



# TrainSmarter

## Beware of “Skinny Fat”—a New Dementia Risk

We’ve long known that **loss of muscle mass (a condition known as sarcopenia) is bad for our health, increasing our risk for falls and a loss of physical independence.** It’s also widely known that being overweight or obese sets us up to develop heart disease, diabetes and other chronic ailments. When it comes to brain health, **research has also shown that sarcopenia and obesity are independently linked to cognitive impairment.** Researchers wanted to learn how the combination of sarcopenia and obesity affects one’s risk for various forms of dementia, including Alzheimer disease. They took precise body measurements and performed a thorough cognitive assessment on 353 adults, with an average age of 69. The researchers then determined which of the participants had sarcopenia and were also obese based on their percentage of body fat mass—a condition known as sarcopenic obesity or “skinny fat.” **People with sarcopenic obesity tend to look less overweight than those who are simply obese.** Traditionally, sarcopenia has been defined as low muscle mass. Now, some experts also include low muscle function in the definition—as determined, for example, by grip strength. Obesity, too, has been defined various ways. The conventional definition is tied to body mass index (BMI), which is the ratio of a person’s weight-to-height...or it can be defined based on the percentage of body fat.

**Study results: Adults who could be described as “skinny fat”—that is, they had sarcopenia, defined by the combination of low muscle mass and low muscle strength, along with a high percentage of body fat—were the most likely to have lower cognitive function. The combination of those features was more strongly linked to cognitive decline, followed by sarcopenia alone and then obesity alone.**

## The Best Time to Get the Flu Shot Is Earlier Than You Think

All adults and children older than six months should **get a flu vaccine by the end of October 2018,** the CDC says. (The American Academy of Pediatrics made a similar recommendation.) Getting vaccinated before flu season is in full swing offers the best protections. While the flu shot is not perfect — during last year’s brutal flu season, it was only about 36% effective — the CDC still recommends getting one, since they **can reduce the chances of getting and spreading the flu and the severity of any illnesses that occur.** The flu shot also tends to be more effective in children. **The vaccine has also been tweaked for the upcoming flu season in hopes of targeting the viruses that are likely to circulate this year.** Both standard vaccines and nasal sprays are recommended for the 2018-2019 flu season. The CDC’s vaccine reminder comes after a particularly intense flu season, which **sent more than 30,000 people to the hospital and killed 180 children — the highest number recorded in any non-pandemic year since 2004.**

## New clues to the “obesity paradox”

A new study could explain what some call the “obesity paradox.” In some studies, people with a “healthy” weight had a higher risk of dying (over several years) than those with some (but not too much) extra weight. Those studies used body mass index (BMI), which depends only on a person’s weight and height, as a proxy for body fat. The new study estimated the body fat and lean mass (mostly muscle) of 38,000 men using weight, height, waist size, age, and race. **Over 21 years, those with the least body fat had the lowest risk of dying. As body fat rose, so did the risk of dying—most often of cardiovascular disease or cancer. Men with the least muscle mass had a higher risk of dying (especially of respiratory illness) than those with an intermediate level of lean mass. Low muscle mass could be a sign of undiagnosed illness or frailty, even in people with a “healthy” BMI. And that could explain the obesity paradox. Don’t assume that a few extra pounds could be healthy.**

## Do This Kind of Exercise If You Want to Live Longer

Experts like to say the best form of exercise is whatever kind you'll actually do. But a new study finds that **people who do team sports may be at an advantage over solitary exercisers.**

**The social interaction involved in partner and team sports may compound the plentiful benefits of physical activity, adding more years to your life than solo exercise, according to a study published Tuesday in Mayo Clinic Proceedings. Tennis, badminton and soccer are all better for longevity than cycling, swimming, jogging or gym exercise, according to the research.**

**“For both mental and physical well-being and longevity, we’re understanding that our social connections are probably the single-most important feature of living a long, healthy, happy life,”** says study co-author Dr. James O’Keefe, a cardiologist at Saint Luke’s Mid America Heart Institute. **“If you’re interested in exercising for health and longevity and well-being, perhaps the most important feature of your exercise regimen is that it should involve a playdate.”**

The study was based on data from about 8,500 adults who were part of the Copenhagen City Heart Study. All of the people were white, and none had a history of heart disease, stroke or cancer, so the findings may be limited to this narrow population. They completed a comprehensive health and lifestyle questionnaire, which included questions about type and frequency of physical activity, and were monitored by the researchers for around 25 years, during which time about 4,500 died.

Though many of the participants reported doing multiple physical activities each week, they were asked to designate one as their primary form of exercise. The researchers used these answers to look for associations with longevity, and adjusted for factors including socioeconomic background, education and drinking.

