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BEHIND THE HEADLINES

The science may surprise you

BY BONNIE LIEBMAN

Have you heard that chocolate protects your heart and brain? Or that refined carbs make you stressed? Or that grains cause memory loss?

There's no shortage of surprising headlines. Some reports are groundbreaking, but others fail to consider flaws in that new study or the heap of evidence to the contrary.

Here's a selection of misunderstandings about how the food you eat or the vitamins you take has an impact on your health.

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Behind the Headlines

The science may surprise you

It's hard to keep track of the latest advice on what foods to eat or vitamins to take. The media and websites trumpet the latest news, which often sounds like it's based on solid science. Often, it isn't. Here's the story behind five misunderstandings.

1 Chocolate can protect your heart and brain???

"To improve a memory, consider chocolate," ran the *New York Times* headline in October.

"A few squares of dark chocolate a day can reduce the risk of death from heart attack by almost 50 percent in some cases," explained a recent WebMD article called "Health by Chocolate."

In fact, small studies do suggest that the naturally occurring flavanols in cocoa beans may improve blood flow and lower blood pressure (see *NAH*, Dec. 2013, p. 8).^{1,2}

As for memory, in October, researchers

they did have increased activity in a part of the brain involved in memory.³

But the first large study to test whether cocoa flavanols can lower the risk of heart attacks, strokes, memory loss, or any other illness is just getting under way.

"Cocoa flavanols look promising," says JoAnn Manson, professor of medicine at Harvard Medical School.

"The next logical step is to move from the small randomized trials looking at mechanisms like changes in blood flow and blood pressure to testing whether cocoa flavanols can reduce the risk of clinical events—heart attacks, strokes, cardiovascular deaths."

Harvard Medical School. [Call 800-633-6913 if you're interested in participating.]

"We'll also look at cognitive function, diabetes, physical performance, and other outcomes," explains Manson.

But it's not worth signing up so you can eat chocolate in the name of science.

"It's not a randomized trial of chocolate or even dark chocolate," notes Manson. "It's a randomized trial of cocoa flavanols—bioactive plant-based nutrients with virtually no calories, sugar, or fat."

Why can't you get the same 750 mg of flavanols from chocolate?

"It would require an enormous amount," says Manson, who is also chief

To get 750 mg of flavanols from chocolate, it takes *about**



Cocoa Powder 6 Tbs.	Baking 1½ oz.	Semi-sweet Chips 5½ oz.	Dark 4¾ oz.	Syrup 3¾ cups	Milk 2½ lb.
70 cals	270 cals	740 cals	750 cals	3,170 cals	5,850 cals

You can't get enough cocoa flavanols from chocolate without overdosing on calories. CocoaVia powder had more cocoa flavanols and fewer contaminants (cadmium and lead) than other cocoa powders, according to an analysis of 21 powders, chocolates, and supplements by the subscription website ConsumerLab.com (for free access to the report, go to NutritionAction.com/cocoa).

Sources: *J. Agric. Food Chem.* 57: 9169, 2009 and ConsumerLab.com. *All numbers are averages. Flavanol levels vary widely from brand to brand.

at Columbia University reported that 19 healthy people aged 50 to 69 who were given a high level of cocoa flavanols (900 milligrams) every day for three months were quicker at recognizing visual patterns than 18 others who got a placebo. The flavanol takers were no better at remembering the patterns, though

Manson is co-directing the new trial—the COcoa Supplement and Multivitamins Outcomes Study (COSMOS)—which will give cocoa flavanols (750 mg a day) or a placebo to 18,000 women (aged 65 or older) and men (aged 60 or older) for four years. The trial is co-led by Howard Sesso, associate professor of medicine at

of preventive medicine at Brigham and Women's Hospital in Boston. "And for many forms of chocolate, it would be virtually impossible because the cocoa flavanols are destroyed in processing."

