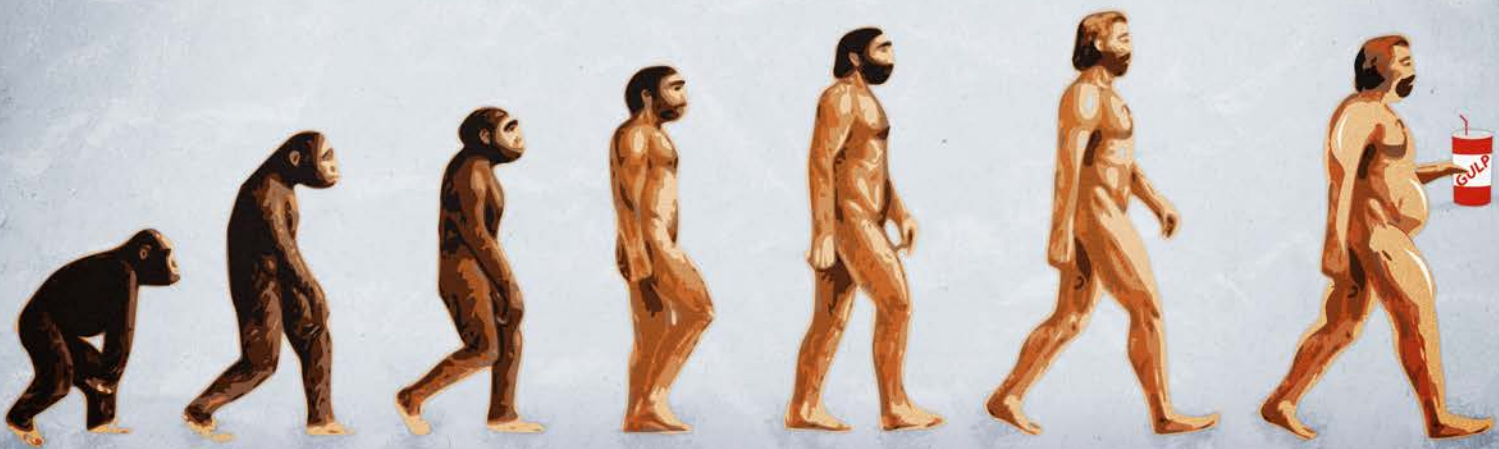


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HEALTH LETTER®
CENTER FOR SCIENCE IN THE PUBLIC INTEREST

Metabolic Meltdown



How a spare tire leads to diabetes & heart disease

Hearth disease deaths have plummeted over the last four decades. But public health experts are worried.

The obesity epidemic—and especially our expanding national waistline—may soon send deaths climbing again. And our bulging bellies have already pushed diabetes rates skyward.

The problem begins with too much food and too little exercise. What starts as just a few extra inches of waist ends up as metabolic havoc.

Here's how to keep your waist—and your metabolism—in shape.

Continued on page 3.



MEMO FROM MFJ

Get Kids Cooking



I've never understood why people buy frozen meals, canned soups, or countless other packaged foods. They seldom taste good, and they're typically loaded with sodium and saturated fat. Restaurant foods aren't any healthier. At some places,

you can get your whole day's worth of calories before dessert. Great.

So why do we put up with that?

It's more convenient, for one thing, especially in families with a single parent

or where both parents work. But the truth is that many of us have no choice. You see, over the past 50 years, we've largely stowed our cooking gear and surrendered our taste buds. I hate to say it, but many Americans simply don't know how to cook.

We don't have to. We can afford to let Betty Crocker and Marie Callender and Ronald McDonald prepare our food for us.

And the result is...blah!

The way to escape today's Corporate Cuisine is to know how to make your own food. The good news: you're never too old—or too young—to learn.

I started late myself. When I lived in a college dorm, I had a little cupboard that never contained much more than cans of soup and boxes of macaroni and cheese. In graduate school, I don't think I cooked anything fancier than hamburgers and frozen potatoes.

But soon after that, I was fortunate enough to stay at a group house in Ann Arbor for a week where I was drafted into the cooking brigade. That's when I first learned to chop an

onion, shred a cabbage, and make brown rice ...and to savor delicious vegetable stews.

I never did mature into what you could call a great chef or a foodie. But I got my cooking basics down, and I can throw together some favorite recipes with confidence and ease.

Things are worse now. When I was growing up, most mothers (it was rarely the dads) really knew how to cook. But few transferred those skills to their children. Those kids are today's parents, and many, much as they'd like to, simply don't know how to teach their children to prepare great-tasting, great-for-you foods.

But if our kids don't learn that now, they'll

be sunk later, as will be *their* kids.

How to reach every child? In school. Scouts and other youth groups could help, but school is the only way to get to all kids.

Cooking classes should be practical. Forget haute cuisine.

Children would learn a few breakfast options—maybe oatmeal with toppings and scrambled

eggs or omelets (sans some yolks) with vegetables. For lunches and dinners, youngsters could be taught how to prepare hearty bean or vegetable soups, veggie stir-fries, simple salmon or tofu recipes, easy salads, baked sweet potatoes, and other healthy basics.

The trick is for kids (and for kids at heart) to learn to cook a modest number of healthy recipes that they love to eat. That puts them—not Betty and Marie and Ronald—in control.

Cook your own food? How radical!



Can't fail. Teach kids to cook when they're in school and you'll grow healthier adults.

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

STAFF

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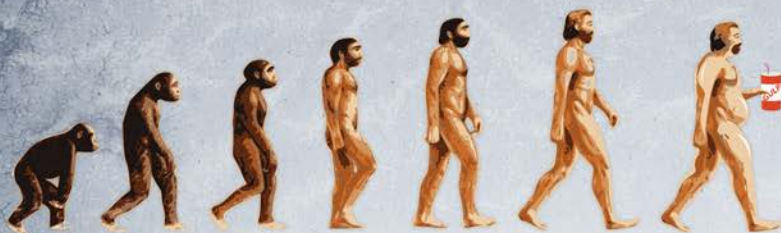
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Metabolic Meltdown

How a spare tire leads to diabetes & heart disease



Michael Miller is the director of the Center for Preventive Cardiology and a professor of medicine, epidemiology, and public health at the

University of Maryland School of Medicine. He chaired the panel of experts that wrote the American Heart Association's 2011 "Statement on Triglycerides and Cardiovascular Disease," and he co-authored the *AMA Guide to Preventing and Treating Heart Disease* (Wiley, 2008). Miller spoke to *NAH's* Bonnie Liebman by phone from Baltimore.

Q: What causes the metabolic syndrome?

A: The body's inability to effectively process nutrients like fats and sugars. The central problem is that we're eating too much and exercising too little.

The metabolic syndrome raises our risk of type 2 diabetes and heart disease. Although genetics plays a role, it is important to point out that type 2 diabetes was unheard of in young adults under the age of 35 just a generation ago.

Q: And too many overstuffed fat cells are to blame?

A: Some researchers believe that insulin resistance is the key problem, while others blame it on the fat cell.

We do know that belly fat generates factors that increase inflammation and the risk of heart disease. Fat cells also release factors that can drive up blood pressure by reducing the ability



One out of four American adults now have what experts call the metabolic syndrome. Its five features—a large waist, low HDL ("good") cholesterol, and higher-than-normal (but not necessarily high) blood sugar, triglycerides, and blood pressure—often occur together. If you have at least three of the five, you have the syndrome, which means an increased risk of diabetes and heart disease.

Most researchers believe that the underlying problem is that insulin no longer works efficiently. The cause: too much waist. Here's how a bulging belly leads to metabolic meltdown...and how to fix it.

of the blood vessel lining to relax. And fat cells produce proteins that increase insulin resistance.

Q: What is insulin resistance?

A: Insulin is a hormone that allows glucose, or blood sugar, to be taken up from the bloodstream into muscle, where it's burned for energy, and into fat, where it's stored. Insulin resistance means that the insulin is less efficient at "delivering the goods," so sugar levels rise in the blood.

Q: And that can cause diabetes?

A: Yes. It leads to a vicious cycle because the pancreas goes into overdrive to make more insulin to try to lower blood sugar levels. Over time, if you don't lose weight and exercise, your insulin and sugar levels

continue to climb until your blood sugar rises above 125, which means you have diabetes.

Q: Does insulin resistance raise triglycerides?

A: Yes. Insulin doesn't just admit sugar into cells. It also helps to store free fatty acids in your fat cells. If your insulin is working, it's going to keep fat in fat cells until it is needed to serve as fuel for exercising muscles.

But if you have insulin resistance, the fat comes out of the fat cells. It ends up in the liver, which repackages the free fatty acids as triglycerides. So there's no question that insulin resistance drives that process.

Q: What are triglycerides?

A: They're the main fat in foods, and they're also found in the bloodstream. Even though triglycerides are fats, diets high in carbohydrates, especially sugars that contain fructose—like table sugar and high-fructose corn syrup—can raise triglycerides in the blood.

Q: Do some features of the metabolic syndrome matter more than others?