After doing so, they noticed a **clear correlation between social sports and longevity. Compared to sedentary people, they found that those who reported playing tennis as their main form of exercise could expect to add 9.7 years to their lifespan, followed by badminton (6.2 years), soccer (4.7 years), cycling (3.7 years), swimming (3.4 years), jogging (3.2 years), calisthenics (3.1 years) and health club activities (1.5 years).**

How long people typically spent doing these activities varied greatly — but duration didn’t necessarily affect longevity benefits. Those who played tennis for their primary sport got about 520 minutes of physical activity per week, and picked up the racquet for about 100 of those minutes. Meanwhile, **health club exercise finished last in terms of longevity, even though gym goers reported the most weekly activity overall: almost 600 minutes in total, about 150 of them at the gym.**

Plenty of research supports a link between social interaction and good health, including recent research published in *The Lancet* that found team sports are the best physical activity for mental health. Partner sports also tend to be more enjoyable than solitary exercise, O’Keefe says, which can potentially enhance mental health and increase long-term adherence to an exercise routine. **Plenty of research has also shown that moderate exercise tends to be as good or better for longevity than vigorous activities such as running, which can take a toll on the body over time.**

“When we try to just go and work out to get our heart rate up, it still feels good,” O’Keefe says. “But it doesn’t leave you as relaxed and happy as, say, going to play a game of basketball or golf.”

Tennis likely took the top spot because “it’s intensely interactive,” O’Keefe says. “At every point you’re talking. It’s just a very natural way to emotionally bond with people, besides getting your exercise.” (O’Keefe adds that the study may not have been able to fully account for the fact that wealthier, better-educated people — who tend to be healthier to begin with — may be more likely to play tennis.)

Activities like running and weight-lifting still extend your life, according to the study’s findings, and offer plenty of other health benefits, from strength to cardiovascular health. But for optimal benefits, O’Keefe says gym goers may want to consider supplementing those workouts with activities that foster social connection.

“Any exercise is better than none,” O’Keefe says. But “when our physical activity also allows us to play, it basically magnifies the benefits, because you get not only the musculoskeletal and cardiovascular benefits of physical exercise, but you also get that emotional bonding, which turns out to be probably just as important.”

O’Keefe, whose exercise regimen typically includes running and weightlifting, says he’s even changed his own behavior because of the study: He and his family have picked up badminton. “You can’t play badminton without feeling like a kid again,” he says. “It’s just pure fun.” *Time*

## Is Intense Exercise Better For Your Health?

When it comes to your fitness levels—or the amount of work your heart, lungs, and limbs can perform—**there’s no doubt that a good, hard sweat is great for you. Vigorous exercise like running, swimming or playing tennis leads to greater improvements than easy or moderate workouts, like brisk walking, ballroom dancing and slow bike-riding.**

**But fitness and health, while closely related, are not always aligned. Research is now finding that you don’t have to put yourself through punishing workouts in order to optimize your health.**

**In a study last year, scientists from the U.S. and Europe found something surprising: the more moderate exercise people do, the more their cardiovascular health improves and their mortality risk drops. When it comes to vigorous exercise, smaller amounts seem to be linked with maximal health benefits.**

**A 2016 study even found that moderate exercise may beat vigorous when it comes to reducing risk for diabetes. “We have found that moderate-intensity activity improves insulin sensitivity more than vigorous-intensity activity in both obese and overweight individuals and in those with pre-diabetes,” says Dr. Robert McGarrah, a cardiologist and medical instructor at Duke University School of Medicine. It’s possible that moderate-intensity exercise may be superior when it comes to “clearance of fat deposits in the muscle,” he explains.**

**Some studies have linked vigorous exercise to stronger hearts, but those may not have taken into account the fact that people who engage in hard exercise may also expend more energy throughout the day—not just during their workouts, says McGarrah. He says total energy expenditure may be more important when it comes to your cardiovascular health, regardless of how hard you push yourself during exercise.**

**Findings like these are important because many people still believe that exercise has to be excruciating in order to provide big benefits. Not only is that untrue, but it’s also harmful, says Michelle Segar, director of the University of Michigan’s Sport, Health, and Activity Research and Policy Center. This sort of thinking leads people who can’t stick with regular rigorous workouts to think of themselves as failures, and in some cases to give up on exercise altogether, she says.**

**Segar is the author of a new study showing that many people avoid exercise because they assume it will be unpleasant or time-consuming. “Most people have the old ’80s and ’90s view that physical activity means going for a long run or doing a hard gym workout,” she explains. “But we know exercise doesn’t have to be intense or uncomfortable to be good for you.”**

