



TrainSmarter

What is Monk Fruit?

Grown in SE Asia and originally eaten by Buddhist monks, it's a small green gourd that is comparable to a melon. While it's unlikely that you've ever seen fresh monk fruit at the grocery store, **its popularity as a sweetener has skyrocketed. Created by extracting the fruit and combining with other ingredients, like dextrose, to mellow the sweetness, the powdery product resembles coarsely ground sugar. While it's most commonly seen in granule form, monk fruit is also available as powdered and liquid products too. Around 150-200 times sweeter than sugar, a little goes a long way. It has no calories, carbs, fat, or sodium. It won't spike your blood sugar and is low-glycemic. It's heat stable, meaning you can cook and bake with it. This is the sweetener that Ascent Protein uses in the protein powder that we sell at TrainSmarter.**

Pantry Fixes for a Burnt Tongue

Which **muscle of the body, proportional to size, is the strongest? Yes, it's the tongue!**
 A burnt tongue really hurts! Here are a few remedies for both spicy-hot and temperature-hot burns...
Fix a spicy-food sting: If you've just eaten spicy-hot food and you feel as though your tongue is on fire, swish whole or 2% milk, sour cream or yogurt around in your mouth. (Indian restaurants, which tend to serve very spicy food, always have yogurt on hand to remedy the heat.)
Chocolate cure: If you eat something made with chili peppers or cayenne pepper and you burn your tongue, quickly eat a piece of chocolate. Casein, a protein in chocolate, seems to attach to and remove the capsaicin—the hot-hot-hot chemical compound found in chili peppers—from the tongue's nerve receptors.
Hot-temperature burn: After rinsing your mouth with cool water, drip a few drops of pure vanilla extract on the burn. A little sprinkling of white sugar will also abate the pain. Let the sugar sit until you feel relief, then rinse your mouth again with cool water.
Soothe a burning throat: If that searing-hot liquid got as far as your throat, two teaspoons of olive oil will soothe and coat the burn. A tablespoon of honey may also help.

Does Plant Protein Build Muscle as Well as Meat?

Good news for both vegetarians and meat eaters: **Plant protein and animal protein appear to benefit muscle health equally.** Researchers looked at the health records of nearly 3,000 men and women ages 19 to 72. They estimated the participants' total protein intake as well as their dietary percentages of protein from specific sources, such as fast food, full-fat or low-fat dairy, red meat, fish, chicken, and legumes. They also looked at participants' lean muscle mass, bone mineral density, and quadriceps strength—all measures that are important for fitness, health, and better functioning, especially as we get older. They found that **people who consumed the least amount of protein overall also had the lowest measures of muscle mass and strength. But the type of protein people ate didn't seem to matter: After the researchers adjusted for other factors, they found the differences in protein sources had no impacts on musculoskeletal health, for men or for women.**

Obese Women May Have More Intense Hot Flashes

"This study supports earlier studies that found that **women who are heavier tend to have more hot flashes, particularly close to menopause,**" said Dr. JoAnn Pinkerton, executive director of the North American Menopause Society. Women who were obese had more extreme hot flashes that interfered with some activities and took a toll on their performance at work. The study authors said their findings support an idea that's known as the **thermoregulatory theory. This theory suggests that excess weight is linked to "vasomotor symptoms" -- such as hot flashes and night sweats -- because body fat acts as insulation, trapping heat in the body.** Obese women were also more likely to experience other symptoms more often, including joint pain, muscle pain and urinary issues. "In some studies, but not all, **weight loss and exercise have both been shown to reduce hot flashes in women who are obese, thus giving women even more reason to create a healthier lifestyle for themselves,**" Pinkerton said.



Better Health Through the 'Lassie Effect'