A: Some of us think that what's most important is a bigger waist and

The Metabolic Syndrome

1. Waist size	Women: more than 35-inch waist Men: more than 40-inch waist ¹
2. Triglycerides*	150 or higher
3. HDL ("good") cholesterol*	Women: under 50 Men: under 40
4. Blood pressure	Systolic: 130 or higher <i>or</i> Diastolic: 85 or higher
5. Blood sugar*	110 or higher

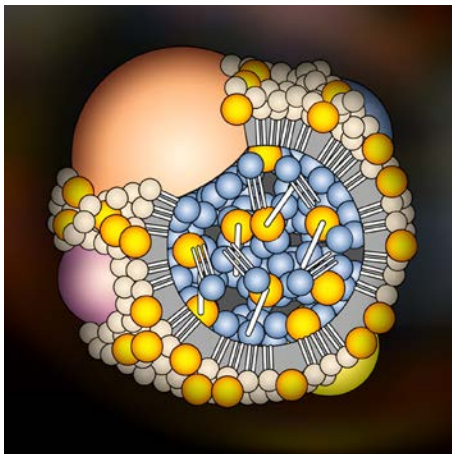
* Fasting. ¹For some men, a 37- to 39-inch waist can be a risk factor.
Source: National Heart, Lung, and Blood Institute.

You have the metabolic syndrome—a sign of insulin resistance—if you have any three of its five features.



high triglycerides. We sometimes call it a hypertriglyceridemic waist, which really supports a pro-inflammatory state.

And we sometimes call triglycerides a barometer of metabolic health because high triglycerides are a sign of a disturbed metabolism. High triglycerides tell you that you need to eat better, exercise more, and lose weight.



Lipoproteins like LDL, HDL, and VLDL carry triglycerides (blue circles) and cholesterol (yellow circles) through the blood. As VLDLs shed their triglycerides, they become less dense and turn into artery-clogging LDL.

THE METABOLIC BAROMETER

Q: Do many people have high triglycerides?

A: Yes. About one in three adults have triglyceride levels of 150 or higher. We're especially concerned about the continuing rise in triglyceride levels in adults under 35, which mirrors our current epidemic of obesity and diabetes.

Q: Are triglycerides under 150 ideal?

A: No. The American Heart Association recently issued a statement saying that an optimal triglyceride level is under 100. From a metabolic standpoint, if your triglycerides are under 100, it means that your body is efficiently processing fats. It also tells me that your risk of insulin resistance is low.

Q: Then why is 150 the cutoff for the metabolic syndrome?

A: The data suggest that your risk for

heart disease increases above 150. Levels between 150 and 199 are borderline high, 200 to 499 is high, and 500 or above is very high.

Q: Do triglycerides end up in the plaque that clogs arteries?

A: No, because they're broken down in the body into free fatty acids, which are stored or burned for energy. In contrast, cholesterol cannot be broken down, so the excess is gobbled up by scavenger cells in the artery wall and becomes part of the plaque.

Q: So why are triglycerides linked to heart disease?

A: When you eat fat, it first shows up in the bloodstream as chylomicrons—lipoproteins that are triglyceride-rich. A lipoprotein is a particle that consists of some protein and some lipid like fat or cholesterol. [See illustration.]

When chylomicrons are broken down in the bloodstream, the triglycerides' free fatty acids get deposited in fat or muscle cells and you're left with particles that are cholesterol-rich. We call these remnant particles.

Remnants can promote plaque build-up in arteries. Like LDL, or low-density lipoproteins, the remnants can be taken up by scavenger cells and lead to the process we call hardening of the arteries.

Q: Don't carbs raise triglycerides more than fat does?

A: Yes. If more than about 60 to 65 percent of your calories come from carbs, that sends a signal to the liver to produce more triglyceride-rich particles. The average American gets 50 percent of calories from carbs.

Q: Do sugars raise triglycerides more than other carbs do?

A: Yes. Fiber-rich carbs like vegetables and beans are healthy from a cardiovascular standpoint. But diets that contain a high amount of sugars raise triglyceride levels.

The major culprit is fructose, which makes up about half of table sugar, high-fructose corn syrup, and most other sweeteners. Compared with other sugars or starches, fructose is more adept at stimulating the liver to produce remnants and triglyceride-rich particles called VLDL, or very-low-density lipoproteins.

Overall, we eat way too much sugar and drink too much soda containing high-fructose corn syrup.

Q: What is VLDL?

A: It is a particle that carries cholesterol and triglycerides through the bloodstream. As VLDL travels, it loses triglycerides and eventually turns into cholesterol-rich LDL.

About 60 to 80 percent of cholesterol entering the artery wall comes from LDL. The rest comes from remnants of chylomicrons and of VLDL.

Q: Do we know more about the risks of high LDL than high triglycerides?

A: Yes. We know that high levels of LDL increase the risk of heart attacks, and we have clinical trials showing that lowering LDL lowers your risk.

Even though high triglycerides are linked to a higher risk of heart disease, researchers haven't established whether lowering these high levels reduces heart attacks.

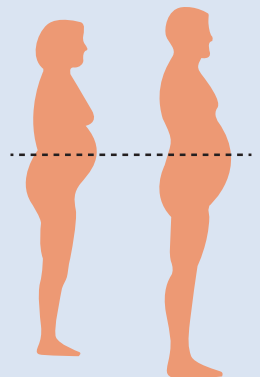
Q: But triglycerides still matter?

A: Yes. Having a high level of both LDL cholesterol and triglycerides is a heart attack maker. It is called combined or mixed hyperlipidemia, and it's due to overproduction of VLDL by the liver.

And you don't have to have super high elevations. Just a triglyceride of 220 and an LDL cholesterol of 150 and boom, your risk is markedly increased compared to

Waist Not...

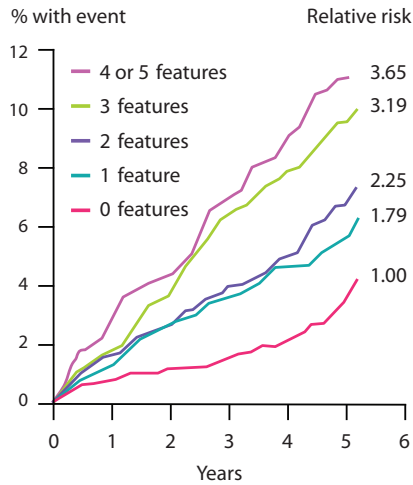
How to measure your waist circumference: Place a tape measure snugly around your bare abdomen just above your hip bone. Then take the measurement.



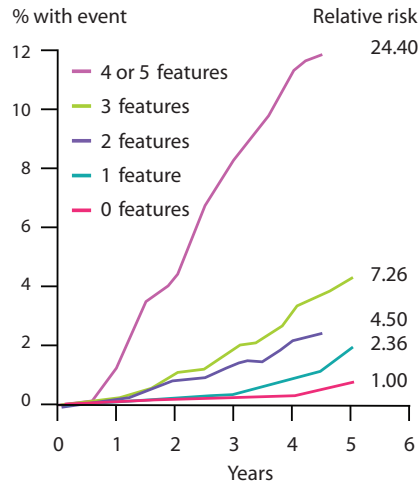
Source: National Institutes of Health, *The Practical Guide: Identification, Evaluation, and Treatment of Overweight and Obesity in Adults* (www.nhlbi.nih.gov/guidelines/obesity/prctgd_b.pdf).

Metabolic Syndrome: More Features = More Risk

Heart Attack



Diabetes



In a Scottish study, the more features of the metabolic syndrome that men had (see illustration on p. 3), the higher their risk of having—or dying of—a heart attack (left) or being diagnosed with diabetes (right). For example, men with 4 or 5 features had a 24 times greater risk of diabetes than men with no features.

Source: Richard Nesto, Harvard Medical School. Adapted from *Circulation* 108: 414, 2003.

less than 100 of either one. That's the double whammy.

Q: Are high triglycerides as bad for women as for men?

A: High triglycerides are a better predictor of heart disease in women than in men. We don't have a good explanation for it. Most of the women with heart disease whom we take care of have low HDL and some degree of elevated triglycerides.

or a new physician if the first one isn't concerned.

Q: How can people fix a disturbed metabolism?

A: For many people, the biggest problem is that they just eat too much. I have patients who come in and say, "Doc, I'm doing the right thing," but they're just overloading the system.

Our bodies aren't designed to eat as much as we do—unless you're Michael Phelps. Even too

much of the right foods can be a problem.

DIET & EXERCISE

Q: What signs of metabolic health do you look for in your patients?

A: The average person just needs to know how large his or her gut is. As one of my colleagues says, when the gut is the first thing you see when a patient walks in the door, that is not a good sign.

There are a few exceptions. Liposuction may make you look better, but it just gets the subcutaneous fat. That is the fat just under the skin. It's the deeper abdominal fat—around and between your organs—that's a problem. You may not always see that by looking at your waist. But having a big gut is a rough indicator because as you get a larger waist, your visceral fat is likely to increase.

Q: And a woman's waist should be less than 35 inches and a man's less than 40 inches?

A: Those are the criteria for the metabolic syndrome. The problem is that a lot of men may have a disturbed metabolism before they reach 40 inches.