**She blames public misconceptions on a “barrage of marketing” from fitness companies, gyms and TV shows and adds that medical researchers and journalists, though well intentioned, also play a role. Though exercise can act like powerful medicine in the body, there is not necessarily a calibrated dosage. “There are ideal targets, but even if you can’t hit them, a little is much better than nothing,” Segar says. “The old success-or-failure, hit-or-miss model of exercise is unhelpful.”**

**“The true value of exercise is in just getting off the couch,” says Catrine Tudor-Locke, chair of kinesiology at the University of Massachusetts Amherst and a researcher of the impressive health benefits of walking. She explains that almost all of the health perks research has linked to exercise—from a stronger heart and lungs to more energy and clearer thinking—increase the most when people move from a sedentary lifestyle to a modestly active one. “You continue to get benefits from exercise, but the returns are increasingly diminished,” she says.**

**If you’re the type who enjoys vigorous exercise and feels crummy if you miss your daily five-mile run or CrossFit session, then keep it up. “But you can still congratulate yourself if you only have time and energy for a 10-minute walk,” Segar says.**

**There’s no shame—and plenty of payoff—if easy exercise is more your speed. *Time***





## Can't Get Comfortable In Your Chair? Here's What You Can Do

About a hundred years ago, something devious started happening in our homes and offices, in our cars and at restaurants — and **our backs have never been the same**. For hundreds — even thousands — of years, chairs were made of wood. Maybe the seat was covered with cord or cattail leaves, and if you were rich, you could afford some padded upholstery, which began to take off in the 17th and 18th centuries. But for most of Western history, people sat on chairs that were relatively firm, flat and proportioned for the human body. Then in the 20th century, designers got their hands on new materials, such as steel, plastic and foam. And chairs started blowing up in size and softness. **The 20th century was all about experimenting with technology and forgetting about the body,** says Galen Crazz, who studies chair design at the University of California, Berkeley. **As a result, we've ended up with living rooms, offices and restaurants filled with chairs that are really bad for our backs. "It's shocking how poorly designed they are for our bodies."** Jean Couch, 75, perches on the edge of a chair at her home in Los Altos Hills, Calif. She teaches people the art of sitting in chairs without back pain. "Now we need to use props and techniques to sit in chairs in a way that's good for our backs," says Couch. of Palo Alto, who is part of a growing movement on the West Coast to teach people to move and sit as they did in the past. **Almost every chair has one of two problems: They're too deep or too soft. "When a chair is too deep, the backrest is too far away from the edge and you can't put your legs [feet] on the ground without slouching. Else your legs stick out like a little kid."** And when chairs are too soft, it's almost impossible not to slouch. **"The chair causes your hip bones to fall back and your spine bends into a C shape."** Slouching a little bit every now and then isn't a problem, says Stuart McGill, who studies spine biomechanics at Waterloo University in Ontario, Canada. **"But if you repeatedly expose your spine to this bending, it will become pain-sensitive in most people." Over time, you also run the risk of damaging the disks.** So should we all run out and buy new chairs? These three tricks can basically get you comfortable — with a straight spine — in any chair.

### 1. Sit on the edge of a chair.

"So if I walk into a room and see only soft and deep chairs, I will look for a chair with a frame," Couch says. "Then I'll sit on the hard, front part of the chair." In other words, **forget about the back rest and use the wooden frame of chairs as a firm support. That makes it easier to keep your pelvis from tucking under your spine and your back ending in a C shape. And be careful how you position your legs. "The big trick is to have your knees below the hip socket."** Most people think the knees and hips should be at the same level, so that the angle between your torso and legs is 90 degrees. But you'll be more comfortable — and less likely to slump — if that angle is bigger than 90 degrees, Couch says. **"Something like 120 degrees,"** she says. **Astronauts' legs automatically take this angle when they're floating in the space station with microgravity. NASA calls it the neutral body posture because it's when the muscles are relaxed.**

### 2. Build a perch.

"So I'm perched right now," Couch says as she sits down on her kitchen chair, which is clearly too soft. "Way too soft." She takes a firm pillow and places it a few inches from the chair's front edge. Then she sits down on the front of the pillow. **So the pillow is tilting her pelvis forward a bit, and she's kind of elevated above the chair.** She says you can really use anything to build a perch — a wool blanket, a jacket, a rolled up yoga mat. **"I've sat on my wallet, a shoe, a folded sweater, but the best is a wedge,"** she says. **"It's a wedge-shaped pillow, and it's pretty dense foam,"** Couch says. "You want it as dense as you can get for it to really help." Whether it's a wedge, a shoe or your husband's wool sweater, Couch says, these props help in two ways. First, they give you something firm to hold up your sitz bones (sitting bones). "When it's too soft, my hip bones fall back and then I'm in that nasty C shape," she says. And second, the pillow raises your hips up a bit so it's easier for your knees to drop below and your legs to find that sweet spot of comfort — 120 degrees from your torso.

