

## Healthy Steps for Health Eating

Aside from not smoking, the most important determinants of good health are what we eat and how active we are. In this month's Healthy Steps, we explore the latest science about healthy eating for adults, answering key questions about what you should eat.

### Research and the mass media

Over the past 100 years, great strides have been made in improving the health of people the world over. In the United States, for example, life expectancy has increased by about 25 years for men and 30 years for women, largely due to scientific advances that have helped prevent and treat many serious diseases.

The end results of science undeniably benefit us, but to people who don't work in the field, the scientific process can also be frustrating. This is particularly true for anyone trying to make important decisions about his or her health. *What should I eat? How much exercise should I get? How often should I see the doctor for health checks?* We all expect that science--specifically, health research--will provide answers to these very important and personal questions.

Unfortunately, it's often hard to get a straight answer. One day the "experts" say one thing. The next, they seem to say another. Then it all appears to switch back again. Such flip-flops can be maddening, especially when you're making your best effort to live a healthy lifestyle. Why go to the trouble of making big changes when today's highly recommended choice may be tomorrow's bad example?

Even at its best, science is a painstaking, deliberate process, which doesn't fit very well into the cut-and-dry, newer-is-always better world of the mass media. And it's the media reports on health that are responsible for much of the frustration the public feels toward the public health community. With their emphasis on short, "newsworthy" pieces, the media often only report the results of single studies, and many stories are chosen simply because the results run contrary to current health recommendations. Because such reports provide little information about how the new results fit in with other evidence on the topic, the public is left to assume that, once again, the scientists screwed up and are now backtracking.

Fortunately, in many cases it only takes a few incisive questions to get at the heart of a research-related news story and see how important the results are for you personally. One of the most crucial things to keep in mind is the issue we've already discussed above: how a given study fits into the entire body of evidence on a topic. Whenever reading or watching a news story on health, keep these questions in mind:

- **Are they simply reporting the results of a single study? If so, where does it fit in with other studies on the topic?**

*Only very rarely would a single study be influential enough for people to change their behaviors based on the results.*

- **How large is the study?**

*Large studies often provide more reliable results than small studies.*

- **Was the study done in animals or humans?**

*Mice, rats, and monkeys are not people. To best understand how food (or some other factor) affects human health, it must almost always be studied in humans.*

- **Did the study look at real disease endpoints, like heart disease or osteoporosis?**

*Chronic diseases, like heart disease and osteoporosis, often take many decades to develop. To get around waiting that long, researchers will sometimes look at markers for these diseases, like narrowing of the arteries or bone density. These markers, though, don't always develop into the disease.*

- **How was diet assessed?**

*Some methods of dietary assessment are better than others. Good studies will have evidence that the methods have validity.*

With these tips and a better understanding of the world of health research, you can look at health information with a more discerning eye. While this won't be a guarantee against frustration, it should help you embrace health recommendations--and the healthy lifestyle they promote--with more confidence.

Cholesterol is a wax-like substance. The liver makes it and links it to carrier proteins called lipoproteins that let it dissolve in blood and be transported to all parts of the body. Cholesterol plays essential roles in the formation of cell membranes, some hormones, and Vitamin D.

Too much cholesterol in the blood, though, can lead to problems. In the 1960s and 70s, scientists established a link between high blood cholesterol levels and heart disease. Deposits of cholesterol can build up inside arteries. These deposits, called plaque, can narrow an artery enough to slow or block blood flow. This narrowing process, called atherosclerosis, commonly occurs in arteries that nourish the heart (the coronary arteries). When one or more sections of heart muscle fail to get the blood, and thus the oxygen and nutrients they need, the result may be the chest pain known as angina. In addition, plaque can rupture causing blood clots that may lead to heart attack, stroke, or sudden death. Fortunately, the buildup of cholesterol can be slowed, stopped, and possibly even reversed.