If my patient has a triglyceride level of 220 but no other risk factors, I ask, "How much did you weigh when you were in your early 20s? What was your waist size?"

By and large, most people are in pretty good shape in their early 20s. And if they follow a healthy lifestyle, we would expect them to gain up to about 10 pounds or two inches in waist circumference. Women who have had children may gain more

than two inches and still be healthy.

So if I see a guy who appears normal, but he says, "When I was 20, my waist size was 30, and now it's 36," I'd be concerned. Even though you may appear normal, you may still not be metabolically normal.

If your waist size has increased more than two inches, that could be an early signal that you're above and beyond where you need to be.

Q: Do most people get their triglycerides measured?

A: Yes, but there are a couple of tricks here. Let's say you go to a screening health fair and get your blood lipids measured without fasting. If your triglycerides come back at, say, 400, your doctor may say, "Well, don't worry about it because it's not fasting." Those are the people I'm worried about.

Q: Why?

A: I'm here to tell you that a triglyceride level of 400 is very abnormal. No healthy person should ever get to that level no matter how many McMuffins they just ate.

If your fasting triglycerides are optimal—say, less than 100—and if you eat a lot of fat before the blood test, the level might go up by 50 percent or even double. So after you eat, your level might rise to 150 or 200. It's not going to get to 400.

If somebody goes to a screening fair and gets a triglyceride level in that range, it should be followed up by their physician,

Q: What do you tell those patients?

A: I'll never be able to publish a diet book because I have a very simple recommendation: cut out two slices of bread or cut out a bagel. Two slices of bread range between 100 and 250 calories. And a typical bagel has about 250 to 350 calories without anything on it. Amazing.

My message is simple. Reduce energy intake by cutting a bagel or two slices of bread a day. That's column A. And increase energy output by walking a mile above and beyond what you do daily. That's column B. Or find substitutes for columns A and B that best fit your lifestyle.

Q: Is quick weight loss bad?

A: In the *AMA Guide to Preventing and Treating Heart Disease*, we recommended a weight-loss goal of one to two pounds per week.

We don't recommend losing more. I've encountered patients in my practice who developed an abnormal heart rhythm when they lost too much weight too quickly—five pounds or more per week.

Q: What triggers the problem?

A: Very-low-calorie diets or diets with induction phases that cause rapid weight loss can lead to dehydration and electrolyte imbalances. We recommend a healthier approach.





Omega-3 Fats in Seafood

For each gram of EPA plus DHA you eat per day, you get a 5 to 10 percent drop in triglycerides. Here's the EPA plus DHA in 4 ounces of cooked seafood.

	EPA+DHA (g)
Salmon, Atlantic (farmed)	2.4
Herring, Atlantic (pickled)	1.6
Sardines (canned in tomato sauce)	1.6
Salmon, coho	1.5
Halibut, Greenland	1.3
Salmon, pink or red (canned)	1.2
Sardines (canned in oil)	1.1
Trout, rainbow (wild)	1.1
Trout, rainbow (farmed)	1.0
Tuna, white (canned in water)	1.0
Salmon, sockeye	0.9
Crabs	0.5
Halibut, Atlantic or Pacific	0.3
Shrimp	0.3
Tuna, light (canned in water)	0.3
Tuna, white (canned in oil)	0.3

Source: USDA Nutrient Database.

After all, you didn't gain 20 pounds over the course of a month by overeating—unless you're an actor who needs to gain weight for your part.

Q: How can you help people keep the weight off?

A: It's hard to stick to any diet, so we say enjoy yourself and feast either one day of the week or one breakfast, one lunch, and one dinner spread throughout the week.

My patients seem to be able to follow that approach, because there's a built-in reward. They say, "I'll go out on Saturday night or have a Sunday brunch because I've worked hard all week." Just don't overindulge to the point where you defeat all your hard work.

Q: Can lifestyle changes lower triglycerides?

A: Yes. The beautiful part about triglycerides is that they are so responsive to lifestyle. I'm not talking 5 or 10 percent lowering—which is typical for LDL cholesterol after lifestyle adjustments—but closer to 30 percent or more.

It does take some effort to lose weight

with healthier diets and a regular routine of aerobic activities. But my patients are often surprised by the results.

Q: Does exercise lower triglycerides even if you don't lose weight?

A: Yes, because exercise activates lipoprotein lipase, the primary enzyme that breaks down triglycerides.

Q: What else can lower triglycerides?

A: Eat less sugar. Follow the American Heart Association's recommendation to limit these empty calories to fewer than six teaspoons a day in women and nine teaspoons in men. And cut back on saturated fat and eliminate trans fats. And do not drink alcohol in excess.

Q: Should we replace some carbs with unsaturated fat?

A: That's a reasonable recommendation, because it lowers LDL cholesterol and triglycerides and it was beneficial in the Lyon Diet Heart Study and the OmniHeart study. [See page 7.] But people shouldn't douse their salad with olive oil or they might get too many calories.

Q: What about fish oil?

A: Love it. Well, I love fish, because EPA and DHA, the marine-derived omega-3 fats, lower triglycerides. For each gram of EPA and DHA, you get somewhere around 5 to 10 percent triglyceride lowering.

Both EPA and DHA do it. Flaxseed, which has a shorter-chain omega-3 fat, ALA, is much less effective at lowering triglycerides. Fish contain EPA and DHA because they prey upon omega-3-rich algae.

Q: Do you recommend fish oil capsules?

A: I recommend that people eat fish—like wild-caught salmon—that is low in mercury and other toxins. If they have very high triglycerides and can't eat fish, I recommend taking fish oil capsules.

Q: Does fish oil prevent heart attacks in people with high triglycerides?

A: We don't know yet. There's a large international clinical trial that just started called REDUCE-IT. I'm on the steering committee—full disclosure—but it's an important study, because it's the first to address this issue.

To date, the trials testing whether fish oils can reduce heart attacks have had mixed results. Those studies typically used a low dose—one gram—of EPA plus DHA and did not study all people with high triglycerides.

The REDUCE-IT trial will test four grams of EPA daily in men and women with heart disease and elevated triglycerides.

Q: So we'll know in five or ten years?

A: Hopefully less. Perhaps the study will be stopped early because the benefits are dramatic. We've had a losing streak lately, so maybe we'll have good news for a change.

What to Do

- **Lose excess weight.** Dropping 5 to 10 percent of your body weight should improve every feature of the metabolic syndrome.
- **Eat an OmniHeart-like diet.** That's a diet rich in vegetables and fruit but low in saturated and trans fat (see p. 7).
- **Decrease carbs.** There's only room for four small servings of (whole) grains in an OmniHeart diet for someone who eats 2,100 calories a day.
- **Cut added sugars.** The American Heart Association recommends no more than six teaspoons of added sugars a day for women and nine for men. The 2,100-calorie OmniHeart diet has room for just two teaspoons. That includes the sugar in your cereal, yogurt, and sweets.
- **Eat fatty fish.** Each gram of EPA plus DHA can lower triglycerides by 5 to 10 percent. A modest serving of salmon (4 oz.) has one or two grams of EPA plus DHA. If you have high triglycerides and don't eat fish, take fish oil capsules with two to four grams of EPA plus DHA a day.
- **Move.** Aerobic exercise can help you lose weight and sidestep the metabolic syndrome.

A Day's Worth of Food

BY BONNIE LIEBMAN & KATE SHERWOOD

In the OmniHeart study, two diets—one higher in unsaturated fat and one higher in protein—cut heart disease risk the most. Here's a hybrid of the two diets, designed for someone who needs 2,100 calories a day. (It may look skimpy if you typically eat more.) It's low in saturated fat, added sugars, and salt but high in potassium, magnesium, and fiber. Grains are limited because most of the carbs come from fruits and vegetables.



BREAKFAST

Whole-grain cereal served with banana and a sprinkling of nuts plus a cup of fat-free milk (shown here in a glass). Add a second serving of seasonal fruit. Unsweetened coffee or tea (not shown) is unlimited.

LUNCH & AFTERNOON SNACK

A grilled chicken salad includes a generous serving of greens plus tomato, avocado slices, nuts, and onion, dressed with creamy Parmesan and served with a whole-grain roll. Snack on fruit or veggies if you want an afternoon snack or an appetizer before dinner.



DINNER & EVENING SNACK

Grilled salmon with sautéed vegetables seasoned with teriyaki sauce and a side of brown rice. Dessert is two petite cookies. Snack on a cup of fat-free plain yogurt garnished with berries and toasted sliced almonds after dinner (or any time of day). We used the day's "wild card" (see below) for the salmon, a second serving from the Poultry, Fish, & Meat group. 🍷

A DAY'S FOOD

Below are the OmniHeart study's targets for a day's worth of food.¹ The nutrient targets for a 2,100-calorie diet are: *sat fat*—no more than 14 grams; *protein*—105 grams; *fiber*—at least 30 grams; *potassium*—4,700 mg; *magnesium*—500 mg; *calcium*—1,200 mg; *sodium*—no more than 2,300 mg; *cholesterol*—no more than 150 mg. Our day's worth of food (pictured above) roughly matches those targets.

Vegetables & Fruit

11 servings per day

What's 1 serving?