### 3. Build out the back.

There's one situation in which sitting on the edge or perching on a pillow isn't a good idea: in the car. "You definitely don't want to be sitting away from the backrest for safety reasons," says Esther Gokhale, who teaches posture and traditional movement. **"You have to be up against the backrest and headrest or you could get whiplash in an accident."** But there's a big problem with the backrests in many cars and airplanes: **They are shaped like C's. If you use them properly, they force you to slump and bend your spine. "The only solution is build out the backrest so it's more planar,"** so you turn the C shape into an I shape. Grab one of your perching props. Take a firm pillow, a blanket or sweater and stick it right at your mid back. **"Then elongate your spine by gently stretching your back over the pillow."** And voila! You've turned a **painful, slouchy chair or car seat into a comfortable one.** *NPR*

## To Skip Or Not to Skip Breakfast: That Is the Question

“The idea that breakfast is important for weight or that it kick-starts your metabolism is well ingrained,” says Enhad Chowdhury, a teaching fellow at the University of Bath in England. “And **people who typically consume breakfast do weigh less than those who skip.**” (Roughly 20 to 30% of adults skip breakfast.) **But that’s not proof that skipping breakfast causes weight gain. Something else about breakfast eaters could make them leaner.** To find out, Chowdhury randomly assigned 56 lean adults or adults with obesity to a breakfast group that ate at least 700 calories by 11:00 a.m. or a breakfast-skipping group that ate nothing until noon. **After six weeks, resting metabolic rate and weight were no different in the breakfast eaters than in the skippers. (Presumably, the skippers ate more calories the rest of the day.) A larger, longer study on 283 adults with overweight or obesity got similar results.** “We told participants, ‘Eat something before 10:00 a.m.’ or ‘Eat nothing before 11:00 a.m.’,” says Marie-Pierre St-Onge, associate professor of nutritional medicine at the Columbia Irving University Medical Center.

**“There was no difference in weight change after 16 weeks.”**

Don’t famished breakfast skippers gorge themselves at lunch? Chowdhury tested that idea by giving 59 lean adults or adults with obesity either a roughly 500-calorie breakfast or no food before lunch. **“When people skipped breakfast, they did eat a bit more at lunch,”** Chowdhury says. (“A bit more” averaged 150 calories for lean people and 50 calories for people with obesity.) **“But it was nowhere near enough to make up for the 500 calories they missed by skipping breakfast,”** he says. **“They certainly didn’t overeat at lunch.”** However, blood sugar and insulin were higher an hour after lunch when people skipped breakfast. (Insulin tamps down blood sugar by enabling it to enter cells, but cells can be resistant to the insulin.) **“We’re more insulin-resistant later in the day,”** says St-Onge. **“By eating in the morning, when you’re more insulin-sensitive, blood sugar doesn’t stay in circulation as long.”** The Bottom Line: **“There’s not much evidence for the dogma that if you don’t eat breakfast, you’ll suddenly eat a ton of food and gain weight,”** says Chowdhury. **But eating in the morning may help your insulin work more efficiently later in the day.** *Nutrition Action*

## This Is the Age When Your Self-Esteem Is Highest

In today’s youth-obsessed culture, getting older is often seen as something to fear. But a new study says **at least one thing gets better with age: self-esteem.**

**Age 60 seems to be best for self-esteem,** according to a paper published recently in the journal *Psychological Bulletin* — and **those positive feelings may stay at their peak for an entire decade.** “Midlife is, for many adults, a time of highly stable life circumstances in domains such as relationships and work. Moreover, during middle adulthood, most individuals further invest in the social roles they hold, which might promote their self-esteem,” study co-author Ulrich Orth, a professor of psychology at the University of Bern in Switzerland, said in an email to TIME. “For example, people take on managerial roles at work, maintain a satisfying relationship with their spouse or partner, and help their children to become responsible and independent adults.”

The researchers based their analysis on 191 research articles about self-esteem, which included data from almost 165,000 people. They set out to present the most comprehensive look yet at how self-esteem changes with age, examining a number of different demographics and age groups. **Self-esteem first begins to rise between ages 4 and 11, as children develop socially and cognitively and gain some sense of independence. Levels then seem to plateau — but not decline — as the teenage years begin from ages 11 to 15, the data show. That’s somewhat surprising, given that many people — scientists and otherwise — assume that self-esteem takes a hit during the traditionally awkward early teenage years, “possibly because of pubertal changes and increased emphasis on social comparison at school,”** Orth says. **“However, our findings show that this is not the case.”**

