

HOW TO EAT

The Last Conver

**Raw
Tomatoes
OR
Cooked
Tomatoes?***



Need to Have Ab

sation You'll Ever

Mark Bittman and Yale
doctor **David L. Katz** patiently
answer pretty much
every question we could think
of about healthy food.



**Our metabolism
can more easily access
the antioxidant
that makes tomatoes
red when they're
cooked than when
they're raw.*

out Eating Right

Photographs by Bobby Doherty



IT'S BEYOND STRANGE that so many humans are clueless about how they should feed themselves. Really, we know how we should eat, but that understanding is continually undermined by hyperbolic headlines, internet echo chambers, and predatory profiteers all too happy to peddle purposefully addictive junk food and nutrition-limiting fad diets. Eating well remains difficult not because it's complicated but because the choices are hard even when they're clear. ¶ With that in mind, we invited friends, readers, and anyone else we encountered to ask us anything at all about diet and nutrition, and we promised to give an answer grounded in real scientific consensus, with no "healthy-ish" chitchat, nary a mention of "wellness," and no goal other than to cut through all the noise and help everyone see how simple it is to eat well. Here are our exhaustively assembled, thoroughly researched, meticulously detailed answers to any and all of your dietary questions.

Just tell me. Ethical concerns aside, which diet is the best: vegan, vegetarian, or omnivorous?

We don't know, because the study to prove that any one diet is "best" for human health hasn't been done and probably can't be. So, for our health, the "best" diet is a theme: an emphasis on vegetables, fruits, whole grains, beans, lentils, nuts, seeds, and plain water for thirst. That can be with or without seafood; with or without dairy; with or without eggs; with or without some meat; high or low in total fat. **Okay, well what about the "diets" I keep trying? I just started the Paleo diet. Will it change my life?** A genuine Paleo diet is almost certainly good for human health, since it's a diet to which we are adapted. But what is a true Paleo diet? **It's, you know, eating Paleo. Like meat. And fruit. And eggs? And bacon!** It is certainly not a blanket license to eat bacon. And it's not a good reason to give up whole grains either. Nor do you need to eat eggs or even meat. **What about burgers or pepperoni? They're Paleo, right?** There were no Paleolithic burgers or pepperoni. There was also no Paleolithic bacon.

So what can a Paleo eat?

This is a good place to start, because the real experts in Stone Age nutrition think our ancestors—who, by the way, were foragers—consumed a wide variety of ever-changing plant foods that gave them up to 100 grams of fiber daily. We, on the other hand, eat an average of 15 grams of daily fiber. Our forebears are thought to have eaten lots of insects, too. (Few people espousing the virtues of Paleo seem inclined to try that out.) They probably ate grains, with some evidence they did so 100,000 years or more ago. And, of course, they ate the meat of only wild animals, since there were no domesticated animals in the Stone Age, with the possible exception of the wolf-to-dog transition.

In any event, the diet to which we are adapted is almost certainly much better for health and reversing illness than the prevailing modern diet. There is abundant evidence of disease-reversal with diets of whole, minimally processed food; plant-predominant diets; and even plant-exclusive diets.

So plants are good. Maybe I'll just do a juice cleanse instead. Wait—are juice cleanses dangerous? Generally not, depending on your health at the start, but neither are they useful.

Don't they cleanse your body? The general claim is that they actually do "cleanse" you—but of what?

Um, toxins? The body detoxifies itself daily; that's a primary job of the liver and the kidneys, and they are really good at it. (The intestines, spleen, and immune system are in on it, too.) So you want to take good care of your liver and kidneys, gut, and immune system. That's a far better "cleanse" than any juice. How do you take good care of all your detoxifying organ systems? By taking good care of yourself, of course. That means eating well, not smoking, exercising, sleeping enough, managing your stress, and so on.

My friend is always talking about "inducing ketosis." What is he babbling on about? A ketogenic diet is one diet that starves the body

of glucose sources so that it's forced to burn ketone bodies—products of fat metabolism—as fuel.

Is that... healthy?

There is no evidence that such diets are conducive to good health in the long run and no evidence they are better than other, more sustainable diets at health transformation or weight loss in the short run.

But my friend's losing weight. Not everything that causes weight loss or apparent metabolic improvement in the short term is a good idea. Cholera, for instance, causes weight, blood sugar, and blood lipids to come down—that doesn't mean you want it!