½ cup cooked vegetables
½ cup raw vegetables
1 cup salad greens
1 piece fruit
½ cup fresh fruit
¼ cup dried fruit

Grains

4 servings per day

What's 1 serving?

1 slice bread
½ cup cereal, pasta, or rice

Low-Fat Dairy

2 servings per day

What's 1 serving?

1 cup milk or yogurt
1½ oz. cheese

Legumes & Nuts

2 servings per day

What's 1 serving?

¼ cup nuts
½ cup cooked beans
4 oz. tofu

Poultry, Fish, & Meat

1 serving per day

What's 1 serving?

¼ lb. cooked

Oils & Fats

2 servings per day

What's 1 serving?

1 Tbs. oil
1 Tbs. margarine or mayo

Desserts & Sweets

2 servings per day

What's 1 serving?

1 small cookie
1 tsp. sugar

Wild Card

1 serving per day of Poultry, Fish, & Meat or Desserts & Sweets or Oils & Fats or Grains

¹JAMA 294: 2455, 2005.



Stayin' Alive

Coffee may keep you alive longer, whether you drink regular or decaf. Researchers tracked more than 400,000 men and women who enrolled in the National Institutes of Health–AARP Diet and Health Study when they were 50 to 71 years old. Among men, the risk of dying over the next 14 years was 6 percent lower for those who drank one cup of coffee (decaf or regular) a day than for those who drank less. The risk was about 10 percent lower for those

who drank at least two cups a day. Women who drank one cup a day had no lower risk of dying, but those who drank at least two cups a day had a 15 percent lower risk.

Coffee drinkers were less likely to die of heart disease, respiratory disease, strokes, injuries and accidents, diabetes, and infections (but not cancer), though it wasn't clear how many cups a day were linked to a lower risk for each illness.

What to do: This kind of study can't prove cause and effect, but it adds to the evidence that some of the 1,000 compounds in coffee may protect health.

N. Engl. J. Med. 366:1891, 2012.

More HDL Questions

The HDL ("good") cholesterol story isn't as simple as researchers had thought.

Numerous studies have found a higher risk of heart disease in people with low HDL levels (under 40 in men or under 50 in women). However, last year, a trial that raised HDL levels with niacin (2,000 mg a day) failed to lower the risk of heart disease in people who had low HDL and were also taking statins to lower their LDL ("bad") cholesterol (see Jul./Aug. 2011, p. 8).

And in May, Roche Pharmaceuticals halted a trial testing an HDL-raising drug called dalcetrapib after it found no evidence that the drug was curbing the risk of heart attacks. Two other HDL-raising drugs—fenofibrate and torcetrapib—also failed to protect the heart in earlier studies. (Torcetrapib never reached the market.)

Now two new studies suggest that people who have versions of genes that raise their HDL have no lower risk of heart disease than people with other versions of those genes.

Researchers at Harvard University found no lower risk of heart disease in people with HDL-raising versions of an endothelial lipase

gene. And Danish researchers found no lower risk in people with HDL-raising versions of the lecithin-cholesterol acyltransferase gene.

"This may suggest that low HDL cholesterol levels per se do not cause" heart attacks, said the Danish scientists. But not everyone is convinced.

"There may be ways of changing HDL that may be protective that we don't know about yet," suggests Frank Sacks, professor of cardiovascular disease prevention at Harvard Medical School. "For example, making the liver produce more HDL might be better than drugs like dalcetrapib and torcetrapib, which keep cholesterol in HDL," he explains.

"That creates a big, overstuffed HDL that may not be able to move cholesterol from cells and tissues to the liver for excretion." Sacks' bottom line: "We don't know much about HDL metabolism in humans."

What to do: Losing excess weight and getting more exercise can raise HDL. HDL or not, there's plenty of reason to do both.

Lancet DOI:10.1016/S0140-6736(12)60312-2.
J. Clin. Endocrinol. Metab. 97: E248, 2012.

Eat Out = Eat More

Watching your weight? Watch out for restaurant meals.

Researchers asked roughly 1,000 men and women to record everything they ate at home or at restaurants for a week. People of normal weight averaged 550 calories per meal at home, but they gobbled up 825 calories at a restaurant. For people who were overweight or obese, a typical meal at home had 625 calories, but at restaurants they swallowed about 900 calories.

What's more, the overweight or obese ate their meals (at home and at restaurants) more quickly than others. Yet they were no hungrier than their normal-weight counterparts. If anything, they were more full (from previous meals) when they sat down to eat than people of normal weight.

A second study documented just how many calories (and how much sodium, saturated fat, etc.) restaurant meals contain. Researchers collected nutrition facts on more than 28,000 dishes served at 245 restaurants nationwide.

A typical appetizer had 700 calories (a quarter had more than 1,145), and a typical entrée had 590 calories (a quarter had more than 890). That didn't include a typical side dish (210 calories), salad (410) with dressing (150), non-alcoholic beverage (360), or dessert, rolls, or other baked goods (355).

What to do: Eat out with caution.

Appetite 59: 204, 2012.
Public Health Nutr. DOI:10.1017/S136898001200122X.

Cancer Rx: Exercise

Exercise may raise your odds of surviving breast or colorectal cancer.

Researchers at the National Cancer Institute reviewed 23 studies that tracked 37,500 breast cancer patients and 4,000 colorectal cancer patients for 3 to 13 years. Those who got regular exercise were less likely to die, even if they didn't start exercising until after their diagnosis. Exercise may help by lowering insulin levels, curbing inflammation, and strengthening the immune system.

"Adequate physical activity should be a standard part of cancer care," wrote Edward Giovannucci of the Harvard School of Public Health in an editorial published with the study.

What to do: Get moving. 🏃

J. Natl. Cancer Inst. 104: 797, 815, 2012.

Living in a Microbial World

Learning to love your bacteria

BY DAVID SCHARDT

“It’s a whole new world,” says Lita Proctor of the National Institutes of Health. **“We’re learning that our bodies are shaped not just by the 23,000 genes in the human genome, but also by the more than 8,000,000 genes in the human microbiome.”**

Scientists are discovering that the microbiome—the bacteria, viruses, fungi, and other microorganisms (and their genes) that live on or in all of us—is far more extensive, and may be far more important for our health, than anyone imagined even a few years ago. Here’s what they’re finding.

“You should not automatically assume that every microbe you come into contact with is a germ, because the vast majority are not disease-bearing,” says Lita Proctor, program manager for the Human Microbiome Project, which is trying to identify the menagerie of microorganisms that are on and in the human body.

“We have to lose this language of warfare,” adds Julie Segre, a geneticist with the National Human Genome Research Institute. “The bacteria that live on our bodies are not necessarily bad, and we should treat them with more respect.”

Scientists are learning that humans and the human microbiome evolved together, and that some of our bacteria help us survive by doing things that we can’t do ourselves. For example, bacteria on our skin turn some of the oils that skin cells produce into a natural moisturizer, notes Segre.

The largest reservoir of bacteria resides in our intestinal tract, where we host about 100 trillion microbial cells and 1,000 microbial species.

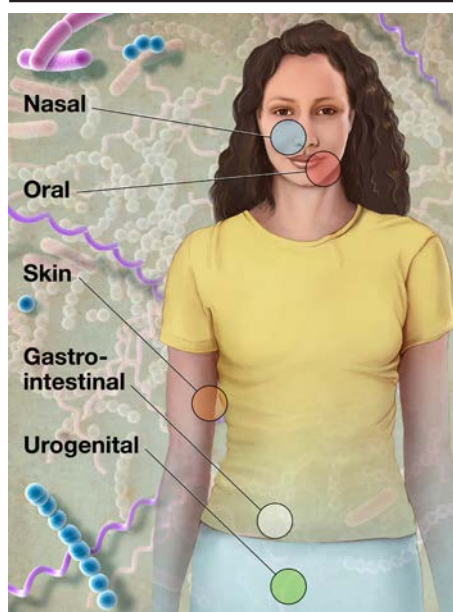
“We’re carrying around about three or four pounds of microbes in our gut,” says Proctor. Among other things, the bacteria inside our lower intestinal tract:

- digest fiber and other components of food that we can’t digest on our own,
- synthesize vitamins that we may not be getting enough of from our food,
- release potentially beneficial chemicals in food, like the isothiocyanate in cooked broccoli that may help prevent cancer,
- stimulate the immune system, and
- suppress microorganisms that cause food poisoning or other damage.

DESIGNER BACTERIA

No two people have identical microbiomes.

“People have such tremendous differences in their gut microbiota that two people could be 80 or 90 percent different in the kinds of microbes they have,” says



Can bacteria that are in and on us protect us from—or cure us of—disease?

Rob Knight, a molecular biophysicist at the University of Colorado in Boulder.

Of the nearly 4,000 different strains of bacteria that North Carolina scientists found in the belly buttons of 200 people in 2011, for example, there wasn’t a single

strain that everyone had.¹

“Our genes, our diet, and our environment all feed into what kinds of microbes live with us,” says Proctor.

THANKS, MOM

One more role for mom: setting your initial microbiome.