Cholesterol-carrying lipoproteins play a central role the development of atherosclerotic plaque and cardiovascular disease. The two main types basically work in opposite directions.

Low-density lipoproteins (LDL) carry cholesterol from the liver to the rest of the body. When there is too much LDL cholesterol in the blood, it can be deposited on the walls of the coronary arteries. Because of this, LDL cholesterol is often referred to as the "bad" cholesterol.

High-density lipoproteins (HDL) carry cholesterol from the blood back to the liver, which processes the cholesterol for elimination from the body. HDL makes it less likely that excess cholesterol in the blood will be deposited in the coronary arteries, which is why HDL cholesterol is often referred to as the "good" cholesterol.

When you have your cholesterol checked, the results will indicate your total blood cholesterol level. If you fasted overnight before giving a blood sample, the test results should also include separate counts for your HDL and LDL. In general, the higher your LDL and the lower your HDL, the greater your risk for atherosclerosis and heart disease.

One of the most important determinants of blood cholesterol level is fat in the diet--not total fat - but the specific types of fat. Research has shown that some types of fat are clearly good for blood cholesterol and others clearly bad. As for cholesterol in food, it does affect blood cholesterol levels, but not nearly as much as many people believe. For some people with high cholesterol, reducing the amount of cholesterol in the diet has a small but helpful impact on blood cholesterol levels. For others, the amount of cholesterol eaten has little impact on the amount of cholesterol circulating in the blood.

Some fats are bad because they tend to worsen blood cholesterol levels.

### **Saturated Fats**

Saturated fats are mainly animal fats. They are found in meat, seafood, whole-milk dairy products (cheese, milk, and ice cream), poultry skin, and egg yolks. Some plant foods are also high in saturated fats, including coconut and coconut oil, palm oil, and palm kernel oil. While saturated fats raise total blood cholesterol levels more than dietary cholesterol does, they tend to raise both the "good" HDL and the "bad" LDL cholesterol.

### **Trans Fats**

Trans fatty acids are fats produced by heating liquid vegetable oils in the presence of hydrogen. This process is known as hydrogenation. The more hydrogenated an oil is, the harder it will be at room temperature. For example, a spreadable tub margarine is less hydrogenated and so has fewer trans fats than a stick margarine.

Most of the trans fats in the American diet are found in commercially prepared baked goods, margarines, snack foods, and processed foods. Commercially prepared fried foods, like French fries and onion rings, also contain a good deal of trans fat.

Trans fats are worse for cholesterol levels than saturated fats because they not only raise LDL (bad) cholesterol, but also lower HDL (good) cholesterol.

### ***The Good Fats***

Some fats are good because they can improve blood cholesterol levels.

Unsaturated fats are found in products derived from plant sources, such as vegetable oils, nuts, and seeds. There are two main categories: polyunsaturated fats (which are found in high concentrations in sunflower, corn, and soybean oils) and monounsaturated fats (which are found in high concentrations in canola, peanut, and olive oils). In studies in which polyunsaturated and

monounsaturated fats were eaten in place of carbohydrates, these good fats decreased LDL levels and increased HDL levels.

Although the different types of fat have a varied--and admittedly confusing--effect on health and disease, the basic message is simple: limit the bad fats and replace them with good fats. Try to reduce both the trans and saturated fats in your diet as much as possible and replace them with polyunsaturated and monounsaturated fats.

The trickiest of these to attack are the trans fats. That's because they lurk in many different types of foods and aren't always included on the food label. But as awareness about trans fats increases, more "trans-fat" free products are becoming available. A report on trans fats from the Institute of Medicine concluding that there is no safe level of trans fats in the diet has finally prompted the Food and Drug Administration to require that trans fats be listed as part of the Nutrition Facts food label. This decision came after several years of hearings, comments, and negotiations. Until labels listing trans fats appear, which will probably take a year or more, it will take some detective work to determine if a food contains trans fats. Check the ingredient list for "hydrogenated oils." The higher up these are listed, the more trans fats the food contains.