Researchers commonly use the term the **"Lassie effect"** to describe the wide-ranging health benefits of walking a dog. The name refers to the television collie that nobly saved Timmy's and so many other people's lives week after week on her popular show. But even though walking the dog can have lifesaving health benefits for owners and pets, a **surprisingly large number of dog owners rarely, if ever, walk or otherwise exercise their dogs**, research shows. Scientists who had studied the Lassie effect remained puzzled about why someone would forgo an activity that is good for them, potentially imperiling the well-being of both owner and pet. But a new study provides clues about why people do or do not walk their dogs. The findings may help researchers promote activities and initiatives that increase dog walking and spread the Lassie effect. For many of us who own dogs, the idea of not walking with them can seem anathema. They are such reliable and insistent training partners. Undeterred by sleet, heat, wind, cold or work deadlines, they wag their tails and drool when we pull out our sneakers and do not mind (indeed prefer) that our shorts come from the dirty-laundry pile rather than a drawer. **They motivate many of us to exercise when we might otherwise choose to remain still. The health impacts of this exercise can be considerable. Recent studies have found that people who own and walk a dog are much more likely than other people to meet the standard recommendation of 150 minutes of exercise per week. Dog walkers also have lower risks for high blood pressure, diabetes, obesity, arthritis and other common medical conditions. Ditto for their dogs, which are less prone to rotundity or illness than dogs that are rarely exercised (although evidence indicates that, as with people, dogs that need to lose weight must cut calories from their diets; exercise alone will not slim most dogs). Dogs and people that walk together also are believed to develop deeper emotional bonds than do owners and pets that do not. But despite these benefits, as many as 40% of dog owners in the United States and elsewhere rarely if ever walk their dogs**, according to recent estimates. That statistic worried Carri Westgarth, a research fellow in public health at the University of Liverpool in England, who led the new study. She recently began a program in Liverpool to encourage physical activity through dog walking. But such efforts would not be sustainable, she thought, unless scientists understood and responded to the obstacles to dog walking. So for the new study, which was published recently in *BMC Public Health*, she and her colleagues turned to a large existing database of information about the health and lifestyles of almost 2,000 adults living in Perth, Australia (where one of the study authors resides). The participants had completed multiple questionnaires, including about pets and the household's physical activities. The researchers zeroed in on answers related to dogs and walking and what it was about the dogs, their owners or their neighborhood that contributed to the walking. And what they found was that smaller dogs, those weighing less than about 30 pounds, were much less likely to be walked than larger animals. Older and overweight dogs also rarely were exercised. But even large, healthy dogs were unlikely to be walked if the owners did not believe that walking dogs was healthful or that their dog liked to walk. Dogs were also less likely to be walked if there were few parks nearby. Many people also did not walk their dogs if there was a child in the household who could be handed the task. Interestingly, one of the prime determinants of regular dog walks was affection. People who reported feeling close to their pet generally walked it more often than those who reported a looser bond. In aggregate, Dr. Westgarth said, these replies suggest that some pet owners see little upside to dog walking and are happy to skip or abdicate the task. Many also may underestimate the needs and abilities of their pet. **"It's a myth that small dogs don't need walks every day,"** she said. Her own tiny Chihuahua/pug mix, one of three dogs she owns, has reached the top of the 3,500-foot peak of Mount Snowdon in Wales, she said. Aging and overweight dogs also can and generally should be walked, she said, assuming that you have clearance from your veterinarian. Reintroduce out-of-shape dogs to physical activity gradually and do not ignore limitations. One of Dr. Westgarth's dogs, a 14-year-old spaniel mix, strolls more slowly than her younger, friskier dogs, she said, so she takes it on alternate days. But she still takes it. The rewards can be ineffable. **A dog on a walk explores, finding pleasure in moving, sniffing, prancing and sharing your company, Dr. Westgarth said. This is not exercise; it is joy and can be contagious. "People who walk their dogs often say they do it for the dog," she said. "But there is also an element of what we get out of it in terms of enjoyment, which is the big motivator."** *NY Times*



Does More Sweating Mean a More Intense Workout?

For some people, summer is the time to head indoors to exercise. But others welcome the heat as a way to sweat more and get a better workout. Indeed, I've long regarded the sweatiness of my exercise sessions as a sign of how hard I was pushing myself. But it turns out I've been wrong: **How much you sweat doesn't necessarily correlate with how intense your workout is or how many calories you burn.** When your body temperature rises, your eccrine glands secrete sweat, and the evaporation of moisture from your skin helps you cool off. Of course, sweating can occur for other reasons, such as stress or fear. That type of sweat comes from the apocrine glands, which are located mainly in the underarm and groin. How much we sweat during exercise is due to a number of factors, including gender (men tend to sweat more than women) and age (younger people sweat more than older people) as well as genetics, temperature and humidity. Weight plays a role as well. Larger people tend to sweat more, because their bodies generate more heat. Another contributor is fitness level. Surprisingly, **fit people tend to sweat sooner during exercise and more copiously than those who are less fit. Research suggests that as your fitness level improves, your body's heat-regulating system becomes more efficient, cooling you down faster and allowing you to work harder.** Don't be misled by the loss of a few pounds after a high-sweat workout. This is simply water weight that you gain back when you rehydrate and doesn't necessarily mean you've burned lots of calories. On the flip side, don't assume that a low-sweat workout means you aren't working hard enough or burning enough calories. It could be that your sweat evaporates quickly because you're exercising in air-conditioning, near a fan or outdoors on a windy day. Or you simply may not sweat much. Whatever the case, wearing clothing made of synthetic fabrics such as polyester or Lycra can help you feel less sweaty. These pull (or wick) sweat from your skin to outer layers of the clothes, where the moisture evaporates. Cotton, on the other hand, absorbs moisture but doesn't promote evaporation. As a result, your shirt or other clothing can feel soaked and heavy after a workout. A drawback of polyester is that it tends to stink more than cotton after exercise. In one study, researchers collected the sweaty shirts of 26 subjects after an hour of intensive spinning. The next day, **trained sniffers determined that the polyester shirts smelled worse than the cotton ones.** (It's unclear who exactly agreed to do this job or why.) Micrococci, a type of bacteria that break down sweat and cause unpleasant odor, were found to grow only on the polyester garments. That's important because sweat itself is generally odor-free; it's the combination of sweat and certain bacteria that literally raises a stink. **You can find "odor-resistant" synthetic fabrics, which are treated with various antibacterial compounds. Among the most common is silver, typically applied in tiny amounts known as nanoparticles. But some research suggests that silver-treated clothing may not work as well as promised to reduce bacteria and odor. What's more, a significant amount of the silver may come out in the wash, reducing the effectiveness of the garments and potentially harming the environment. There are also concerns that exposing our skin to silver nanoparticles may pose a health risk, though there's no direct evidence for this.** *CNN.com*

