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Nutrition Action HEALTH LETTER™
CENTER FOR SCIENCE IN THE PUBLIC INTEREST
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STAYING STRONG

How exercise & diet can help preserve your muscles

BY DAVID SCHARDT

Muscles are for more than lifting. They keep us walking, jogging, swimming, or dancing. They burn off excess calories, and they make us look fit, not flabby.

But sometime during middle age, we begin to lose a small amount of muscle each year. For some people, that may mean less golf or yard work or picking up the grandkids.

For others, less muscle can lead to falls...and, eventually, to dependence on relatives, friends, or professional caregivers to get through the day.

We all lose muscle as we age. But exercise and diet can help stem the loss.

Continued on p. 3

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OCTOBER 24, 2011

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Michael F. Jacobson
Executive Director—CSPI

EAT REAL.

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CENTER FOR Science IN THE Public Interest

STAYING STRONG

How exercise & diet can help preserve your muscles

Scientists aren't sure what causes sarcopenia—muscle loss with aging. Throughout our lives, our bodies are continually breaking down, repairing, and then building the proteins that make up our muscles. But at some point, we start to break down more protein than we synthesize.

The best way to restore the balance: strength training. There's nothing like it if you want to build muscle or stem muscle loss. But researchers are also finding that *how much* of *which kind* of protein we eat, and how it is distributed throughout the day, may also matter as we age.

"There's a big gap between what scientists are learning and what people are doing," says Christos Katsanos of Arizona State University in Tempe. Here's how to narrow the gap.

"Muscle is the absolute centerpiece for being healthy, vital, and independent as we grow older," says Miriam Nelson, director of the John Hancock Research Center on Physical Activity, Nutrition, and Obesity Prevention at Tufts University's Friedman School of Nutrition Science and Policy in Boston.

Muscle keeps us strong and mobile. It's where most of our calories are burned, so having more muscle means burning more calories, which makes it easier to stay trim.

And muscle helps us appear younger. "What makes us look older, more than anything else, is losing muscle and gaining body fat as we age," says Nelson.

But starting in their late 30s or early 40s, most people lose about a quarter pound of muscle every year.

"We don't know how much is hardwired to the aging process and how much is caused by poor nutrition and physical inactivity," Nelson notes.

What we do know is that there's one sure-fire way to slow down muscle loss and build more muscle.

Exercise

Want to preserve your muscles? Then lift weights or do other kinds of strength training, which is also called resistance or weight training.

"That's the intervention of choice for preventing muscle loss," says Ben Hurley, who has been studying strength training for more than 20 years at the University of Maryland. (Hurley is the husband of *Nutrition Action*'s Jayne Hurley.)

In one study, Hurley and his colleagues recruited 23 healthy men and women in their 60s and 70s to do resistance training three days a week on one of their legs using exercise machines. The participants' unexercised legs served as controls for comparison.[1]

After nine weeks, the size of the exercised muscles increased by 12 percent and the strength of the exercised leg increased by almost 30 percent.

Resistance training can also help improve muscle power, says Hurley. That's the ability of muscles to produce the force and speed of movement necessary to perform a wide range of simple everyday tasks.

"You can have strong muscles, but if you have too little muscle power, you might have trouble getting out of a car, or even a chair," Hurley explains.

Muscle power is also key to helping older people avoid falls, he adds. "The speed with which you can move your muscles to catch yourself from falling on the stairs, for example, may be more important than the amount of strength you have."

In a recent study by Hurley and his colleagues, 50 healthy but sedentary men and women aged 65 to 85 did strength-training exercises that targeted all the major muscle groups (the chest, shoulders, arms, back, abdomen, and legs) three times a week. After 12 weeks they could do simple tasks—like getting up from a chair and sitting down again five times in a row, or getting up from a chair, walking eight feet around a cone, and then sitting down again—faster than they could when they entered the study.[2]

But bigger, more powerful muscles aren't the only benefit of resistance exercise.

"The nice thing about strength training is that it also maintains or possibly improves bone mineral density," says the University of Oklahoma's Michael Bemben.

In an Oregon State University study, 35 postmenopausal women in their early 50s who were told to do two weight-lifting exercises twice a week for a year increased the bone density of their spine by about ½ percent, while 34 similar women who didn't do the exercises lost roughly 3½ percent of their spine bone density.[3]

Strength training can also help control

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blood sugar in people with type 2 diabetes.

In one study, Canadian researchers had 64 men and women with type 2 diabetes who were aged 39 to 70 do seven resistance exercises three times a week.[4] After 22 weeks, their hemoglobin A1c, which reflects long-term blood glucose levels, was significantly lower than the A1c of 63 similar people who did no strength training.

Getting Enough Protein

Strength training builds muscle. So may eating enough of the right kind of protein as we get older, say researchers in the United States, Canada, and the Netherlands.

Measuring changes in how the body builds proteins over minutes and hours, they have discovered that as we age, we appear to need more protein—especially the kind that's rich in the amino acid leucine—than younger people.

How might protein build muscle?

When we eat protein, it's broken down in the gastrointestinal tract into amino acids, which are then absorbed into the bloodstream.

"The rapid change in the concentrations of the amino acids in the blood after a meal serves as a signal to turn on the metabolic pathways that lead to the synthesis of new protein," says Douglas Paddon-Jones of the University of Texas Medical Branch at Galveston.

However, there may be a wrinkle as we age.

"Our studies show that older individuals need a larger amount of amino acids to stimulate protein synthesis than younger people," says Arizona State University researcher Christos Katsanos.

"We notice that in people 60 and older, their cells resist making new tissue after they consume small amounts of protein," explains Micah Drummond of the University of Texas Medical Branch at Galveston.[5]

Large amounts of protein, on the other hand, don't seem to be a problem.

"If you give 30 grams of protein, the amount found in four ounces of cooked beef or chicken, to a young adult and to an older adult, their protein synthesis response is the same," says Paddon-Jones.[6] (His research has been funded in part by the beef industry, as well as by the National Institutes of Health.)

"But if we lower the amount of protein and give them an egg and a glass of milk, which together have about 14 grams of protein, the result will be much different."

Young adults can synthesize about half as much protein from 14 grams as they can from 30 grams, explains Paddon-Jones. Not so older adults.

"Providing them with 5, 10, or 14 grams of dietary protein doesn't give them much of a bump in protein synthesis," he notes.

Not only may older people need more protein, says Paddon-Jones. They may need to spread out their protein more evenly throughout the day.

"The typical meal pattern most of us follow, particularly older adults, is to begin the day with a carbohydrate-rich, protein-poor breakfast, such as cereal or a bagel," explains Paddon-Jones. Lunch may or may not be protein-rich.

"Then a lot of us load up on protein at the evening meal with a big serving of meat, poultry, or fish."

That's not ideal, say some researchers.

"There's an upper limit on how much protein in a single meal you can use for muscle synthesis," says Elena Volpi, the Daisy Emery Allen Distinguished Chair in Geriatric Medicine at the University of Texas Medical Branch at Galveston. That appears to be about 30 grams.[7]

"Consuming more than that doesn't stimulate more protein synthesis," notes Volpi. "The rest is going to be stored as fat or burned off as calories."

That's why most people would probably benefit from shifting some protein from dinner to breakfast.

"Low-protein breakfasts may be okay when we're younger, but later down the road they may not be," says Drummond. "Beginning in middle age, when we begin to lose muscle, we should be making a transition from a low-protein to a higher-protein breakfast in order to remain stronger and healthier."

Paddon-Jones suggests aiming for 30 grams of high-quality protein—that means it comes from dairy, meat, poultry, fish, or eggs—at each of the three main meals. Veteran protein researcher Wayne Campbell of Purdue University thinks that's probably unrealistic.

"Should we be recommending that people try to achieve at least 20 grams of protein at each meal?" Yes, he says. But "expecting people to go as high as

Use It or Lose It

The American Heart Association and the American College of Sports Medicine recommend that all healthy adults do 8 to 10 strength-training exercises at least twice a week that incorporate all six of the muscle groups—chest, shoulders, arms, back, abdomen, and legs.

Your local Y or sports club is a good place to start. If you're older and want to ease yourself into strength training at home, pick up a copy of the National Institute on Aging's "Exercise & Physical Activity Guide" (www.nia.nih.gov/HealthInformation/Publications/ExerciseGuide/ or call 800-222-2225).

For animated illustrations or videos of strength-training exercises, see www.strongwomen.com/vibrantage/ and www.exerciseismedicine.org/keys.htm.

Strength training is the only proven way to build new muscle—or slow muscle loss—over the long term.

Going Pro

The Recommended Dietary Allowance (RDA) for protein is equivalent to 0.36 grams per pound of body weight every day. That works out to roughly 45 grams of protein if you weigh 125 pounds, 55 grams if you weigh 150 pounds, and 65 grams if you weigh 175 pounds. The Daily Value (DV) for protein is 50 grams. Nutrition Facts panels are only required to give the %DV for protein if the label makes a "high protein" or other protein claim.

Some researchers believe that the RDA is too low. To hedge your bets, *shoot for an amount of protein in grams that's equal to half your weight in pounds* (75 grams of protein a day for someone who weighs 150 pounds, for example).

