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Nutrition Action HEALTH LETTER™
CENTER FOR SCIENCE IN THE PUBLIC INTEREST
JUNE 2011 $2.50

DECODING DIABETES

BY BONNIE LIEBMAN

Heart attacks, strokes, kidney disease. Cancers of the breast, colon, lung, ovary, liver, and bladder. Liver disease, lung disease, pneumonia and other infectious diseases. Having type 2 diabetes increases the risk of dying of those illnesses and more, according to a new compilation of 97 studies on 820,900 people.[1]

The average 50-year-old with diabetes dies six years earlier than the average 50-year-old without diabetes. For comparison, the average long-term smoker dies 10 years earlier than the average non-smoker.

Here's the latest on diabetes and how to lower your risk.

Continued on p. 3

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MEMO FROM MFJ

Doing Right by Kids

It has taken 30 years, but the government has finally decided that it's time to protect children from companies that try to sell them junk food.

Back in the late 1970s, the Federal Trade Commission suggested a ban on *all* advertising, not just food advertising, that was directed to young children. (A petition from the Center for Science in the Public Interest, publisher of *Nutrition Action*, and another consumer group triggered that proposal.)

The FTC argued that advertising to young children is unfair because kids don't understand what ads are and can easily be hoodwinked.

Sadly, the food, toy, broadcasting, and advertising industries convinced Congress to repeal much of the FTC's authority to regulate advertising to children, which still hampers the FTC today.

As Congress looked the other way for 30 years, an obesity time bomb exploded. The percentage of young children and teenagers who are overweight or obese has *tripled*.

That alarming increase has led many to question the wisdom of exposing unsophisticated youngsters to sophisticated advertising for pizzas, hamburger-and-fries meals, sugary drinks, and the like. Michelle Obama's passion to improve children's diets and health helped put the issue on the front burner.

In April, the government proposed voluntary limits on foods advertised to kids.

The proposed voluntary guidelines would limit unhealthy fats, sodium, and added sugars in foods advertised to children under 18. Advertised foods would also have to include some fruit, vegetables, extra-lean meat or poultry, or other healthful ingredients.

The advertising industry immediately charged that the guidelines were "overly restrictive" and "sufficiently onerous that they would basically block a substantial amount of advertising." I hope so!

If the proposal is finalized, we'll see dramatic reductions in ads for unhealthy foods on children's TV shows and Internet sites. Though the guidelines are voluntary, they would still pressure advertisers to clean up their act.

June 13 is the deadline for the public to comment on the proposal. You can bet that the food industry will weigh in big time.

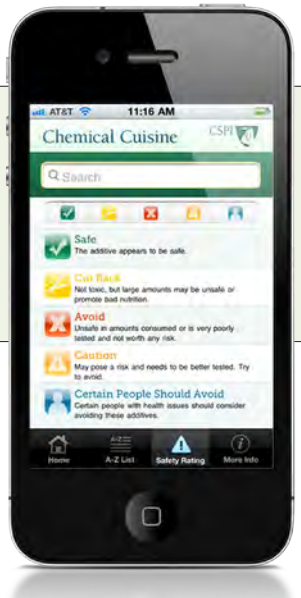
To voice your views, write to FTC Project No. P094513, FTC, Office of the Secretary, Room H-113 (Annex W), 600 Pennsylvania Avenue N.W., Washington, D.C. 20580. Or file a comment at https://ftcpublic.commentworks.com/ftc/foodmarketedtochildreniwg.

Michael F. Jacobson, Ph.D.
Executive Director
Center for Science in the Public Interest

Photo: © Prod. Numérik/fotolia.com.

Smartphones Get Smarter

The Center for Science in the Public Interest has released its first app for iPhones and Android-based smartphones. "Chemical Cuisine" provides the latest information about all the common food additives, and rates their risks to the entire population or vulnerable groups. One reviewer, AndroidGuys, said, "give yourself a real wake-up call with Chemical Cuisine." Download the app for just 99 cents from iTunes or the Android Market.



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CENTER FOR Science IN THE Public Interest

DECODING DIABETES

An estimated 11 percent of adults have diabetes. A quarter of them don't even know it. But that doesn't tell the whole story. Experts estimate that by 2050, one out of three adults will have the disease.

Among people over 65, one out of four already has diabetes. And another 35 percent of all adults (and half of those over 65) have prediabetes.

The good news: type 2 diabetes is almost entirely preventable.[2] "People who have a healthy weight and lifestyle have a 90 percent lower risk," says JoAnn Manson, professor of epidemiology at the Harvard School of Public Health.

Diabetes 101

If your fasting blood sugar is higher than 125, you have diabetes. (If it's higher than 100, you have prediabetes.)

It's easy to see why blood sugar soars in people who have *type 1* diabetes. The beta-cells in their pancreas make no insulin, the hormone that acts like a key to admit blood sugar into cells, where it can be stored or burned for fuel. (One possible explanation: the body may destroy its own beta-cells in a misguided autoimmune attack.)

People who have *type 2* diabetes (which accounts for 90 to 95 percent of cases) often make plenty of insulin, but the insulin doesn't work well.

"Their cells are resistant to the insulin, so the body needs to pump out more of it," explains Varman Samuel, assistant professor of medicine at the Yale School of Medicine. "And for a while, the beta-cells can compensate," so blood sugar levels stay under control.

But in many people, the pancreas can't keep up with the demand for insulin. "When the beta-cells poop out, you tip over into diabetes," says Samuel. Insulin output falls short, and blood sugar climbs.

"It's as though you're listening to loud music but you have wax in your ears," he suggests. "So you keep turning up the volume, but you still can't hear because the music isn't getting through. Then at some point, your speakers blow."

The question is: what sets off insulin resistance in the first place?

Insulin Resistance

It's hard to miss the first clue that explains insulin resistance. Roughly 80 percent of people with type 2 diabetes are overweight or obese.

"Excess body weight is by far the strongest risk factor for diabetes," says Harvard's JoAnn Manson, who heads the Division of Preventive Medicine at Brigham and Women's Hospital in Boston. And the "visceral" fat deep in your belly may boost the risk the most.

"If we could get people to a healthy weight, it could eliminate roughly half of all cases of diabetes," says Manson. "That's the big picture."

Obesity doesn't explain why we all—no matter how fat or thin—have a greater risk of diabetes as we get older. And genes, smoking, exercise, and diet also play a role. But for most people, the trouble starts when they eat too many calories, day after day.

"Any excess calories you eat are eventually turned into fat that needs to be stored," explains Kimber Stanhope, a molecular biologist at the University of California, Davis.

At first, the fat fits into your fat cells.

"Let's say your body is doing a good job of being able to store the fat," says Stanhope. "But once your fat cells get too large, they're less likely to continue to take up and retain more fat."

Some obese people may never become insulin resistant (or diabetic) because their bodies keep making new fat cells.

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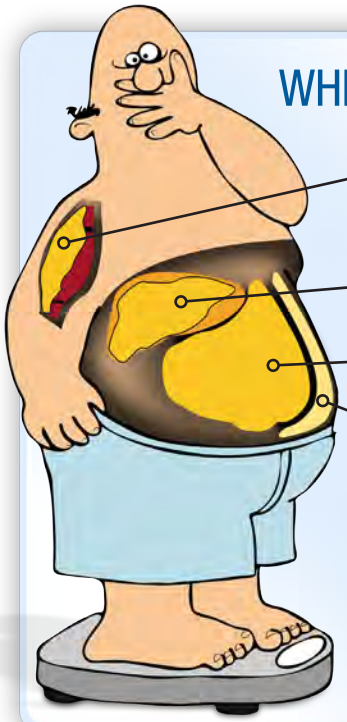
WHERE'S THE FAT?



Surplus calories are turned into fat and stored in your subcutaneous and visceral fat cells. When those cells fill up, the body stashes fat in muscles and the liver. A fatty liver and visceral fat are most closely linked to insulin resistance and diabetes.

"Maybe they're just better at storing the fat because their fat cells can get bigger or they can make more fat cells," notes Samuel. Others run out of storage room sooner. "They start to run into problems when the fat starts to spill over," he explains.

When there's no more room at the inn, the body stashes the fat wherever it can.

"It's called ectopic lipid," says Stanhope. "Fat is stored in tissues that aren't supposed to be storing it—like the liver, muscle, and pancreas."

Some scientists believe that misplaced fat is the key to insulin resistance. When insulin arrives at a cell, it signals a "glucose transporter" to ferry blood sugar (glucose) into the cell. (See "Insulin Resistance.") Ectopic fat may block the signal, suggest studies at Yale and elsewhere.[3]

"We think the initial insult is ectopic lipid in muscle or the liver or both," says Samuel.