To get 750 mg of flavanols a day, you'd have to eat nearly 1,000 calories' worth of dark chocolate or thousands of calories of

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milk chocolate *every* day. A more reasonable source: an unsweetened cocoa powder you can mix into your coffee, milk, yogurt, hot cereal, or other food—that is, if the cocoa hasn't been processed in a way that destroys flavanols.

"In COSMOS, we'll be giving people cocoa flavanols that were protected from the time that they were harvested from cocoa beans," says Manson. "They come in a capsule, which makes it possible to do a long-term placebo-controlled trial and not add a load of sugar, saturated fat, and calories to the diet."

(The study is funded by Mars Symbioscience, a division of Mars, Inc., with partial support from the National Institutes of Health.)

"People have had so many misconceptions about the study," says Manson. "They think we're testing chocolate or that the trial is a signal that they should eat more chocolate. It isn't.

"People can still eat chocolate for their enjoyment, but we don't recommend that they eat more of it to get more flavanols."

Bottom Line: It's too soon to know whether cocoa flavanols protect the heart or brain. And don't use them as an excuse to eat more chocolate.

2 Food can boost or reduce stress???

"When we feel stressed, we seek foods that are going to comfort us immediately, but oftentimes those foods are the very ones that lead to surges and crashes in hormones and blood sugar that increase our susceptibility to new stresses," explained David Ludwig, professor of pediatrics at Harvard Medical School, on National Public Radio's *Morning Edition* last July.

But the evidence that foods can make us more vulnerable to stress is quite spotty. The NPR report cited a 15-year-old study that gave 12 obese teenage boys one of three breakfasts.⁴

"One included protein-rich eggs, and another meal included high-fiber, steel-cut oats, which provide for a slow release of energy," said the NPR reporter. "A third meal was a bowl of instant oatmeal, which is digested much more rapidly."

But the oatmeal breakfasts weren't typical. The steel-cut oats were sweetened

with four teaspoons of pure fructose, which doesn't raise blood sugar much. (Fructose is often marketed to people with diabetes, and it isn't likely to show up in most cupboards.)

In contrast, the instant oatmeal was sweetened with four teaspoons of pure glucose, which raises blood sugar more than most other sweeteners—like table sugar and high-fructose corn syrup—which are roughly half fructose and half glucose. (Karo Corn Syrup is one of the only pure glucose sweeteners in the grocery store.)

To pump up blood sugar levels even more, the milk served with the instant oatmeal was treated with an enzyme so it had more glucose than ordinary milk. (The boys got ordinary milk with the steel-cut oats.)



Can some foods make stress worse? There's no good evidence.

All that extra glucose might help explain what happened next.

"After the highly refined instant oatmeal, blood sugar surged but then crashed a few hours later," said Ludwig. "And when that happened, the hormone adrenaline, or epinephrine, surged to very high levels."

Does that mean, as the NPR report suggested, that "eating lots of sugar and refined carbs can exacerbate our responses to stress"? Not necessarily. Few studies have looked...or found much.

For example, a few years ago, Dutch researchers gave 38 adults either a high-stress or low-stress computer task followed by either a high-carb lunch (salad, cheese biscuits, bacon biscuits,

and a high-carb strawberry shake) or a high-protein lunch (salad, cheese, salami, and a high-protein strawberry shake). The result: the participants felt no more—or less—stressed after the high-carb than after the high-protein lunch.⁵

"We know more about the effect of stress on food choices than we know about the effect of foods on stress," says researcher Tanja Adam, of Maastricht University in the Netherlands.

Do some foods make us *more* resilient to stress?

"You can either be good at weathering a lot of stresses or you can be brittle," researcher Joe Hibbeln, of the National Institute of Mental Health, told the NPR reporter. "Omega-3 fatty acids make your stress system more flexible."