'Couch Potatoes' May Face Higher Risk of Kidney, Bladder Cancers

Add **greater risk of kidney and bladder cancer to the long list of why a lifetime of sitting on the sofa isn't good for your health. Specifically, lifetime recreational inactivity was associated with a 73% increased risk of bladder cancer and a 77% increased risk of kidney cancer.** The findings add to growing evidence that inactivity may be a significant risk factor for cancer. "We hope that findings like ours will motivate inactive people to engage in some form of physical activity," said study senior author Kirsten Moysich, professor of oncology at Roswell Park Cancer Institute in Buffalo, N.Y. "You don't have to run marathons to reduce your cancer risk, but you have to do something -- **even small adjustments like taking the stairs instead of the elevator, walking around the block a couple of times on your lunch hour or parking the car far away from the store when you go to the supermarket,**" she said. The study included 160 kidney cancer patients, 208 bladder cancer patients and 766 people without cancer. **Cancer risks were similar whether people were obese or not.** The study was only designed to show an association between a sedentary lifestyle and the risk of these cancers; it cannot prove a cause-and-effect relationship. "Our findings underscore how important it is to maintain a healthy lifestyle, including getting and staying active," study first author Rikki Cannioto, an assistant professor of oncology at Roswell Park, said. "The Department of Health and Human Services recommends **150 minutes each week of moderate physical activity or 75 minutes each week of vigorous physical activity as a way to generate significant, lasting health benefits,**" Cannioto said.



Let's Stop Using Sore Muscles as a Badge of Honor

Waddling around the day after some seriously tough squats? That means they did their job. And struggling to hold the phone to your ear because your biceps are so freaking zonked? Serious bragging rights. Yeah, we've all reveled in the "hurts so good" aches and pains that come in the hours and days following our workouts. But here's the thing: **Sore muscles aren't necessarily a sign of a great workout.** That "hurts so good" feeling is called delayed onset muscle soreness, or DOMS. It refers to the stiff, weak, and sore muscles that you get about 24 to 48 hours after a workout. It's especially common if you're new to working out, haven't exercised in a while, or recently tried a new type of exercise. "While the process is not fully understood, current research shows that the soreness, tightness, and reduction in strength capacity occurs alongside damage to the muscle fibers' contractile units, called sarcomeres, as well as inhibited calcium signaling and function within those units. These changes lead to inflammatory responses and the activation of several muscle protein degradation pathways," which result in pain and weakness, according to Minnesota-based exercise physiologist Mike T. Nelson, Ph.D., C.S.C.S. Exercise improvements come down to your body's ability to adapt to the stresses you put it under. Challenge it, break it down (just a bit), and as it recovers, it will build itself back to being stronger and fitter than before. So, from that point of view, DOMS has to be a good thing, right? It can be a sign that you're challenging your body in new ways, hitting previously underused muscles, and increasing your workout's intensity in a significant way. But it can also be a sign that your workout is all over the place, you aren't progressing toward any one goal, and that your body is in dire need of recovery. **Virtually every exerciser has started a new workout, only to be riddled with DOMS a day or two later. Then, when they hit up the exact same workout the next week, no DOMS (or just less intense DOMS).** According to 2016 research from Brigham Young University, **it only takes one workout for your immune system to "learn" how to best repair your muscles from that workout. As a result, you boost your recovery while actually reducing your likelihood of getting DOMS. So if you're constantly dealing with DOMS, it's possible that you're trying new and different workouts every time that you hit the gym, which, in the end, can shortchange your results. Fitness results—it doesn't matter if we are talking increased speed, more muscle, less fat, or better heart health—need consistency.** Think about it this way: You aren't going to build a big booty by doing goblet squats one week and calf raises the next. No, you have to do squats every single week, increasing their depth, weight, or number of reps or sets, as often as you can. Meanwhile, if you're on the opposite end of the spectrum as a consummate creature of habit, more likely than not, **constant soreness is a telltale sign that you're overtraining** "You need to allow the muscles to recover so you're not overtraining or hitting plateaus, and continual DOMS can signal that your body is breaking down from your workouts, but not necessarily building back up afterward," Baltimore-based strength coach Erica Suter, C.S.C.S.said. "Proper recovery will allow for a stronger grind the next day, and for you to hone in on high intensity in subsequent workouts." From a purely logistical side of things, are you going to want to hit up a crazy hard cycling class when you can barely walk? **Seriously sore muscles can cause many exercisers to space their workouts further and further apart, or prevent them from performing those workouts with proper form,** Tennessee-based personal and online trainer Hannah Davis, C.S.C.S. said. That's a huge whole reason in itself to stop chasing soreness.