Excess fat can also lead to low levels of chronic inflammation, which makes matters worse.

"When cells get overfat, some scientists call them 'angry fat' because they release inflammatory proteins," explains Sheri Colberg, professor of human movement sciences at Old Dominion University in Norfolk, Virginia.

In fact, some researchers contend that it's the inflammatory proteins that keep insulin from working well.[4]

Fatty Livers and Muscles

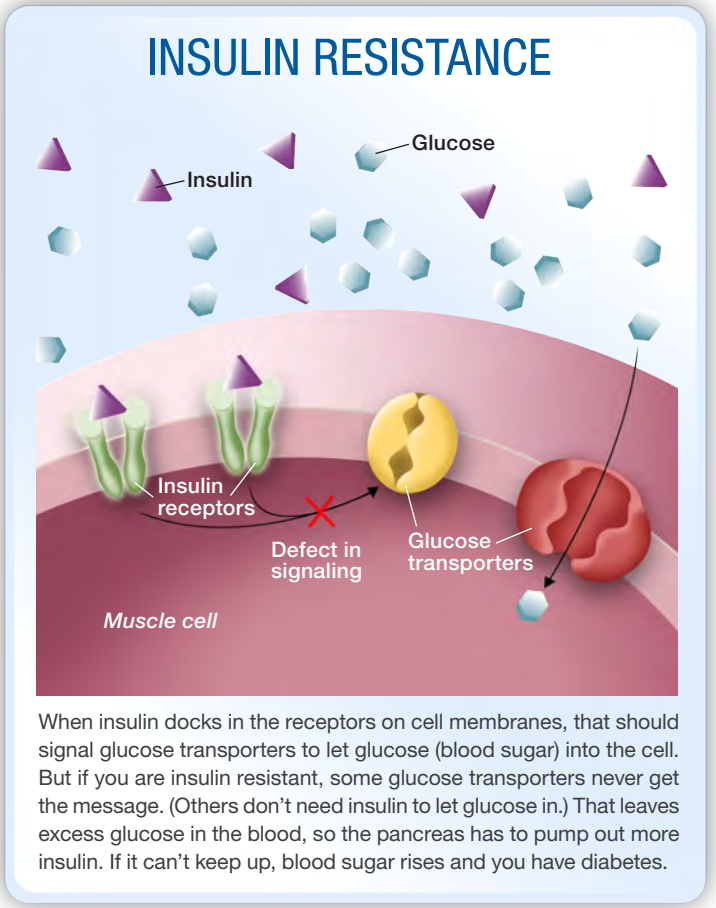
Scientists debate whether insulin resistance starts in the liver or the muscles, but one thing is clear: a fatty liver matters.

Researchers at Washington University in St. Louis matched 20 obese people according to high or low levels of liver fat or high or low levels of deep belly visceral fat.[5]

"Liver fat was a better predictor of metabolic dysfunction than visceral fat," noted study author Samuel Klein at the Experimental Biology 2011 meeting in April in Washington, D.C.

Another sign that a fatty liver matters: it may explain why a modest drop in weight can get diabetes under control.

For example, in 2005, when researchers at Yale put eight obese people with diabetes on a low-calorie diet for seven weeks, their fasting blood sugar levels returned to normal.[6]



When insulin docks in the receptors on cell membranes, that should signal glucose transporters to let glucose (blood sugar) into the cell. But if you are insulin resistant, some glucose transporters never get the message. (Others don't need insulin to let glucose in.) That leaves excess glucose in the blood, so the pancreas has to pump out more insulin. If it can't keep up, blood sugar rises and you have diabetes.

"They lost only about 18 pounds, and there was no change in muscle fat content," explains Samuel. However, 84 percent of their liver fat disappeared.

If you cut calories, "that will melt away that liver fat," says Samuel. "And once you do that, your liver responds much better to whatever insulin you make. It's enough to control your glucose metabolism."

How do you know if you have a fatty liver? "Most people don't get diagnosed," says Samuel.

"What gets picked up is when they go to the next step. If they develop inflammation in the liver—steatohepatitis—that shows up on routine blood tests. You would see that some liver enzymes are increased."

A fatty liver has been in the headlines lately, not so much to explain insulin resistance, but as evidence that too much sugar causes diabetes.

Sugars

"Is Sugar Toxic?" asked the headline in the April 17 *New York Times Magazine*.

Unlike the starch in grains, which consists of long chains of glucose, most sugars—including ordinary table sugar (sucrose), high-fructose corn syrup (HFCS), and honey—are about half glucose and half fructose. It's the fructose half that has recently raised alarms.

"In animals, or at least laboratory rats and mice, it's clear that if fructose hits the liver in sufficient quantity and with sufficient speed, the liver will convert much of it to fat," wrote author Gary Taubes in *The Times*.

"This apparently induces a condition known as insulin resistance....If what happens in laboratory rodents also happens in humans, and if we are eating enough sugar to make it happen, then we are in trouble."

But so far, at least in humans, it's not clear that fructose causes diabetes.

Two studies have found a higher risk of the disease in people who consumed more fructose or glucose (though, surprisingly, not sucrose), while a third found no link with any sugars.[7-9]

Nor is it clear that fructose causes a fatty liver.

"It's a reasonable hypothesis," says the University of California's Kimber Stanhope. "A fatty liver can happen over the long term as a person gets fatter every year, but it may happen more quickly because fructose is a direct source of liver triglycerides."

However, she adds, "no direct connection between fructose consumption and

fatty liver has been made yet in humans."

Researchers have come close, though. In a 2009 study, Stanhope fed 32 overweight or obese people (mostly in their 50s) 25 percent of their calories as either fructose- or glucose-sweetened beverages for 10 weeks each.[10]

(That's a high dose. Even American adults with the most sugar-laden diets get roughly 30 percent of their calories from added sugars, which means that about 15 percent comes from fructose and 15 percent from glucose.[11])

Both groups gained about three pounds, but the fructose drinkers were much worse off.

"They gained more visceral fat, they became more insulin resistant, their triglycerides went up more after eating, and their livers made more fat," says Stanhope. "That suggests that we may have had an increase in liver fat."

But the researchers didn't measure how much fat accumulated in the liver. "The technology was just getting developed at that time—so we can't say for sure."

Stanhope's new study, now under way, is pitting fructose against glucose, high-fructose corn syrup, and sucrose, but the liver results won't be ready until 2013.

"No one else has shown that liver fat increased when people consumed fructose except Luc Tappy," notes Stanhope.

In 2009, Tappy and colleagues at the University of Lausanne in Switzerland reported a rise in liver fat in healthy young men. (Two-thirds had a parent with type 2 diabetes.)

"But the men had their normal calorie allotment and then had a high dose of fructose on top of that," Stanhope points out.

How much? Tappy fed the men as much fructose as a person would get by drinking roughly four liters of soda a day in addition to their ordinary diet.[12] With the fructose, they were eating 35 percent more calories than usual.

"In that situation they saw an increase in fatty liver," says Stanhope. "But that would not be a typical amount of fructose or calories."

In fact, three years earlier, Tappy fed healthy young men (without a parent who had diabetes) as much fructose as a person would get by drinking two liters of soda—and no extra calories—every day for a month. The fructose didn't boost their liver or muscle fat.[13]

What's more, Tappy's 2009 study didn't compare excess calories from fructose to excess calories from some other food. So it's possible that getting 35 percent extra calories from *any* food would cause a fatty liver.

"It was not possible," wrote Tappy, "to determine whether the increase in [liver fat] was due to energy overconsumption or to the specific effects of fructose."

Stanhope's bottom line: "There is enough data associating fructose consumption with metabolic disease—diabetes, heart disease, fatty liver, high blood triglycerides—to consume it with caution."

And since we get glucose from all carbs but fructose only from sugars, the only way to limit fructose is to limit sugars.

"I've had people argue with me right and left that if people overeat, it doesn't matter what those calories are," says Stanhope. "Our study showed that it does matter."

Sugar-Sweetened Beverages

"In the Nurses' Health Study, sugar-sweetened beverages were linked to an increased risk of diabetes," says Harvard's JoAnn Manson.[14]

It's not just the nurses. In 2010, researchers pooled data from eight studies on a total of more than 300,000 people to see if diabetes was linked to sugar-sweetened beverages—soft drinks, fruit drinks, iced tea, energy drinks, vitamin water, you name it.