Instead, self-esteem appears to hold steady until mid-adolescence. After that lull, Orth says, **self-esteem seems to increase substantially until age 30, then more gradually throughout middle adulthood, before peaking around age 60 and remaining stable until age 70. After this period, however, Orth’s data show that many adults experience a decline in self-esteem, beginning modestly around 70 and becoming more significant around age 90.** “Old age frequently involves loss of social roles as a result of retirement, the empty nest, and, possibly, widowhood, all of which are factors that may threaten self-esteem,” Orth explains. “In addition, aging often leads to negative changes in other possible sources of self-esteem, such as socioeconomic status, cognitive abilities and health.” **The suggestion that these factors don’t seem to meaningfully converge until around age 90, however, should be encouraging.**

“Many people,” Orth says, **“are able to maintain a relatively high level of self-esteem even during old age.”** *Time*

## Probiotics Labelled 'Quite Useless'

A group of scientists in Israel claim **foods that are packed with good bacteria - called probiotics - are almost useless.** Their study is among the most detailed analyses of what happens when we consume probiotics. **They are seen as healthy and good for the gut, but the results found they had little or no effect inside the body. The researchers said probiotics of the future would need tailoring to the needs of each individual.** The team at the Weizmann Institute of Science made their own probiotic cocktail using 11 common good bacteria including strains of Lactobacillus and Bifidobacteria. It was given to 25 healthy volunteers for a month. They were then sedated and samples were surgically taken from multiple places in the stomach and small and large intestines. The researchers were looking to see where bacteria successfully colonised and whether they led to any changes in the activity of the gut. The results in the journal Cell, showed **in half of cases the good bacteria went in the mouth and straight out the other end. In the rest, they lingered briefly before being crowded out by our existing microbes.**

Trillions of bacteria call the lining of our guts home and everyone has a different mix of microbial inhabitants. Dr Eran Elinav said it was **wrong to expect an off-the-shelf probiotic to work for everyone. He says that in the future probiotics will need to be tailored to the needs of individual patients. He told the BBC: "And in that sense just buying probiotics at the supermarket without any tailoring, without any adjustment to the host, at least in part of the population, is quite useless."** The research group also looked at the **impact of probiotics after a course of antibiotics, which wipe out both good and bad bacteria. Their trial on 46 people, also in the journal Cell, showed it led to delays in the normal healthy bacteria re-establishing themselves. Dr Elinav added: "Contrary to the current dogma that probiotics are harmless and benefit everyone, these results reveal a new potential adverse side effect of probiotic use with antibiotics that might even bring long-term consequences."** There have been some proven benefits of probiotics, notably in protecting premature babies from necrotising enterocolitis. And there remains great hope within science that understanding the complex relationship between the microbial and human parts of our body will lead to new treatments. However, Dr Trevor Lawley, **a microbiome researcher at the Sanger Institute, said he was not surprised by the findings. He told the BBC: "Probiotics have been around for a long time and they're coming under more scrutiny. "These are very innovative studies, but they are preliminary findings that need replicating. "The gut has a natural property to stop colonisation, as it usually blocks pathogens, and that is something we have to outmanoeuvre."** *BBC News*

## It's Officially Fall. Have You Had Any Pumpkin Yet?

It's that time of year. Pumpkin is making its way into lattes, muffins, and more. But it doesn't appear on plates often enough as, well, just pumpkin. Like most deep-orange veggies, pumpkin is rich in vitamin A from carotenoids. Each half cup of mashed, cooked pumpkin has more than a day's worth. And it comes with a decent dose of potassium and fiber...all for only 25 calories.

Here's what to do with fresh pumpkin. **Look for sugar pumpkins, which are smaller and more flavorful than their jack-o-lantern cousins. Cut off the top and bottom ends, then cut in half. Remove the seeds—you can toast them later—and the pulp. (An ice cream scoop works well.)**

**Cut the pumpkin into slices, or peel and cut into chunks. Then toss with olive oil and season with ground cumin, coriander, or cinnamon. Roast in an oven at 425° F until tender and browned in spots—about 25-35 minutes.**

**Eat the slices like you would slices of cantaloupe. You can serve the chunks as is, or mash like potatoes. Add a handful of chopped walnuts or pecans if you like.**

Got leftovers? Turn them into a creamy soup by puréeing with caramelized onions and vegetable stock.

Or start with pumpkin purée.

If you want to cook with pumpkin when there are none in the store, or you need less than an entire pumpkin, or you just don't feel like peeling, seeding, chopping, and cooking...there's an easier way: purée.

Brands like Farmer's Market and Pacific sell pumpkin purée in shelf-stable cartons. Look for them at a health food store or in the "natural foods" section of your supermarket.

The ingredient list: pumpkin. Period.