What is better: a plant-based diet with carbs or a low-carb diet with meat?

The evidence overwhelmingly highlights the benefits of plant-predominant diets for the health outcomes that matter most: years in life and life in years, longevity and vitality. Forget about "carbs" and think instead in terms of the foods that are best for you.

If there's one thing I know for sure, it's that carbs are evil. This is probably the silliest of all the silly pop-culture propaganda about diet and health. All plant foods are carbohydrate sources.

Yeah, but: Carbs are evil. Everything from lentils to lollipops, pinto beans to jelly beans, tree nuts to doughnuts is a carbohydrate source. Most plant foods are mostly carbohydrate. So if "all carbs" are evil, then so are vegetables, fruits, whole grains, beans, lentils, nuts, and seeds.

Sure, but, I should still avoid carbs, right? Exactly the opposite is true. You cannot have a complete or healthful diet without carbohydrate sources.

Why have I been led to believe that carbs are evil? Highly processed grains and added sugar are bad, not because they are carbohydrates but because they've been robbed of nutrients, they raise insulin levels, and they're often high in added fats, sodium, and weird ingredients. Carbs are not evil; junk food is evil.

What about gluten?

It seems like everyone is kind of gluten-intolerant now. On the contrary: Statistically, a small percentage of the population is gluten-intolerant. About one percent of people have celiac disease, and perhaps 10 percent have lesser forms of sensitivity, which may be related to other factors, like a disrupted microbiome. But still, 90 percent of people have no

problem digesting gluten.

So if you're not gluten-intolerant, and if you don't have celiac disease, is bread really that bad for you? No.

Should I eat whole-grain bread?

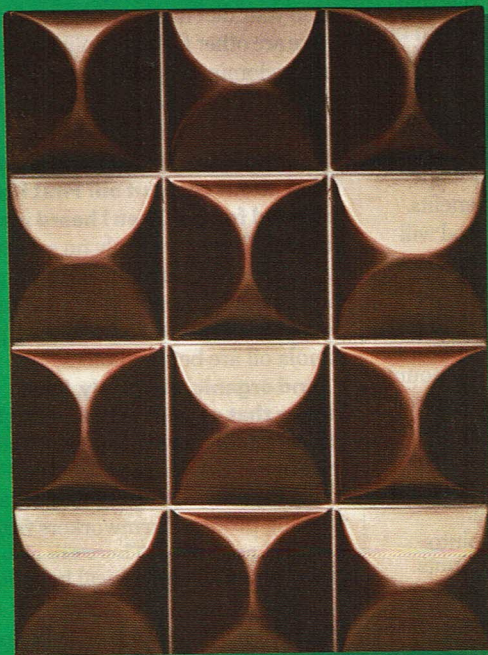
There's a big difference between white bread and whole-grain bread, and you certainly don't need to eat bread to have an optimal diet. But an optimal diet leaves room for good bread—whole-grain especially—and we think good bread is one of life's great pleasures. Eat it for that reason.

I keep hearing that lectins are toxic and make weight loss harder. What's the deal? The deal with lectins is that making them into a bogeyman was a great way to sell yet another fad-diet book. Lectins are distributed across almost the entire expanse of foods consumed by

humans and concentrated in some of the foods most decisively linked to health benefits, such as beans and lentils, along with many fruits and vegetables.