Those who consumed the most sugary drinks (typically one or two servings a day) had a 26 percent higher risk of diabetes than those who drank the least (less than one serving a month).[15]

Why?

"Weight gain is part of the story," notes Manson. Women who drank more soda were also more likely to gain weight than women who drank less.

"Liquid calories may not curb your appetite as much as solid calories do," she explains. But sugar-sweetened beverages were linked to a higher risk of diabetes even when her study compared women who weighed the same.

"People may get more of a swing in blood sugar when they drink sugar-sweetened beverages," she suggests. "When you eat sugar in solid foods, where it's mixed in with protein and fat, that may slow the absorption, so there's less demand on the pancreas to produce insulin."

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WHAT'S YOUR RISK?

Most people who have prediabetes—and many others who have diabetes—don't know it. The only way to find out is to get your blood sugar tested (at least every three years starting at age 45). Your risk is higher if you:

- are age 45 or older
- are overweight (see table)
- are African-American, Hispanic/Latino-American, Asian-American, Pacific Islander, or American Indian
- have a parent, brother, or sister with diabetes
- have high blood pressure (above 140 over 90)
- have low HDL ("good") cholesterol (less than 40 for men; less than 50 for women)
- have high triglycerides (250 or more)
- had diabetes when pregnant or gave birth to a large baby (over 9 pounds)
- are active fewer than three times a week

Overweight starts at:

Height (no shoes)	Weight *(lbs.)* (no clothes)	Height (no shoes)	Weight *(lbs.)* (no clothes)
4'10"	119	5'8"	164
4'11"	124	5'9"	169
5'0"	128	5'10"	174
5'1"	132	5'11"	179
5'2"	136	6'0"	184
5'3"	141	6'1"	189
5'4"	145	6'2"	194
5'5"	150	6'3"	200
5'6"	155	6'4"	205
5'7"	159		

Source: Adapted from diabetes.niddk.nih.gov/dm/pubs/riskfortype2/.

Magnesium

"Magnesium is understudied and underappreciated for its effect on both glucose tolerance and cardiovascular disease," says Manson.

In a study that tracked 85,000 women for 18 years and 42,000 men for 12 years, those who consumed the most magnesium (about 375 milligrams a day for women and 450 mg a day for men) from food and supplements combined had a 33 percent lower risk of diabetes than those who consumed the least (220 mg a day for women and 270 mg a day for men).[16]

Another study found lower blood insulin levels and a lower risk of diabetes in women who consumed the most magnesium.[17]

"It's biologically plausible that magnesium would have an effect on glucose tolerance and insulin sensitivity," notes Manson.

Small studies have already tested magnesium supplements on people who have diabetes. And magnesium supplements (365 mg a day) have lowered insulin resistance and fasting blood sugar levels in overweight people who don't have diabetes.[18]

"Larger trials are needed," says Manson. "We're designing one now."

In the meantime, it makes sense to eat magnesium-rich foods like whole grains, leafy greens, beans, nuts, and coffee, rather than take a supplement. Taking high doses (more than 350 mg) of magnesium leads to mild diarrhea or other gastrointestinal complaints in some people.

"Much more research needs to be done, but magnesium is looking very promising," says Manson.

Whole Grains

When researchers pooled data from six studies of more than 286,000 participants, they estimated that for every two servings of whole grains you eat a day, your risk of diabetes drops by 21 percent.[19]

Why? "Whole grains lead to smaller fluctuations in blood sugar and insulin than refined grains and sugars," says Manson. "Whole grains may also lead to more satiety. Refined carbs can lead to hunger and increased food intake due to the wide swings in blood sugar."

But, she cautions, "people who eat whole grains tend to exercise more, smoke less, and have a healthier dietary pattern." And those things could help account for the link.

The Bottom Line

- The best way to dodge diabetes is to lose (or not gain) extra pounds.
- Limit sweets, especially sugar-sweetened drinks. Even the naturally occurring sugars in 100% fruit juice may raise your risk.
- Eat leafy greens, whole grains, beans, and nuts to boost your magnesium.
- Get the RDA for vitamin D (600 IU a day up to age 70 and 800 IU over 70) from supplements or foods fortified with vitamin D.
- Do *at least* 30 minutes of brisk walking or other aerobic exercise every day.
- Shoot for 2 or 3 strength training sessions a week. Each should include 8 to 12 repetitions of 8 to 10 exercises.

Coffee

When researchers examined nine studies on more than 193,000 people, they found that those who drank four to six cups of regular coffee a day had a 28 percent lower risk of diabetes than those who drank no more than two cups a day.[20]

"Decaf is also associated with a lower risk of diabetes, so something other than the caffeine in coffee beans appears to be responsible," says Manson. "The mechanism isn't known."

Vitamin D

Some studies find a lower risk of diabetes in people who have higher levels of vitamin D.[21] Others do not.[22]

"The research has been very inconsistent," says Manson. "We see totally divergent findings."

One possible explanation: the higher your weight, the lower your blood levels of vitamin D.

"Vitamin D gets sequestered in fat tissue, so any time you see a correlation with body weight, low levels of vitamin D can appear as a risk factor if you don't control for body weight," explains Manson.

The VITAL (Vitamin D and Omega-3 Trial) study that Manson is leading should help clarify vitamin D's role. Roughly 20,000 men (age 60 or older) and women (65 or older) will take vitamin D (2,000 IU a day) and/or omega-3 fats (1,000 mg a day) or a placebo for five years.

The goal: to see if either supplement affects the risk of cancer, heart disease, diabetes, memory loss, or other health problems. (To see if you're eligible to participate, go to vitalstudy.org.)

Fish

"We saw a slight increased risk of diabetes with fish and omega-3s in the Nurses' Health Study," says Manson. "But other studies show lower risk."

It's not just her studies. "At least as many studies suggest benefit as harm. The evidence is inconsistent and difficult to understand."

It's not clear why some studies find that fish eaters have a slightly higher risk.[23] Among the possibilities: fish may have high levels of pollutants like PCBs and dioxin.[24]

The good news: "We're doing a trial to look at glucose tolerance," says Manson. The study will piggyback on the VITAL trial.

"We'll look at blood sugar changes after two years and the incidence of diabetes after five years of taking about a gram of EPA and DHA a day. So eventually we'll have more data."

1 *N. Engl. J. Med. 364*: 829, 2011.
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3 *Lancet 375*: 2267, 2010.
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9 *Diabetes Care 26*: 1008, 2003.
10 *J. Clin. Invest. 119*: 1322, 2009.
11 *JAMA 303*: 1490, 2010.
12 *Am. J. Clin. Nutr. 89*: 1760, 2009.
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15 *Diabetes Care 33*: 2477, 2010.
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18 *Diab. Obesity Metab. 13*: 281, 2011.
19 *PLoS Med. 4*: e261, 2007.
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21 *Diabetes Care 33*: 2021, 2010.
22 *Diabetes Care 34*: 628, 2011.
23 *Am. J. Clin. Nutr. 90*: 613, 2009.
24 *Diabetes Care 29*: 1638, 2006.

AGING & EXERCISE

Overeating isn't the only cause of diabetes. Aging also increases the risk, even if you're lean. But you can counter some of the consequences of aging with strength training and aerobic exercise.

Here's what makes us more vulnerable to diabetes as we get older...and how exercise can help.

LESS MUSCLE. "One of the most commonly observed changes that contributes to diabetes risk is a decline in muscle mass that starts after age 30," explains Brenda Davy, associate professor of nutrition at Virginia Tech in Blacksburg. Davy recently reviewed the impact of aging and exercise on diabetes.[1]

Less muscle may raise the risk of diabetes because muscle is where the body sends most of its blood sugar (glucose) to be burned or stored. Less muscle also means a lower metabolic rate—that is, you burn fewer calories even while you're resting.

"With resistance training, you can increase muscle," explains Davy. "By increasing your muscle tissue, you're increasing the amount of tissue that can use glucose."

Aerobic exercise doesn't build as much muscle as resistance exercise. "That's one of the benefits of strength training—the more muscle, the better," says Sheri Colberg, who chaired a committee that issued a joint position statement on exercise and type 2 diabetes from the American College of Sports Medicine and the American Diabetes Association.[2]

As you get older, you lose muscle and gain fat.

MORE FAT. As you age, you not only lose muscle, you also gain fat, especially the deep visceral fat that is linked to diabetes.

Strength training can help by shrinking your waistline. And we're not talking about strength training that targets only abs.

"We use a whole-body training program, not a spot-reduction approach," says Davy. "It's not that we target the abdominal area with exercises." It's just that fat in the abs is the first to go.