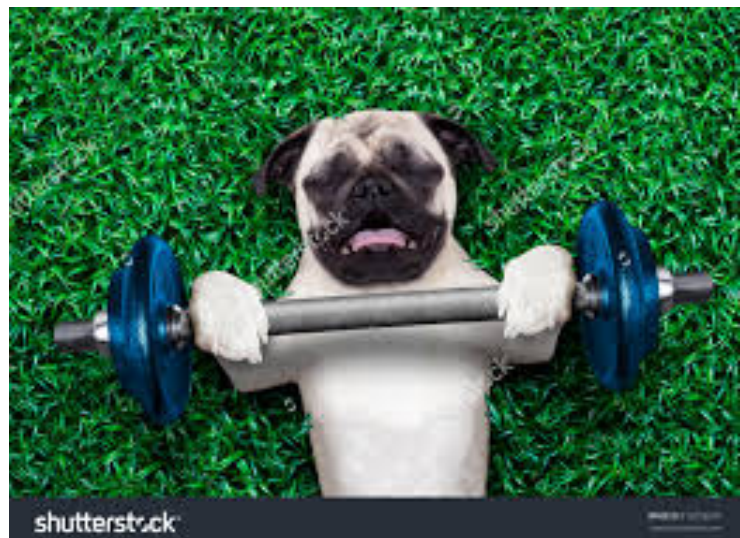
Here are three ways to tell if you really got a good workout:

1. **You leave the gym feeling better than when you got there.** "A sign of a great workout is that you actually feel great after the workout, not wrecked," Davis says. Sure, you should feel some fatigue in your muscles, but you should still feel **amped and energetic**, ideally even loosened up a bit.
2. **You get your heart rate up.** "Heart rate is objective, and with wearable technology, so simple to use," Michael Silverman P.T., M.S.P.T., director of rehabilitation and wellness at Northern Westchester Hospital said. Your maximum heart rate is roughly 220 beats per minute minus your age. Balls-to-the-wall **sprints should put you between 80 and 100% of your max heart rate (given your doc has OK'ed you getting your heart rate that high). Steady-state endurance work should get your heart rate up between 60 and 75% of your max. And if you're under 60%, you're probably (hopefully) stretching.**
3. **Your RPE is on point.** RPE is short for "rate of perceived exertion," a measure of exercise intensity based on how hard you feel you're working, on a scale from 1 to 10, with 10 being "I can't take one more step." **Steady-state cardio should have you working at an RPE of about 5 to 7, and high-intensity intervals about 8 to 9. But RPE is particularly helpful when gauging exercise intensity during strength workouts, which might not spike your heart rate as high as sprints would—but should still feel hard. "As some strength coaches say, 'weight lifting shouldn't tickle,' "** Suter says. Aim for an RPE of 7 to 9.

Self

Why Weight Training Is Ridiculously Good For You

For many, weight training calls to mind bodybuilders pumping iron in pursuit of beefy biceps and bulging pecs. But experts say it's well past time to discard those antiquated notions of what resistance training can do for your physique and health. Modern exercise science shows that **working with weights—whether that weight is a dumbbell or your own body—may be the best exercise for lifelong physical function and fitness.** “To me, resistance training is the most important form of training for overall health and wellness,” says Brad Schoenfeld, an assistant professor of exercise science at New York City’s Lehman College. During the past decade, Schoenfeld has published more than 30 academic papers on every aspect of resistance training—from the biomechanics of the push-up to the body’s nutrient needs following a hard lift. Many people think of weight training as exercise that augments muscle size and strength, which is certainly true. But Schoenfeld says **the “load” that this form of training puts on bones and their supporting muscles, tendons and ligaments is probably a bigger deal when it comes to health and physical function.** “We talk about bone resorption, which is a decrease in bone tissue over time,” he says. When you’re young, bone resorption is balanced and in some cases exceeded by new bone tissue generation. But later in life, bone tissue losses accelerate and outpace the creation of new bone. That acceleration is especially pronounced among people who are sedentary and women who have reached or passed menopause. This loss of bone tissue leads to the weakness and postural problems that plague many older adults. **“Resistance training counteracts all those bone losses and postural deficits.” Through a process known as bone remodeling, strength training stimulates the development of bone osteoblasts: cells that build bones back up. While you can achieve some of these bone benefits through aerobic exercise, especially in your lower body, resistance training is really the best way to maintain and enhance total-body bone strength. More research links resistance training with improved insulin sensitivity among people with diabetes and prediabetes.** One study published in the journal *Diabetes Care* found that twice-weekly training sessions helped control insulin swings (and body weight) among older men with type-2 diabetes. “Muscle is very metabolically active, and it uses glucose, or blood sugar, for energy,” says Mark Peterson, an assistant professor of physical medicine at the University of Michigan. During a bout of resistance training, your muscles are rapidly using glucose, and this energy consumption continues even after you’ve finished exercising. For anyone at risk for metabolic conditions—type-2 diabetes, but also high blood pressure, unhealthy cholesterol levels and other symptoms of metabolic syndrome—strength training is among the most-effective remedies **Strength training also seems to be a potent antidote to inflammation, a major risk factor for heart disease and other conditions.** A 2010 study from the University of Connecticut linked regular resistance training with inflammation-quelling shifts in the body’s levels of cytokines, a type of immune system protein. Another study from Mayo Clinic found that when overweight women did twice-weekly resistance training sessions, they had significant drops in several markers of inflammation. **More research has linked strength training to improved focus and cognitive function, better balance, less anxiety and greater well-being.** “It used to be thought that you needed to lift heavy loads in order to build muscle and achieve a lot of these benefits,” Schoenfeld says. “That’s what I was taught in grad school and undergrad, but now it looks like that’s completely untrue.” He says **lifting “almost to failure”—or until your muscles are near the point of giving out—is the real key, regardless of how much weight you’re using.** “This is a huge boon to adherence, because many older adults or those with injuries or joint issues may not be able to lift heavy loads,” he says. If all that isn’t convincing enough to turn you onto weights, perhaps this is: **maintaining strength later in life “seems to be one of the best predictors of survival,”** says Peterson. “When we add strength...almost every health outcome improves. It used to be we thought of strength training as something for athletes,” he adds, “but now we recognize it as a seminal part of general health and well-being at all ages.” *Time*