Here's how much protein and (when the number is available) leucine is in a selection of foods. Some very-short-term studies suggest that older people build more muscle when they get more leucine. We've included some foods—cream cheese, for example—because people mistakenly believe that they're good sources of protein. Foods are ranked from most to least protein, then least to most calories.

	Calories	Protein (g)	Leucine (g)
Meat & Fish *(4 oz. cooked unless noted)*			
Chicken or turkey breast, skinless[1]	170	35	2.7
Pork[1]	270	30	2.5
Beef[1]	330	30	2.4
Ground beef, 20% fat	310	29	2.3
Fish & shellfish[1]	130	26	2.0
Canned tuna, in water *(2 oz. drained)*[1]	60	14	1.1
Sliced deli turkey breast *(2 oz.)*	60	10	0.8
Beans, Peas, Nuts, Tofu, & Veggie Burgers			
Tofu, firm *(4 oz.)*[1]	160	18	1.4
Morningstar Farms Grillers Prime Veggie Burgers *(1)*	170	17	NA
Soy nuts *(¼ cup)*	190	17	1.4
Morningstar Farms Veggie Sausage Patties *(1)* or Sausage Links *(2)*[1]	80	9	NA
Edamame *(½ cup cooked)*	100	8	0.6
Beans *(½ cup cooked)*[1]	120	8	0.6
Peanut butter *(2 Tbs.)*	190	8	0.5
Nuts *(¼ cup)*[1]	170	6	0.4
Gardenburger Original *(1)*	100	5	NA
Green peas *(½ cup cooked)*	70	4	0.3
Hummus *(2 Tbs.)*	70	2	NA
Dairy & Eggs			
Greek yogurt, plain, 0% *(6 oz.)*[1]	100	16	NA
Cottage cheese, 1% *(½ cup)*	80	14	1.4
Milk, fat-free or 1% *(1 cup)*[1]	90	8	0.9
Yogurt, plain, nonfat *(6 oz.)*[1]	90	8	0.8
Cheddar or Swiss cheese *(1 oz.)*[1]	110	7	0.8
Silk Original Soymilk *(1 cup)*	110	7	NA
Yogurt, sweetened, nonfat or low-fat *(6 oz.)*[1]	140	7	0.8
Egg substitute *(¼ cup)*	30	6	0.6
Egg *(1)*	80	6	0.5
Brie, feta, or goat cheese *(1 oz.)*[1]	70	5	0.4
Light ice cream or frozen yogurt *(½ cup)*[1]	130	3	0.2
Cream cheese *(2 Tbs.)*	100	2	0.2
Grains & Cereals			
Kashi GOLEAN Cereal *(1 cup)*	140	13	NA
Special K Protein Plus Cereal *(¾ cup)*	100	10	NA
Barilla Plus Pasta *(1 cup cooked)*	210	10	NA
Pasta *(1 cup cooked)*	220	8	0.6
Arnold Grains & More Double Protein Bread *(1 slice, 43 grams)*	110	7	NA
Kashi TLC Chewy Granola Bar *(1)*[1]	130	6	NA
Oatmeal *(1 cup cooked)*	170	6	0.5
Bulgur, quinoa, or rice *(1 cup cooked)*[1]	210	6	0.4
Whole wheat bread *(1 slice, 43 grams)*[1]	100	5	0.2
White bread *(1 slice, 43 grams)*[1]	120	3	0.2
Drinks			
Starbucks Nonfat Caffè Latte, grande	130	13	NA
Starbucks Nonfat Cappuccino, grande	80	8	NA

[1] Average. NA number not available. Note: Numbers vary from brand to brand (bread, for example), from type to type (cheese, for example), and from cut to cut (beef, for example). Chart compiled by Zahra Hassanali. Source: USDA and company information.

30 grams a meal, that gets a little bit more challenging, especially at breakfast and lunch."

I Love Leucine

It's not just the amount, but the kind of protein that may matter for muscle building.

Our bodies can make 11 of the 20 amino acids that are the building blocks of protein, and therefore of muscle tissue. Since we have to rely on our food for the other nine, they're called "essential."

"Only the essential amino acids in food stimulate protein synthesis," says Katsanos. One of the nine—leucine—appears to be the most powerful for making protein.

Leucine is more than a building block of new protein.[8]

"It is the key amino acid that's driving the majority of the protein synthesis response," explains Drummond.

In a one-day study, older men who were given extra leucine synthesized more protein than those who didn't get extra leucine.[9] In younger men, leucine didn't matter.

While researchers don't know exactly how much leucine is optimal, early research suggests that it may be around three grams per meal, says Drummond.

"The proteins richest in essential amino acids and leucine are the animal proteins, such as eggs, dairy, meat, poultry, and fish," explains Paddon-Jones.

Whey protein, which makes up about 20 percent of the protein in milk (the rest is casein), has the highest concentration of leucine compared to other proteins, says Katsanos. That's one reason why whey, which is a byproduct of cheese-making, is the source of protein in many bodybuilding powders.

"Plant proteins are okay, too," notes Elena Volpi. "But they have lesser amounts of leucine, so individually they may not be as efficient as animal proteins." The best of the vegetable proteins seems to be soy, she adds.

Just don't expect extra leucine to make you look like a bodybuilder.

When Dutch researchers gave 30 healthy older men either 7.5 grams of leucine or a placebo every day for three months, they saw no difference in muscle strength or mass.[10] But the extra leucine may not have mattered because the men were getting enough protein—they averaged 83 grams per day from their food.

Timing Matters

If you do strength training, researchers say that you should try to eat some protein after you're done.

"We found that you get the largest ana-

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Lifting Weights? Should you Stop Taking Painkillers?

"Kill pain, kill growth?" asked a bodybuilder magazine in 2002 after a one-day study of young men at Ball State University in Muncie, Indiana, found that taking ibuprofen (Advil) or acetaminophen (Tylenol) negated the benefits of lifting weights. The study was funded by Tylenol's manufacturer, which was convinced that its drug would not have any bad effect on muscle, while ibuprofen would.

"As a result of this study, I talked about how bad both these drugs probably are if you take them all the time while you're trying to build your muscles," says lead researcher Todd Trappe.

Then Trappe repeated the study, this time extending it to three months with 36 men and women aged 60 to 78.[1]

"It never entered my mind that we would see what we did," says Trappe. "Those lifting weights and taking recommended doses of ibuprofen or acetaminophen increased both their strength and muscle mass 25 to 50 percent beyond that of the placebo group," which lifted weights and took lookalike but inactive pills.

So should you add these drugs to your exercise regimen? No, says Trappe.

"The amount of the benefit that you get when you do resistance exercise without the drugs is so substantial that it's not worth risking their potential side effects, such as gastric bleeding."

But if you're already taking the drugs for something else, "you don't need to worry that they're interfering with any resistance exercise you're doing," says Trappe.

[1] *Am. J. Physiol. Regul. Integr. Comp. Physiol.* doi:10.1152/ajpregu.00611.2010.

bolic response by far when protein is consumed after exercise," says Drummond.[11] (Anabolic means tissue-building.)

Katsanos agrees. During resistance exercise, he explains, signaling proteins that regulate protein synthesis shut down. So having extra amino acids around while you're exercising won't help build protein.

"These signaling proteins are turned back on minutes after the exercise is over," says Katsanos. "So it seems that immediately after exercise would be the best time to consume protein or amino acids to build up protein in the muscle."

That also makes sense for other reasons, Drummond points out.

"Who really wants to do a semi-decent workout on a full tummy? I don't even know if you would be able to perform or put the same level of effort in if you're eating a heavy protein meal before exercise."

Just don't worry if you can't eat right away.

"If you wait an hour or two after you exercise, you're still going to get some benefit," says Paddon-Jones. "But if you wait six, seven, eight hours, not so much."

Protein Today, Muscle Tomorrow?

"There's no doubt that inadequate protein intake accelerates the loss of muscle with age," says Purdue's Wayne Campbell. But if you already get enough protein, will eating more help you build, or stop losing, muscle over the long term?

Most studies have come up empty.

For example, 45 Australian men aged 50 to 79 who were asked to drink about 13 ounces of milk containing 13 grams of protein every day didn't have any more muscle after 1½ years than 44 similar men who didn't get the milk supplement.[12]

And 45 men assigned to drink the milk and do strength training three times a week added no more muscle than 46 similar men who did the exercises and drank no milk.

But all the men in the study were getting plenty of protein—1½ times the amount recommended by U.S. health authorities—when they entered the trial.

"If an individual is already exercising and consuming adequate protein as part of their normal diet, you wouldn't really expect to see big improvements by simply adding more protein," notes Paddon-Jones.

How much protein is "adequate"?

The Institute of Medicine recommends that adults consume 0.36 grams of protein per pound of body weight every day. That Recommended Dietary Allowance (RDA) works out to roughly 55 grams if you weigh 150 pounds and 65 grams if you weigh 175 pounds.

Not everybody gets that much.

"Around 15 percent of people in their 60s and 40 percent of those in their 80s aren't getting the RDA," notes Campbell.

And many researchers believe that the RDA is too low.