When it comes to burning fat, "the abdominal adipose tissue depot is particularly sensitive," explains Davy. "So it's easier to lose fat from there than from other fat storage depots in the body." Note that she didn't say it would be easy—just easier.

What's more, adds Davy, "you may have reductions in abdominal fat even when you don't necessarily observe large changes in total body fat."

But strength training isn't the only way to lose body fat.

"Recovery from exercise is fueled primarily by fat, so the real benefit for fat loss is burning as many calories as you can doing any type of physical activity," explains Colberg, who is a professor of human movement sciences at Old Dominion University in Norfolk, Virginia.

INSULIN RESISTANCE. It's not clear why insulin resistance increases with age.

"There's some problem with insulin signaling inside the cell," says Davy. For example, there are fewer glucose transporters to bring glucose into the cell. Both aerobic and resistance exercise can rev up the transporters.[2]

Muscle contractions bring glucose into the cell even without insulin.

"If you work out today, for at least a day or two afterwards, you'll have heightened insulin action," says Colberg.

What's more, exercise can get around insulin resistance. "Muscle contraction causes muscle cells to take up glucose even without insulin," notes Davy.

"That's one reason why aerobic or resistance exercise is particularly beneficial for individuals with diabetes. Even if you are insulin resistant, you can still reduce blood glucose levels."

WHAT TO DO

"Both strength training and aerobic exercise have benefits," says Davy.

"Aerobic exercise may be more likely to produce weight loss because you can expend more calories," she notes. But older people who have arthritis or who use a walker may prefer strength training.

"Some may find a resistance training program more appealing than aerobics," says Davy.

Clearly, doing both is best. When researchers assigned 262 people with diabetes to aerobic exercise, resistance training, both, or neither for nine months, only those who did both lowered their long-term blood sugar levels.[3]

"In people with diabetes, the combination has a clear benefit," says Davy. "I wouldn't want to say one is superior."

How much strength training is enough? Shoot for 8 to 12 repetitions of 8 to 10 exercises at moderate intensity two to three times a week.[2]

"You can only do strength training effectively every other day because you're actually damaging the muscle, and it takes a couple of days to repair itself," says Colberg.

And try for at least a half-hour of brisk walking or other aerobic exercise at least five days a week.[2]

"That helps, but there's a limited amount of time and a limited number of calories you're going to expend in 30 minutes or even 60 minutes," notes Colberg. "What helps the most is being active all day long. Get up and walk around. Get a treadmill in your office. Don't sit at the computer all day."

[1] *J. Aging Res.* 2011, doi:10.4061/2011/127315.
[2] *Med. Sci. Sports Exer. 42*: 2282, 2010.
[3] *JAMA 304*: 2253, 2010.

Who Knew?

Is *this* better than *that*?

BY DAVID SCHARDT

Decisions, decisions. What we eat often comes down to weighing whether A is better than B. Fried or baked? Butter or margarine? White meat or dark? Organic or conventional? Name-brand or generic?

In some cases, the answers are no-brainers. In others, not so much. Here's a little help with a few you may have wrestled with.

IS KRILL OIL BETTER THAN REGULAR FISH OIL?

Krill oil is "a slam dunk winner over fish oil," claims Joseph Mercola's popular Web site mercola.com (where, not surprisingly, you can buy krill oil).

Bayer, which owns One A Day, apparently agrees. The supplement giant dove into the market this year with its Arctic Wonder Krill Oil ("Better than fish oil to support your health").

Only company-funded studies have concluded that krill oil is better.

Krill are shrimp-like crustaceans that occupy a spot near the bottom of the Antarctic Ocean's food chain. They are eaten by whales, seals, penguins, squid, and fish. Krill oil, like all fish oil, contains EPA and DHA, the two omega-3 fats that help prevent sudden cardiac arrest.

"There's some evidence that maybe 20 or 30 percent more EPA and DHA is absorbed from krill oil than from regular fish oil," says omega-3 expert William Harris of the University of South Dakota's Sanford School of Medicine. "But it's not that much more to warrant krill oil's much greater cost."

The DHA and EPA in krill oil cost at least 10 times more than the omega-3s in regular fish oil (which typically comes from menhaden, sardines, and herring).

Claims that krill oil can lower cholesterol, reduce symptoms of PMS, and relieve the discomfort of arthritis are based on studies funded by a Canadian manufacturer, Neptune Krill Oil.[1-3] But krill oil lowered cholesterol only in combination with a statin drug. For those not taking a statin-like drug, krill oil was no better than a placebo.[4] And no one else has tested the effects of krill oil on PMS and arthritis.

"There's certainly no convincing evidence that the health benefits of krill oil are superior to those of regular fish oil," says Harris.

Is krill oil better? NO.

IS CALCIUM CITRATE BETTER THAN CALCIUM CARBONATE?

"There is a difference between calcium supplements," claims the Citracal Web site. "Citracal is made with calcium citrate. Unlike calcium carbonate (the main ingredient in many other calcium supplements), calcium citrate does not need stomach acid to be broken down."

That's true. So if you typically take calcium on an empty stomach, citrate is the way to go.

To get 500 mg of calcium, it takes two citrate pills but just one carbonate pill.

"But if you take your calcium supplement with a meal, there's no significant difference between calcium carbonate and calcium citrate pills," notes Robert Recker, director of the Osteoporosis Research Center at Creighton University in Omaha, Nebraska. That's true even for people who take drugs for acid reflux like Tagamet or Prilosec, which reduce stomach acid.

What's more, calcium carbonate is cheaper and less bulky. To get the same amount of calcium, you need to take twice as much citrate as carbonate.

A recent analysis of past studies suggested that taking calcium supplements is linked to a slight increase in the risk of heart attacks.[5] (See Quick Studies, p. 10.) Until more is known, shoot for no more than the Recommended Dietary Allowance (RDA)—1,000 milligrams a day from food and supplements combined for women 50 and under and men 70 and under, and 1,200 mg a day for people older than that.

And there's no point in taking more than 500 mg of calcium at a time, since the intestinal tract can't efficiently absorb more than that in a single dose, says Recker.

Is calcium citrate better? DEPENDS.

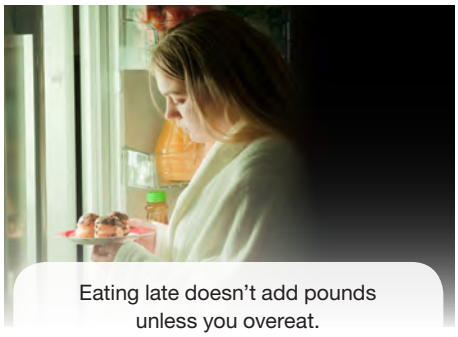
IS EATING EARLIER IN THE DAY BETTER THAN EATING LATE?

Weight Watchers and the Atkins and South Beach Diets have all told dieters to limit the food they eat at night. For generations, people have believed that food eaten when they're less physically active is more likely to be stored as fat than burned for energy.

But that's not based on hard evidence.

When researchers tracked the eating habits and body weights of more than 7,400 U.S. men and women for 10 years,

Photos: © Uwe Kils (krill), Jorge Bach (pills).



Eating late doesn't add pounds unless you overeat.

for example, the percentage of their daily calories that they ate after 5 p.m. had no bearing on changes in their weight.[6]

"I know of no credible evidence that the time of day has any impact on the storage of fat," concludes Albert Stunkard, an obesity expert at the University of Pennsylvania School of Medicine in Philadelphia.

On the other hand, if you eat *extra* calories because you're tired or bored or stressed (and nighttime is when you're more likely to do that), expect *those* to eventually show up around your waist.

Is eating earlier better? **NO.**

IS CANNED LIGHT TUNA BETTER THAN ALBACORE?

Light tuna typically has much less mercury than white (albacore) tuna. That's because albacore is a larger, more predatory species than skipjack tuna, which is canned as light tuna.

In January, *Consumer Reports* magazine analyzed 42 cans and pouches of tuna purchased in the New York metropolitan area. The light tuna samples averaged 0.07 parts per million of mercury, while the albacore averaged 0.43 ppm—six times as much. The results are consistent with past surveys of canned tuna from other cities.

Young children, as well as women who are pregnant or nursing or who might become pregnant within a year, should limit canned albacore tuna to no more than 1½ ounces a week for every 50 pounds they weigh. And they should limit canned light tuna to a total of no more than 12 ounces a week. Others can probably safely consume up to three times that much of each.

Canned light comes from smaller skipjack tuna, which has less mercury.

