



Raw tomatoes or cooked tomatoes? Our metabolism can more easily access the antioxidant that makes tomatoes red when they're cooked than when they're raw. *Photo: Bobby Doherty*

The Last Conversation You'll Ever Need to Have About Eating Right

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

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By [Mark Bittman](#) and [David L. Katz](#)

It's beyond strange that so many humans are clueless about how they should feed themselves. Every wild species on the planet knows how to do it; presumably ours did, too, before our oversized brains found new ways to complicate things. Now, we're the only species that can be baffled about the "right" way to eat.

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 offered friends, readers, and anyone else we encountered one simple request: Ask us anything at all about diet and nutrition and we will give you an answer that is grounded in real scientific consensus, with no “healthy-ish” chit-chat, 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, then, are the 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 I 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 he'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! The only use of a ketogenic diet that is clearly medically justified is to treat refractory seizures in select cases, mostly in children.

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

The evidence of every variety 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 carbohydrate, 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 want to lose weight. Is diet really more important than exercise?

Yes. It is much easier to outeat running than to outrun all of the tempting calories that modern marketing encourages us to cram in. Both diet and exercise are important to health, and exercise is important in weight maintenance. But to *lose* weight, the preferential focus needs to be on controlling calories *in*, more than calories *out*.

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 as Beano. All beans should be cooked; they are nearly impossible for any of us to digest when raw. Despite all the nonsense, the bottom line is that beans are among the most beneficial foods for human health, and offer enormous environmental benefits as well.

Given the prevalence of heart disease associated with poor diets in the U.S., we say bring on the beans! (And, as far as farting is concerned, anecdotally at least, the more frequently you eat beans the better your gut tolerates them.)

Since we're already talking about farts: I'm all for eating foods like whole grains, nuts, legumes, fruits, and vegetables, but they sometimes — okay, often — make me gassy and bloated. That doesn't happen when I eat “less healthy” foods.

This could be a food allergy or sensitivity, irritable bowel syndrome, or a problem with your

microbiome. All of these can be addressed, but you need a clear diagnosis first. So this is an issue you should take to a doctor who can evaluate you, specifically. You should be able to have a healthful diet, and alleviate these symptoms, too.

Do I have to eat grains if I want to be healthy?

No, but optimizing your diet, and thus your health, is harder if you exclude whole grains, which are highly nutritious. Among their virtues: they are rich in fiber, which tends to be *very* deficient in the typical American diet — that 15 grams we all tend to eat is half the daily recommended intake. So, if cutting out whole grains lowers your already-low fiber intake further, that's no good!

My friend never eats fruits and vegetables and is quite proud of that. Is it possible to be healthy without eating fruits and vegetables?

A qualified “no.” Although nuts and seeds are really fruits, and beans and legumes and grains are really vegetables of a sort, we will go the other way and say they are separate. So, you could, in principle, have a diet rich in beans, lentils, chickpeas, whole grains, nuts, seeds, and perhaps fish and seafood, and it would almost certainly be better than the prevailing modern diets of fast food, processed meat, and junk. But as good as the same diet *with* vegetables and fruits? No way.

If I want to lose weight, should I eat less? And if I eat less, will my metabolism really slow down?

If you starve yourself, yes. And if you lose weight, yes, because a smaller body burns fewer calories than a larger one. The effects tend to be modest, however, unless the weight loss is extreme. You can compensate with exercise, and building some muscle, both of which increase your metabolic rate.

What kinds of foods do you think will help support weight loss?

Wholesome, whole, unprocessed plant foods in particular. And, any food you eat while riding in the Tour de France.

What should I care about on nutrition labels? Calories, fat grams, or sugar grams?

The best foods don't even *have* labels, because they are just one ingredient: avocado, lentils, blueberries, broccoli, almonds, etc.

Okay, sure. But what about the ones with labels?

When foods do have labels, look for a short ingredient list of things you recognize as actual food. If the ingredients are wholesome, the nutrient profile will be fine. If the ingredient list is dubious — chemicals, various kinds of added sugar, questionable oils, sodium, and so on — the nutrient profile will be, too. It is really the overall nutritional quality of the food, rather than any one nutrient, that matters. For help getting it right, that even an 8-year-old can use, [see here](#).

What about intermittent fasting? Is that actually effective for better gut health and energy levels?

It's “effective” relative to doing nothing.

I can eat how I want and then just occasionally fast to “reset” my diet?

No. Fasting is not more effective than limiting calorie intake every day. Fasting is *a* way to control average, daily food intake — but not the only way. If it works for you, it's a reasonable option, but it does not involve any magic.