When 10 men and women aged 55 to 77 ate diets providing exactly their RDAs for protein for 14 weeks, they lost muscle from their thighs.[13]

"There is general agreement that moderately increasing daily protein intake beyond the RDA may enhance muscle protein synthesis in older adults," says Campbell.

How much more protein should people be eating?

"Twenty-five to 50 percent higher than the RDA is very reasonable and has no health risks for healthy older adults," says Campbell.

That translates into an amount of protein in grams that's roughly equal to half your weight in pounds, or about 75 grams of protein every day for someone who weighs 150 pounds. (See "Going Pro," p. 5.)

[1] *J. Appl. Physiol. 86*: 195, 1999.
[2] *J. Strength Cond. Res. 23*: 2627, 2009.
[3] *Bone 40*: 1244, 2007.
[4] *Ann. Intern. Med. 147*: 357, 2007.
[5] *Am. J. Clin. Nutr. 82*: 1065, 2005.
[6] *Am. J. Clin. Nutr. 86*: 451, 2007.
[7] *J. Am. Diet. Assoc. 109*: 1582, 2009.
[8] *J. Nutr. 136*: 533S, 2006.
[9] *Am. J. Physiol. Endocrinol. Metab. 291*: E381, 2006.
[10] *Am. J. Clin. Nutr. 89*: 1468, 2009.
[11] *J. Appl. Physiol. 106*: 1730, 2009.
[12] *J. Appl. Physiol. 107*: 1864, 2009.
[13] *J. Gerontol. A Biol. Sci. Med. Sci. 56*: M373, 2001.

The Bottom Line

- The only proven way to build muscle, or to slow muscle loss as you age, is to do regular strength training.
- Eating the Recommended Dietary Allowance (RDA) for protein—0.36 grams a day for every pound you weigh—will keep you healthy, but it may not be enough to stop you from losing muscle as you get older, even if you're doing strength training.
- To maintain or gain muscle, you may need 25 to 50 percent more protein than the RDA. To reach that much, aim for an amount of protein in grams that's equal to half your weight in pounds. (See "Going Pro," p. 5, for the protein content of popular foods.)

MUSCLES IN A BOTTLE?

Want to build muscle or prevent muscle loss? Supplement manufacturers would like to help you. Here's the evidence behind three popular products.

Boost Calorie Smart

Claim: "High-quality protein to help build muscles, bones and skin tissue."

What is it: Largely water, sugar, milk protein, and vegetable oil, with 16 grams of protein and 190 calories per bottle. (Regular Boost has 15 grams of protein and 240 calories.)

Cost: Around $1.25 for an 8 oz. bottle.

The facts: A bottle of Boost Calorie Smart contains the same amount of dairy protein you'd get in two cups of skim milk...for about three times the cost. Boost is also fortified with a multivitamin's worth of vitamins and minerals.

Bottom line: An expensive way to get milk protein.

Creatine

Claim: "Creatine can significantly increase lean muscle mass," says bodybuilding.com.

What is it: A natural compound that's found in our bodies and in foods like meat, poultry, and seafood. Creatine makes energy available to muscles during times of high demand.

Cost: Around $10-$40 for a month's supply.

The facts: Older men and women who take creatine supplements right before or after doing resistance training increase their muscle mass by an additional 2 to 3 percent compared with similar strength trainers who take a placebo, according to a new, yet-to-be-published study by Darren Candow of the University of Regina in Saskatchewan, Canada. "Creatine increases muscular strength by 40 percent, compared to 15 percent for a placebo," notes Candow. Those results confirm earlier research.[1] Vegetarians get the most benefit from creatine because they don't get a lot of it from their diets.

Bottom line: "Creatine is probably the most effective and safest supplement for improving muscle size," says Candow. His advice: Aim for about one gram of creatine for every 20 pounds you weigh on the days you exercise.

[1] *Med. Sci. Sports Exerc. 40*: 1645, 2008.

Ensure Muscle Health

Claims: "To help rebuild muscle and strength naturally lost over time." Contains Revigor, a "breakthrough in the fight against muscle loss."

What is it: Mostly water, sugar, casein, milk protein concentrate, soy protein, and vegetable oil, with 1.5 grams of an amino acid metabolite called HMB (the bottle calls it "Revigor"). An 8 oz. bottle contains 13 grams of protein and 250 calories.

Cost: Around $4.00 for the recommended two bottles a day.

The facts: Three studies have looked at HMB in healthy older people.

- Twenty-seven women in their 70s who took 2 grams of HMB, along with two times more of the amino acids arginine and lysine than is in Ensure, gained no more muscle over three months than 14 similar women who took a placebo.[1] But the HMB takers did improve on two of four measures of strength. In the "get-up-and-go" test, for example, they were able to stand up from sitting, walk 10 feet and back, then sit down again in 7.8 seconds, compared with 10.1 seconds at the start of the study. The placebo takers didn't improve.
- Researchers at Iowa State University gave 77 men and women in their 70s either a mixture of non-essential amino acids or a supplement with far more HMB, arginine, and lysine than Ensure contains. After a year, the HMB takers had no more muscle according to a reliable yardstick and were no better at a "get-up-and-go" test.[2]
- Fourteen men and women in their 60s and 70s who took 3 grams of HMB every day and lifted weights twice a week for eight weeks built no more muscle than 17 similar people who lifted weights and took a placebo.[3]

Bottom line: An expensive way to get milk and soy protein. The impact of HMB on muscle "is very modest," says Purdue University protein expert Wayne Campbell. "It's nothing you couldn't achieve if you went out and were physically active."

[1] *Nutrition 20*: 445, 2004.
[2] *J. Parenter. Enteral. Nutr. 33*: 71, 2009.
[3] *J. Nutr. 131*: 2049, 2001.

Photos: Jorge Bach.

Hidden Veggies

Call it sneaky. Call it smart. If you secretly swap puréed vegetables for other ingredients in some dishes, people will eat fewer calories and won't notice the difference.

Researchers at Pennsylvania State University offered 41 young men and women breakfast, lunch, and dinner once a week for three weeks. At each meal, one dish—the carrot bread for breakfast, the macaroni and cheese for lunch, and the chicken-and-rice casserole for dinner—contained puréed vegetables in place of other ingredients. When enough puréed vegetables were added to triple the amount of veggies in a dish, the calories dropped by 15 percent. When enough were added to increase the vegetables by 4½ times, the calories dropped by 25 percent.

Results: People consumed the same weight of food regardless of the amount of puréed vegetables the dish contained. So on days when the vegetables were tripled, the participants ate 200 fewer calories. And on days when the vegetables were multiplied by 4½, they ate 360 fewer calories. But hunger and fullness ratings stayed the same.

What to do: If you cook for vegetable-averse family members, start puréeing. If you cook for vegetable lovers, bump up the salad, broccoli, asparagus, or other veggies and cut back on rice, pasta, bread, or other sides. If you ordinarily serve one vegetable with dinner, try two.

Am. J. Clin. Nutr. doi:10.3945/ajcn.110.009332.

Magnesium & Insulin

Magnesium may curb insulin resistance in the overweight. People who are insulin resistant make enough insulin, but it doesn't work properly. Anything that makes the body less resistant to insulin could lower a person's risk of diabetes and heart disease.

Researchers in Germany gave 52 overweight people either a placebo or 365 milligrams a day of magnesium. All were insulin-resistant but none had diabetes. After six months, the magnesium takers were less insulin resistant and their fasting blood sugar levels were lower than those of the placebo takers.

What to do: Make sure your diet includes leafy greens, beans, whole grains, nuts, and other magnesium-rich foods. If you take a daily multivitamin and mineral, look for one with at least 100 mg of magnesium for insurance.

The Institute of Medicine recommends 320 mg of magnesium a day for women and 420 mg for men. Taking more than 350 mg a day from a supplement may cause diarrhea.

Diab. Obesity Metab. 13: 281, 2011.

Stroke & Red Meat

Red meat may raise the risk of strokes caused by artery blockages.

Researchers tracked nearly 35,000 Swedish women for roughly 10 years. Those who ate an average of at least three ounces of red meat a day had a 22 percent higher risk of stroke caused by blocked arteries in the brain than those who averaged less than an ounce of red meat a day. Women who ate the most processed meat (at least 1½ ounces a day) had a 24 percent higher risk than those who ate little or none.

What to do: Whether or not future studies confirm these results, it's worth cutting back on red meat to lower your risk of heart disease and colon cancer.

Stroke 42: 324, 2011.

Salt Strikes Swiftly

A high-salt meal can stiffen your arteries within 30 minutes. Arteries that lose their ability to expand when they need to can increase the risk of high blood pressure, heart attack, stroke, and cognitive decline.

On two separate occasions, researchers fed 16 healthy men and women with normal blood pressure a meal that contained either 115 milligrams of sodium or 1,495 mg (a full day's worth). At 30 minutes and 60 minutes after the high-salt meal, the ability of the participants' arteries to expand was more impaired than it was after the low-salt meal.

What to do: Cut back on salt.

Am. J. Clin. Nutr. doi:10.3945/ajcn.110.006155.

Exercise & the Prostate

Men diagnosed with prostate cancer who did vigorous exercise—like biking, jogging, playing tennis, or swimming—for at least three hours a week had a 61 percent lower risk of dying from their cancer than men who exercised vigorously for less than one hour a week.