If you're willing to spend more, you can find albacore with mercury levels much closer to those of light tuna, says Michael Morrissey, director of the Oregon State University Seafood Laboratory in Corvallis.

It comes from smaller, juvenile Pacific albacore that are pole- or troll-caught in the coastal waters off northern California, Oregon, and Washington state. The juveniles, which haven't had as much time to accumulate mercury as larger albacore, average about 0.14 ppm of mercury.

Northern Pacific pole- or troll-caught albacore is one of just six "Best of the Best" species on the Monterey Bay Aquarium's "Super Green" list. Green-list species are low in mercury and PCBs, rich in omega-3s, and "abundant, well-managed, and caught or farmed in environmentally friendly ways." (The other five species: wild-caught Alaska salmon, farmed rainbow trout, wild-caught Pacific sardines, farmed oysters, and freshwater coho salmon farmed in inland tank systems in the United States.)

Several brands of canned northern Pacific albacore—including Raincoast and Wild Planet—are available at some groceries, direct from the companies, or on Amazon. For more brands, see albatuna.com or pacificalbacore.com.

Is light canned tuna better? **YES.**

ARE LYCOPENE PILLS BETTER THAN TOMATOES?

Tomatoes and prostate cancer have been linked since 1995, when Harvard researchers reported that among the nearly 48,000 men in their Health Professionals Follow-Up Study, those who ate at least 10 servings of tomatoes (including tomato sauce) a week were one-third less likely to be diagnosed with prostate cancer than those who ate fewer than 1½ servings a week.[7]

Since then, however, most studies that tracked the eating habits of large groups of men for years have seen no link between prostate cancer and either tomatoes or lycopene, the major carotenoid in tomatoes.

Ideally, researchers would feed men tomatoes or give them lycopene or a placebo and wait to see how many in each group get prostate cancer. But that kind of study is expensive and difficult to pull off, so it isn't likely to be done.

"We do have impressive animal studies, though," says lycopene researcher John Erdman of the University of Illinois at Urbana-Champaign.

In one, rats exposed to a prostate-cancer-causing chemical who consumed a diet containing finely ground dried whole tomatoes were 26 percent less likely to die of prostate cancer than rats who got lycopene or a placebo.[8] And when Erdman and his research group transplanted prostate tumors into rats, the tumors grew more slowly in those given tomato powder, but not in those given lycopene.[9]

Lycopene isn't the only important compound in tomatoes.

"It looks like you may need an array of bioactive ingredients that you find in the whole tomato," says Erdman. "Lycopene is one of the important components, but it's not the only one."

Of course, rats aren't people. "Eating tomatoes may or may not protect men from prostate cancer," concedes Erdman. "Still, they're a nourishing food." As for lycopene pills, "it doesn't make sense for men to take them in place of eating tomatoes."

To absorb the most carotenoids from tomatoes, eat them cooked, says Erdman. Or, if they're in a salad, make sure the dressing or the rest of your meal contains at least 10 grams (two teaspoons) of fat.

Are lycopene pills better? **NO.**

1 *Altern. Med. Rev. 9*: 420, 2004.
2 *Altern. Med. Rev. 8*: 171, 2003.
3 *J. Am. Coll. Nutr. 26*: 39, 2007.
4 *Lipids 46*: 37, 2011.
5 *BMJ 342*: d2040, 2011.
6 *Int. J. Obes. Relat. Metab. Disord. 21*: 407, 1997.
7 *J. Natl. Cancer Inst. 87*: 1767, 1995.
8 *J. Natl. Cancer Inst. 95*: 1578, 2003.
9 *Cancer Res. 67*: 836, 2007.

Have a question for a future "Is this better than that?"? E-mail betterthan@cspinet.org.

Calcium & Heart Disease

Calcium supplements may raise the risk of heart attacks, says a new study. But the results are baffling and no cause for panic.

The Women's Health Initiative was a randomized clinical trial that gave roughly 36,000 postmenopausal women calcium (1,000 mg) plus vitamin D (400 IU) or a placebo every day for seven years. Since the women didn't know if they were in the calcium group or the placebo group, the researchers allowed those who were taking calcium when they entered the study to continue it on their own. Roughly half did.

Among women who *weren't* taking calcium on their own, those who were given calcium had a 16 percent higher risk of heart attack or revascularization (angioplasty or coronary bypass surgery) than those who were given a placebo.

Surprisingly, among women who *were* taking calcium on their own, those who were given calcium had no higher risk than those who got a placebo. In fact, they had a 16 percent *lower* risk of dying during the trial. These women were getting the *most* calcium—an average of 800 milligrams a day from their food, 580 mg from their personal supplements, and 1,000 mg from the researchers.

What to do: It's hard to understand how extra calcium could raise the risk of heart attacks, given that the women in the study who took the most calcium had no increased risk. It's also hard to see how calcium supplements could cause a small increase in the risk of a heart attack and a small decrease in the risk of dying.

However, to play it safe, aim for the Recommended Dietary Allowance for calcium, but no more. The RDA is 1,000 mg a day (from food and supplements combined) for women up to age 50 and men up to age 70 and 1,200 mg a day for people older than that.

"The new analysis does not prove that calcium promotes heart disease, but it does raise that possibility," says Bess Dawson-Hughes of Tufts University in Boston. "As with all nutrients, enough is enough. And the current RDA defines 'enough.'"

BMJ 342: d2040, 2011.

Prostate Cancer Confusion

It's an odd twist that left scientists scratching their heads. Researchers found a lower risk of aggressive prostate cancer in men who had higher blood levels of trans fat.

The study analyzed blood samples taken from men when they entered the Prostate Cancer Prevention Trial between 1994 and 2003. Of the 18,000+ men in the study, roughly 1,700 were diagnosed with prostate cancer over the next seven years. The researchers compared their blood levels with those of about 1,800 similar men in the study who were not diagnosed with cancer.

The men with the highest trans fat levels had roughly half the risk of *aggressive* prostate cancer as those with the lowest levels.

Another oddity: men who had the lowest blood levels of DHA, an omega-3 fat found in fish oil, had the lowest risk of aggressive prostate cancer. However, the risk didn't keep rising as blood levels of DHA increased.

(Trans fat and DHA weren't linked to *low-grade* prostate cancer, which represented 9 out of 10 cancers in the men.)

Both results stunned scientists because in earlier studies trans fat seemed to stoke inflammation while DHA appeared to diminish it. Researchers believe that inflammation may set the stage for prostate cancer.

What to do: Until further studies are done, ignore these results and don't change your eating habits. Numerous studies show that trans fat increases—and DHA or fish reduces—the risk of heart disease and stroke.

Am. J. Epidemiol. 2011, doi:10.1093/aje/kwr027.

Thighs to Belly

Does your body replace the fat you lose when you undergo liposuction? For the first time, there is a good answer.

Researchers randomly assigned 32 women who wanted to lose fat from their thighs, hips, or abdomen to either have liposuction within a month or to wait a year, so that the study could track the fate of the surgical group's fat. (Both groups got a reduced price on the surgery.) The women, who were either normal-weight or overweight but not obese, were told not to make changes in their diet or exercise during the study.

After one year, the women in the liposuction group had regained the fat that they lost, but the fat returned largely to their abdomen, not to their thighs.

The fat "was redistributed upstairs," study author Robert Eckel of the University of Colorado told *The New York Times*.

Most liposuction patients were glad that they had the procedure, and a year later, more than half of the second group opted for the surgery.

What to do: It's possible that the women might not have regained the lost fat if they had tried to cut calories or exercise more. However, the results suggest that the body defends its fat stores. Take-home message: don't gain weight now and assume that you can lose it later.

Obesity 2011, doi:10.1038/oby.2011.64.

The Vinaigrette Variations

BY KATE SHERWOOD

Each recipe uses a different take on balsamic vinaigrette to highlight the other ingredients. The combination of tart vinegar with something savory and something sweet makes for three deliciously different dishes.

Got a question or suggestion? Write to Kate at healthycook@cspinet.org.

Sydney Stir Fry

For a rich caramelized taste, brown the broccoli and peppers well. If tofu isn't in the cards, you can use chicken or shrimp.

- **14 oz. extra-firm water-packed tofu, drained**
- **3 Tbs. balsamic vinegar**
- **2 Tbs. reduced-sodium soy sauce**
- **1 Tbs. honey**
- **2 cloves garlic, minced**
- **1 Tbs. grated ginger**
- **3 Tbs. vegetable oil, divided**
- **½ lb. broccoli florets**
- **1 red pepper, thinly sliced**
- **4 scallions, sliced**

Cut the tofu across the width into 6 slabs. Cut each slab in half to make 12 squares. Blot the tofu to remove some of the moisture and set aside.