Cut through the hype: Cold-pressed coconut oil is neither “good” nor “bad,” but olive oil is a better choice; carbs are not evil, and an optimal diet allows for whole-grain bread. *Photo: Bobby Doherty/New York Magazine*

Can I just eat the same thing every day?

Yes, that’s quite reasonable. Variety over time is important to the quality of a diet, but that can be concentrated at dinner if you prefer. So, for instance, how about whole grains (hot or cold), mixed fruits, and nuts for breakfast — every day? Then, how about a salad, soup, or stew of mixed vegetables and beans or lentils for lunch? And then for dinner, a wholesome variety of choices.

Is there really such a thing as a superfood?

If the idea is that a superfood will *do* super things, then no.

Yeah, except for quinoa, right? Which is magical or something.

No single food, separate from the overall quality and pattern of diet, exerts a major health effect. If your diet is excellent, no single food will be responsible for the benefits. If your diet is terrible, no single food will compensate.

If “super” means the nutrient profile rather than the effects of a food, then ... okay: A food that has an especially high ratio of many valuable nutrients relative to calories, and a very low amount of any detrimental nutrients like sugar or saturated fat could be called “super.” But this would not just pertain to exotic berries from neighboring solar systems. This would apply to foods like spinach, broccoli, blueberries, chickpeas, pinto beans, lentils, kale, peaches, or walnuts.

What about avocados? Are they bad for you or good for you? Everyone says they’re full of fat, but that it’s “good” fat.

Think of avocados as you do nuts: They're "good for you" but with limits. One a day is certainly fine. Their nutrient profile is great, with fat that's a lot like the fat in olives.

Which is good fat?

Yes.

Which is different from "bad" fat.

Yes.

So what's the difference between good fat and bad fat? I've heard I need to avoid saturated fat.

In the diet, what really matters most is balance. Saturated fat, for instance, is bad not because it is "bad" — there is some in even highly nutritious foods — but because we get too much of it. And too much is bad.

How do I get that fat balance?

To get the right balance of fats in our diet, with an emphasis on a mix of polyunsaturated fats, omega-6, omega-3, and monounsaturated fats, we need a balance of foods. Get the "right" fats from nuts, seeds, olives, avocado, and seafood, and use the best cooking oils: extra virgin olive oil tops that list. To avoid an excess, limit the intake of foods high in saturated fat. That includes most meats, and full-fat dairy. And all junk food is suspect for all sorts of reasons.

What about animal fats like lard or tallow? They're natural so they must be good, right?

All fat sources are a mix of different fatty acids; almost all fats and oils contain a mix of fat varieties: saturated, polyunsaturated, and monounsaturated. Lard is almost 40 percent saturated fat; and tallow is more than 50 percent saturated. That's a lot.

Since the world's best diets consistently derive 10 percent or less of their calories from saturated fat, raising the average amount of saturated fat in your diet makes no sense. And there are other factors: Unlike oils that are predominantly unsaturated, such as olive oil, there is *no* evidence of a health benefit from lard or tallow.

Olive oil. Got it. That one I knew. What about coconut oil? First I heard it's good for me. Then I heard it's bad for me.

There's certainly no evidence it's "good" for you, but organic, cold-pressed varieties are probably not "bad" for you, either. But olive oil and cold-pressed canola oil are better choices.

Organic, obviously. Even I know that organic is better. Right? It's certainly more expensive. Tell me it's better.

Yes. Unquestionably. For many reasons, including that organic farming protects farmworkers from harmful pesticides. There are also clear environmental and ethical benefits.

But ... is it healthier?

Proving specific health benefits for organic food is nearly impossible: Imagine a randomized trial comparing *only* organic food to no organic food, but exactly matched in every other way.

Okay, I'll stick with organic. Should I take probiotics?

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

Okay, sounds good, 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 flourishes, 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 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 “fresh” 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 can make some food more nutritious: We can't even eat (let alone) digest dried beans and lentils without cooking them; but cooked, they're among the most nutritious and health-promoting of all foods. 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.



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

What about soy? Is soy good or bad for me?

Soy foods come in many varieties, and many are highly processed, so suffer the same liabilities of all highly processed foods; 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.

I heard that processed soy products are linked to cancer.

The estrogen-like compounds in soy can promote cancer growth in animals in labs, but the net effect of eating foods like tofu and tempeh is less cancer, not more.

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.

How can I find out if it's otherwise tainted?