Walking at a normal to brisk pace for at least 90 minutes a week didn't reduce the men's chances of dying from prostate cancer, but did lower their odds of succumbing to other causes.

What to do: Move, move, move.

J. Clin. Oncol. 29: 726, 2011.

SPECIAL FEATURE

10 Common Food Goofs

"Fool me once..."

BY BONNIE LIEBMAN

It's easy to make mistakes when it comes to buying food. (Even the most seasoned nutrition mavens, *who should know better,* occasionally screw up.)

Maybe you didn't notice that the reduced-fat peanut butter has as many calories as (and more sugar than) the regular. Or that you typically fill your bowl with not one, but *two* 200-calorie servings of cereal. Or that you would never touch Wonder bread but can't resist a crusty (white flour) baguette.

It's not just that we're too harried or rushed to pay attention to details while shopping. Often the food industry uses (sometimes subtle) tricks to make a sale. Selling is its job, after all.

Here are 10 food goofs you need never make again.

1. It *says* it's fat free.

It's there, right next to the coffee in virtually every office and many kitchens: a fat-free coffee creamer like Nestlé's Original Fat Free Coffee-mate. According to the label, it's "cholesterol free," "lactose free," "gluten-free," and has "0 g trans fat." According to the Nutrition Facts on the back, it has only 10 calories and no fat, cholesterol, sodium, or sugar.

What a deal!

With all those rosy promises, who could blame you for not checking the ingredients. If you did, you might wonder how a food that consists largely of corn syrup solids and oils (partially hydrogenated coconut or palm kernel or hydrogenated soybean) could have no sugar or fat.

In fact, Original Fat Free Coffee-mate has both. It's just that the serving size on the Nutrition Facts label is only one (level) teaspoon. The sugar and fat round down to zero because a teaspoon of Coffee-mate has less than half a gram of each. That's the Food and Drug Administration's magic rule.

Of course, many people use far more than a level teaspoon of powdered creamer to whiten even a small cup of coffee. Most folks simply turn over the container and pour. In fact, the directions say "Pour or spoon Coffee-mate into prepared coffee, tea, or cocoa. Stir and enjoy!"

If you enjoy, say, two tablespoons (six teaspoons) of Original Fat Free Coffee-mate in your 12 oz. mug of coffee, you're up to 50 calories and 1.6 grams of saturated fat (according to a 2008 memo from Nestlé). Two tablespoons of ordinary half and half have 40 calories and 2 grams of sat fat. Oops.

Two tablespoons have more calories than two tablespoons of half and half.

2. I avoid high-fructose corn syrup.

"Now, new research at Oregon Health & Science University demonstrates that the brain—which serves as a master control for body weight—reacts differently to fructose compared with another common sweetener, glucose," said the OHSU press release in February.

"High fructose corn syrup has become the sweetener most commonly added to processed foods," it noted, adding that "Many dietary experts believe this increase directly correlates to the nation's growing obesity epidemic."

No wonder shoppers are confused. Even some institutions of higher education don't seem to know that high-fructose corn syrup (HFCS) isn't pure fructose.

In fact, HFCS is, on average, roughly half fructose and half glucose. (It's "high" in fructose compared to ordinary corn syrup, which is pure glucose.) Ordinary table sugar? Half fructose and half glucose.

So if anyone wants to say that fructose caused the obesity epidemic, regular sugar deserves just as much blame. As do evaporated cane juice and honey (which are also half fructose), brown rice syrup, agave nectar, barley malt syrup, and juice concentrates.

A smattering of foods actually contain pure (crystalline) fructose. But they're often foods like Vitaminwater, Kashi GOLEAN Crunchy! Protein & Fiber Bars, and Weight Watchers Yogurt. Go figure.

What's more, some people who avoid HFCS also avoid foods that raise blood sugar levels—that is, foods with a high glycemic index. Guess what? Fructose has a low glycemic index. Glucose has the highest. (Table sugar and HFCS are in the middle.)

Bottom line: Fructose raises harmful triglycerides more

People who avoid high-fructose corn syrup might buy these bars and other foods that contain pure fructose.

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Illustration & Photos: Jorge Bach.

than other sugars do (see *Nutrition Action*, Jan./Feb. 2010, cover story). But most sweeteners are about half fructose and half glucose, so it's smart to minimize *all* sugars, not just HFCS.

Why don't labels simply say "20% fat"? Adding "80% lean" sells more meat.

3. I look for the most servings of fruits or vegetables.

"A full serving of vegetables in every bowl," promises Chef Boyardee, whose ads show parents desperately trying to keep their kids from finding out.

Each serving of the salt-laden white-flour pasta has a serving of vegetables because it contains a half cup of "tomatoes" (tomato purée plus water, actually). Big deal. Yet labels or ads touting the number of servings of fruit or vegetables must be impressing some consumers, because the claims are proliferating.

Take Bolthouse Farms beverages (which are often found in the produce aisle). "3¾ servings fruit per bottle," says the label of the 15 oz. Blue Goodness Fruit Smoothie. (Goof alert: the label's Nutrition Facts apply to just half the bottle, so don't think that you're spending 170 calories to get those 3¾ servings. You're really spending 340.)

For 340 calories, you get "3¾ servings of fruit" that's mostly apple juice concentrate.

The catch: the label pictures the "goodness" in each bottle: 31 blueberries, 1¼ blackberries, 1 banana, 3¾ apples, and ¼ lemon.

Impressive? Not once you realize that the beverage is mostly apple juice from concentrate, banana purée, and blueberry juice from concentrate. The "goodness" of 3¾ apples, for example, is what you'd get in the same amount of any apple juice concentrate.

Looking for fruits and vegetables? Buy them whole (fresh or frozen), not as ingredients in juices, tomato sauce, chips, crackers, or other processed foods.

4. I only buy lean meat.

Think you're buying lean meat or poultry? It's hard to know, since many packages of fresh beef or pork have no Nutrition Facts labels. And posters (if your store has them) often give numbers for a puny 3 oz. serving of beef or pork that's been trimmed by scalpel-wielding technicians.

Ground beef, pork, turkey, or chicken packages usually do have Nutrition Facts, which are supposed to keep people from being misled by claims like "80% Lean/20% Fat."

The fattiest ground beef you can buy is 70% lean. Even ground beef that's 85% lean has 5 grams of saturated fat—a quarter of a day's worth—in a 3 oz. cooked serving.

Why don't labels simply say "15% Fat" or "20% Fat"? Because those claims wouldn't sell as much meat.

The industry doesn't mind slapping some Nutrition Facts on the package because most people don't look past the "85% Lean." Don't let that fool you.

5. My ice cream has just 150 calories.

Your ice cream has just 150 calories. Your hummus has just 70. And your beef eye of round has just 180. Not too bad...if that's what you actually eat.

The serving sizes on the Nutrition Facts labels—which are largely set by the Food and Drug Administration—are unrealistically small for many foods. And that makes the calories, saturated fat, sodium, sugar, and other nutrients look unrealistically good. For example:

■ **Ice cream.** The ½ cup (4 oz.) serving is equal to two golf balls. Have you seen those single-serving cups sold by Edy's or Dreyer's? They're ¾ cup (6 oz.), which is 1½ servings.

■ **Meat, poultry, seafood.** A serving is 4 ounces raw, which is about 3 ounces after cooking. That's the size of a deck of cards.

■ **Hummus.** Only 50 to 70 calories in 2 Tbs...a golf ball's worth.

■ **Pasta.** The calories (about 200) on the box apply to 2 ounces of uncooked pasta. That cooks up to around 1 cup—roughly the size of a baseball.

A ½-cup serving makes regular ice cream look low in calories.

■ **Soup.** A can of Campbell's Condensed Soup is supposed to make 2½ one-cup servings. And its Select Harvest microwaveable bowls are supposed to serve two. You and your gerbil, perhaps.

■ **Cereal.** For denser cereals (like granola, Grape-Nuts, and muesli), the serving size is just ½ cup (half a baseball). Double it and you're up to about 400 calories.

■ **Nuts or dried fruit.** Just ¼ cup. Golf ball, anyone?

6. If it has vitamins, it must be good for me.

It started 40 years ago with breakfast cereals ("fortified with 8 vitamins and iron"), Wonder Bread ("helps build strong bodies 12 ways!"), and sugary kids drinks like Hi-C and SunnyD ("100% vitamin C").

Now vitamins are also being added to cereal bars, energy and granola bars, and sugary drinks for adults.

And we keep falling for it.

The perfect example: Glacéau Vitaminwater. Without vitamins, the line of "nutrient enhanced water beverages" would be, well, water. (Of course, Vitaminwater's owner, Coca-Cola, has that market covered with Dasani.)

A sprinkling of vitamins makes sugar water seem healthy.

With flavors like Power-C, Focus, Revive, XXX (antioxidants), Defense, and stur-D, you'd think that Vitaminwater was offering more than water plus less than a penny's worth of C and B vitamins that most of us don't need more of.

And it does offer more...about 130 calories' worth of sugar per 20 oz. bottle.