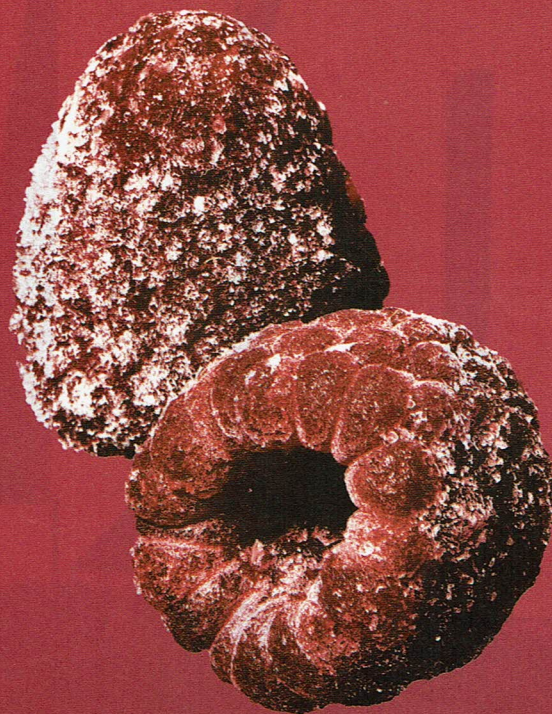
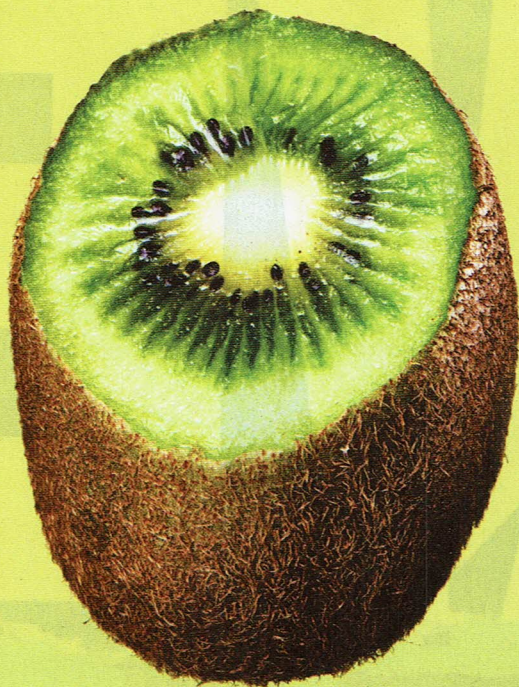
Oh, yeah, and what's up with beans? I've heard they're low in fat, high in protein, and high in fiber. However, I also read that they are digestive irritants and slightly toxic due to the lectin content. The single most salient commonality among all the Blue Zone diets—the diets around the world associated with longevity and vitality—is beans. Beans are really, really, really good for us. Identifying compounds in beans that are potentially toxic is like noting that air contains oxygen, which can be toxic.

But also: Beans make me fart. Some people have a hard time digesting beans and might benefit from enzyme support, such



Dark Chocolate or Protein Bar?

Many protein bars are as nutritious as candy bars—and you probably don't need the protein anyway. If you'd like something sweet, dark chocolate is smarter.



Fresh Food or Frozen Food?

Fruits and vegetables that are flash-frozen are likely to retain more nutrients than “fresh” fruits and vegetables imported from far away.

that bad microbiomes are common, and that the “right” gut microbes foster good digestion, robust immunity, better sleep, and even weight control—

Sure, but—what about probiotics?

In order to foster a healthy microbiome—

Yes, okay, but—what is the

microbiome? Your microbiome is the ecosystem of diverse bacteria that flourish, quite naturally, in your digestive system. It’s a part of you; as you get healthier, so does it—and quickly. Whole foods minimally processed, mostly plants, and plain water are good places to start.

One of the current gimmicks—which helps to sell books—is the idea that you have to eat to feed your microbiome. But let’s face it: Every wild species on the planet knows what to eat, and none of them know anything about their microbiota. They eat the foods to which they are adapted, and the bugs adapted to live inside them thrive as they do. There’s a lesson for us there: Fixing what’s broken is good, and probiotics may be one way of doing it. A balanced diet is a near-certain way.

Okay—so what are probiotics again?

Probiotics are supplements that encourage the repopulation of a healthy microbiome. Think of it like putting high-quality grass seed on a distressed lawn.

Can you “overdose” on probiotics?

In theory, an overdose could result in something called a “dysbiosis,” where the gut is overgrown with an imbalance of organisms. But it must be very hard to do, since we’re not aware of any cases.

What happens if I eat too much yogurt?

We have no idea. Probably you get full.

What about vegetables? I’ve heard frozen can be healthier than fresh—is that possibly true?

There are instances of frozen vegetables being of higher quality and higher nutritional content than “fresh” vegetables. This is particularly true when produce is “flash-frozen,” meaning frozen quickly at a very low temperature right after harvesting. Age is everything, and freezing retards aging. So “fresh” produce that comes

from far away is likely to lose some of its nutrient value during the transit time, whereas frozen produce is more likely to preserve the nutrients it had at the start of its journey. The best vegetables are likely to be fresh and locally sourced, but flash-frozen is nearly as good, and those vegetables that spend a long time in storage or transit are probably the least nutritious.