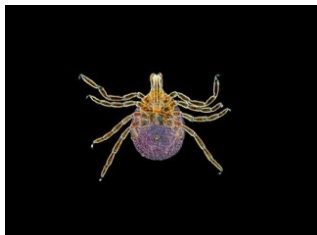
Are U.S. Teens Now as Inactive as 60-Year-Olds?

Research suggests that **the average teen is no more active than the average 60-year-old**. Researchers analyzed data from more than 12,500 people of various ages who wore activity tracking devices for seven straight days as part of national health surveys conducted between 2003 and 2006. The study found that **physical activity levels among children and teens were lower than previously thought**. The World Health Organization recommends at least 60 minutes of moderate-to-vigorous physical activity a day for children ages 5 to 17. But in the study, **more than 25% of boys and 50% of girls aged 6 to 11 and more than 50% of males and 75% of females aged 12 to 19 did not reach the WHO guidelines**, according to the researchers from the Johns Hopkins Bloomberg School of Public Health in Baltimore. **"Activity levels at the end of adolescence were alarmingly low, and by age 19, they were comparable to 60-year-olds,"** senior study author Vadim Zipunnikov said. "For school-age children, the primary window for activity was the afternoon between 2 p.m. and 6 p.m.. So, the big question is, how do we modify daily schedules, in schools, for example, to be more conducive to increasing physical activity?" The study also found that the only increases in physical activity levels occurred among young adults during their 20s. Activity levels fell through midlife and older adulthood. **In all age groups, males tended to be more active than females. However, after midlife, men's activity levels fell sharply compared to females. And among adults aged 60 and older, men were more inactive and had lower light-intensity activity levels than females.** While WHO recommendations focus on moderate-to-vigorous activity, even low-intensity physical activity should be encouraged. "The goal of campaigns aimed at increasing physical activity has focused on increasing higher-intensity exercise. These efforts should consider time of day and also focus on increasing lower-intensity physical activity and reducing inactivity."