There are good online sources about such matters: Here's [one](#), and here's [another](#).

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 if you want a supplement, 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.



How about a drink? The antioxidants from the skins of grapes may confer unique health benefits, but don't drink because you think it's "healthy." Juice cleanses, meanwhile, are neither dangerous nor are they particularly beneficial. *Photo: Bobby Doherty*

What if I hate lettuce? Do I really need to eat my greens?

Greens are all good, and one of the few foods you can eat pretty much without limit. These plants are all very low in calories and highly concentrated in diverse nutrients: antioxidants, fiber, vitamins, and minerals.

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 good 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.

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 have higher levels of alcohol dehydrogenase than women, and thus metabolize alcohol more efficiently than women.) 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? Should I aim for low carbs or low calories?

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.

What about 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 that is 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 does an adult need?

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 mg per day.

What are non-dairy 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 carbohydrate 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, one that avoids highly processed foods, lots of meat, lots of full-fat dairy, refined carbs and added sugar, and is instead made up mostly of vegetables, fruits, beans, lentils, whole grains, nuts, seeds, and plain water.

But not seltzer water.

Plain seltzer is fine for generally healthy people, and a far better choice than any of the popular sugary drinks.

Doesn't seltzer water decalcify your bones?

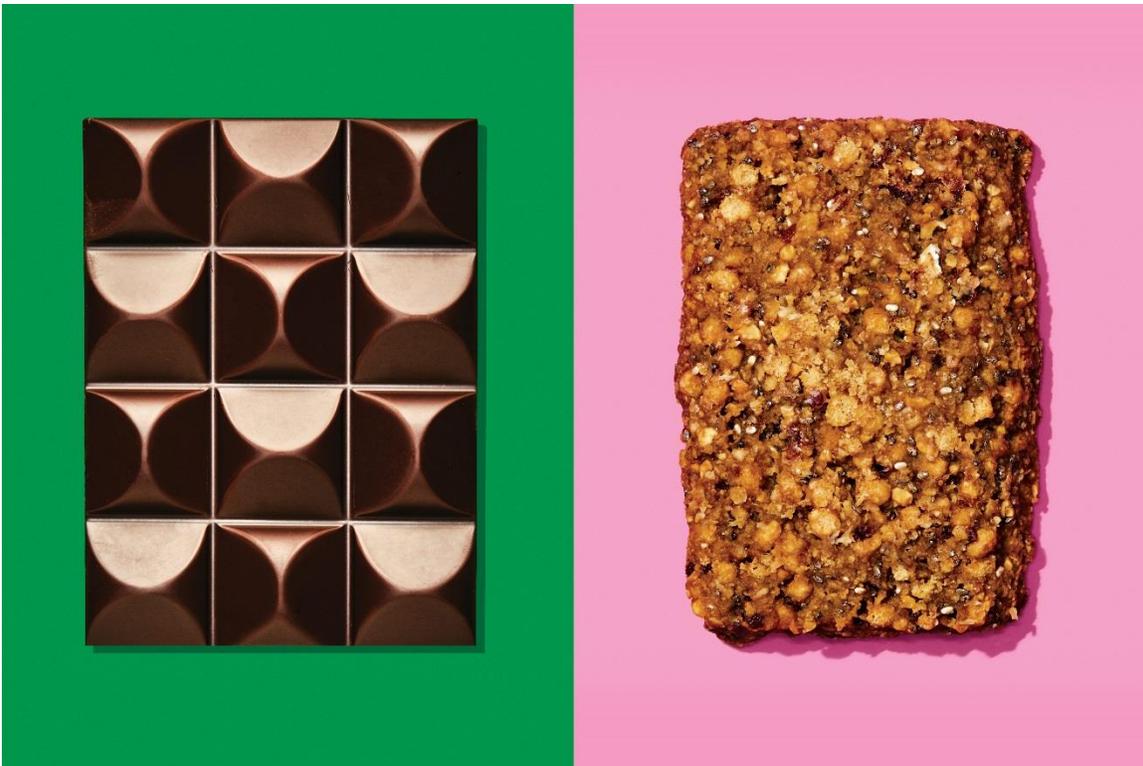
No.

I'm pretty sure I heard that it does.

It does not.

That's good, because I like seltzer with a snack. Is snacking okay, or should I stick to three square meals?

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. Get those right, and almost any timing will be okay, although timing might make a good diet even better. Get quantity and/or quality wrong, and no time is a good time. *What you eat matters more than when you eat it.*



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. *Photo: Bobby Doherty*

Listen, I am a very busy New Yorker and sometimes I eat the occasional PowerBar for lunch. Is that bad?