**Try adding the purée to your pasta sauces, curries, risottos, or oatmeal.** *Nutrition Action*



## Vitamin D, the Sunshine Supplement, Has Shadowy Money Behind It

Dr. Michael Holick's enthusiasm for vitamin D can be fairly described as extreme. The Boston University endocrinologist, who perhaps more than anyone else is responsible for creating a billion-dollar vitamin D sales and testing juggernaut, elevates his own levels of the stuff with supplements and fortified milk. When he bikes outdoors, he won't put sunscreen on his limbs. He has written book-length odes to vitamin D, and has warned in multiple scholarly articles about a "vitamin D deficiency pandemic" that explains disease and suboptimal health across the world. His fixation is so intense that it extends to the dinosaurs. What if the real problem with that asteroid 65 million years ago wasn't a lack of food, but the weak bones that follow a lack of sunlight? "I sometimes wonder," Dr. Holick has written, "did the dinosaurs die of rickets and osteomalacia?" Dr. Holick's role in drafting national vitamin D guidelines, and the embrace of his message by mainstream doctors and wellness gurus alike, have helped push supplement sales to \$936 million in 2017. That's a ninefold increase over the previous decade. Lab tests for vitamin D deficiency have spiked, too: Doctors ordered more than 10 million for Medicare patients in 2016, up 547 percent since 2007, at a cost of \$365 million. But few of the Americans swept up in the vitamin D craze are likely aware that the industry has sent a lot of money Dr. Holick's way. A Kaiser Health News investigation for The New York Times found that he has used his prominent position in the medical community to promote practices that financially benefit corporations that have given him hundreds of thousands of dollars — including drug makers, the indoor tanning industry and one of the country's largest commercial labs. Dr. Holick acknowledged he has worked as a consultant to Quest Diagnostics, which performs vitamin D tests, since 1979. Dr. Holick, 72, said that industry funding "doesn't influence me in terms of talking about the health benefits of vitamin D." There is no question that the hormone is important. Without enough of it, bones can become thin, brittle and misshapen, causing a condition called rickets in children and osteomalacia in adults. The issue is how much vitamin D is healthy, and what level constitutes deficiency. Dr. Holick's crucial role in shaping that debate occurred in 2011. Late the previous year, the prestigious National Academy of Medicine, a group of independent scientific experts, issued a comprehensive, 1,132-page report on vitamin D deficiency. It concluded that the vast majority of Americans get plenty of the hormone naturally, and advised doctors to test only patients at high risk of certain disorders, such as osteoporosis. A few months later, in June 2011, Dr. Holick oversaw the publication of a report that took a starkly different view. The paper, in the peer-reviewed Journal of Clinical Endocrinology & Metabolism, was on behalf of the Endocrine Society, the field's foremost professional group, whose guidelines are widely used by hospitals, physicians and commercial labs nationwide, including Quest. The society adopted Dr. Holick's position that "vitamin D deficiency is very common in all age groups" and advocated a huge expansion of vitamin D testing, targeting more than half the United States population, including those who are black, Hispanic or obese — groups that tend to have lower vitamin D levels than others. The recommendations were a financial windfall for the vitamin D industry. By advocating such widespread testing, the Endocrine Society directed more business to Quest and other commercial labs. Vitamin D tests are now the fifth-most-common lab test covered by Medicare. The guidelines benefited the vitamin D industry in another important way. Unlike the National Academy, which concluded that patients have sufficient vitamin D when their blood levels are at or above 20 nanograms per milliliter, the Endocrine Society said vitamin D levels need to be much higher — at least 30 nanograms per milliliter. Many commercial labs, including Quest and LabCorp, adopted the higher standard. Yet there's no evidence that people with the higher level are any healthier than those with the lower level, said Dr. Clifford Rosen, a senior scientist at the Maine Medical Center Research Institute and co-author of the National Academy report. Using the Endocrine Society's higher standard creates the appearance of an epidemic, because it labels 80% of Americans as having inadequate vitamin D. "We see people being tested all the time and being treated based on a lot of wishful thinking, that you can take a supplement to be healthier." Patients with low vitamin D levels are often prescribed supplements and instructed to get checked again in a few months, said Dr. Alex Krist, a family physician and vice chairman of the US Preventive Services Task Force, an expert panel that issues health advice. Many physicians then repeat the test once a year. For labs, "it's in their financial interest" to label patients with low vitamin D levels, Dr. Krist said. In a 2010 book, "The Vitamin D Solution," Dr. Holick gave readers tips to encourage them to get their blood tested. For readers worried about potential out-of-pocket costs for vitamin D tests — they range from \$40 to \$225 — he listed the precise reimbursement codes that doctors should use when requesting insurance coverage. "If they use the wrong coding when submitting the claim to the insurance company, they won't get reimbursed and you will wind up having to pay for the test."