Whisk together the balsamic vinegar, soy sauce, honey, garlic, and ginger in a small bowl and set aside.

Sauté the broccoli in 1 Tbs. of oil over medium-high heat until bright green and starting to brown in places, about 5 minutes. Remove from the pan. Sauté the pepper in 1 Tbs. of oil over medium-high heat until it starts to brown, about 3 minutes. Remove from the pan. Sauté the tofu in the remaining 1 Tbs. of oil over medium-high heat until browned, 2 minutes per side. Add the vinegar mixture to the tofu and simmer until slightly thickened, about 1 minute.

Return the broccoli and peppers to the pan and gently toss to coat with the sauce.

Garnish with the scallions and serve with brown rice or another whole grain. Serves 3.

PER SERVING (2 cups, without rice)

Calories: 340
Sodium: 440 mg
Total Fat: 21 g
Sat Fat: 3 g
Cholesterol: 0 mg
Protein: 17 g
Carbohydrates: 22 g
Fiber: 5 g

Saint-Tropez Chicken

The recipe is great with grilled vegetables (mushrooms, peppers, eggplant, onion, and zucchini) instead of chicken.

- **3 Tbs. balsamic vinegar**
- **1 Tbs. Dijon mustard**
- **1 Tbs. honey**
- **2 cloves garlic, minced**
- **Freshly ground black pepper**
- **2 Tbs. extra-virgin olive oil**
- **1½ lbs. boneless, skinless chicken breast**
- **1 cup fresh basil leaves**
- **4 cups baby arugula**
- **¼ cup oil-packed sun-dried tomatoes, chopped**

Make the marinade by whisking together the vinegar, mustard, honey, garlic, pepper, and oil in a small sauce pan. Bring to a boil and simmer until slightly thickened, 3-5 minutes. Set aside.

Put the chicken breasts in a heavy plastic bag and pound to an even ½" thickness. Grill the chicken on a well-seasoned, medium-hot grill until cooked through, about 3 minutes per side. Allow to rest for 5 minutes, then slice across the grain. Toss the chicken slices with the cooked marinade.

Roughly chop the basil and arugula and toss with the sun-dried tomatoes. Arrange the chicken slices on a platter and top with the basil-arugula mix. Serves 4.

PER SERVING (2 cups)

Calories: 310
Total Fat: 12 g
Sat Fat: 2 g
Protein: 37 g
Sodium: 310 mg
Cholesterol: 110 mg
Carbohydrates: 10 g
Fiber: 1 g

Santa Monica Mushroom Salad

Here's an ideal summer meal for two or side salad for four. Try a mix of cremini, portobello, and/or shiitake mushrooms. To ratchet up the taste a notch, toss in a few wild mushrooms (like chanterelle or porcini).

- **3 Tbs. balsamic vinegar**
- **½ cup orange juice**
- **2 cloves garlic, minced**
- **1 tsp. Dijon mustard**
- **2 Tbs. extra-virgin olive oil, divided**
- **1 lb. mixed mushrooms, caps sliced and stems discarded**
- **6 scallions, cut into 1" pieces**
- **¼ tsp. kosher salt**
- **Freshly ground black pepper**
- **10 cups mixed baby greens**
- **¼ cup sunflower seeds**

Make the dressing by whisking together the vinegar, orange juice, and garlic in a small pan. Simmer until slightly thickened and reduced by half, about 5 minutes. Allow to cool, then whisk in the mustard.

Using 1 Tbs. of oil for each batch, sauté the mushrooms in two batches in a large skillet over medium-high heat until well browned, 5-7 minutes. Add the scallions during the last minute or two. Allow to cool to warm or room temperature and season with up to ¼ tsp. of salt and plenty of pepper.

Toss the greens with the dressing and arrange on a platter. Top with the mushrooms and sunflower seeds. Serves 4.

PER SERVING (2½ cups)

Calories: 180
Total Fat: 11 g
Sat Fat: 1.5 g
Protein: 7 g
Sodium: 200 mg
Cholesterol: 0 mg
Carbohydrates: 15 g
Fiber: 3 g

Photo: Jorge Bach.

Sydney Stir Fry

Tip Sheet

You don't need an expensive balsamic vinegar for these recipes. The kind you use for your vinaigrette should be fine.

The best-tasting tofu comes packed in water in the refrigerator aisle of the supermarket.

FruitFinds

Healthy. Delicious. What's not to love?

BY BONNIE LIEBMAN & JAYNE HURLEY

The problem with fruit is that it's not forbidden.

If fruit were loaded with calories, bad fat, or salt, we might feel a more intense longing for the juicy sweetness of a ripe strawberry or the crisp crunch of a just-picked apple. "If I could only have another slice of watermelon," we might sigh.

We take fruit for granted. That's partly because no big advertisers have an incentive to plug fresh fruit—except when it's an ingredient in a profitable brand-name item like McDonald's McCafé Real Fruit Smoothies.

Here's why fruit deserves more respect…and how to find the cream of the crop.

Information compiled by Melissa Pryputniewicz and Zahra Hassanali.

Fruit is nutrient-packed

Vitamin C, potassium, folate, and carotenoids like lutein, alpha-carotene, beta-carotene, and lycopene. Fruit has them all, plus fiber and, in a few cases, some calcium and iron to boot.

Granted, some fruits have more than others. That's why we devised our rankings, which add up levels of some half dozen nutrients to get a score for each fruit (see "Everything but the Pits," p. 14). But before you rush out to stock your fridge with guava, here are a few reasons why you can't take our rankings too literally.

■ **Serving size matters.** Ours are based on the government's food labeling rules, but they're not set in stone. If you eat, say, half a cantaloupe instead of a quarter, its score jumps from 132 to 264. (And with only 50 calories per quarter melon, eating half is easy to do.) On the other hand, if you eat just one cup of watermelon instead of two, its score falls from 314 to 157. Oops.

■ **Carotenoids add up.** Many of the top scorers are loaded with carotenoids like beta-carotene, lutein, and lycopene. But it's not clear how much (or even whether) each matters. Lutein, for example, may lower the risk of cataracts and macular degeneration, but the jury is still out. Beta-carotene turns into vitamin A in the body, but it's far too early to tell if it lowers the risk of cognitive decline, as a few studies suggest.

■ **Other phytochemicals.** Our scores tally vitamins, minerals, and fiber, but fruit may have other, still-undiscovered, compounds that lower the risk of heart disease, diabetes, or other illnesses. In lab studies, for example, blueberries, blackberries, strawberries, and cranberries help rats find their way through mazes. If something in berries also helps the aging human brain, it wouldn't show up in our scores.

■ **Specifics.** If you're looking for fiber, for example, it doesn't matter that (fiber-poor) watermelon is the second-highest-scoring fruit in our chart. What you're looking for are fruits like raspberries, blackberries, and kumquats. Just check the fiber column.

With all those caveats, why bother with our scores? For one thing, it's interesting to see where your favorite fruits fall. And if our chart gets you to try a couple that are higher up on the list, all the better. The bottom line is that all fruits are good fruits, and the more fruit you eat the better. Here's why.

Fruit is low in calorie density

Most fruit is a real bargain: all those nutrients for less than 100 calories in most cases. Some—like a peach or a nectarine or a quarter of a cantaloupe—are closer to 50 calories.

And because fresh fruit is about 85 percent water, it fills you up. Exceptions: raisins, dried figs, dates, prunes (which the industry now calls dried plums), and other dried fruits have more calories per bite—that is, they have a higher calorie density.

Fruit helps lower blood pressure

Fruit is one of the richest sources of potassium, which may help explain why people who eat more fruit have lower blood pressure.

The DASH (Dietary Approaches to Stop Hypertension) diet, which can lower blood pressure dramatically, includes four

Photo: Jorge Bach.

Coming Clean

Here are all of the fruits from the Environmental Working Group's ranking of pesticide residues in produce. The rankings depend largely on the number of pesticides found in each fruit, and don't take into account the toxicity of those pesticides. Even so, the lower down on the list the fruit, the more you should consider buying the organic version when available at an affordable price.

Fruit
Pineapple (best)
Mango
Kiwi
Cantaloupe *(domestic)*
Watermelon
Grapefruit
Honeydew melon
Plums *(domestic)*
Cranberries
Bananas
Cantaloupe *(imported)*
Grapes *(domestic)*
Oranges
Red raspberries
Plums *(imported)*
Pears
Blueberries *(imported)*
Grapes *(imported)*
Cherries
Nectarines
Blueberries *(domestic)*
Apples
Strawberries
Peaches (worst)

Source: Environmental Working Group.