#### **Tips for lowering trans fat intake:**

- **Choose liquid vegetable oils or a soft tub margarine that contains little or no trans fats.**
- **Reduce intake of commercially prepared baked goods, snack foods, and processed foods, including fast foods.**
- **When foods containing hydrogenated or partially hydrogenated oils can't be avoided, choose products that list the hydrogenated oils near the end of the ingredient list.**

#### **What are Carbohydrates?**

Carbohydrates come from a wide array of foods -- bread, rice, beans, milk, popcorn, potatoes, cookies, spaghetti, corn, and cherry pie. They also come in a variety of forms. The most common and abundant ones are sugars, fibers, and starches. The basic building blocks of a carbohydrate are sugar molecules. Starches and fibers are essentially chains of sugar molecules. Some contain hundreds of sugars. Some chains are straight, others branch wildly.

Carbohydrates were once grouped into two main categories. Simple carbohydrates included sugars such as fruit sugar (fructose), corn or grape sugar (dextrose or glucose), and table sugar (sucrose). Complex carbohydrates included everything made of three or more linked sugars. Simple sugars were considered bad and complex carbohydrates good, but the picture is much more complicated than that.

The digestive system handles all carbohydrates in much the same way -- it breaks them down (or tries to break them down) into single sugar molecules, since only these are small enough to

absorb into the bloodstream. It also converts most digestible carbohydrates into glucose (also known as blood sugar), because cells are designed to use this as a universal energy source.

Fiber is an exception. It is put together in such a way that it can't be broken down into sugar molecules, and so passes through the body mostly undigested.

Some popular diets, particularly the Atkins diet, treat carbohydrates as if they are evil, the root of all body fat and excess weight. While there is some evidence that a low-carbohydrate diet may help people lose weight more quickly than a low-fat diet, no one knows the long-term effects of eating little or no carbohydrates. Equally worrisome is the inclusion of unhealthy fats in some of these diets.

If you want to go the lower carb route, try to include some fruits, vegetables, and whole-grain carbohydrates every day. They contain a host of vitamins, minerals, and other phytonutrients that are essential for good health and that you can't get out of a supplement bottle.

### **Adding Good Carbohydrates**

Carbohydrates from fruits, vegetables, and grains should give you the bulk of your calories. For optimal health, get your grains intact from foods such as whole wheat bread, brown rice, whole-grain pasta, and other possibly unfamiliar grains like quinoa, whole oats, and bulgur. Not only will these foods help protect you against a range of chronic diseases, they can also please your palate and your eyes.

Until recently, you could only get whole-grain products in organic or non-traditional stores. Today they are popping up in more and more mainstream grocery stores. Here are some suggestions for adding more whole grains to your diet:

- ***Start the day with whole grains.*** If you're partial to hot cereals, try old-fashioned or steel-cut oats. If you're a cold cereal person, look for one that lists whole wheat, oats, barley, or other grain first on the ingredient list.
- ***Use whole-grain breads for lunch or snacks.*** Check the label to make sure that whole wheat or other whole grain is the first ingredient listed.
- ***Bag the potatoes.*** Instead, try brown rice or even "newer" grains like bulgur, wheat berries, millet, or hulled barley with your dinner.
- ***Pick up some whole wheat pasta.*** If the whole-grain products are too chewy for you, look for those that are made with half whole-wheat flour and half white flour.

### **Popular Diets**

A number of popular diets focus on carbohydrates. Some demonize them, and warn against eating any carbohydrates. Others emphasize a high carbohydrate intake. Here is a how different diet plans treat carbohydrates.

### **High carbohydrate/low fat (Ornish, Pritikin, and Food for Life diets)**

For years we've been hearing that eating a healthy diet means cutting back on the total amount of fat and eating more complex carbohydrates. Thousands of "low-fat" alternatives now crowd the supermarket shelves. But is simply cutting back on fat and loading up on carbohydrates a healthy way to eat or to lose weight? Current research suggests that it isn't. Just as researchers learned that not all types of fat are bad, they're also discovering that not all types of carbohydrates are good.