Many power bars have nutritional profiles similar to Snickers. Generally, power bars are closer to junk than to real food.

But they're made of protein!

One of the great myths of 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?

If the bar, 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 her or his daily recommended cholesterol by eating just one egg a day.

We got this a bit wrong 30 years ago or so, because saturated fat and cholesterol go together in most foods. But we didn't get it entirely wrong: The new thinking is that cholesterol is not a nutrient of concern for the typical American. That doesn't mean it has been entirely exonerated, just that we are already eating it within the recommended range for the most part, and have more pressing concerns, like saturated fat, added sugars, high sodium, and all the rest.

How much protein do I actually need?

We need less than most of us get. A dose of about 1 gram of protein daily per kilogram (2.2 lbs) body weight is already generous in terms of the formal DRIs (Dietary Reference Intakes). So that would mean a man of almost 200 pounds would get more than enough protein from 90 grams daily. Just 3.5 ounces of salmon has nearly 30 grams, and a cup of cooked lentils has about 18 grams. That 200-pound man could easily eat twice that much, or more, in a single meal. So, getting enough protein is easy, which is why there is virtually no such thing as protein deficiency in the USA outside of hospital wards (where it is an effect, not a cause, of serious illness).

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! (Have you seen Gal Gadot?)

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 carbohydrate and protein prior, 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. Otherwise, eat well over the course of each day, and distribute that eating around your workouts any way you like.

Which is a healthier diet: protein-rich, fat-rich, or fat-free?

They're not mutually exclusive. You want moderate amounts of protein and fat in your diet. You want

carbohydrates, too, which are in most foods but especially fruits, vegetables, grains, and legumes. What you don't want is hyperprocessed food or a lot of animal products.

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. 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 of the foods currently produced using genetic engineering are useless at best and harmful at worst: "GMOs" are mostly present in junk food, which you want to avoid anyway.

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 they're 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 carbohydrate 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 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. It is the overall dietary pattern that matters. But when you add in effects on the environment, and what it means to the animals involved, yeah, 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. When all of the “occasionals” add up to more than occasional, then it no longer qualifies as occasional.

What about the “no-nitrate” meats? Are those healthier?

Nitrates have been identified as carcinogenic, and no-nitrate products should be nitrate free. Furthermore: Any product that comes with health claims should not be trusted. What’s *not* in a product matters, but what *is* in a product also matters. Sugar is “cholesterol free”! Trans fat is “sugar free”! So what?

Will we ever get lab-grown meat that’s good for us, and also won’t suck to cook and eat?

There are obvious ethical and environmental benefits of raising meat in a lab rather than the body of a living animal. It’s still early to know if there will be any nutritional benefits (or liabilities), and it’s also too early to know about resource use. Suppose lab-raised meat uses *more* water or food than “regular” meat? And, of course, it’s too early to say much about taste. What is true, is that we can be eating less meat, and better-raised meat, right now.

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 and restaurant meals that tend to be bad for us for *many* reasons. They are high in refined carbohydrate; added sugars; saturated fats; omega-6 oils; food chemicals, as well as sodium. By reducing intake of highly processed foods, and eating more whole, minimally processed foods, mostly plants, 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”?

Limit processed foods; and 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 for a bit of sugar 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. Some recent evidence that artificial sweeteners may disrupt the microbiome and contribute to insulin resistance is reason for concern, and another argument to drink mostly water.

I feel smarter, but what happens when new information comes out, like, tomorrow? How can I stay up to date? It seems like the conventional wisdom on healthy diets changes all the time.

It doesn't, and the definition of a healthy diet has been clear for some time. In fact, the basic theme of optimal eating — a diet made up mostly of whole, wholesome plant foods — has been clear to nutrition experts for *generations*. What *does* change all the time is the fads, fashions, marketing gimmicks, and hucksterism. How do you avoid the pitfalls of all that? Focus on *foods*, not nutrients. A diet may be higher or lower in total fat, or total carbohydrate, or total protein, and still be optimal. But a diet cannot be optimal if it is not made up mostly of some balanced combination of vegetables, fruits, whole grains, beans, legumes, nuts, seeds, and water. If you get the foods right, the nutrients sort themselves out. But if you focus on nutrients rather than foods, you quickly learn that there is more than one way to eat badly, and we Americans seem all too eager to try them all.

Bear in mind that humans evolved to eat a wide variety of diets, all over the world, from the Arctic to the tropics, desert, 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.

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