But few good studies have tested whether people who are given omega-3 fats are less stressed than those who get a placebo. In one of the few, medical students who got EPA (2,100 mg) and DHA (350 mg) every day for three months reported 20 percent less anxiety than those who got a placebo.⁶ However, neither group experienced much stress, so it's not clear that omega-3s would have made them more resilient.

"I would not recommend omega-3 supplements for stress or anxiety relief on the basis of the limited data to date," says Janice Kiecolt-Glaser, lead author of the study and director of the Institute for Behavioral Medicine Research at Ohio State University.

A large trial called VITAL is now testing whether EPA and DHA (the omega-3 fats in fish oil) have any effect on mood in roughly 25,000 healthy people aged 50 and older. Results are due in 2017.

Last but not least, the NPR report cited Drew Ramsey, a psychiatrist at Columbia University and author of *The Happiness Diet*. Nutrient-rich foods like kale, eggs, and pumpkin seeds "can affect how the stress gets to us," explained the reporter.

Is there solid evidence that those foods can help us handle stress? Nope.

Bottom Line: There are plenty of reasons to eat leafy greens, seeds, and fish—and to avoid sugars and refined grains. But if those or other foods soften the impact of stress, no one has published the evidence to prove it.

3 Grains cause Alzheimer's disease???

"Stop eating carbs and you can control your destiny and avoid Alzheimer's," promised Dr. Mehmet Oz on his TV show in 2013. "Eating carbs eats away at your brain."

His guest: David Perlmutter, neurologist and author of the bestselling book *Grain Brain*.

"Dementia: Is Gluten the Culprit?" ran the headline in a 2014 interview with Perlmutter on Medscape (part of WebMD). Much of his argument wasn't about gluten per se. It was about the dangers of high blood sugar.

"If you have too much blood sugar, your brain begins to die," warned Dr. Oz. "It shrinks. It shrivels up."

Perlmutter gave more details to Medscape. "The data show that individuals with lower blood sugar levels have a lower risk for dementia," he explained.

True. A 2013 study reported that people with even slightly elevated blood sugar levels have a higher risk of dementia (see *NAH*, Jan./Feb. 2014, p. 1).⁷

But are grains to blame? Clearly, extra pounds are the major cause of high blood sugar levels. It doesn't matter if that spare tire comes from eating carbs or fat. After all, pizza, burritos, sandwiches, fries, cookies, pastries, ice cream, and many other foods have both.

But Perlmutter never mentions cutting calories. He only cares about cutting carbs.

"If you look at the A TO Z trial, which was published in *JAMA* in 2007," he told Medscape, "dramatic reductions in blood sugar were seen in participants on a lower-carb, higher-fat diet."

True. But the same reductions were seen in people on the other weight-loss diets in the A TO Z trial.⁸ (The trial tested a lower-carb, higher-fat Atkins diet, a lower-fat, higher-carb Ornish diet, and two others.)

Perlmutter also points to DIRECT, "an interventional trial demonstrating both weight loss and reduction of fasting



High blood sugar can harm the brain, but extra pounds, not extra carbs, are the main culprit.

blood sugar in individuals eating a higher-fat, lower-carbohydrate diet."

True. But, once again, in the DIRECT trial, all three diets (lower-carb, lower-fat, and Mediterranean) reduced blood sugar levels.⁹

What if you're not *losing* weight, like the people in the DIRECT and A TO Z trials?

"If you're eating a high-carb diet, cutting carbs would reduce blood sugar levels throughout the day," says Frank Sacks, professor of cardiovascular disease prevention at the Harvard School of Public Health.

But he's not talking about Perlmutter's advice to replace nearly all carbs with

fats, including saturated fats like butter and red meat. Sacks is talking about eating a Mediterranean or DASH-type diet, which gets a modest amount of carbs from fruits, vegetables, and whole grains (not sugars and white flour) and gets fats from oils, nuts, and fish (see "What to Eat," p. 7).

What's more, Sacks adds, "obesity

is by far the biggest cause of high blood sugar and type 2 diabetes."

