat whole grains are healthier and live longer. In a continuing study of nearly 34,000 Iowa women, initially aged 55 to 69, David Jacobs at the University of Minnesota School of Public Health and colleagues found that those who ate at least one serving of whole-grain foods a day, primarily as bread and breakfast cereal, had a significantly lower rate of death from all causes when compared with women who ate almost no whole grains.

Although soluble fiber in whole grains is known to lower artery-damaging cholesterol, other components of whole grains contribute to cardiovascular protection, including antioxidants, phytic acid, lectins, phenolic compounds, amylase inhibitors and saponins. Joanne Slavin, a professor of food and nutrition at the University of Minnesota, says the protection probably comes from a combination of compounds in whole grains.

As she noted in the Journal of the American Dietetic Association: "Whole grains are rich sources of a wide range of phytochemicals with anticarcinogenic properties. Some of these phytochemicals block DNA damage and suppress cancer cell growth."

The fiber in whole grains increases fecal bulk and speeds

the transit of stool, decreasing the opportunity for mutagens to damage cells and cause cancer of the digestive tract. In addition, she noted, hormonally active lignans in whole grains "may protect against hormonally mediated diseases, such as cancers of the breast and prostate."

A diabetes fighter

Whole grains also could help to counter the epidemic of Type 2 diabetes. Whole grains have a low glycemic index: Their consumption results in only small rises in blood sugar and insulin.

In the Nurses' Health Study of nearly 90,000 women and the Health Professionals' Study of nearly 44,000 men, those who consumed the most cereal fiber had about a 30 percent lower risk of developing Type 2 diabetes, independent of body weight.

Slavin noted that only about 5 percent of the grain foods in the American diet are in the form of whole grains, primarily whole wheat and oats. But whole grain is the main ingredient in about 18 percent of ready-to-eat cereals, suggesting that Americans can easily increase their whole grain intake by eating right at breakfast and steering clear of sugary, highly refined cereals that line supermarket shelves.

Among the cereals that qualify for the whole grain claim are Wheaties, Cheerios, Wheat Chex, Whole Grain Total, Oatmeal Crisp with raisins or apples, Shredded Wheat, Grape Nuts and Grape Nuts Flakes, Raisin Bran, Life, oatmeal (not instant), Malt-O-Meal and Low-Fat Granola by Kellogg's and Quaker.

Some sweetened cereals also qualify, including Frosted Mini Wheats and Oatmeal Squares.

But cereal is just one source of whole grains, food writers and chefs noted at a recent health conference in Boston.

Possibilities include whole grain breads (check the label: whole wheat should be the first ingredient), brown rice, barley, bulgur (cracked wheat), whole wheat pasta, buckwheat groats (eaten unroasted as porridge or roasted as kasha), wild rice, whole-kernel corn and low-fat popcorn.

-- Jane Brody is a New York Times medical writer.