Americans Want to Be Fit, But Most Don't Put in the Effort

More than three-quarters of U.S. adults said that being in shape and looking good were "very important" to them. A similar number wanted to change something about their body appearance. **Many people judged themselves as "too fat," or worried that they were not physically strong enough. Despite those feelings, only 31% said they make exercise a regular "habit." And 45% admitted they weren't active at all,** according to ReportLinker, a French technology company that did the survey. It's well-known that most U.S. adults fall short of physical activity recommendations, said Heather Hausenblas, a professor of kinesiology at Jacksonville University in Florida. **Only about one-fifth of Americans meet exercise guidelines.** For adults, the guidelines call for 2.5 hours of moderate aerobic activity each week, along with some kind of muscle-strengthening exercises at least two days out of the week. Both the American College of Sports Medicine (ACSM) and the American Heart Association say Americans should exercise for at least 30 minutes five times a week. But if so many Americans think they're out of shape and want to look better, why aren't they exercising? For one, **body dissatisfaction is not the best motivator. "If that's the reason you're starting to exercise, you're probably not going to stick with it,"** said Hausenblas. **"On the other hand, if health reasons are your main motivation, you're more likely to stay active."** That's partly because the health benefits of exercise go beyond the physical. **Once people make exercise routine, they may notice a "host of psychological benefits," such as feeling more energized and less stressed. It's effects like those that can help keep people on track."The more that physical activity becomes a habit, and you notice how good you feel, the more you miss it when you're not active."** Unfortunately, poor body image keeps some people from ever becoming active -- especially women. **"If you feel bad about your body, the last thing you want to do is strut into a gym."** Fortunately, there are plenty of ways to be active other than hitting the gym. **"Get up and walk. That's the No. 1 way of getting the ball rolling."** Peeke said **she avoids the term "exercise," in favor of encouraging people to move whenever they can -- in a world full of escalators, remote controls and desk jobs. "If you're on the phone, walk around while you talk. If you're at work, use the stairs to get to the bathroom three floors up, instead of using the one on your floor. We need to get creative in our daily lives."** Almost one-third of respondents who exercised said they stayed motivated with the help of friends or "exercise buddies." Others said they used smartphones and other devices to track their progress, such as seeing how many miles they were able to jog. The type of activity has to be based on personal preferences, too. The most popular activity was "training at a fitness center" -- cited by 40% of exercisers. About one-third said they jogged, swam or played basketball, while 21% took yoga classes. **"What's really important is that you do things you enjoy. If you like being outside, go outside for a walk. If you like taking a class, do that."** And always remember that it's not about looks or competition. **Three-quarters of survey participants admitted that they compared their physiques to others'. Focus on your personal strengths, and the more important reasons for staying active."Are you doing it for the sake of your well-being, and being there for your grandchildren?"** Peeke said. **"If your motivations are rooted in love for yourself, that's great. If it's all based on changing your appearance, then you've got a problem."**

Oh, Lovely: The Tick That Gives People Meat Allergies Is Spreading



First comes the unscratchable itching, and the angry blossoming of hives. Then stomach cramping, and — for the unluckiest few — difficulty breathing, passing out, and even death. In the last decade and a half, **thousands of previously protein-loving Americans have developed a dangerous allergy to meat. And they all have one thing in common: the lone star tick. Red meat, you might be surprised to know, isn't totally sugar-free. It contains a few protein-linked saccharides, including one called galactose-alpha-1,3-galactose, or alpha-gal, for short. More and more people are learning this the hard way, when they suddenly develop a life-threatening allergy to that pesky sugar molecule after a tick bite. Yep, one bite from the lone star tick —**

which gets its name from the Texas-shaped splash of white on its back — is enough to reprogram your immune system to forever reject even the smallest nibble of perfectly crisped bacon. For years, physicians and researchers only reported the allergy in places the lone star tick calls home, namely the southeastern United States. But recently it's started to spread. **The newest hot spots? Duluth, Minnesota, Hanover, New Hampshire, and the eastern tip of Long Island, where at least 100 cases have been reported in the last year. Scientists are racing to trace its spread, to understand if the lone star tick is expanding into new territories, or if other species of ticks are now causing the allergy. The University of Virginia is deep in the heart of lone star tick country.** It's also home to a world-class allergy research division, headed up by immunologist Thomas Platts-Mills. He'd been hearing tales of the meat allergy since the '90s — people waking up in the middle of the night after a big meal, sweating and breaking out in hives. But he didn't give it much thought until 2004, when he heard about another group of patients all suffering from the same symptoms. This time, it wasn't a plate of pork chops they shared; it was a new cancer drug called cetuximab. The drug worked, but curiously, patients that lived in the southeast were 10 times as likely to report side effects of itching, swelling, and a dangerous drop in blood pressure. He discovered that all the patients who experienced an allergic reaction had pre-existing antibodies to alpha-gal, and cetuximab was full of the stuff, thanks to the genetically modified mice from which it was derived. Platts-Mills turned to figuring out what made patients so sensitive to alpha-gal. The best hint he had was the geographic overlap between the cetuximab patients and previously reported meat allergies. The area perfectly matched where people came down with Rocky Mountain spotted fever — a disease carried by the lone star tick. But it wasn't until Platts-Mills and two of his lab members came down with tick-induced meat allergies of their own that they made the connection. Over the next few years Platts-Mills and his colleague Scott Commins **screened more meat allergy patients and discovered that 80% reported being bitten by a tick.** What's more, they showed that tick bites led to a 20-fold increase in alpha-gal antibodies. Since ethics standards prevented them from attaching ticks to randomized groups of patients, this data was the best they could do to guess how meat allergy arises. Something in the tick's saliva hijacks humans' immune systems, red-flagging alpha-gal, and triggering the massive release of histamines whenever red meat is consumed. Researchers are still trying to find what that something is. Commins has since moved to the University of North Carolina, where he's injecting mice with lone star tick extracts to try to understand which molecules are setting off the alpha-gal bomb. It's tricky: Tick saliva is packed with tons of bioactive compounds to help the parasite feed without detection. One of them might be an alpha-gal analogue — something similar-but-different-enough in shape that it sets off the human immune system. But it could also be a microbe — like a bacteria or virus — that triggers the response. Some have even suggested that residual proteins from the ticks' earlier blood meals could be the culprit. Whatever it is, allergy researchers will be paying attention. As far as anyone can tell, **alpha-gal syndrome seems to be the only allergy that affects all people, regardless of genetic makeup.** “There's something really special about this tick,” says Jeff Wilson, an asthma, allergy, and immunology fellow in Platts-Mills' group. Usually a mix of genes and environmental factors combine to create allergies. But **when it comes to the lone star tick it doesn't matter if you're predisposed or not.** “Just a few bites and you can render anyone really, really allergic,” he says. In the meantime, Platts-Mills, Commins, and Wilson are busy communicating the scale of the public health problem. Every day they check local news headlines to log new cases of catastrophic hamburger aversion, and spend hours on the phone gathering the latest intel from allergy clinics and academic centers around the country. They're building the first real meat allergy incidence map of the U.S. because state health departments aren't required to report alpha-gal syndrome to the CDC. And it's still rare enough outside the southeastern US that many doctors don't correctly diagnose it. As for a cure? There's not much science has to offer on that front, besides Epipens and veggie burgers. *Wired*