It's easy to fall into the low-fat trap. Gram for gram, fat has more than twice as many calories as either protein or carbohydrates. So it seems logical that choosing low-fat products would help with weight loss. Yet all too often the low-fat products on supermarket shelves are packed with sugar and highly processed carbohydrates to make up for the taste that's lost when fat is removed.

These low-fat alternatives often have just as many calories as the full-fat versions, and may even have more! Another problem is that many people mistakenly think that because a food is low in fat they can eat as much of it as they want without gaining weight. As far as the body is concerned, though, calories are calories, no matter where they come from. Eat too many calories (whether from fat, carbohydrates, or protein), and you'll gain weight.

Aside from weight loss, the popularity of low-fat food has broader implications for health. Commercially prepared low-fat foods tend to be rich in highly processed carbohydrates, which cause big spikes in blood sugar.

### **Low carbohydrate/high protein (The Zone, Atkins, South Beach, and other diets)**

For more than two decades Dr. Robert Atkins preached and sold the gospel of "protein is good, carbohydrates are evil." Until recently, this line of thinking was beyond the pale. Now, though, there is some new evidence to back the idea that a high-protein, low-carbohydrate diet may help people lose weight. Whether such a diet that also includes bacon, steaks, butter, cheese, and other foods with plenty of saturated fat is good for overall health is another matter.

In theory, a high-protein/low carbohydrate diet could help increase satiety, that feeling of fullness that comes with eating. Fewer carbohydrates could also avoid fast and high rises, and falls, in blood sugar, which may also keep hunger at bay. Together, these could help you avoid overeating and make you satisfied with fewer calories.

That's the theory. Unfortunately, there are few good long-term studies to test it. In a review of low-carbohydrate diets, researchers found 107 that met their criteria; only five lasted longer than three months. These short-term studies showed that low-carbohydrate diets were safe in the short term, but that weight loss was due mostly to reduced caloric intake, not necessarily to the low-carbohydrate nature of the diets. Such reductions often happen when people drastically change what they eat.

Two year-long studies published in the New England Journal of Medicine suggests that the benefits of a low-carbohydrate diet may last for six months or a year. These studies compared high-fat, high-protein, low-carbohydrate diets with low-fat, moderate-protein, high-carbohydrate diets. In both studies, the low-carb approach produced more weight loss at six months, but by the end of a year weight loss was similar with both diets.

Apart from the uncertainty about their ability to maintain weight loss, high-protein diets could cause long-term problems. Many of the high-protein foods that people choose while on this type of diet (red and processed meats, cheese, and full-fat dairy products, for example) are high in saturated fat and low in vitamins and minerals. This may increase the risk for heart disease and colon cancer. Diets very high in protein (especially animal protein, like red meat) may also increase the risk for osteoporosis in women because the body takes calcium from the bone to neutralize the acids that build up in the blood as a result of digesting large amounts of protein.

Until more is known about the true risks and benefits of high-protein/low-carbohydrate diets, they should be viewed with caution. Keep protein intake at moderate amounts (about 8 grams a day for every 20 pounds of body weight). Vegetable protein is a better choice than animal protein. And don't skimp on the healthful carbohydrates such as whole grains, fruits, and vegetables. These should still make up a large part of the diet.

Around the world, millions of people don't get enough protein. This protein malnutrition leads to the condition known as kwashiorkor. Lack of protein can cause growth failure, loss of muscle mass, decreased immunity, weakening of the heart and respiratory system, and death.

In the United States and other developed countries, it's easy to get the minimum daily requirement of protein. Cereal with milk for breakfast, a peanut butter and jelly sandwich for lunch, and a piece of fish with a side of beans for dinner add up to about 70 grams of protein, plenty for the average adult.