“We are microbe magnets when we are born,” explains Proctor. As soon as we leave the sterile environment of the womb, we pick up microorganisms from our mothers as we pass through the vaginal canal.

“Evolutionarily, we are meant to attract these bugs because that’s the initial signal to activate our immune system,” she adds.

Babies born by Caesarean section, on the other hand, are colonized by bacteria from skin, which they get from their mothers and others they come into contact with. Because of that, they develop a different community of microorganisms, or microbiota, in their gut.

That could explain why C-section babies may have slightly higher rates of asthma and allergies.²

“They’re picking up their first bugs from a source other than what was evolutionarily intended, skin instead of vagina,” says Proctor.

(Don’t panic if you’ve had a C-section. They account for only an estimated 1½ percent of asthma cases and 4 percent of food allergies.²)

SHIFTING BUGS

Unlike the human genome, the microbiome isn’t static, says Knight. For example, “there are systematic differences in the gut bacteria in the elderly, especially an increase in organisms that are thought to be opportunistic,” he notes.

“We don’t know whether these changes make the elderly more vulnerable to disease,” he adds, “or whether they’re adjustments that have allowed them to live that long.”

Although the research is still preliminary,



it looks like what we eat can also change our gut microbiota. Some examples:

■ When 12 obese adults followed low-calorie diets for a year, the proportions of the two main groups of bacteria in their gut microbiota shifted toward a pattern seen in lean people. And the more weight they lost, the greater the change.³

■ When Knight and his colleagues looked at the eating habits of 98 healthy volunteers, “we saw that the overall configuration of their microbiota was strongly linked to their long-term diets, especially to how much protein and animal fat versus carbohydrates they consumed.”

■ After Knight and his colleagues put 10 volunteers on either a high- or low-fiber diet for 10 days, their gut bacteria changed.⁴ “But the alteration is very small and doesn’t last,” says Knight. “It’s likely that any interventions to modify the microbiota based on diet will have to be for a period of years.”

BUG DONORS

The most dramatic demonstration that our microbiome matters: some physicians are treating nasty *Clostridium difficile* infections with transplants of gut bacteria (see “Très Difficile”). But our bacteria may also affect our risk of obesity and diabetes.

Obesity

Could the bugs in our intestines be making us fat? After all, lean people appear to have different gut microbiota than people who are obese. Scientists first discovered the difference in laboratory mice and rats that are raised in sterile environments.

“These germ-free animals are leaner than animals that are colonized with a complex microbial community, even though they eat more food,” says Peter Turnbaugh of Harvard University’s FAS Center for Systems Biology.

Researchers at Washington University in

St. Louis “were the first to demonstrate that the transfer of gut bacteria from conventional to germ-free mice produced a significant increase in body fat, even though the animals didn’t eat any more food than they did before,” notes Turnbaugh.⁵

And when Turnbaugh transplanted gut bacteria from obese to germ-free animals, the germ-free animals gained twice as much body fat than if the transplants came from lean animals. “It didn’t matter whether the conventional animals were obese because of a genetic defect or because they were fed a high-fat, high-sugar ‘Western’ diet,” he notes.

Scientists don’t yet know whether transplanting gut bacteria from lean animals into fat animals will make them less fat.

Why do intestinal bacteria appear to make animals gain weight?

“The gut microbiota specialize in what’s called ‘dietary energy harvest,’” says Turnbaugh. They digest fiber in food that

The Probiotics Tour

“Live a Life of Digestive Comfort.” “Restore your natural digestive balance.”

Many probiotics—so-called “good bacteria”—promise to improve your gut bacteria by repopulating your intestines, by crowding out “bad bacteria,” or by restoring some kind of “balance” to your intestinal flora. That may be an oversimplification.

“We’re looking at trillions of microbial cells already in your intestinal tract,” says Lita Proctor. “If you take a probiotic, whether it’s a pill or a food product, the amount of microbes that you ingest and that survive and end up in your gut is so infinitesimal that you can’t say that they overgrow the system or outrun the other microbes.”

Probiotics may work in other ways, though, says Yale expert Martin Floch. They may stimulate the immune system or produce antibacterial compounds that keep a lid on other bacteria.

The trick is identifying which probiotics can fix which problems. A bacterium’s name has three parts: the genus (like *Lactobacillus*), the species (like *acidophilus*), and the strain (like LA-5). Strains can differ in what they do even within the same species. And only a small number of strains are backed by decent evidence.

Though more studies are needed, here’s the latest on two widely advertised probiotics in food:

■ ***Bifidobacterium lactis* DN-173 010** (found in Dannon Activia) appears to help food move faster through the intestinal tract. In a study funded by Dannon in China, women with constipation who consumed four ounces of Activia every day for two weeks averaged one more bowel movement a week than similar women who consumed a placebo.¹

■ In two small studies funded by Dannon in France and Italy, ***Lactobacillus casei* DN-114 001** (found in Dannon DanActive) didn’t prevent colds or flu (as the company’s ads in the past implied). But when the healthy adults who were given seven ounces of DanActive every day for three months got sick, they recovered about two days faster than those who got a placebo.^{2,3} And in another study, when healthy adults were given seven ounces of DanActive every day for four weeks before getting a flu vaccine, they developed more antibodies to protect them from the flu than those who got a placebo.⁴

Some probiotic supplements also have strains that may work:

■ The combination of ***Lactobacillus rhamnosus* GR-1** and ***Lactobacillus reuteri* RC-14** (found in Fem-dophilus) helps clear up some vaginal infections in women taking antibiotics.

■ ***Lactobacillus rhamnosus* GG** (found in Culturelle) and ***Saccharomyces boulardii*** (a yeast found in Florastor) help curb diarrhea caused by antibiotics.

¹ *World J. Gastroenterol.* 14: 6237, 2008.

² *Br. J. Nutr.* 103: 58, 2010.

³ *J. Nutr. Health Aging* 7: 75, 2003.

⁴ *Vaccine* 27: 5677, 2009.



Activia’s probiotic bacteria may help relieve constipation.

Très Difficile

“The normal bacteria just didn’t exist in her.”

That’s how University of Minnesota gastroenterologist Alexander Khoruts described one of his *Clostridium difficile* patients to *The New York Times*. The woman had been crippled by constant diarrhea from *C. diff* for eight months and was confined to wearing diapers in a wheelchair. “She was colonized by all sorts of misfits,” noted Khoruts.

In the United States, the incidence and severity of *C. difficile* infections are on the rise. There are now half a million cases—and 15,000 to 20,000 deaths—each year.



C. diff. Changing the bacteria in your gut can defeat a nasty infection.

The *C. diff* bacterium produces a toxin that disrupts the lining of the intestines and causes inflammation in the colon. Doctors typically treat severe cases with powerful antibiotics or by surgically removing the affected area of the colon.

But recently, some doctors have started to treat

C. diff infections using a bold therapy with an icky name. “Fecal transplantation” means implanting bacteria from a healthy colon into a diseased colon (in an enema-like procedure). The idea is to get healthy bacteria to suppress the *C. diff* and end the infection.

In a recent review of 317 patients infected with *C. diff*, fecal transplants resulted in a 92 percent cure rate.¹

That’s what happened to Khoruts’ patient. Her diarrhea vanished within a day after the physician mixed a small amount of her healthy husband’s stool in a saline solution and inserted it into her colon. Two weeks after the transplant, her husband’s healthy microbes had taken over her lower intestinal tract and her *C. diff* infection disappeared for good.²

¹ *Clin. Infect. Dis.* 53: 994, 2011.

² *J. Clin. Gastroenterol.* 44: 354, 2010.

we can’t digest on our own. They also influence human genes involved in storing fat. And obese mice have more energy-harvesting genes in their gut than lean mice do.⁶

Researchers have now begun to link gut microbiota to weight in humans:

■ Babies with higher levels of *Bifidobacteria* during their first year of life were less likely to be overweight at age seven than babies with lower levels.⁷

■ Among 36 overweight adolescents, those who lost at least nine pounds during 10 weeks of diet and exercise started the study with different microbiota than those who lost less than four pounds. By the end, only the microbiota of the group that lost the most weight had changed.⁸

■ Pregnant women who were overweight or who gained excess weight during their pregnancies had a different gut microbiota than pregnant women who were normal weight or didn’t gain excess weight.⁹

■ Among 1,255 infants born in the Boston area between 1999 and 2002, those delivered by Caesarean section were twice as likely to be obese at age three as those born vaginally.¹⁰ The researchers speculated that the difference in the C-section babies’ gut bacteria may have accounted for their increased weight.

“The bacteria in our gut should be considered one more factor, like diet and physical activity, that affects our energy balance,” says Turnbaugh.

But it’s not clear if changes in the microbiome actually cause obesity.

“One of the problems in studying the association of the microbiome with disease is that microbes are very good at exploiting new habitats,” Proctor explains.

“So when we look at diseased tissue and see associated microbes, for example, we have to ask whether the microbes helped cause the disease or whether they just moved in and exploited a new habitat because something about that tissue changed

and became attractive to the microbes.”

Weight gain is even more complicated to study, adds Proctor. “By the time someone is obese, so many other things have changed that obesity is almost the end result of a whole cascade of events. It takes decades to become obese, so we may be looking too far away from the original signal.”