Does cooking food make it less healthy?

Yes and no: Heat can damage some antioxidants, so raw berries are more nutritious than cooked. But cooking is necessary to make some food edible, like lentils, which are among the most nutritious of them all. The antioxidant that makes tomatoes red, lycopene, is more “bioavailable” (our metabolism can access it more easily) when cooked than when tomatoes are eaten raw. Cabbage and other brassicas—including broccoli and most dark, leafy greens—are more readily digested with gentle cooking as well. (Continued on page 90)



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What about soy? Good or bad for me?

Soy foods come in many varieties; many are highly processed and so suffer the same liabilities: They're high in refined starches, heated oils, added sugar, and salt, and low in nutrients and fiber.

So what kind of soy should I eat?

Traditional soy foods such as tofu and tempeh are good for you, largely because they provide sound nutrition and because they usually displace meat. Soy as a supplement is less clearly a good idea.

Here's a stumper. I always hear I should eat more fish for lean protein. But then I also always hear that too much fish exposes me to toxins like mercury.

Which is it? Fish is unquestionably the healthiest animal protein to eat. However: There are huge sustainability issues, and some fish—especially large predatory fish, like big species of tuna and mackerel, and swordfish and shark—concentrate mercury by eating smaller fish.

That doesn't really answer my question. Like anything else, fish shouldn't be eaten three times a day. Should it be eaten once a day? If it's your only animal product, and it's sustainable and not otherwise tainted, yeah. Smaller fish are far less likely to contain mercury than big ones.

Maybe I should just skip the fish and take fish-oil supplements instead. Many high-quality fish-oil supplements are tested to be contaminant-free. However, sustainability of fish or even krill to produce fish oil is a concern, so think about getting omega-3s from those produced using algae.

Algae supplements? Yes.

Speaking of supplements, how am I supposed to get my vitamin D when it's winter and the sun has disappeared and I'm sad? Stand-alone supplements of vitamin D3 are safe, effective, and inexpensive. Many foods, and most milk, are vitamin D-fortified as well.

What are the best antioxidants to take, and what are easy ways to get them in our diet? Eat a variety of vegetables and fruits and you'll get all the antioxidants you need. There is no evidence that antioxidant supplements confer the benefits of a diet rich in

antioxidants. Other good sources include coffee, tea (especially white and green), dark chocolate and cocoa, whole grains, legumes, nuts, and red wine.

Red wine! I've heard moderate alcohol consumption is good. Alcohol is the quintessential double-edged sword: There's a chance for some benefit, but there are risks as well. There's the relaxation factor, which is immeasurable, and the consensus, which is pretty clear, is that "moderate" consumption may be beneficial and, even more likely, isn't harmful. "Moderate" means two glasses per day for men; one for women. (Men metabolize alcohol more efficiently.) There is an association of almost any level of alcohol intake with increased cancer risk, including breast cancer in women, and of course liver cancer.

So what is the healthiest alcohol? Is tequila as clean as the hype? If you think you are drinking alcohol for health, stop now. If you're drinking it for pleasure, keep your intake moderate and don't worry about the form, as long as it's not—for example—paint thinner. If your question is about calories, spirits are the most efficient alcohol in terms of bang for buck; beer is the least. Of course if you take your spirits with ginger ale, it's a different story.

What about the theory that red wine is good for you? The antioxidants from the skins of grapes may confer unique health benefits, which would suggest red wine is the best form of alcohol. Again, don't drink because you think it's the healthy thing to do.

Returning to coffee ... Please don't take away my coffee! Caffeine has positive effects, right? Positive and negative.

What are the positive effects? Positive: alertness, slightly enhanced cognition.

I'm going to regret asking this but—what are the negative effects? Negative: potential increases in heart rate, blood pressure, jitteriness, and insomnia.

Not cancer? No.

I love lattes, but which milk should I use? Are nut milks just flavored water? No. But nut milks aren't nutritional powerhouses either. (Of course, like dairy milk, many such products are nutrient-fortified.)

What about oat milk? How do you milk an oat? Oat milk is made by soaking oats in water, then grinding and straining.