And what about gluten, the unfashionable protein in wheat, rye, and barley? That's also a threat to your brain, says Perlmutter.

"We have to look at gluten sensitivity in a new light, recognizing that its manifestations may extend well beyond the gut," he told Medscape.

In celiac disease, the body has an autoimmune reaction to gluten that damages the small intestine lining. The most common symptoms—like diarrhea, bloating, gas, and abdominal pain—are due to that damage. Symptoms can also include anemia, fatigue, mouth

ulcers, headache, and foggy thinking, but less often.

"Overall, neurological problems related to celiac disease are not terribly common," says Andrew McKeon, associate professor of neurology at the Mayo Clinic.

And many are nothing like ordinary memory loss. Cerebral ataxia, a balance problem, is the most common. And you'd know it if you had it.

"The easiest way to describe it is that the patient looks like a person who is drunk," says McKeon. "They slur their speech or they can't walk a straight line."

Other problems are also noticeable.

"They can include anything from cognitive problems to sensory ataxia, in which the person doesn't know where they're standing or sitting in space, so they have a tendency to topple over," says McKeon. "The array of problems is quite diverse."

How does gluten cause trouble for people with celiac disease?



Most "carbs" are also high in fat.

One possibility: the damaged gut can't absorb some nutrients. "Dating back to the 1960s, it was recognized that some patients developed disorders because they couldn't absorb copper and vitamin E," explains McKeon.

Another possibility: "Gluten-triggered inflammation somehow gets to the brain and causes neurological problems."

But it's not just people with celiac who are at risk, according to Perlmutter.

"Gluten-containing foods stimulate inflammatory reactions in a significant number of individuals, well beyond the 1.8 percent of the population that has celiac disease," he told Medscape.

Yet McKeon has found no evidence that gluten causes neurological problems in people without celiac.¹⁰

"There are some reports that patients with ataxia who did not have celiac disease seem to improve or at least stabilize with gluten-free diets," he notes. "In our own study, we didn't find that any of those patients improved."

Is gluten a common cause of Alzheimer's? "Absolutely not," says McKeon. "Most people who have cognitive problems in our society have progressive neurodegenerative disorders of unknown cause."

And they take years to progress. In contrast, most neurological disorders in people with celiac "come on really quickly and progress very rapidly."

Bottom Line: If you're like most Americans, you eat too much bread, rice, pasta, sweet baked goods, and other grains. Shoot for just four or five small servings a day (see "What to Eat," p. 7). But that's unlikely to cut your chances of memory loss unless it helps you lose weight or lowers your blood sugar.

4 Multivitamins are useless???

"Medical journal: 'Case closed' against vitamin pills," ran the headline in *USA Today* in 2013.

Two studies led to the headline. In the first, doctors who were given a daily multivitamin (Centrum Silver) for 12 years did no better on memory tests than those who got a placebo.¹¹

In the second, heart attack patients who got a multivitamin for one to five years were no less likely to have a second

heart attack than those who got a placebo (though half the patients stopped taking the pills before the study ended).¹²

"Enough is enough," declared an editorial published with the studies.¹³ "Stop wasting money on vitamin and mineral supplements."

That may be good advice for many people, especially if they're paying top dollar for overpriced pills. But it's not good advice for women who are or may become pregnant or for men or women whose diets run short on key nutrients.

And it doesn't mean that research should screech to a halt.

"To say that multivitamins have no benefit is an oversimplification," says Harvard's JoAnn Manson. "The Physicians' Health Study II found a significant reduction in cancer incidence."

In that trial—which randomly assigned roughly 14,600 men aged 50 or older to take Centrum Silver or a placebo for 11 years—the vitamin takers had an 8 percent lower risk of cancer than those who took the placebo.¹⁴

The researchers didn't find a drop in any single cancer, especially prostate cancer, the one most likely to strike older men. But that may not mean much.