Diabetes

When researchers implant gut bacteria from conventional animals into germ-free ones, the animals not only gain body fat, but they become more insulin resistant.⁵ (If you’re insulin resistant, blood sugar can’t easily enter your cells. People who are insulin resistant have a higher risk of type 2 diabetes and heart disease.)

“There is suggestive evidence that the gut microbiota is different in people with diabetes,” says the University of Colorado’s Rob Knight.

In a Danish study, for example, men with type 2 diabetes had different gut microbiota than similar men without the disease.¹¹

That led Dutch researchers to test whether gut bacteria transplants could lessen insulin resistance in 18 men who had the metabolic syndrome, which is a sign of insulin resistance. (You have the syndrome if you have three of the following: a large waist, low HDL cholesterol, and elevated blood pressure, blood sugar, or triglycerides—see page 3.)

The scientists gave half of the men “fecal transplants” from lean men without the metabolic syndrome (using an enema-like procedure). The other half got transplants of their own stool.

After six weeks, insulin resistance and triglycerides declined in those who got the lean men’s bacteria, but not in those who got their own bacteria back, noted the researchers. (The study is slated for publication later this year.)

“I have been studying diabetes for the past 25 years,”

noted French researcher Remy Burcelin told *Nature* magazine this spring, and the idea that diabetes may be related to gut bacteria “is the most important discovery that has been made in my field.”

Proctor’s bottom line: “The fact that the microbiome is dynamic and can change can work to our benefit. Our hope is that we can learn to specifically and preferentially alter the properties of the microbiome to either prevent or minimize the effects of disease.” 🍌

¹ www.wildlifeofyourbody.org.

² *Clin. Exp. Allergy* 38: 634, 2008.

³ *Nature* 444: 1022, 2006.

⁴ *Science* 334: 105, 2011.

⁵ *Proc. Natl. Acad. Sci. USA* 101: 15718, 2004.

⁶ *Nature* 444: 1027, 2006.

⁷ *Am. J. Clin. Nutr.* 87: 534, 2008.

⁸ *Obesity* 17: 1906, 2009.

⁹ *Br. J. Nutr.* 104: 83, 2010.

¹⁰ DOI:10.1136/archdischild-2011-301141.

¹¹ *PLoS ONE* 5: e9085, 2010.



WHERE THERE'S A GRILL... BY KATE SHERWOOD

The secret to great grilling is a well-cleaned and oiled grilling grate. Heat the covered grill to burn off any food residue, then brush the grate with a wire brush, grab a wad of paper towels with tongs, dip it in cooking oil, and use it to wipe the grate.

No grill? You can sauté the shrimp, fish, chicken, and veggies instead. 🍷

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

Summer Shrimp Salad

Total Time: 20 minutes 



- ½ lb. large shrimp, peeled and deveined
- 3 cobs corn
- 3 Tbs. mayonnaise
- 1 Tbs. fresh lemon juice
- ¼ tsp. Old Bay seasoning
- 8 butter lettuce leaves
- ½ lb. tomatoes, cut into wedges

Make sure the shrimp hasn't been treated with sodium triphosphate. It's used to retain moisture but also adds a significant amount of sodium to the shrimp.

Grill the shrimp and corn over a medium-hot fire until the shrimp is lightly browned and the corn is charred in places, 4-5 minutes total. Remove from the grill. When cool enough to handle, cut the kernels from the cob. • In a large bowl, whisk together the mayonnaise, lemon juice, and Old Bay seasoning. Toss with the shrimp and corn kernels. • Arrange the lettuce and tomatoes on two plates and top with the shrimp salad. • Serves 2.

Per Serving: Calories 390; Total fat 22 g; Sat fat 2.5 g; Protein 23 g
Carbs 34 g; Fiber 5 g; Cholesterol 150 mg; Sodium 390 mg

Arctic Char with Green Apple-Dill Sauce

Total Time: 20 minutes 



- ¼ cup minced red onion
- ½ Granny Smith apple, peeled and diced
- 1 Tbs. fresh lemon juice
- ¼ cup low-fat sour cream
- 1 Tbs. mayonnaise
- 1 Tbs. country Dijon mustard
- ¼ cup minced dill
- 4 Arctic char or salmon fillets, about 1¼ lbs. total

Most Arctic char sold in this country is farmed in an ecologically responsible way, according to the Monterey Bay Aquarium, which gives the fish a "Best Choice" rating. We grilled some zucchini, summer squash, and red onion with our fish.

In a medium bowl, stir together all the ingredients except the fish. • Place the fillets flesh-side down on the grates over a medium fire and grill for 4-5 minutes. • Using a large spatula, turn the fish over and grill until it just starts to get opaque in the center, another 2-3 minutes. • Serve with the green apple-dill sauce. • Serves 4.

Per Serving: Calories 220; Total fat 9 g; Sat fat 2 g; Protein 29 g
Carbs 5 g; Fiber 0 g; Cholesterol 70 mg; Sodium 190 mg

Chicken with Grilled Salsa

Total Time: 30 minutes 



- 1 lb. tomatoes, chopped
- 5 cloves garlic, sliced
- 2 Tbs. extra-virgin olive oil
- ¼ lbs. boneless, skinless chicken breasts
- 2 bell peppers, cut in ½"-wide strips
- 1 bunch basil, chopped
- Freshly ground black pepper
- ½ tsp. kosher salt

The secret to this dish: vibrant, juicy tomatoes. You don't even need to cook them: just toss with the oil, basil, and 1 clove of minced garlic.

Toss together the tomatoes, garlic, and oil in a disposable aluminum pie plate. • Put the chicken between sheets of wax paper and pound to an even ½" thickness. • Place the pie plate, chicken (smooth-side down), and peppers (skin-side down) on the grate and grill over a medium-hot fire until the chicken and peppers are well marked, about 5 minutes. Turn both over and cook until the chicken is tender when pierced with the tip of a knife, 1-2 minutes. • Remove the pie plate from the grill and allow the tomatoes to cool slightly. Toss with the basil, season with pepper and up to ½ tsp. of salt, and serve with the chicken and peppers. • Serves 4.

Per Serving: Calories 260; Total fat 11 g; Sat fat 2 g; Protein 30 g
Carbs 9 g; Fiber 3 g; Cholesterol 80 mg; Sodium 320 mg

DRESS IT UP

How to make your salad spin

BY JAYNE HURLEY & BONNIE LIEBMAN

Remember when salad dressing meant Italian, French, Thousand Island, or something called Catalina? No longer.

These days, even balsamic vinaigrette, blue cheese, Caesar, honey mustard, and ranch are run of the mill compared to the strawberry Chardonnays and papaya poppyseeds, the coconut limes and shiitake gingers, the fig tahinis and chipotle & ancho vinaigrettes.

But other things haven't changed. Some dressings toss far more calories and sodium into your salad than others. Here are the best in each category.

The information for this article was compiled by Emily Caras.

Here's what matters most when shopping for salad dressing.

1. Be calorie conscious. What do Wish-Bone Creamy Caesar, Ken's Steak House Buttermilk Ranch, and Marie's Creamy Italian Garlic have in common? A hefty 180 calories per serving.

And that's for just two tablespoons. If you're like most people, though, you probably just turn the bottle upside down and pour. And that could easily turn 180 calories into 270 or 360. Don't believe us? At Au Bon Pain, Freshii, and Cosi, most dressings come in four-tablespoon containers.

And the most calorie-dense dressings (like Caesar, ranch, and blue cheese) are

thicker than the vinaigrettes, so you may need even more to coat your greens.

Our Best Bites and Honorable Mentions have no more than 110 calories in two tablespoons. (We aimed for 100, but didn't want to exclude a handful that just missed the cutoff.) Plenty of vinaigrettes qualified. If you're in the market for a primo Caesar, ranch, or blue cheese, though, you might have to go up to 130 or 140 calories.

2. Spare the sodium. With 620 milligrams of sodium, Ken's Stroke House—oops! Steak House—Lite Caesar was the saltiest dressing we found. But dozens of others hover between 400 and 500 mg.

Why blow a third of a day's sodium on

two tablespoons of dressing when our Best Bites have no more than 100 mg and our Honorable Mentions have 150 mg or less?

As with calories, it's easier to find less sodium in a sweet dressing (like a raspberry or another fruit vinaigrette) than in an Italian, Greek, or Caesar. That's why we allowed up to 140 calories and 170 milligrams of sodium in some of our taste picks (see the photos below and on p. 14).

3. Don't worry about saturated fat.

Dressings are largely made of unsaturated oils (like soybean or canola) or water (if they're fat free). So even creamy dressings like ranch or Caesar are unlikely to raise your LDL ("bad") cholesterol.

4. Watch the latest trends. There's always something new:

■ **Gourmet.** Some small brands cut the sodium by relying on fruit, vegetables, and fresh herbs. You may have to pay an extra buck or two and travel to a natural food store (or order online), but here are three brands that are worth a taste:

► **Wild Thymes.** All but one of the eight (fruity) Salad Refreshers and five Vinaigrettes are Best Bites, thanks to their apples, currants, carrots, onions, tomatoes, lemons, and other fresh ingredients. Warn-

> > > >



FRENCH

Winner: *Wish-Bone Deluxe French.* Good balance between vinegary and sweet. The French dressing of your youth.