Vitamin Labels Are Wrong and Will Be for Years!

The government knows it, and the supplement industry knows it. But those who use vitamins every day probably don't know that **the label on every multivitamin and most other vitamin and mineral supplements – such as vitamin D, calcium, and B complexes — is wrong and misleading.** Last July, the U.S. Food and Drug Administration (FDA) updated decades-old Daily Values (DVs) which are meant to tell you how much of the daily requirement of specific nutrients is provided by a food or supplement. Some of these changes were minor and some were major. **Daily Values were raised for eight nutrients and lowered for twelve. A summary of these changes was published at the time by ConsumerLab.com (of which I am President).** Updating the DVs was a good idea. The problem is that they are not yet on labels. Large supplement companies were given two years — until July 2018 — to change their labels to reflect these new DVs, and smaller firms were given three years. That's a long time to wait to get correct information. And things just got worse: Two days ago, the FDA quietly added a note to its website indicating that the implementation is being delayed in a "... desire to give industry more time and decrease costs, balanced with the importance of minimizing the transition period during which consumers will see both the old and the new versions of the label in the marketplace." Now we don't know when labels will be corrected. The delay is actually driven largely by requests by the food industry, which asked to extend the deadline as 2021 because the new supplement labeling is part of broader revisions to food labels which include the disclosure of amounts of added sugar in products. Before his appointment, the new FDA Commissioner, Dr. Scott Gottlieb, indicated his willingness to extend the deadline. It may be a very long time before you're able to rely on the label to tell you if you're taking too much or too little of a vitamin or mineral, so it's time to make sure you understand your requirements and what's really being promised by products (let alone whether they actually contain these amounts – an issue ConsumerLab has been tackling through independent testing since 1999). To help you, **be aware that you can quickly check the new DVs, as well as the RDAs, at www.ConsumerLab.com/RDAs. In addition, ConsumerLab.com has calculated the correct new Daily Values for many popular Multivitamins and B Vitamins in its reports on those supplements, pointing out those which exceed upper tolerable intake levels. You should also pay particular attention to the amounts of vitamin D and folate in supplements, as current labels are way out-of-whack in providing proper guidance.** Previously, the DV for vitamin D was set at 400 International Units (IU) for everyone. The new DV (which you won't see on labels) is twice that: 800 IU. Bear in mind that the DVs are a one-size-fits-all system based on the highest Recommended Daily Allowances (or "RDAs," which are set by the independent Institute of Medicine) across a population. For example, **the RDA for vitamin D is 400 IU during infancy, 600 IU to age 70, and 800 IU over age 70. So if your vitamin claims to provide 100% of the DV for vitamin D, for anyone other than infants it actually provides only 50% to 67% of the daily requirement. (Keep in mind that many people who are not deficient in vitamin D already take too much, such as 5,000 IU daily, and this may reverse the benefits of vitamin D.)** One of the major changes and improvements in the Daily Values relates to folate: a B vitamin found in green leafy vegetables, such as spinach. Folate plays a critical role in cell division, and adequate intake can reduce the risk of heart disease and of developing certain cancers. However, most supplements provide folate in the form of the synthetic compound folic acid – and getting too much folic acid can have negative effects. **While the old DVs counted folic acid as equivalent to folate, the new DVs recognize that folic acid is absorbed better than folate and actually counts 70% more. As a result, a supplement which provides 400 micrograms (mcg) of folic acid and currently shows this as "100% DV" would, more accurately under the new DVs, show this same amount of folic acid as "680 mcg" of dietary folate equivalents and "170%" of the DV. This becomes particularly important with supplements that contain higher amounts of folic acid, many of which (including most prenatal supplements) provide 800 mcg of folic acid. There is no good reason for such a high amount and, according to the new DVs, this is actually 1,360 mcg of folate – 360 mcg above the upper tolerable limit of 1,000 mcg per day. On top of this, manufacturers often add extra folic acid to be sure you're getting the full amount listed on the label until the expiration date. With the current labels, what you think is helping you may be hurting you.** Once companies are required to apply the new DVs in their labels, they will likely reduce the amounts of folic acid in supplements. That will be good for the consumer, as most of us already get close to the daily requirement of folate from our diets) without causing harm. (Note: Pregnant women and those of child-bearing age should still look to get 400 mcg of folic acid from a supplement each day, in addition to getting folate from their diets, as this may reduce the risk of birth defects). Supplements have commonly been considered "buyer beware" products. The new DVs represent an opportunity to reduce this caution. **By dragging its feet on getting the new DVs on labels, the FDA is endangering the consumer and further tarnishing the reputation of the supplement industry.** That's not good for anyone. *Tod Cooperman, M.D.,*