"The launch of the study occurred just as PSA screening for prostate cancer was increasing," explains Manson. "So it was picking up mostly early prostate

cancers before there was time to see an effect of the vitamins, and the large number of cases dwarfed other cancers."

In fact, the study found a 12 percent lower risk of cancers other than prostate. What's more, there were hints that vitamins may have mattered more to some men than others.

"When we looked at results by age group, we saw that men 70 and older experienced an 18 percent reduction in cancer," notes Manson. "And there was a similar reduction in cancer in the men who had a lower intake of fruits and vege-

tables when they entered the study."

The trial also found a 27 percent lower risk of a new cancer in men who had been previously diagnosed with cancer.

"So overall, there was a benefit from multivitamins in men who were less likely to have a healthful diet and in older individuals who often have problems with absorption, medications, or illnesses that could interfere with optimal nutritional status," explains Manson.

What's more, doctors are typically healthier than the average American. "Physicians are not representative of the overall population," says Manson. "They tend to have better diets and higher socioeconomic status, so they're probably the least likely group to benefit from multivitamins."

And the Physicians' Health Study II tested men only.

"How can we not do a trial that evaluates multivitamins in women?" asks Manson. "At least a third of women take multivitamins regularly. We need to know the benefits and risks."

The same COSMOS trial that's testing cocoa flavanols will also give Centrum Silver or a placebo to 18,000 older men and women for four years.

But what about earlier trials that came up empty...or found that people who took vitamins had a *higher* risk of disease?

"Other vitamin supplement trials have usually tested a megadose

of an isolated micronutrient, which is not ideal," says Manson.

"For example, taking very high doses of beta-carotene may interfere with the absorption or bioavailability of other carotenoids that may be more important than beta-carotene. And some antioxidant vitamins—like vitamin E—can be *pro*-oxidants at high levels."

Testing a basic multivitamin is different.

"It has more than 20 vitamins and minerals at levels that prevent nutritional deficiencies," says Manson. "So it's more



A new trial is testing whether an ordinary multivitamin lowers the risk of cancer and other illnesses.

likely to reduce the risk of cancer in individuals who have suboptimal diets.”

Bottom Line: It may be worth taking an ordinary multivitamin to get enough vitamin D, vitamin B-12, and (if you could become pregnant) folic acid (see *NAH*, Nov. 2013, p. 1). A multi may also lower the risk of cancer in men, but the jury is still out in women.

5 Low-carb diets peel away the pounds???

“Low-carb may trump low-fat in diet wars,” declared ABC News in September.

The study that spurred the headlines pitted a lower-carb diet against a lower-fat diet in 148 men and women who averaged about 215 pounds when they entered the study. After one year, the lower-carb group lost more weight (12 pounds) than the lower-fat group (4 pounds).¹⁵

That’s no surprise, given that the lower-fat eaters made smaller changes to their diets than the lower-carb eaters (who cut not just carbs but also fat).

The lower-fat assignment “was, essentially, a diet intervention that didn’t intervene much with their diets,” wrote David Katz, of the Yale-Griffin Prevention Research Center, in the *Huffington Post*.

What’s more, asking whether a low-fat or low-carb diet is best for losing weight is “a truly lousy question,” Katz noted. “Everything from lentils to lollipops is carbohydrate. Fats run the gamut from good to bad to ugly. I’m pretty sure everybody not stuck under a boulder knows that.”

Others agree.

“This idea about low-carb versus low-fat needs to stop,” says Bradley Johnston, assistant professor of epidemiology at McMaster University in Hamilton, Canada.

“We’ve invested huge amounts of resources into low-fat or low-carb diets, and it’s misguided to keep driving this message to the public.”