7. It's okay to judge a food by its reputation.

Face it. We think of some foods as healthy—or at least acceptable—even though they're no better than foods we would never touch. A few examples:

■ **Chocolate soy milk.** Would you drink a glass of ordinary chocolate milk? Never. A glass of Silk Chocolate Soymilk? Maybe.

A cup of low-fat chocolate milk has 160 calories and 6 teaspoons of sugar (roughly half of which is the naturally occurring lactose in the milk). Chocolate Silk has 140 calories and 5 teaspoons of sugar per cup (about half of it added).

■ **Muffins.** No way you'd ever eat doughnuts. Muffins, on the other hand.... Yet at Dunkin' Donuts, a yeast doughnut like a Chocolate Frosted has 270 calories, 3 teaspoons of sugar, and 7 grams of saturated fat. (A cake doughnut is worse.) A Dunkin' Chocolate Chip Muffin? Try 610 calories, 14 teaspoons of sugar, and 7 grams of sat fat.

We think of the doughnut as junk food, but the muffin is worse.

■ **Pita chips.** Tortilla chips are junk food to most people. Pita chips seem so much healthier.

Yet an ounce of pita chips like New York Style Sea Salt (about 10 chips) has 140 calories and 350 milligrams of sodium. An ounce of Tostitos Restaurant Style Tortilla Chips has 140 calories and 115 mg of sodium. An ounce of Nacho Cheese Doritos has 150 calories and 180 mg of sodium.

Do you eat white bread? No way. How about a crusty French baguette? Hmmm.

8. I didn't get the memo.

"Natural." "Made with Real Fruit." You see those and similar words on labels all the time. What you may not realize is that they're part of a code that the food industry and the FDA have agreed on. Sometimes, the label explains the code in tiny type. Most of the time, you're just supposed to know. Here's a decoder:

■ **Made with whole grain.** Only some of the grain is whole. (Why don't labels say "Made with refined and whole grains"?)

■ **Made with real fruit.** Made with a little fruit (and it's probably mostly grape, apple, or pear juice anyway).

■ **Naturally flavored.** Whether it's naturally or artificially flavored, you get little or none of what the flavoring makes you think is in the food.

"Made with real blueberries and natural fruit flavors" is code for "hardly any blueberry."

■ **Omega-3.** Contains the omega-3 fats in fish oil (EPA and DHA), the omega-3 fat in flax, soy, and canola oil (ALA), or both. The evidence is much stronger that EPA and DHA lower the risk of heart disease, but most "omega-3" foods have only ALA.

■ **High fiber.** Contains at least 5 grams of fiber per serving. The fiber can be either the intact kind in whole grains, beans, vegetables, and fruit or the isolated kind (like inulin, polydextrose, maltodextrin, oat fiber, or wheat fiber). There isn't much evidence that isolated fiber helps keep you regular or lowers your risk of disease, like the intact fiber in wheat bran can.

■ **Natural.** It has never been defined, unless the word appears on a food that contains meat or poultry. Then it means that the food's ingredients are not artificial (like most food dyes) and are only minimally processed.

9. Calories don't count if…

Calories don't count if you eat standing up, you eat off someone else's plate, you're just straightening the edges of a pie or cake, the refrigerator door is still open, or you eat really quickly. Or so we'd like to believe.

But even reality-oriented shoppers sometimes fool themselves. A case in point: toppings for frozen yogurt.

Let's say you start with just 200 to 300 calories' worth of frozen yogurt. (That's a medium or regular at places like Red Mango, Pinkberry, or TCBY.)

But then the toppings call out. Forget the chocolate chips (80 calories per scoop), the gummy bears (80), and the Oreo pieces (60). Even the "healthy" toppings like granola (60 calories), nuts (100), and "yogurt" chips (100) pile on the calories.

Ever watch people add toppings to their frozen yogurt from a pay-by-the-ounce extras bar? Their waistlines might be better off with a 200-calorie single scoop of chocolate ice cream from the local Ben & Jerry's.

It's not just frozen yogurt. Some people feel so virtuous for ordering a salad that they don't notice the calories in the croutons (170), tortilla or wonton strips (140), cheese (100), bacon (60), and salad dressing (100 to 300). And that's without the bread that comes with the salad…which doesn't count, of course.

Don't forget to count the toppings on frozen yogurt and salads.

10. All organic foods are good for you.

Recently, University of Michigan researchers showed 114 students a label from either ordinary Oreos or (fictitious) Oreos "made with organic flour and sugar." Then the researchers asked: "Compared to other cookie brands, do you think that 1 serving of these Oreo cookies contains fewer calories or more calories?" Sure enough, the students were more likely to think that the organic Oreos had fewer calories.[1]

In a second experiment, students were asked about Susie, a hypothetical 20-year-old sorority member who was trying to lose weight. "Would it be ok for her to skip her usual three-mile run after dinner to spend more time on schoolwork?" the students were asked.

The participants were more likely to say "yes" when told that Susie's dinner (roasted vegetables over brown rice) had finished with a small bowl of organic ice cream or an organic cookie than if the desserts were not described as organic.

How many people buy Organic Newman-O's when they'd never buy Oreos, Whole Foods 365 Organic Cheese Crackers instead of Cheez-Its, or Nature's Path Organic Frosted Toaster Pastries but not Pop-Tarts?

Organic junk may not harm the environment, but it can still harm *you*.

An organic food (or its ingredients) is grown without pesticides, antibiotics, or growth hormones. That's admirable, but it doesn't automatically make it a health food.

[1] *Judgment and Decision Making 5*: 144, 2010.

Photos: Jorge Bach.

Playing Chicken with Tofu

BY KATE SHERWOOD

Don't know what to do with tofu? Treat it like chicken breast—a neutral canvas waiting to be painted with your favorite flavors. You can sauté, bake, or roast it with any sauce or marinade you like. Here are a few recipes to get you started. Water-packed, refrigerated tofu works best.

Tofu with Roasted Veggies

You can use any type of mushroom or a combination of your favorites.

- **14 oz. firm tofu, drained**
- **¼ cup balsamic vinegar**
- **3 cloves garlic, minced**
- **1 Tbs. reduced-sodium soy sauce**
- **3 Tbs. extra-virgin olive oil, divided**
- **½ lb. cremini mushrooms**
- **1 bunch scallions, chopped**
- **1 cup bulgur**
- **1¼ cups boiling water**
- **2 bell peppers, quartered**
- **10 sprigs flat-leaf parsley, minced**
- **1 Tbs. fresh lemon juice**
- **¼ tsp. kosher salt**

Cut the tofu block across its width into 6 slices, then cut each slice in half to make 12 rectangles. Blot with paper towels.

Pre-heat the oven to 425° F. In a large baking dish, mix the vinegar, garlic, soy sauce, and 2 Tbs. of the olive oil. Add the tofu and mushrooms and stir to coat. Allow to stand at room temperature for 15 minutes. Add the scallions and roast on the middle shelf until most of the marinade has been absorbed, about 15 minutes.

While the tofu is roasting, combine the bulgur and boiling water in a large heat-proof bowl. Cover and let stand until the water is absorbed, about 15 minutes. Meanwhile, roast the peppers on a rimmed baking sheet on the top shelf of the oven until softened and lightly charred, about 10 minutes.

When the bulgur is done, fluff it with a fork. In a bowl, whisk the parsley, lemon juice, remaining 1 Tbs. of olive oil, and up to ¼ tsp. of salt. Stir into the bulgur.

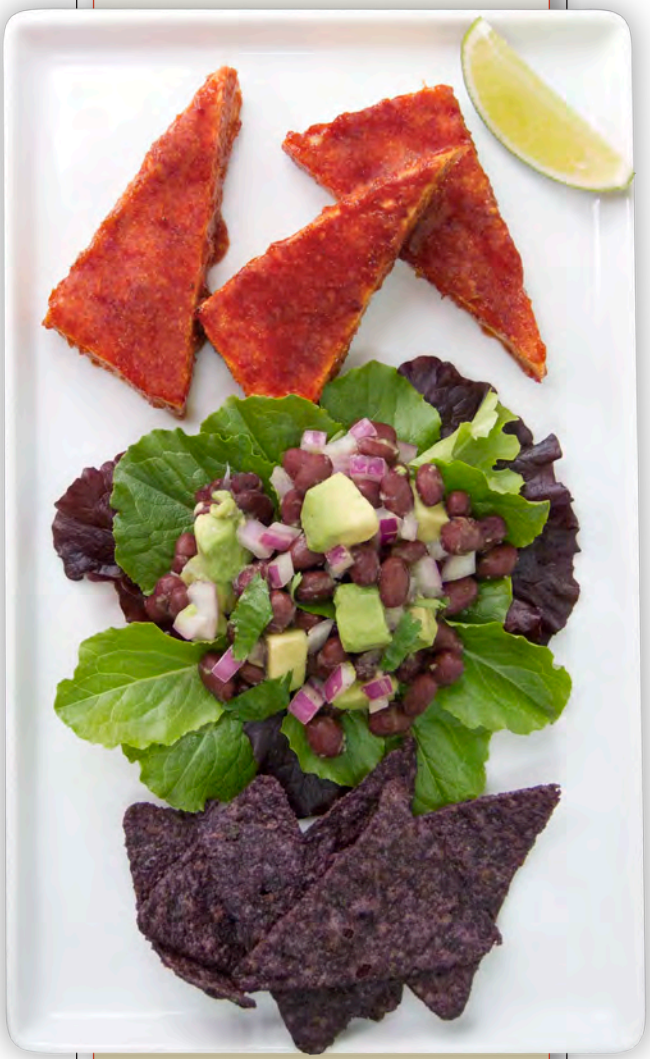
Serve the roasted tofu and vegetables with the dressed bulgur. Serves 4.