4 Things You'd Never Guess Could Cause Skin Cancer—But Totally Can

Beyond **fair skin, light hair, and a proclivity for lobster-red sunburns**, new research is pinpointing less obvious risks for developing skin cancer. Check this list and be extra diligent with your SPF.

White Wine

Sorry to be a buzzkill, but according to a study published in *Cancer Epidemiology, Biomarkers & Prevention*, **each glass of white wine per day was associated with a 13% increased risk of melanoma**. The researchers hypothesize it's due to the DNA-damaging enzyme acetaldehyde, which is found in all alcoholic beverages but at higher levels in white wine. **Opt for red instead**, which researchers think has less of an association with melanoma risk, thanks to its higher level of antioxidants.

HPV

A study published in the *British Medical Journal* uncovered a connection between strains of HPV and the prevalence of squamous cell carcinomas, a nonmelanoma type of skin cancer. **The more strains of HPV a person carried, the more likely they were to develop squamous cell cancers in their lifetime**. If you're not sure if you have HPV, get tested.

A Relative With Red Hair

New research in *Nature Communications* shows **just carrying the gene that gives you red hair—the color runs in your family, but you are not ginger yourself—leads to 42% more sun-associated genetic mutations compared with people who did not carry the gene**. "It also raises the possibility that we can screen people for this gene so they can be more aware," says Ellen Marmur, M.D., a dermatologist and also an associate clinical professor at Icahn School of Medicine at Mount Sinai in NYC.

Citrus Juice

Consuming a cup serving of grapefruit or orange juice more than 1.6 times daily was found to up melanoma risk by 36%. Researchers, who published their findings in the *Journal of Clinical Oncology*, speculate it's because these fruits are rich in psoralen and furocoumarin compounds, which are thought to make skin more photosensitive. *Women's Health*

Running on Empty

Does Exercising in the Fasted State Burn More Calories?

"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.

"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." *Nutrition Action*

Grilled Sweet Potatoes with Fresh Cherry Salsa

2 medium sweet potatoes, cut into 3/4-in.-thick wedges (about 18 oz.)

1 tablespoon canola oil

2 teaspoons ground cumin

5/8 teaspoon kosher salt, divided

Cooking spray

2 cups fresh sweet cherries, pitted and coarsely chopped (about 13 oz.)

3/4 cup fresh corn kernels

1/4 cup thinly sliced green onions

1/4 cup thinly sliced white onion

2 1/2 tablespoons chopped fresh cilantro

1 1/2 tablespoons fresh lime juice

1/2 jalapeño, thinly sliced



Preheat grill to medium-high (about 450°F).

Fill a large saucepan with water to a depth of 1 inch; bring to a boil. Insert steamer basket. Add sweet potato wedges; cover, and steam 10 minutes. Combine potatoes, oil, cumin, and 1/4 teaspoon salt in a bowl; toss.

Coat grill grate with cooking spray. Add potatoes to grill; cook 2 minutes on each side or until tender. Place potatoes on a platter.

Combine remaining 3/8 teaspoon salt, cherries, and remaining ingredients in a bowl; spoon over potatoes.

Cooking Light 149 calories



This New Vegetable is a Must-try

If they already call you by your first name at that hot new eatery, you're probably several food fads ahead of the curve. But for the rest of us, say hello to the next to-die-for snack or side.

Shishito (shih-SHE-toe) peppers—finger-sized, heavily dimpled, and thin-fleshed—have long been a staple at Japanese restaurants, where they're prized for their mild, slightly smoky taste. But, as latimes.com put it last year, they're "having their moment" in the wider world. To see why, just heat a tablespoon of olive oil in a large, heavy pan until sizzling hot but not smoking, sauté half a pound of shishitos, stirring often, until the skin is blistered and the peppers have started to soften (3 to 5 minutes), sprinkle with a pinch of salt, and prepare to be wowed. You'll need to stay on your toes, though. **While most shishitos are mild, one out of every 10 or 20 packs some serious heat.** That adds "a level of playfulness to the eating experience that most foods can only dream of," as pepperscale.com notes. Look for shishitos—or nearly identical **Padrón peppers** or (low- or no-heat) **cubanelles**—at your farmers market, Trader Joe's, Whole Foods, or other grocery store. Then cook yourself up a shishito storm. *Nutrition Action*

I tried these recently at the new Bohemian Hotel, where they're on the menu as an appetizer. Loved them!