Runner-Up: *Vino de Milo Creamy Light French.*



CAESAR

Winner: *Bolthouse Farms Yogurt Caesar Parmigiano.* A rare lower-calorie, lower-sodium—and tasty—Caesar.

Runner-Up: *Lighthouse Caesar Caesar.*



ASIAN

Winner: *Wild Thymes Toasted Sesame Wasabi Vinaigrette.* Nutty sesame meets earthy soy, with a touch of wasabi heat.

Runner-Up: *Cindy's Kitchen Carrot & Ginger.*



RANCH

Winner: *Cindy's Kitchen Fresh Buttermilk Ranch.* Rich and creamy, with just the right hint of garlic and onion.

Runner-Up: *Cindy's Kitchen Chipotle Ranch.*



FRUIT VINAIGRETTE

Winner: *Wild Thymes Pomegranate Salad Refresher.* Juicy, sweet, tart...like pomegranate.

Runners-Up: *Wild Thymes Raspberry Salad Refresher, Panera Raspberry Vinaigrette, Litehouse Raspberry Walnut Vinaigrette.*



HONEY MUSTARD

Winner: *Cindy's Kitchen Honey Dijon Vinaigrette.* Sweet, mustardy perfection.

Runners-Up: *Bolthouse Farms Yogurt Honey Mustard, Annie's Naturals Lite Honey Mustard Vinaigrette.*



BALSAMIC VINAIGRETTE

Winner: *Litehouse Balsamic Vinaigrette.* A well-balanced, classic balsamic with a touch of Parmesan.

Runners-Up: *Annie's Naturals Balsamic Vinaigrette, Marie's Caprese.*



BLUE CHEESE

Winner: *Bolthouse Farms Yogurt Chunky Blue Cheese.*

Thinner than a typical blue cheese, but with the same delicious bite.

Runner-Up: *Naturally Fresh Lite Bleu Cheese.*

Photos: (left to right) Wild Thymes, Cindy's Kitchen, Marie's, Annie's Naturals, Bolthouse Farms, Litehouse

ing: Wild Thymes uses a one-tablespoon serving, so you'll need to get out your calculator to compare it to other dressings.

► **Cindy's Kitchen.** If it has an "Oil Free" or "Low Sodium" banner on the front, it's a Best Bite (except the Fig Tahini, which has rice syrup sweetener as its first ingredient). Fruit and vegetable purées and juices and garlic, ginger, and basil help

deliver great taste for so little sodium.

► **Annie's Naturals.** "At Annie's, we make our products with real ingredients, all found in nature," says the company's Web site. That may explain why half a dozen of her regular and Organic dressings are Best Bites or Honorable Mentions. Bonus: you have a good shot at finding Annie's in a regular supermarket.

► **Yogurt.** If you're looking to cut calories, head to the produce section and check out the yogurt dressings from Bolthouse Farms, Marie's, and Litehouse. None of them top 90 calories in two tablespoons.

Sodium is still a problem, though. Only Marie's Yogurt Honey Mustard made a Best Bite. Two others (Bolthouse Yogurt Honey Mustard and Yogurt Chunky Blue Cheese) were Honorable Mentions. At least Marie's line doesn't climb above 200 mg.

► **"Healthy."** They're not necessarily better for you:

► **Ken's Light Options.** Ken cuts the calories (to 50 to 80 in two tablespoons), but not the sodium (180 to 320 milligrams). And don't be snookered by the "10 mg Omega 3s" from fish oil claim. It's about what you'd get in a quarter of a teaspoon of salmon.

► **Marzetti Simply Dressed.** Yes, the dressing has "omega-3 ALA." But so does any dressing that's made with canola or soybean oil. Yes, the dressing has "0 g trans fat," "no MSG," "no artificial flavor," and "no preservatives." But so do many other dressings. And what good is "sea salt" if the sodium is still too high? To cut calories (but not sodium), try Marzetti's Simply Dressed & Light line.

► **Litehouse Vinaigrette.** About a dozen varieties earned a Best Bite or Honorable Mention. Just ignore the "canola oil with omega 3" claim that's on some bottles. It just wants you to think that the dressings' oil sets them apart from other dressings. It doesn't.

5. Make your own. If you prepare a larger amount ahead of time, dressing your salad is a snap. See the box on this page for four quick-and-delish dressings from our Healthy Cook, Kate Sherwood. 🍴

DRESS YOURSELF!

BY KATE SHERWOOD

Salad dressings don't have to be loaded with calories and sodium. And they don't have to come out of a bottle. Here are four homemade dressings that any salad would be proud to wear.

Directions? Put all the ingredients in a blender or food processor and process until smooth. Each recipe makes about 1 cup (16 Tbs.). Two tablespoons should be enough to coat about four cups of salad. You can refrigerate what you don't use for up to four days.

Caesar

- 1/3 cup mayonnaise
- 3 cloves garlic, more to taste
- 1/4 cup grated Parmesan cheese
- 1/4 tsp. ground black pepper
- 1/8 tsp. Worcestershire sauce
- 1/8 tsp. Tabasco
- 1/4 cup low-fat or fat-free sour cream
- 1 tsp. Dijon mustard

2 Tbs: 90 calories, 120 mg sodium

Peanut Sesame

- 1 1/2 Tbs. reduced-sodium soy sauce
- 1 Tbs. toasted sesame oil
- 1 Tbs. cider vinegar
- 2 Tbs. unsalted peanut butter
- 2 tsp. brown sugar
- 1/2 Granny Smith apple, cored, peeled, and chopped
- 2 Tbs. water

2 Tbs: 50 calories, 100 mg sodium

Creamy Parmesan

- 1/4 cup chopped basil leaves
- 1/4 cup chopped scallions
- 1 Tbs. fresh lemon juice
- 1/4 cup grated Parmesan cheese
- 1/4 cup low-fat or fat-free sour cream
- 1/3 cup extra-virgin olive oil
- 1/4 tsp. kosher salt

2 Tbs: 100 calories, 100 mg sodium

Cucumber Yogurt

- 1/2 cup hothouse cucumber, chopped
- 1/3 cup plain 0% Greek yogurt
- 1 tsp. red wine vinegar
- 2 Tbs. chopped fresh dill
- 2 Tbs. chopped fresh mint
- 1/2 cup crumbled feta cheese

2 Tbs: 40 calories, 110 mg sodium

Ready, Aim, Dress

Best Bites (✓✓) have no more than 110 calories and 100 milligrams of sodium in a two-tablespoon serving. Honorable Mentions (✓) can have up to 110 calories and 150 mg of sodium. We disqualified dressings that have sugar (or any sweetener) as the first ingredient. The chart doesn't include most varieties of smaller regional or natural food store brands or salty big brands like Wish-Bone and Kraft. Within each section, dressings are ranked from least to most sodium, then least to most calories.

	Calories	Saturated Fat (g)	Sodium (mg)
Raspberry Vinaigrettes (2 Tbs.)			
✓✓ Annie's Naturals Fat Free Raspberry Balsamic	30	0	10
✓✓ Wild Thymes Raspberry Salad Refresher	70	0	10
✓✓ Wild Thymes Raspberry Pear Balsamic	60	0	20
✓✓ Panera Raspberry ^R	20	0	50
✓✓ Annie's Naturals Lite Raspberry	40	0	60
✓✓ Olde Cape Cod Light Raspberry	60	0	70
✓✓ Drew's Raspberry	60	0	80
✓✓ Litehouse Raspberry Walnut ^R	100	0.5	80
✓✓ Whole Foods 365 Organic Raspberry	50	0	90
✓✓ Marie's Raspberry ^R	50	0	100
✓ Newman's Own Lite Raspberry & Walnut	70	0.5	120
✓ Ken's Steak House Lite—Raspberry Pomegranate or Raspberry Walnut ¹	80	1	130
Marzetti Simply Dressed & Light Raspberry Acai ^R	40	0	170
Ken's Light Options Raspberry Walnut	60	0.5	180
Kraft Light Raspberry	60	0	270
Other Fruit Vinaigrettes (2 Tbs.)			
✓✓ Cindy's Kitchen Mango Coconut & Pepper ^R	40	0	0
✓✓ Annie's Naturals Fat Free Mango	20	0	10
✓✓ Wild Thymes Salad Refresher—except Raspberry ¹	70	0	10
Cindy's Kitchen Fig Tahini ^R	60	0	20
✓✓ Cindy's Kitchen—Pomegranate or Tangerine ^{R1}	30	0	60
✓✓ Naturally Fresh Mango Ginger ^R	90	1	60
✓✓ Cindy's Kitchen Pear ^R	90	0.5	70
✓✓ Vino de Milo Gorgonzola Pear	60	1	90
✓✓ Hidden Valley Farmhouse Originals Pomegranate	60	0	100
✓✓ Naturally Fresh—Citrus Orange Poppy, Pomegranate Mixed Berry, or White Balsamic & Citrus ^{R1}	70	0.5	100
✓ Litehouse—Harvest Cranberry or Huckleberry ^{R1}	30	0	110
✓ Litehouse Pomegranate Blueberry ^R	30	0	130
✓ Litehouse Fuji Apple ^R	90	0.5	140
✓ Marzetti Strawberry Chardonnay	100	1.5	140
✓ Briannas Lively Lemon Tarragon	40	0	150
✓ Marzetti Simply Dressed Pomegranate ^R	60	0	150
✓ Marzetti Strawberry	110	1.5	150
Asian (2 Tbs.)			
✓✓ Cindy's Kitchen Carrot & Ginger ^R	40	0	100
✓ Wild Thymes Toasted Sesame Wasabi Vinaigrette	60	0	130
Drew's Shiitake Ginger	150	1	210
Balsamic Vinaigrettes (2 Tbs.)			
✓✓ Wild Thymes Mediterranean Balsamic	60	0	30
✓✓ Vino de Milo Balsamic & Olive Oil	50	0	60
✓✓ Olde Cape Cod Balsamic	80	0	60
✓✓ Annie's Naturals Balsamic—Organic or regular ¹	100	1	60
✓✓ Litehouse White Balsamic ^R	90	0.5	70
✓ Drew's Organic Aged Balsamic	100	1.5	130
✓ Litehouse Balsamic ^R	100	0.5	150
Panera Balsamic ^R	90	1	160
Newman's Own Balsamic	90	1	290