PER SERVING (3 pieces of tofu with 1½ cups roasted vegetables & bulgur)

Calories: 360	*Sodium: 300 mg*
Total Fat: 16 g	*Cholesterol: 0 mg*
Sat Fat: 1.5 g	*Carbohydrates: 42 g*
Protein: 16 g	*Fiber: 10 g*

Photo: Kate Sherwood.

Southwestern BBQ Tofu & Black Bean Salsa



Got a question or suggestion?

Write to Kate at
healthycook@cspinet.org

Southwestern BBQ Tofu & Black Bean Salsa

The spicy, smoky sauce also goes great with chicken or shrimp.

- **14 oz. extra-firm tofu, drained**
- **½ cup orange juice**
- **1 chipotle in adobo sauce, minced**
- **3 cloves garlic, minced**
- **⅓ cup ketchup**
- **1 Tbs. brown sugar**
- **1 avocado, chopped**
- **1 can no-salt-added black beans, drained and rinsed**
- **¼ red onion, diced**
- **1 Tbs. lime juice**
- **¼ tsp. kosher salt**
- **4 cups mixed salad greens**
- **2 oz. unsalted tortilla chips**

Cut the tofu block across its width into 6 slices, then cut each slice diagonally to make 12 triangles. Blot with paper towels.

In a large bowl, make the sauce: mix the juice, chipotle, garlic, ketchup, and sugar. Add the tofu and coat each piece with the sauce. In a large non-stick skillet, simmer the tofu and sauce until the sauce thickens and becomes sticky, about 5 minutes.

In a medium bowl, combine the avocado, beans, onion, and lime juice and season with up to ¼ tsp. of salt. Serve over the salad greens with the tofu and chips. Serves 4.

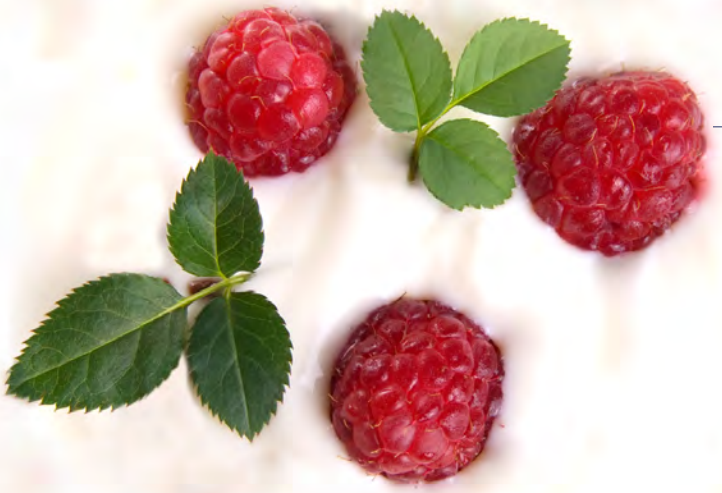
PER SERVING (3 pieces of tofu with ½ cup salsa & 1 cup salad greens)

Calories: 400	*Sodium: 400 mg*
Total Fat: 16 g	*Cholesterol: 0 mg*
Sat Fat: 2 g	*Carbohydrates: 46 g*
Protein: 19 g	*Fiber: 12 g*

Crisp Tofu Squares

They make great salad or soup croutons. Or try adding them to a vegetable stir fry.

Cut a drained 14 oz. package of **firm tofu** into ¾" cubes. Blot with paper towels. In a large skillet, heat 2 Tbs. of **safflower or canola oil** until shimmering. Gently toss the tofu with ¼ cup of **cornstarch** in a bowl. Add the cubes to the oil and fry, turning once, until crisp, about 8 minutes total. Using a slotted spoon, transfer the cubes to paper towels. Season with up to ¼ tsp. of **kosher salt**.



Culture Class

WHAT'S UP IN THE YOGURT AISLE

BY JAYNE HURLEY & BONNIE LIEBMAN

We eat roughly twice as much yogurt as we did a decade ago and nearly 15 times more than we did in 1970. What started as a health-food-store specialty has become part of our culture.

And marketers know how to keep us coming back for more. They've branched out into Greek yogurt, dessert yogurt, 60-calorie yogurt, high-fiber yogurt, parfait yogurt, good-for-regularity yogurt, good-for-immunity yogurt, and more. Some day, don't be surprised to see 1040-prep yogurt.

Some trends have made yogurt healthier. Others have made it, well, less like yogurt. Here's the latest.

Information compiled by Melissa Pryputniewicz.

Yogurt 101

Here are some yogurt basics:

1. What makes yogurt? *Lactobacillus bulgaricus* and *Streptococcus thermophilus*. Those are the two strains of bacteria that companies add to milk to make yogurt. Many brands also add other bacteria.

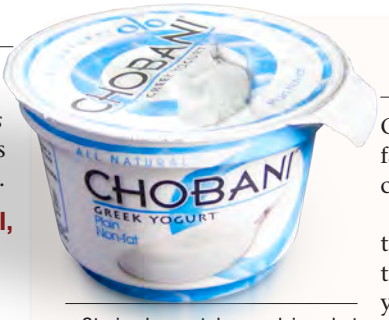
2. If the label doesn't have a "Live & Active Cultures" symbol, is it still yogurt? Almost certainly. As long as it contains live *L. bulgaricus* and *S. thermophilus*, it's yogurt. To qualify for the symbol, a yogurt has to have at least 100 million cultures per gram at the time it's manufactured. Some companies (like Stonyfield) don't use the symbol, even though they could (provided they paid the National Yogurt Association a yearly fee). Just watch out for yogurt-covered pretzels or candies. Their "yogurt" coatings are largely oil and sugar. And any yogurt powder they contain has likely been "heat treated" enough to kill the yogurt's bacteria.

3. What can yogurt's cultures do? The only well-documented benefit: they turn milk's naturally occurring sugar (lactose) into lactic acid, so people who are lactose intolerant have less diarrhea, gas, or other symptoms when they eat yogurt.

Many people believe that yogurt can help restore beneficial bacteria to the gut after a course of antibiotics, but no good studies have tested yogurt with live cultures against a placebo (yogurt with heat-treated cultures). Ditto for treating yeast infections.

4. What are the best yogurts? Yogurt should be a decent source of protein and calcium without loading you down with saturated fat, sugar, or unsafe sweeteners. Just how much is enough (or too much) of each depends on the serving size. (See "Cultured Pearls," p. 15.)

Some brands add 10 to 50 percent of the Daily Value for vitamin D. But missing vitamin D isn't a reason to pass over some of the best-tasting calcium- and protein-rich yogurts, many of which have no added D.



Strained yogurt: Less calcium, but more protein and oh so creamy.

It's Greek to Me

Greek yogurt is strained, so even fat-free versions are thick and creamy.

And the lost liquid means that the yogurt that's left has twice the protein of ordinary yogurt (or milk)—about 17 grams in 6 ounces of plain Greek yogurt. That's not trivial for people who have cut back on meat, fish, and poultry.

Many people assume that yogurt is rich in protein because an 8 oz. container (which used to be typical) of *plain* yogurt had 8 grams of protein, just like a glass of milk. But once companies add sugar and fruit—and now that yogurt containers are 4 or 6 ounces—there's less room in the tubs for yogurt, which means less protein.

A 4 oz. tublet of Breyers Smooth & Creamy, Dannon Light & Fit 60 Calorie Packs, or Yoplait Fiber One, for example, has just 3 grams of protein. That makes Greek yogurt even more impressive.

On the downside, Greek yogurt has less calcium than ordinary yogurt. A 6 oz. container of Dannon All Natural Plain (non-Greek) has 30 percent of the Daily Value for calcium. Six ounces of Fage or Chobani plain Greek yogurt have 20 percent.

And Greek yogurt is pricier. (Ditto for Skyr.is and Siggi's strained Icelandic yogurt.) They may be luxuriously creamy, but you'll pay around $1.30 to $2.50 for a 6 oz. cup.

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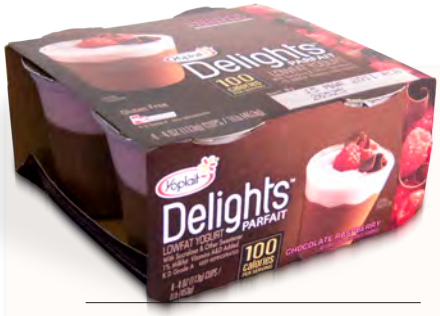


Who needs (poorly tested) acesulfame potassium for dessert?

Yogurt for Dessert?

Chocolate Éclair, Peach Cobbler, Chocolate Chip Cookie Dough. Those are just a few of the flavors in the Yoplait Delights, Activia Dessert, and Breyers Inspirations lines. How did we get from Blueberry yogurt to Blueberry Cheesecake yogurt?