Too little protein is clearly a problem. What about too much? The digestion of protein releases acids that the body usually neutralizes with calcium and other buffering agents in the blood. Eating lots of protein, such as the amounts recommended in the so-called no-carb diets, requires lots of calcium. Some of this may be pulled from bone. Following a high-protein diet for a few weeks probably won't have much effect on bone strength. Doing it for a long time, though, could weaken bone. While more research is clearly needed to define the optimal amount of daily protein, these results suggest that high-protein diets should be used with caution, if at all.

### **The Bottom Line-Recommendations for Protein Intake:**

- **Get a good mix of proteins.** Almost any reasonable diet will give you enough protein each day. Eating a variety of foods will ensure that you get all of the amino acids you need.
- **Pay attention to the protein package.** You rarely eat straight protein. Some comes packaged with lots of unhealthy fat, like when you eat marbled beef or drink whole milk. If you eat meat, steer yourself toward the leanest cuts. If you like dairy products, skim or

low-fat versions are healthier choices. Beans, soy, nuts, and whole grains offer protein without much saturated fat and with plenty of healthful fiber and micronutrients.

- **Balance carbohydrates and protein.** Cutting back on highly processed carbohydrates and increasing protein improves levels of blood triglycerides and HDL, and so may reduce your chances of having a heart attack, stroke, or other form of cardiovascular disease. It may also make you feel full longer, and stave off hunger pangs. Too much protein, though, could weaken bones.
- **Eat soy in moderation.** Soybeans, tofu, and other soy-based foods are an excellent alternative to red meat. But don't go overboard. Two to four servings a week is a good target. And stay away from supplements that contain concentrated soy protein or soy extracts, such as isoflavones. Larger amounts of soy may soothe hot flashes and other menopause-associated problems, but the evidence for this is weak.

### **Health Effects of Eating Fiber**

Fiber is one of those things that many of us know is important but that remains a bit of a mystery. Exactly what is it? What are the best sources of fiber? And what are its health benefits?

Basically, the term fiber refers to carbohydrates that cannot be digested. Fiber is present in all plants that are eaten for food, including fruits, vegetables, grains, and legumes. However, not all fiber is the same, and there are a number of ways to categorize it. One is by its source or origin. For example, fiber from grains is referred to as cereal fiber. Another way of categorizing fiber is by how easily it dissolves in water. Soluble fiber partially dissolves in water. Insoluble fiber does not dissolve in water. These differences are important when it comes to fiber's effect on your risk of developing certain diseases.

Current recommendations suggest that adults consume 20-35 grams of dietary fiber per day. Children over age 2 should consume an amount equal to or greater than their age plus 5 grams per day. On a daily average, Americans eat only 14-15 grams of dietary fiber.

### **Some tips of increasing fiber intake:**

- **Eat whole fruits instead of drinking fruit juices.**
- **Replace white rice, bread, and pasta with brown rice and whole-grain products.**
- **Choose whole-grain cereals for breakfast.**
- **Snack on raw vegetables instead of chips, crackers, or chocolate bars.**
- **Substitute legumes for meat two to three times per week in chili and soups.**
- **Experiment with international dishes (such as Indian or Middle Eastern) that use whole grains and legumes as part of the main meal (as in Indian dahls) or in salads (for example, tabbouleh).**

Long heralded as part of a healthy diet, fiber appears to reduce the risk of developing various conditions, including heart disease, diabetes, diverticular disease, and constipation. Despite what many people may think, however, fiber probably has little, if any effect on colon cancer risk.

## **The Bottom Line Recommendations for Fiber Intake**

Fiber is an important part of a healthy diet, and you should get a least the minimum recommended amount of 20-35 grams of dietary fiber per day for adults. For children over age 2, the recommended intake is the child's age + 5 grams. The best sources are fresh fruits and vegetables, nuts and legumes, and whole-grain foods.

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