So it's basically oat-flavored water?

Well, with some of the nutrients featured in oats.

Do I need to drink milk at all? Only if you were born yesterday. Literally.

I thought I needed the calcium. How much calcium we need to eat daily varies

with factors such as our activity level, dietary pattern, protein intake, acid load (from foods and medications), life stage (e.g., pregnancy, lactation, senescence), and so on. The closest thing to a one-size-fits-all amount is roughly 1,000 milligrams per day.

What are nondairy sources of calcium? Kale and other dark leafy greens, beans, soy. Calcium is actually quite widely distributed in the food supply.

But really, in 2018, I'm all about inflammation, which is bad and causes diseases. I'm sure I read that somewhere. Inflammation is not bad; we need "inflammatory" responses to defend ourselves against germs and the rogue cells that can cause cancer.

Okay, but it's sometimes bad. Right? What is bad is imbalance, and we tend to have an excess of inflammatory exposures and a deficiency of anti-inflammatory exposures. So, for instance, refined carbohydrates and added sugar tend to be inflammatory because they drive up insulin levels and insulin triggers inflammatory responses. We tend to get more saturated and omega-6 fat than we should (from processed foods and many of the oils used in them), and these are inflammatory. Omega-3 fat (from fish, seafood, walnuts, certain seeds) and monounsaturated fat (from olive oil, avocado, nuts, and seeds) are anti-inflammatory.

Wait, wait, wait. You lost me at "monounsaturated." Can you make this simpler? Water instead of soda: good. Whole grains instead of refined grains: good. Nuts, seeds, olive oil, avocado: good. Fish and seafood in the place of meat: good. In other words, an "anti-inflammatory" diet is a good diet.

But not seltzer water. Plain seltzer is fine for generally healthy people.

Doesn't seltzer water decalcify your bones? No.

I'm pretty sure I heard that it does. It does not.

I like seltzer with a snack. Is snacking okay? There is some evidence suggesting a benefit from smaller meals spaced close together, in terms of total insulin requirements. There is also some evidence that eating earlier in the day is beneficial relative to packing in calories close to bedtime. But these matters are much less important than total daily diet quality and quantity.

Listen, I am a very busy New Yorker and sometimes I eat the occasional PowerBar for lunch. Is that bad? Many protein bars have nutritional profiles similar to Snickers. Generally, they are closer to junk than to real food.

But they're made of protein! One of the great myths of the modern diet is we all need more protein, but in this country almost all of us get more than we need. The satiety that comes from a concentrated protein source could come from a protein bar, or an egg, or a can of tuna, or yogurt, or nuts.

Okay, sure, but again: busy New Yorker. If I don't have a can of tuna on hand, which protein bar should I eat?

It should have a short list of recognizable ingredients; in other words, it should be made of real food. But try hard-boiling some eggs and keeping them handy, or a can of sardines. And stop obsessing about protein: We guarantee you're getting more than enough.

What is the final verdict on eggs? Are high-cholesterol foods cleared to eat?

Yes. Most levels of high blood cholesterol are not from dietary cholesterol but from saturated and trans fats. Moderation is key. The average person gets most of his or her daily recommended cholesterol by eating just one egg a day.

Do you have to take protein supplements to build muscle? They are gross, and I'd rather eat real food. But I also want to look like Wonder Woman. (A) No. (B) Get a fancy bracelet. (C) Good luck!

While we're on the subject of Wonder Woman: What's the best thing to eat before and after working out to lose weight and build muscle? If your diet is wholesome and balanced overall, it almost certainly doesn't matter.

That said, for extremely long or intense workouts, there may be advantages to carbohydrates and protein prior and concentrated antioxidants after to help with muscle recovery. But none of this is relevant for a trip to the gym; this is for the Tour de France or a marathon.

What about GMOs? I've heard foods with GMOs are really bad. The foods themselves, no.

Really? Genetic modification is just a method of producing something new, like an assembly line. The answer to whether assembly lines cause health problems is "It depends what they're making." So, too, with GMO foods. It's the foods that matter, not the process that produced them.

So I can just eat GMO food and not worry? No, because the chemicals used in growing them are a real concern. Glyphosate, the herbicide in Roundup, is likely carcinogenic and harmful in other ways. Furthermore, almost all the foods currently produced using genetic engineering are useless at best and harmful at worst: "GMOs" are mostly present in junk food.