Johnston recently did a meta-analysis of 49 trials of “branded” diets—including low-carb (like Atkins, South Beach, and Zone) and low-fat (like Ornish and Rosemary Conley), and blends of the two (like *The Biggest Loser*, *Jenny Craig*, and *Weight Watchers*).¹⁶

“The differences were minimal,” he



You’re better off cutting carbs *and* fat to lose weight.

says. “People on the low-carb or low-fat diets lost slightly more weight than people on the blends. But people may adhere better to blends because they reflect how we typically eat.”

The largest, longest studies of non-branded diets also find no difference.¹⁷⁻¹⁹ And even when studies report more weight loss on a low-carb diet, the difference is small.⁸

For example, in the DIRECT trial, which involved 322 people who averaged 200 pounds, those on a low-carb diet lost 10 pounds after two years, while those on a low-fat diet lost 6 pounds.⁹ But four years after the study ended, the low-carb group had gained back more weight than the low-fat group, so the difference between groups was no longer statistically significant.²⁰

“At the end of the day, if someone can’t follow a diet for 2, 3, or 4 years, it’s not going to be any good to them,” says Johnston. “What’s important is picking a diet that’s healthy and that you can stick to over the long term.”

Bottom Line: To lose weight, try cutting carbs *or* fat *or* both. Odds are, when you cut carbs, you’ll also cut fat (and calories) because many “carbs”—like pizza, french fries, burritos, lo mein, sandwiches, lasagna, cookies, ice cream, doughnuts, chips, popcorn, pastries, and chocolate—are also fatty. 🍷

Research on stress was conducted by Stephanie Scarmo.

¹ *Arch. Biochem. Biophys.* 527: 90, 2012.

² *Cochrane Database Syst. Rev.* 8: CD008893, 2012.

³ *Nature Neurosci.* 2014. doi:10.1038/nrn.3850.

⁴ *Pediatr.* 1999. doi:10.1542/peds.103.3.e26.

⁵ *PLoS ONE* 2011. doi:10.1371/journal.pone.0016826.

⁶ *Brain Behav. Immun.* 25: 1725, 2011.

⁷ *N. Engl. J. Med.* 369: 540, 2013.

⁸ *JAMA* 297: 969, 2007.

⁹ *N. Engl. J. Med.* 359: 229, 2008.

¹⁰ *Neurol.* 83: 1, 2014.

¹¹ *Ann. Intern. Med.* 159: 806, 2013.

¹² *Ann. Intern. Med.* 159: 797, 2013.

¹³ *Ann. Intern. Med.* 159: 850, 2013.

¹⁴ *JAMA* 308: 1871, 2012.

¹⁵ *Ann. Intern. Med.* 161: 309, 2014.

¹⁶ *JAMA* 312: 923, 2014.

¹⁷ *N. Engl. J. Med.* 360: 859, 2009.

¹⁸ *JAMA* 293: 43, 2005.

¹⁹ *Ann. Intern. Med.* 153: 147, 2010.

²⁰ *N. Engl. J. Med.* 367: 1373, 2012.

What to Eat

There’s not much room for grain in this healthy diet, which is based on the Omni-Heart and DASH studies (see *NAH*, Oct. 2009, p. 1). It’s rich in vegetables, fruit, and fiber, and low in sugar, carbs, and saturated fat. A 2,100-calorie diet should have:

Daily Servings

	Vegetables & Fruit (½ cup, 1 cup greens, 1 piece fruit)	11
	Grains (½ cup pasta or rice or cereal, 1 slice bread)	4
	Low-fat Dairy (1 cup milk or yogurt, 1½ oz. cheese)	2
	Legumes & Nuts (½ cup beans, ¼ cup nuts, 4 oz. tofu)	2
	Poultry, Fish, Lean Meat (¼ lb. cooked)	1
	Oils & Fats (1 Tbs.)	2
	Desserts & Sweets (1 tsp. sugar, 1 small cookie)	2
	Wild Card Poultry, Meat, Fish OR Oils & Fats OR Grains OR Desserts & Sweets	1