Clearly, some yogurt eaters want to have their cheesecake and eat it, too. The ads imply that you can eat healthy *and* indulge *and* (in some cases) lose weight. Obviously, cheesecake yogurt is a bargain if you're eating it instead of cheesecake.

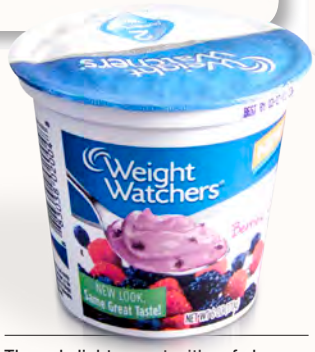
Just keep in mind that dessert yogurts are slightly less healthy than non-dessert yogurts. Activia Dessert and most Breyers Inspirations, for example, have too much saturated fat and too many calories for a Best Bite or Honorable Mention. (At least Activia Dessert has 1 or 2 more grams of protein than regular Activia.)

Yoplait Delights, in contrast, are low in sat fat (1 gram) and have only 100 calories. Unfortunately, they're sweetened with poorly tested acesulfame potassium along with safe sucralose (Splenda) and sugar.

Our advice: Ignore the indulgence buzzwords. They don't mean much anyway. Non-dessert lines like Yoplait Light feature dessert-y flavors like Key Lime Pie and Black Forest Cake. Stonyfield Organic sells a (yummy) Oikos Chocolate Greek yogurt.

And if sweetened yogurts are too cloying and plain yogurt is too tart, mix them together. Voilà! Lower-sugar yogurt.

Waist Watchers



The only light yogurt with safe low-calorie sweeteners (and no candy).

Plain yogurt is tart. To please the typical American sweet tooth, companies add about 4 teaspoons of sugar to each 6 oz. cup. That's roughly 65 calories' worth of added sugar—about two-thirds of the 100-calorie daily max for a typical woman and almost half of the 150-calorie max for a typical man.

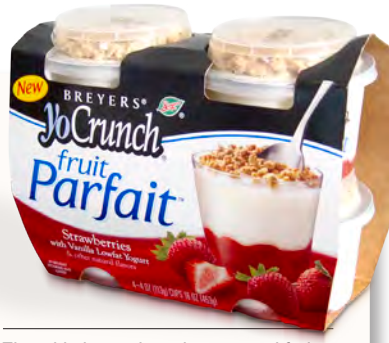
And don't get conned by companies that add evaporated cane juice, agave nectar, or other fruit juice concentrates. They're just fancy names for sugar.

To attract dieters to light yogurts, most companies cut the calories in half by replacing most or all of the added sugars with artificial sweeteners like (safe) sucralose plus (questionable) acesulfame potassium or aspartame.

Breyers YoCrunch 100 Calorie Packs use a mix of sugar and (safe) Truvia (that's the "rebiana" in the ingredient list). But most of the mix-ins (like Nestlé Crunch and chocolate cookie pieces) are loaded with sugar and white flour.

Solution: Look for Weight Watchers yogurt. Most flavors are sweetened only with sucralose and fructose. Or go the do-it-yourself route. Buy some Splenda (sucralose) at the grocery store and add it to plain yogurt at home.

Not So Parfait



The added granola and sweetened fruit don't leave much room for yogurt.

First came McDonald's. Then Starbucks, Panera, and others started selling granola-yogurt-fruit parfaits. It was only a matter of time before yogurt companies got into the act.

Activia Parfait Crunch bumps the calories up to 220, thanks to the 6 oz. serving and the roughly 2½ teaspoons of sugar that are added to the fruit and to the smidgen of granola. (At least the granola is whole-grain "white wheat flakes" and rolled oats.)

Breyers YoCrunch Fruit Parfait stays at 120 calories, but the added granola and sweetened fruit don't leave much room for yogurt. Each 4 oz. serving has just 3 grams of protein and 10 percent of a day's calcium. Of course, you're better off with YoCrunch Fruit Parfait's granola than YoCrunches with Mini Reese's Pieces, Butterfingers, Oreos, and other junk.

There's evidence that Activia speeds transit time, but its ads exaggerated.

Yogurt to Go

"With the natural culture *Bifidus Regularis*, Activia eaten every day is clinically proven to help regulate your digestive system in two weeks," promised the TV ad for Dannon Activia.

"These types of misleading claims are enough to give consumers indigestion," said Federal Trade Commission Chairman Jon Leibowitz in December 2010, when the FTC announced that it had reached a settlement with Dannon. Among the terms: the company agreed to stop claiming that Activia relieves temporary irregularity or helps with slow intestinal transit time unless the ad explains that you'd have to eat three servings a day to see any benefit.

At least Dannon had studies showing that Activia can speed transit time. (That's how long it takes food to move through the digestive tract.) Yoplait has no solid evidence that the *Bifidobacterium lactis* Bb-12 in YoPlus (the bacterium is also in Weight Watchers yogurt) can speed transit time or help with irregularity (see "Probiotics," *Nutrition Action*, April 2010).

What companies delicately call "digestive health" is a big seller in the yogurt aisle. The vagueness doesn't just avoid unpleasant images. It also allows manufacturers to make claims without evidence.

Then there's the fiber ploy. Yoplait Fiber One blazed the trail by mixing 5 grams of the isolated fiber inulin into every 4 oz. tub of its yogurt. (Yogurt has no naturally occurring fiber.) YoPlus (3 grams in 4 oz.) and Weight Watchers (3 grams in 6 oz.) followed suit. Dannon Activia Fiber gets 3 grams of fiber into its 4 oz. tubs by adding inulin, wheat bran, rolled oats, and rolled (whole-grain) white wheat flakes. So far, there's no good evidence that inulin is as good as the intact fiber in whole grains.

Photos: Jorge Bach.

Cultured Pearls

Best Bites (✔✔) are plain yogurt. Honorable Mentions (✔) can have added fruit and/or sugar. Other than that, both have the same criteria, which we've listed—*maximums* for calories and saturated fat and *minimums* for protein and calcium—at the beginning of each section. We disqualified products that contain the questionable artificial sweeteners acesulfame potassium or aspartame. Within each section, yogurts are ranked from least to most saturated fat, then least to most calories, then most to least protein, then most to least calcium.