Dr. Holick acknowledged financial ties with Quest and other companies in the financial disclosure statement published with the Endocrine Society guidelines. He said that working for Quest for four decades — he is currently paid \$1,000 a month — hasn't affected his medical advice. "I don't get any additional money if they sell one test or one billion." Shire is among the pharmaceutical companies that have paid Dr. Michael Holick for consulting and other services. A Quest spokeswoman, Wendy Bost, said the company seeks the advice of a number of expert consultants. "We feel strongly that being able to work with the top experts in the field, whether it's vitamin D or another area, translates to better quality and better information, both for our patients and physicians." Since 2011, Dr. Holick's advocacy has been embraced by the wellness-industrial complex. Gwyneth Paltrow's website, Goop, cites his writing. Dr. Mehmet Oz has described vitamin D as "the No. 1 thing you need more of," telling his audience that it can help them avoid heart disease, depression, weight gain, memory loss and cancer. And Oprah Winfrey's website tells readers that, "knowing your vitamin D levels might save your life." Mainstream doctors have also urged Americans to get more of the hormone, including Dr. Walter Willett, a widely respected professor at Harvard Medical School. Today, **seven years after the dueling academic findings, the leaders of the National Academy report are struggling to be heard above the clamor for more sunshine pills. "There isn't a 'pandemic,'" said A. Catharine Ross, a nutritional sciences professor at Penn State and chairwoman of the committee that wrote the report. "There isn't a widespread problem."** In "The Vitamin D Solution," Dr. Holick describes his promotion of vitamin D as a lonely crusade. "Drug companies can sell fear, but they can't sell sunlight, so there's no promotion of the sun's health benefits." Yet Dr. Holick also has extensive financial ties to the pharmaceutical industry. He received nearly \$163,000 from 2013 to 2017 from pharmaceutical companies for consulting and other services, according to Medicare's Open Payments database. **The companies paying him included Sanofi-Aventis, which markets vitamin D supplements; Shire, which makes drugs for hormonal disorders that are given with vitamin D; Amgen, which makes an osteoporosis treatment; and Roche Diagnostics and Quidel Corporation, which both make vitamin D tests. The database includes only payments made since 2013, but Dr. Holick's record of being compensated by drug companies started before that. In his 2010 book, he describes visiting South Africa to give "talks for a pharmaceutical company," whose president and chief executive were in the audience. Although Dr. Holick said he doesn't advocate tanning, he has described tanning beds as a "recommended source" of vitamin D "when used in moderation." Dr. Holick has acknowledged accepting research money from the UV Foundation — a nonprofit arm of the now-defunct Indoor Tanning Association — which gave \$150,000 to Boston University from 2004 to 2006, earmarked for Dr. Holick's research. The International Agency for Research on Cancer classified tanning beds as carcinogenic in 2009. He has described tanning beds as a "recommended source" of vitamin D "when used in moderation." The devices were classified as carcinogenic in 2009. In 2004, the tanning-industry associations led Dr. Barbara Gilchrest, who then was head of Boston University's dermatology division, to ask Dr. Holick to resign from the department. He did so, but remains a professor at the medical school's department of endocrinology, diabetes, nutrition and weight management. In "The Vitamin D Solution," Dr. Holick wrote that he was "forced" to give up his position because of his "stalwart support of sensible sun exposure. Shame on me for challenging one of the dogmas of dermatology."** Although Dr. Holick's website lists him as a member of the American Academy of Dermatology, an academy spokeswoman, Amanda Jacobs, said he was not a current member. **Enthusiasm for vitamin D among medical experts has dimmed in recent years, as rigorous clinical trials have failed to confirm the benefits suggested by early, preliminary studies. A string of trials has found no evidence that vitamin D reduces the risk of cancer, heart disease or falls in the elderly. And most scientists say there isn't enough evidence to know if vitamin D can prevent chronic diseases that aren't related to bones. Although the amount of vitamin D in a typical daily supplement is generally considered safe, it is possible to take too much. In 2015, an article in the American Journal of Medicine linked blood levels as low as 50 nanograms per milliliter with an increased risk of death. That's within the level considered healthy by the Endocrine Society, which defined vitamin D "sufficiency" as between 30 and 100 nanograms .Some researchers say vitamin D may never have been the miracle pill that it appeared to be. Sick people who stay indoors tend to have low vitamin D levels; their poor health is likely the cause of their low vitamin D levels, not the other way around,** said Dr. JoAnn Manson, chief of preventive medicine at Brigham and Women's Hospital in Boston. Only really rigorous studies, which randomly assign some patients to take vitamin D and others to take placebos, can provide definitive answers about vitamin D and health. Dr. Manson is leading one such study, involving 26,000 adults, expected to be published in November. **A number of insurers and health experts have begun to view widespread vitamin D testing as unnecessary and expensive. NY Times**

## Study Finds Small Dogs “Lie About Their Size” By Aiming Higher When They Pee

*And sometimes we just like to share information that makes you think, “Hmmm....”*

Dogs use urine to mark their turf and send messages to other pups in the area. In order to achieve this scent-based communication, male dogs often lift their legs to mark vertical objects like trees, poles and mailboxes.