	Calories	Saturated Fat (g)	Sodium (mg)
Other Savory Vinaigrettes (2 Tbs.)			
✓✓ Cindy's Kitchen Sweet Chili & Lime ^R	40	0	40
✓✓ Wild Thymes Tuscan Tomato Basil	50	0	40
✓✓ Vino de Milo Sun-Dried Tomato	40	0	60
✓✓ Vino de Milo Roasted Garlic	30	0	70
✓✓ Cindy's Kitchen Tomato Basil ^R	20	0	80
✓✓ Vino de Milo Creamy Italian	100	1	90
✓✓ Drew's Smoked Tomato	110	1	90
✓✓ Marie's Caprese ^R	110	1.5	90
✓ Cindy's Kitchen Roasted Yellow Bell and Serrano Pepper ^R	60	0.5	140
✓ Litehouse Red Wine & Olive Oil ^R	90	1	140
Newman's Own Olive Oil & Vinegar	150	2.5	150
Litehouse Greek ^R	50	0	170
Wish-Bone Italian	80	1	340
Honey Mustard (2 Tbs.)			
✓✓ Cindy's Kitchen Honey Dijon Vinaigrette ^R	110	1	60
✓✓ Marie's Yogurt Honey Mustard ^R	40	0	100
✓ Bolthouse Farms Yogurt Honey Mustard ^R	50	0.5	120
✓ Annie's Naturals Lite Honey Mustard Vinaigrette	40	0	130
✓ Litehouse Lite Honey Dijon Vinaigrette ^R	70	0	150
✓ Hidden Valley Farmhouse Originals Dijon Mustard	100	0.5	150
Sweet Creamy (2 Tbs.)			
✓✓ Vino de Milo Creamy Light French	40	0	90
Ken's Steak House Lite Sweet Vidalia Onion	80	0.5	120
✓ Litehouse Coleslaw—Pineapple or regular ^{R1}	110	0.5	120
✓ Panera Poppy Seed ^R	20	0	150
✓ Cindy's Kitchen Vidalia Onion and Cilantro ^R	90	1	150
✓ Ken's Steak House Lite Poppy Seed	100	1	150
Wish-Bone Deluxe French	120	1.5	170
Marie's Coleslaw ^R	140	2	170
Bolthouse Farms Yogurt Thousand Island ^R	40	0	180
Marie's Yogurt Thousand Island ^R	70	1	200
Kraft Thousand Island	110	1.5	330
Ranch (2 Tbs.)			
✓✓ Cindy's Kitchen Chipotle Ranch ^R	100	1	80
Cindy's Kitchen Fresh Buttermilk Ranch ^R	140	1	140
Marie's Creamy Ranch ^R	170	3	150
Marie's Yogurt Ranch ^R	70	1	180
Hidden Valley The Original Ranch	140	2.5	260
Caesar (2 Tbs.)			
✓✓ Wild Thymes Parmesan Walnut Caesar Vinaigrette	60	0	30
✓ Panera Caesar ^R	110	1.5	150
Bolthouse Farms Yogurt Caesar Parmigiano ^R	50	1	170
Litehouse Caesar Caesar ^R	140	1	170
Marie's Yogurt Parmesan Caesar ^R	50	1	200
Ken's Steak House Caesar	170	2.5	450
Blue Cheese & Parmesan (2 Tbs.)			
✓✓ Vino de Milo Artichoke Parmesan	20	0	70
✓ Bolthouse Farms Yogurt Chunky Blue Cheese ^R	40	1	140
Naturally Fresh Lite Bleu Cheese ^R	100	2.5	160
Marie's Chunky Blue Cheese ^R	160	3.5	160
Marie's Yogurt Blue Cheese ^R	70	1.5	190
Kraft Roka Blue Cheese	120	2	380

✓✓ Best Bite. ✓ Honorable Mention. ¹Average. ^RRefrigerated.

Note: Best Bites and Honorable Mentions are based on calories, sodium, and sugar, not taste.

Daily Limits (for a 2,000-calorie diet): **Saturated Fat:** 20 grams. **Sodium:** 1,500 milligrams.

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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.



RIGHT STUFF

SEA CHANGE



It's hard to love tuna salad these days. What with the mercury, the salt, the BPA-laden cans, and the harm to other marine life caused by fishing with longlines or nets, you can't enjoy a decent tuna fish sandwich.

Well, break out the mayo. **Sustainable Seas Wild Pole-Caught No Salt Added Solid Light or Solid Albacore Tuna** is caught one fish at a time, which means no "by-catch"—sea turtles, dolphins, sharks, and other sea life that get caught on longlines or swept up in nets along with the tuna. (Pole- and troll-caught tuna from the U.S. and Canadian Pacific—like the tuna in Sustainable Seas—are rated "Best Choices" by the Monterey Bay Aquarium's Seafood Watch.)

And the cans are free of BPA, a compound that can mimic hormones in the body or raise the risk of diabetes or heart disease. Bonus: because pole- and troll-caught tuna are younger and smaller than tuna caught by other methods, they typically have only about a third the mercury. In fact, the Environmental Defense Fund has no consumption advisory for pole- or troll-caught albacore, but does have an advisory for albacore caught by longlines. (Albacore has more mercury than light.) Double bonus: younger fish typically have higher levels of healthy omega-3 fats.

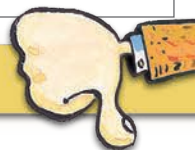
A standard, five-ounce can of Sustainable Seas No Salt Added cost us roughly the same as Starkist Selects Very Low Sodium Chunk White Albacore in Water or Bumble Bee Very Low Sodium Solid White Albacore In Water. And it was cheaper than (sustainably caught) **Wild Planet No Salt Added Wild Albacore**.

As for taste: Sustainable is every bit as good as the big brands' very-low-sodiums.

Love tuna? Make it sustainable. Please.

Sustainable Seas: (800) 998-9946

FOOD PORN



NEW FLOUR!

"Always giving you more," notes the box of **Tony's new Macaroni & Cheese Original Crust Pizza**. Yes, indeed.

Instead of a plain old frozen pizza crust topped with tomato sauce and cheese, Tony replaces the sauce (who needs even a hint of vegetable?) with pasta.

Nothing like white-flour pasta on a white-flour crust. Tony must be worried that Americans don't get enough white flour in their breads, bagels, burritos, cookies, cakes, cupcakes, crackers, cereals, doughnuts, muffins, rolls, scones, soft pretzels, spaghetti, waffles, and other white-flour foods.

And he must be concerned that we don't get enough cheese, either. Make that "cheese sauce mix" (made of, among other things, water, whey, modified food starch, and a "cheddar cheese blend" of whey, maltodextrin, reduced lactose whey, canola oil, and—finally!—cheddar and blue cheese) combined with a "cheese blend" (mozzarella plus "mozzarella cheese substitute"—mostly water, oil, and cheese solids). And don't forget the two yellow food dyes. Cheesish goop wouldn't be cheesish goop without them.

The company claims that a serving is a quarter of the box, but a third is closer to the weight of its own Pizza For One (and half is a more likely portion). Even a third of a box delivers 370 calories, 6 grams of saturated fat, 670 milligrams of sodium, and nary a vegetable.

That Tony. Always giving you more. More white flour, more weight, more artery plaque, more high blood pressure.

Tony's: (800) 533-5290



dish OF THE MONTH

Creamy Spinach Bulgur

Sauté 1 diced onion and 1 diced red pepper in 2 Tbs. of olive oil until soft. Stir in 1 cup of bulgur and 2 cups of fat-free milk. Simmer, stirring often, until most of the liquid is absorbed, about 10 minutes. Stir in a 6 oz. bag of baby spinach and ½ cup of Parmesan cheese. Season with black pepper.