Photos: © Dušan Zidar/fotolia.com (top), Jorge Bach (bottom).

to five servings of fruits every day.

While the DASH study wasn't designed to identify which foods or nutrients have an impact on blood pressure, numerous studies have shown that when researchers give people potassium supplements, it lowers blood pressure.[1]

And in an Italian meta-analysis that pooled data from 11 studies on a total of more than 247,000 men and women, those who were getting higher levels of potassium in their diet had a 21 percent lower risk of stroke than those who were getting lower levels. (The difference in potassium intake between the two groups was roughly 1,600 milligrams a day.)[2]

But potassium may do more than lower blood pressure.

"More recently, a high-potassium diet was shown to exert a protective effect against the development of vascular damage induced by excess salt intake, thus counteracting, to some extent, the dangerous effects of eating too much salt," explained meta-analysis co-author Pasquale Strazzullo, a professor of medicine at the Federico II University of Naples Medical School.

And British researchers found that potassium supplements reduced artery stiffness and improved heart function in people with high blood pressure.[3]

"However, no one is suggesting that the whole population take potassium chloride supplements," note study author Graham MacGregor and colleagues at St. George's Hospital Medical School in London.

"The best way to increase potassium intake is to increase the consumption of foods that are high in potassium, for example, fruit and vegetables."

Fruit can be low in pesticides

The Environmental Working Group (EWG), a non-profit consumer group based in Washington, D.C., publishes a list of the "Clean 15," the fruits and vegetables with the fewest pesticide residues. Pineapples, mangos, kiwi, cantaloupe, watermelon, grapefruit, and honeydew melon are on it. (Fruits with a thick rind are often cleaner.)

Unfortunately, some fruits—peaches, strawberries, apples, blueberries, nectarines, cherries, and imported grapes—appear on EWG's "Dirty Dozen" list.

That doesn't mean that you should never buy them, though. If you can't find the organic version (or if the premium is too high), just keep in mind that fruit eaters—including people who eat fruit with pesticide residues—have a lower risk of disease.

Fruit is convenient

Most fruit requires no refrigeration and little, if any, packaging. Apples, grapes, bananas, and peaches are finger foods that you can grab as you rush out the door.

And fruit is user friendly. You never hear someone say, "I wish I knew how to prepare a peach."

Fruit can be cheap

Okay, fruit isn't always a bargain. Raspberries, for example, are almost always expensive because they're so perishable. And almost any fruit that's shipped long distances out of season is pricey.

But in season (or on sale), you can often find grapes, apples, and pears for about $1 a pound. And you can buy an entire cantaloupe or honeydew for $2. At many stores, a banana costs about 20 cents. What other food is such a steal?

Fruit is fabulous

Who doesn't swoon at the first sweet burst of blueberries, watermelon, or kiwi? Fruit adds blasts of reds, greens, yellows, purples, and even blues that zip up any dish, with no synthetic dyes that make some kids climb the walls.

And think of the range of textures, from a luxuriously creamy nectarine to a seed-studded pomegranate to a crisp, tart apple.

[1] *J. Hypertens. 9*: 465, 1991.
[2] *J. Amer. Coll. Cardiol. 57*: 1210. 2011.
[3] *Hypertension 55*: 681, 2010.

Mobile Apple? Not all fruits travel well. You're likely to eat more bananas and pears, for example, if you can just toss them into your bag or backpack and not worry about bruises. Pick up a couple of plastic fruit protectors (many supermarkets carry them) and you're good to go.

> > > > >

Everything but the Pits

We calculated a score for each fruit by adding up its percentage of the recommended daily intake for five nutrients plus fiber and carotenoids. (We used the Dietary Reference Intake, or DRI, for all but two. For fiber, which has no DRI, we used the Daily Value, or DV. For carotenoids, which has no DRI or DV, we devised our own recommended intake from the best available research.)

For example, half a pink grapefruit has 65 percent of our daily target for carotenoids (65 points) and 10 percent of the DV for fiber (10 points), plus 53 percent of the DRI for vitamin C (53 points), 5 percent for folate (5 points), 4 percent for potassium (4 points), 3 percent for calcium (3 points), and 1 percent for iron (1 point). That gives it a score of 141 points. The chart doesn't show calcium or iron numbers because they're generally low.

KEY

Percentage of the recommended daily intake:

- 20% or more
- 15%-19%
- 10%-14%
- 5%-9%
- less than 5%

Fruit	Score	Carotenoids	Vitamin C	Potassium	Folate	Fiber	Calories
Guava *(3)*	575						100
Watermelon *(2 cups diced)*	314						80
Kiwi *(2)*	201						90
Papaya *(1 cup cubed)*	189						60
Grapefruit, pink or red *(½)*	141						70
Kumquats *(7)*	138						100
Orange *(1)*	136						70
Cantaloupe *(¼)*	132						50
Lychees *(14)*	131						90
Strawberries *(8)*	128						50
Mango *(½)*	107						80
Raspberries *(1¼ cups)*	101						70
Blackberries *(1 cup)*	91						60
Star Fruit *(1)*	82						40
Pineapple *(2 slices, or ¾ cup)*	77						60
Apricots *(4)*	76						70
Grapefruit, white *(½)*	76						50
Persimmon *(1)*	76						100
Pomegranate *(½)*	62						120
Tangerine *(1)*	61						60
Apple *(1)*	48						130
Apricots, dried *(11 halves)*	48						100
Honeydew melon *(⅛)*	47						50
Lemon *(1)*	47						20
Peaches, dried *(3 halves)*	47						100
Banana *(1)*	45						110
Rhubarb *cooked with sugar (½ cup)*	44						160
Plums *(2)*	41						70
Blueberries *(1 cup)*	40						80
Pear *(1)*	40						100
Cherries *(1 cup)*	39						90
Figs *(2)*	38						100
Lime *(1)*	37						20
Nectarine *(1)*	37						60
Peach *(1)*	37						60
Asian pear *(1)*	34						60
Figs, dried *(5)*	34						100
Currants, dried *(¼ cup)*	32						110
Grapes *(¾ cup)*	31						90
Pineapple, canned *(½ cup)*	29						80
Peaches, canned *(½ cup)*	27						60
Prunes, dried *(4)*	26						100
Dates, dried *(6)*	25						110
Avocado *(¼)*	24						50
Fruit cocktail *(½ cup)*	23						60
Cranberries *(½ cup)*	22						30
Raisins *(¼ cup)*	20						120
Pears, canned *(½ cup)*	19						70
Applesauce, unsweetened *(½ cup)*	12						50
Cranberries, dried *(¼ cup)*	11						120

Recommended Daily Intakes

Calcium (DRI): *1,200 mg*
Carotenoids: *5,000 mcg*[1]
Iron (DRI): *18 mg*
Potassium (DRI): *4,700 mg*
Fiber (DV): *25 g*
Folate (DRI): *400 mcg*
Vitamin C (DRI): *90 mg*

[1] Estimate based on available research.

Source: U.S. Department of Agriculture Nutrient Data Laboratory (www.ars.usda.gov/ba/bhnrc/ndl). The use of information from this article for commercial purposes is strictly prohibited without written permission from CSPI.