So I should worry. Since 1996, use of glyphosate has increased 15 times over; there's a high probability of it showing up in our food.

Now the big question: Which foods will give me cancer? Processed and cured meats are classified by the International Agency for Research on Cancer as a Group 1 carcinogenic. This doesn't mean it's as bad as tobacco, but it means the evidence about a link is comparably clear. Red meat is classified as Group 2A, which means it is "probably" carcinogenic. Needless to say, this is a work-in-progress, but in general almost everyone in the United States would be better off eating less meat.

What if I barbecue it? That seems natural. Charring food, meat especially, produces carcinogens; so does cooking carbohydrates at high temperature, which happens in the making of chips and some cereals.

This seems like bad news. These are carcinogenic exposures, but then again, so is sunlight.

So it will kill me? Won't kill me? Might kill me? In general, the carcinogens in a reasonable diet make a very modest contribution to overall cancer risk and don't compare to something like smoking. A 2017 study by American Cancer Society researchers estimated that 40 percent of all cancer cases could be preventable, and nearly 20 percent of all cases are related to diet and physical inactivity. Other studies put those figures even higher, but no matter what, if an optimal diet can prevent as many as one of every five cancer cases, and a crummy diet displaces the optimal diet, then the case could be made that a crummy diet of highly processed foods is highly carcinogenic. Our recommendation is: Don't focus on specific carcinogens. Get your overall dietary pattern right and your cancer risk will fall.

It sounds like cold cuts and hot dogs really are really bad. As is always the case with food being "bad" for you, it's partly because of what you *are* eating and partly because of what you *aren't* eating. People who eat more processed meat are, presumably, eating fewer beans, fewer veggies. You don't want to eat that too often.

How often is often? We would go with once or twice a month, not more. That said, if hot dogs are occasional, and pepperoni pizza is occasional, and cheeseburgers are occasional, and bacon is occasional ... well, you get the idea.

Is it really that horrible to have too much sodium? We need salt, right? Too much salt is certainly bad for us, and most Americans eat too much salt. But here's the thing: 70 percent of our salt comes to us in

processed foods or restaurant meals that tend to be bad for us for many reasons. By reducing intake of highly processed foods, your sodium intake will go way down without focusing on sodium at all.

What about sugar? Is it bad for me if I eat it in moderation? Sugar provides calories with no other nutrients—"empty" calories. It also goes quickly into the blood as blood sugar, where it triggers an insulin release. High levels of insulin help foster weight gain, and particularly fat around the middle, where it does the most harm. Perhaps more important, sugar and sweetness trigger appetite, so we simply tend to eat more when sugar is added to an ingredient list. The food industry knows this very well and routinely puts sugar into formulations to stimulate our appetites and make us all eat more than we should. So, for many reasons, limiting intake of added sugar is very important to weight control.

How would you define sugar "moderation"? Don't eat foods with added sugar unless they are a dessert. Look out for sugar added to pasta sauce, salad dressings, even salty snacks. Calories from added sugar should be less than 10 percent of your daily total, and ideally, less than 5 percent.

What about sugar substitutes and artificial sweeteners? Probably better than sugar, but almost certainly worse than a wholesome diet of foods naturally low in sugar, which then leaves room when something sweet is a treat.

Can I keep drinking diet soda? Is it terrible for me? There's no real evidence that it's terrible, but no evidence it's of any benefit either; it's not even clear that it helps with weight control. There's some recent evidence that artificial sweeteners may disrupt the microbiome and contribute to insulin resistance—another argument to drink mostly water.

I feel smarter, but what happens when new information comes out, like, tomorrow? It seems like the conventional wisdom on healthy diets changes all the time. It doesn't. In fact, the basic theme of optimal eating has been clear to nutrition experts for generations. What does change is the fads, fashions, and hucksterism. How do you avoid all that? Focus on foods, not nutrients. Humans evolved to eat a wide variety of diets, all over the world, from the Arctic to the tropics, deserts, plains, mountains, all of which offer wildly different kinds of foods. But none of them "naturally" offer junk food or industrially produced animal products. If you bear that in mind and eat a balanced diet of real food, you don't have to worry about much else. It's really quite simple. ■