These urinary “messages” can tell other dogs a lot about those who left them behind, including gender, sexual status, health, and social status.

However, not everything dogs learn from these scent marks is necessarily accurate.

New research from Cornell University found that **smaller dogs lift their legs at a higher angle than larger dogs – most likely in an effort to make themselves appear larger.**

**“Our findings... provide additional evidence that scent marking can be dishonest.”**

In order to establish that the angle a dog raises its leg does indeed determine how high their pee goes, the researchers took several male shelter dogs for walks and filmed them peeing on vertical objects with an iPhone and a high-speed camera.

They found that the angle of the leg, along with the dog’s mass and height, does indeed predict the height of the pee.

Next, they analyzed whether a dog’s size affects how much it lifts its leg. They found that **both lighter and shorter dogs hike their legs to higher angles, seemingly trying to mimic the pee signatures of their larger cousins.**

**“Thus, even though height of urine mark does reflect size of signaler in part, small dogs seem to “cheat” by using larger raised-leg angles to deposit higher urine marks, thereby exaggerating their size,”** the study reports.

Some small dogs go to extreme, almost acrobatic lengths to ensure their urine hits a high spot!

The study authors believe **smaller dogs attempt to “exaggerate their body size and competitive abilities” by directing their urine as high as possible, and that this may help them avoid conflict with other dogs.**

Further research is needed to determine how dogs react to different heights of scent marks left by other pups.

However, the research does support the growing theory that smaller dogs and larger dogs have different behavior patterns.

While there may be other valid interpretations of the data – large dogs may not be able to achieve as high of a leg angle as smaller dogs, for example – the researchers point out that **the phenomenon of “dishonest signaling” appears in other species such as the dwarf mongoose which leaves scent marks in surprising places based on its size.**



## Stuffed Mini Pepper Appetizer

*I imagine these being great for a tailgate or football watching party with the peppers color coded to the teams!*

*1 lb bag of mini peppers*

*8 jalapeño peppers*

*8 oz cream cheese*

*8 oz goat cheese*

*1/2 cup herbs that you prefer (I like chives and cilantro.)*

*Lawry's Seasoning*

*3 limes*

*Spray olive oil*



*Preheat oven to 400 degrees. Slice peppers in half lengthwise and remove seeds. I keep the stems on the peppers, but you can remove if you prefer. In a food processor, blend cream cheese and goat cheese along with your herbs, and blend until well mixed.*

*Scoop cheese mixture into each pepper until each is filled.*

*Place peppers on an aluminum foil-lined tray that has been sprayed with olive oil or your favorite non-stick spray option. Place in oven for 20 minutes. Remove and sprinkle Lawry's across the hot cheese.*

*Right before serving, squeeze fresh lime over all pieces.*

*Grab some latex gloves to use when cutting the jalapenos!*

## Should You Exercise On an Empty Stomach?

“There’s actually a lot of research that supports skipping eating before exercise to maximize your fat-burning potential,” claims FitDay.com.

**True...as far as it goes. Which isn’t very.**

**In small studies in active young men and women, those who did moderate-intensity aerobic exercise before breakfast—that is, while fasting—burned more fat while they exercised than they did on days they exercised after breakfast.**

**But that doesn’t mean they had burned more fat by the next morning.**

**“You have to look at fat burning on a 24-hour basis, or over the course of a week or longer,”** says Brad Schoenfeld, an assistant professor of exercise science who heads the human performance laboratory at Lehman College in New York.

**Only a few studies have done that.**

**For example, when 16 overweight or obese young women ate a 440- calorie meal either before or after a 25-minute high-intensity interval cycling session three times a week, both groups lost the same amount of body fat—roughly a pound—after six weeks.**

**And in a study by Schoenfeld, 20 young women on a lower-calorie diet lost the same amount of body fat after four weeks, regardless of whether they drank a 250-calorie shake before or after they ran on a treadmill for an hour three times a week.**

**His bottom line: “If you fast before exercise, you don’t seem to burn more fat over time. It’s the number of calories you burn that determines how much fat you lose over time.”**

**Advice to exercise before you eat is “an overhyped strategy,”** says Schoenfeld. **The best time to exercise is the time that works best for you—before or after eating.**

**“The most important factor with exercise is adherence,”** notes Schoenfeld. **“If people think they have to do their workout while fasted but they hate it, they may just quit exercising.”**