Pick Your Own

Fruit	What to Shop For	How to Store	Tips
Apples	Well-colored, firm fruit with a pleasant smell.	In the fridge in an open plastic bag for up to 2-3 weeks.	They soften ten times faster at room temperature.
Apricots	Uniform golden-orange plump fruit. When ripe they yield to gentle pressure.	At room temperature in a closed paper bag until ripe. Then in the fridge for 1-2 days.	Avoid soft, pale or greenish-yellow fruit. Don't wash until ready to serve.
Bananas	Bright, firm, green fruit that is starting to turn yellow. At peak of ripeness, brown specks appear.	At room temperature until ripe.	They lose flavor and the skins turn black if you store them in the fridge.
Blueberries **Raspberries** **Strawberries**	Bright, plump berries with good, uniform color and clean appearance.	In the fridge in the container they were sold in for up to 10 days (blueberries) or 1-2 days (others).	Don't wash until ready to serve. Larger blueberries generally taste better than smaller ones.
Cantaloupe **Honeydew melon** **Other melons**	Melons with a strong aroma. The blossom end (opposite the indented end where the stem used to be) should yield to gentle pressure. The stem end should have a smooth, round, depressed scar.	At room temperature until ripe. Then in the fridge for up to 2-3 days (cut and in a container or whole).	A ripe cantaloupe has a yellowish cast to its rind. It's harder to tell when honeydew melons are ripe. Look for a creamy yellow color.
Cherries	Firm, plump fruit with a bright red to black color, smooth, glossy skin, and stems attached.	In the fridge in a closed plastic bag for up to 3 days.	Don't wash until ready to serve. Absorbs odors from leeks, onions, and peppers.
Cranberries	Plump, firm berries with lustrous red color.	In the fridge in a tightly sealed plastic bag for up to 2 months.	Discolored berries will produce an "off" flavor.
Figs	Greenish yellow or purplish black fruit depending on the variety. Soft to the touch indicates that it's ripe.	In the fridge in a plastic bag for up to 2 days.	Spoils within 7-10 days of harvesting, so you typically have no more than 3 days to use the fruit once you get it home.
Grapefruit	Fruit that's heavy for its size and firm yet springy to the touch, with thin, blemish-free skin.	At room temperature for up to 1 week or in the fridge in an open plastic bag for up to 1 month.	Produces odors that are absorbed by meat, eggs, and dairy. Red and pink grapefruit are generally sweeter than white.
Grapes	Well-colored plump fruit attached to pliable stems.	In the fridge in a closed plastic bag for up to 5 days.	Don't wash until ready to serve. Absorbs odors from leeks and scallions.
Guava	Soft green to bright yellow fruit with a fragrant aroma.	At room temperature until ripe. Then in the fridge for up to 1-2 days.	There's no need to peel. The edible rind is rich in vitamin C.
Kiwi	Plump, firm, unwrinkled fruit. When ripe they yield to gentle pressure.	At room temperature until ripe. Then in the fridge, covered, for up to 1-2 weeks.	Water-stained skin doesn't affect the taste.
Lemons **Limes**	Firm fruit that's heavy for its size, with thin, smooth skin.	At room temperature for up to 1 week or in the fridge in an open plastic bag for up to 1 month.	Produces odors that are absorbed by meat, eggs, and dairy.
Mango	Full, somewhat firm fruit with a strong aroma.	At room temperature until ripe. Then in the fridge for up to 3 days.	Yellow and red colors in the skin tend to increase as the fruit ripens. Avoid solid green fruit.
Oranges **Tangerines**	Firm, heavy fruit with bright-looking skin.	At room temperature for up to 1 week or in the fridge in an open plastic bag for up to 1 month.	You can't tell how ripe an orange is by its color. Produces odors that are absorbed by meat, eggs, and dairy.
Papaya	Firm fruit with unblemished skin.	At room temperature in a loosely closed paper bag until ripe. Then in the fridge for up to 1 week.	Best to eat when the skin is mostly yellow-orange.
Peaches **Nectarines**	Smooth, plump nectarines and peaches with no trace of green in the skin.	At room temperature in a closed paper bag until ripe. Then in the fridge (in a single layer) for up to 1 week.	Peaches get juicier, not sweeter, as they ripen. Ripe peaches have a yellowish color with a red blush.
Pears	Fruit that is firm, free from blemishes, and not misshapen. In general, big plump pears are the best. Color at ripeness varies from variety to variety.	At room temperature in a closed paper bag until ripe. Then in the fridge (in a single layer) for up to 2-3 days.	Pears are ripe when the flesh around the stem yields to gentle pressure. (The pear producers' advice: "Check the neck.")
Pineapple	Fruit that is as large as possible, with a strong aroma, crown leaves that are fresh and deep green, and a slight separation of the "eyes" on the skin.	At room temperature until ripe. Then in the fridge for up to 3 days (cut and in a container or whole).	Skin color and looseness of crown leaves aren't signs of maturity. Absorbs odors from green peppers. Avoid fruit that smells of vinegar.
Plums	Plump fruit that is beginning to soften. Color at ripeness varies from variety to variety.	At room temperature in a closed paper bag until ripe. Then in the fridge for up to 3-5 days.	Avoid fruit that's too hard or soft. Don't wash until ready to serve.
Pomegranate	Fruit with a bright red rind. Avoid rinds that are hard and dry looking.	At room temperature for a few days or in the fridge for up to 3-4 weeks.	Some people eat just the flesh around the seeds. Others eat the seeds with the flesh.
Watermelon	Fruit with a rind that's slightly dull. A whole melon that's symmetrical. A cut melon with deep red flesh that's free from white streaks.	At room temperature for 1-2 days or in the fridge for up to 2-3 days (cut and in a container) or 1 week (whole).	The underbelly should be creamy, not yellowish. Tapping won't tell you anything about a melon's ripeness.

Sources: Adapted from U.S. Department of Agriculture and United Fresh Fruit and Vegetable Association.

About CSPI, publisher of Nutrition Action Healthletter

CENTER FOR Science IN THE Public Interest

The Center for Science in the Public Interest (CSPI), founded in 1971, is an independent nonprofit consumer health group. CSPI advocates honest food labeling and advertising and safer and more nutritious foods. CSPI's work is supported by *Nutrition Action Healthletter* subscribers and foundation grants. CSPI accepts no government or industry funding. *Nutrition Action Healthletter*, first published in 1974, accepts no advertising.

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RIGHT STUFF

TAKE A BREAK

Cottage cheese is one terrific food. It packs a wallop of protein (14 grams) into each 100-calorie half-cup serving. You'd be hard-pressed to find those numbers outside the used-to-be animal kingdom.

And you'll get away with just 1½ grams of saturated fat in a perfectly creamy 2% cottage cheese. Find a hard cheese with so little sat fat and creamy doesn't apply.

But cottage cheese has a problem. The sodium typically hovers around 400 milligrams—a quarter of a day's worth—per half cup. Not so terrific. If you don't like the taste of no-salt-added cottage cheese, you're out of luck.

Until now.

Breakstone's 30% Less Sodium Cottage Cheese tastes no different than regular cottage cheese. The brand, owned by food giant Kraft, isn't available much beyond the East and Midwest. Too bad.

It looks like the company adds potassium citrate and potassium chloride to make up for the missing sodium chloride. That's more good news, since all that potassium (420 mg per half cup) helps lower blood pressure. Talk about win-win.

And cottage cheese is easy to please. Top with fresh peaches, berries, bananas, melon, or any other fruit. Sprinkle on toasted almond slivers (or other nuts) or a few tablespoons of granola. Spread it on a thin rye cracker or whole-grain toast. Mix it into your scrambled eggs or pancake batter to add low-cholesterol protein.

The question: When will other brands get on the Breakstone's bandwagon?

Breakstone's: (800) 538-1998

Photos: Jorge Bach.

dish OF THE MONTH

Sesame Greens

Plunge 1 lb. dark green vegetable into boiling water until bright green and tender (from 15 seconds for spinach, watercress, or mustard greens to 2 minutes for broccoli, broccoli rabe, bok choy, or kale). Drain very well. Toss with 1 Tbs. toasted sesame oil, 1 Tbs. toasted sesame seeds, and 1 tsp. reduced-sodium soy sauce.

FOOD PORN

BACON MAGIC

"Bacon is magical," intones **Denny's** Web site. "Bacon transforms classic foods into colossally awesome ones...Bacon is king."

Yup. Denny's is observing a "celebration of Bacon" called "Baconalia!" (Sorry if you missed the party. In May, the chain couldn't say how long it would continue.)

"Denny's new Baconalia menu has seven new bacon dishes," notes the Web site. "Like Bacon Flapjacks. A BBBLT. And for dessert, a **Maple Bacon Sundae**. Yum."

Honestly, why hasn't anyone thought of putting bacon on ice cream before? What a bunch of slackers must be running these chain restaurants. There they are, trying to slather cheese onto every sandwich, salad, steak, or pasta on the menu. Or they're busy topping every dessert with ice cream, whipped cream, or both. But bacon? Brilliant.

The Maple Bacon Sundae starts with maple-flavored syrup, a scoop of vanilla ice cream, and a "generous sprinkle" of bacon. Remember when ice cream with syrup was *already* indulgent?

Then Denny's adds *another* layer of syrup, *more* ice cream, *more* bacon, and *more* syrup. By the time they're done layering, your midsection and artery walls are layered with 810 calories and 21 grams of saturated fat. And—unlike bacon-free sundaes—the Maple Bacon comes with a bonus: 460 milligrams of sodium.

What's next? Sausage Shakes? Pork Belly Pecan Pie? Kielbasa Cake? Fat Back Banana Splits?

Denny's: (800) 733-6697