	Calories	Saturated Fat (g)	Protein (g)	Calcium (% DV)	Added Sugar (tsp.)*
Yogurt *(4 oz. unless noted)* ✔✔ & ✔ *criteria:*	*120*	*1*	*4+*	*15+*	—
Breyers Light[1,D,A]	50	0	4	15	0
Yoplait Fiber One[1,D,A]	50	0	3	10	0
Dannon Light & Fit 60 Calorie Packs[1,D,A]	60	0	3	10	0.5
Dannon Activia Light[1,A]	70	0	4	15	0.5
✔ Stonyfield Organic Probiotic[1,D]	90	0	5	20	2.5
✔ Stonyfield Organic—B-Well or B-Healthy[1,D]	90	0.5	4	15	2
Breyers YoCrunch 100 Calorie Packs *(3.75 oz.)*[1,D]	100	0.5	3	10	2
Breyers Inspirations—Strawberry or Vanilla Bean[1]	110	0.5	4	10	2.5
Breyers Smooth & Creamy[1,D]	120	0.5	3	10	3
Breyers YoCrunch Fruit Parfait[1,D]	120	0.5	3	10	2.5
Dannon Light & Fit Carb & Sugar Control[1,A]	50	1	5	15	0
Yoplait Delights[1,D,A]	100	1	5	15	1.5
✔ Dannon Activia[1]	110	1	5	15	2.5
✔ Yoplait YoPlus[1,D]	110	1	4	15	2.5
Dannon Activia Fiber[1,D]	110	1	3	15	2.5
Yoplait Whips![1,D]	150	2	5	15	3
Dannon Activia Dessert[1]	140	2.5	6	20	3
Breyers Inspirations, except Strawberry or Vanilla Bean[1]	140	3	4	10	3
Yogurt *(6 oz.)* ✔✔ & ✔ *criteria:*	*180*	*1.5*	*5+*	*20+*	—
✔✔ Dannon All Natural Nonfat, Plain	80	0	8	30	0
✔✔ Stonyfield Organic 0% Fat, Smooth and Creamy, Plain[D]	80	0	8	30	0
Breyers Light[1,D,A]	80	0	6	20	0
Dannon Light & Fit[1,D,A]	80	0	5	15	1
✔✔ Whole Foods 365 Nonfat, Plain	90	0	8	30	0
✔ Weight Watchers[1,D]	100	0	6	30	0.5
Yoplait Light[1,D,A]	100	0	6	20	1
Yoplait Light Thick & Creamy[1,D,A]	100	0	5	20	1
✔ Stonyfield Organic 0% Fat, Fruit on the Bottom[1,D]	120	0	6	25	3.5
✔ Stonyfield Organic 0% Fat, Smooth and Creamy, except Plain[1,D]	130	0	7	30	3.5
✔ Brown Cow Nonfat[1]	130	0	7	25	3.5
✔ Trader Joe's French Village[1]	130	0	6	25	3.5
✔ Whole Foods 365 Nonfat, except Plain[1]	140	0	7	25	4
✔ Whole Foods 365 Organic Nonfat[1]	150	0	7	25	4.5
✔ Stonyfield Organic 0% Fat, Chocolate Underground[D]	180	0	7	25	5.5
Breyers Fruit on the Bottom[1]	160	0.5	5	15	4
✔✔ Stonyfield Organic Low Fat, Smooth and Creamy, Plain[D]	90	1	7	30	0
✔ Stonyfield Organic Low Fat, Fruit on the Bottom[1,D]	120	1	6	25	3
✔ Stonyfield Organic Low Fat, Smooth and Creamy, except Plain[1,D]	130	1	7	25	3
✔ Trader Joe's Organic Lowfat[1,D]	130	1	7	25	3
✔ Brown Cow Low Fat[1]	150	1	6	25	3.5
✔ Dannon Fruit on the Bottom[1]	150	1	6	25	4
✔ Yoplait Original[1,D]	170	1	5	50	4
Breyers YoCrunch with Granola[1,D]	180	1	6	15	4
✔✔ Dannon All Natural Lowfat, Plain	100	1.5	8	30	0
✔ Wallaby Organic Lowfat, except Plain[1]	140	1.5	6	25	3
✔ Dannon All Natural—Coffee, Lemon, or Vanilla[1]	150	1.5	7	25	4
✔ Yoplait Thick & Creamy[1,D]	180	1.5	7	30	4
Dannon Activia Parfait Crunch[1,D]	220	1.5	6	20	4.5
Wallaby Organic Lowfat, Plain	100	2	8	30	0
Breyers YoCrunch[1,D]	190	2.5	5	15	5
Stonyfield Organic Whole Milk, Chocolate Underground[D]	220	3	6	20	5.5
Brown Cow Cream Top Parfait[1]	180	3.5	5	20	3.5
Stonyfield Organic Whole Milk, Smooth and Creamy[1,D]	170	4	6	25	3.5
Greek *(5.3 oz. unless noted)* ✔✔ & ✔ *criteria:*	*180*	*1.5*	*10+*	*10+*	—
✔✔ Stonyfield Organic Oikos, Plain *(4 oz.)*	70	0	12	15	0
✔✔ Brown Cow Greek, Plain	80	0	15	20	0
✔✔ Stonyfield Organic Oikos, Plain	80	0	15	20	0
✔✔ Dannon Greek, Plain	80	0	15	15	0
✔✔ Fage Total 0%, Plain *(6 oz.)*	90	0	15	20	0
✔✔ Trader Joe's Organic Greek Style Nonfat, Plain	90	0	15	15	0
✔✔ Chobani 0%, Plain *(6 oz.)*	100	0	18	20	0
✔✔ Siggi's Plain *(6 oz.)*	100	0	17	20	0
✔ Stonyfield Organic Oikos, except Plain *(4 oz.)*[1]	100	0	10	10	2
✔✔ Skyr.is Plain *(6 oz.)*	110	0	22	20	0
✔ Brown Cow Greek, Vanilla Smooth & Creamy	110	0	14	15	2
✔✔ Yoplait Greek, Plain *(6 oz.)*[D]	120	0	17	45	0
✔ Siggi's, except Plain *(6 oz.)*[1]	120	0	16	20	2
✔ Trader Joe's Greek Style Nonfat[1]	120	0	14	15	2
✔ Oikos Organic, except Plain[1]	120	0	13	15	2.5
✔ Dannon Greek, except Plain[1]	120	0	12	15	3
✔ Athenos Greek Strained[1]	120	0	11	15	2.5
✔ Brown Cow Greek, Strawberry on the Bottom	130	0	13	15	3
✔ Trader Joe's Organic Greek Style Nonfat—Honey or Vanilla[1]	130	0	13	15	3
✔ Fage Total 0%, except Plain[1]	130	0	11	15	3.5
✔ Chobani 0%, except Plain *(6 oz.)*[1]	140	0	15	20	3.5
✔ Skyr.is, except Plain *(6 oz.)*[1]	150	0	16	15	3.5
✔ Yoplait Greek, except Plain *(6 oz.)*[1,D]	160	0	14	40	3.5
✔ Athenos Greek Strained, Honey	160	0	11	15	4.5
✔ Fage Total 2%, except Plain[1]	140	1.5	10	10	3.5
Chobani 2%, Plain *(6 oz.)*	130	2	17	20	0
Stonyfield Organic Greek Style Smooth and Creamy, Plain *(6 oz.)*[D]	140	2	10	40	0
Chobani 2%, except Plain *(6 oz.)*[1]	160	2	13	15	3
Stonyfield Organic Greek Style Smooth and Creamy, except Plain *(6 oz.)*[1,D]	180	2	10	40	4.5
Fage Total 2%, Plain *(7 oz.)*	130	3	17	20	0
Fage Total, except Plain[1]	220	9	8	10	3
Fage Total, Plain *(7 oz.)*	260	16	14	20	0

✔✔ Best Bite. ✔ Honorable Mention. [1]Average. [D] Contains added vitamin D. [A] Contains acesulfame potassium and/or aspartame. *Added sugar numbers are estimates.

Daily Limits *(for a 2,000-calorie diet)*: ***Saturated Fat:*** 20 grams. ***Added Sugar:*** 25 grams (6½ teaspoons). **Calcium Daily Value (DV):** 1,000 mg.

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, safer and more nutritious foods, and pro-health alcohol policies. 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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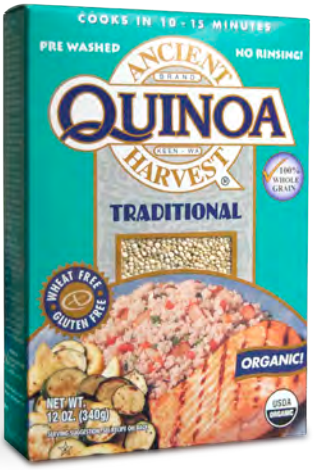
KEEN ONE



"Quinoa: An Emerging 'New' Crop with Potential for CELSS," read the title of the 1993 NASA Technical Paper. The U.S. space agency was considering **quinoa** (pronounced keen-wah) for the "Controlled Ecological Life Support System"—that is, for "meeting the needs of humans on long-term space missions."

What makes quinoa unique? "Lysine, an essential amino acid that is deficient in many grain crops, is found in quinoa approaching Food and Agriculture Organization of the United Nations (FAO) standards set for humans," explained the NASA scientists. It's similar to what you'd get if you combined soybeans and wheat (NASA's alternative for CELSS).

Quinoa's amino acids may help explain why it was a staple of the Inca empire for many centuries. That and its ability to grow at the Andes' high altitudes, where wheat and corn can't compete. But here's why you should put quinoa on your shopping list even if you have no plans to move to Peru. Each 220-calorie cup of the cooked whole grain is packed with 5 grams of fiber, 8 grams of protein, and 15 percent of a day's iron.

Quinoa's nutty flavor shows up just 10 to 15 minutes after it hits the stove. What to do then? Mix some with roasted vegetables and pine nuts, or sautéed snow peas and mushrooms with a splash of soy sauce. Or toss with chopped arugula, fresh basil, scallions, sundried tomatoes, and vinaigrette dressing.

And if NASA calls, you'll already be prepped for that long-term space mission.

www.wholegrainscouncil.org/whole-grains-101/quinoa-march-grain-of-the-month

Photos: Jorge Bach.

dish OF THE MONTH

Roasted Veggies with Attitude

Toss 1 lb. broccoli and cauliflower florets in 2 Tbs. extra-virgin olive oil. Roast on a baking tray at 400°F for 20 minutes. Whisk together 1 Tbs. each of lemon juice, extra-virgin olive oil, minced shallot, and grated Parmesan with ⅛ tsp. salt, a little freshly ground black pepper, and the zest from ½ lemon. Toss with the roasted florets.

FOOD PORN

THE TERMINATOR

"Two ¼ lb. patties topped with juicy Applewood smoked bacon in between a premium fresh bun. Topped off with mayo, ketchup, and American cheese."

That's how **Wendy's** Web site describes its **Baconator Double**. The chain's commercial is more blunt: "Real bacon. Only for real men."

Apparently, women and children (and wimpy men) can't handle 940 calories, more than a day's worth of saturated fat (25 grams), and a full day's supply of sodium (1,590 mg) in one sandwich. Only real men can wolf down such a super-sized burger, whether or not they end up with a 45-inch waist taking cholesterol-lowering statins and blood pressure medication for the rest of their lives. They're tough. Well, not around the middle, but you get the idea.

How's the competition? McDonald's biggest burger is the Angus Bacon & Cheese. It's got a mere 790 calories and 17 grams of sat fat. (Look for it on the "McSissies" menu.)

Granted, Burger King's Triple Whopper with cheese—which packs 1,230 calories, 32 grams of sat fat, and 1,550 mg of sodium—is worse. It can cause some serious fat-cell proliferation, artery clogging, and blood-vessel stiffening. But Wendy's will fix you a **Baconator Triple** on the spot. Just ask!

Want to know if a relative, friend, or co-worker is a real man? Buy him a Baconator Double and see if he has the guts to eat it...or if he's still working on that gut.

Wendy's: (614) 764-3100, ext. 2032