

# IS SITTING

There's no running away from it:  
The more you sit, the poorer your  
health and the earlier you may die,

**no matter how fit you are**



# THE NEW SMOKING

BY **SELENE YEAGER**

PHOTOGRAPHS BY Nick Ferrari

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**You've no doubt** heard the news by now: A car-commuting, desk-bound, TV-watching lifestyle can be harmful to your health. All the time we spend parked behind a steering wheel, slumped over a keyboard, or kicked back in front of the tube is linked to increased risks of heart disease, diabetes, cancer, and even depression—to the point where experts have labeled this modern-day health epidemic the “sitting disease.”

But wait, you're a runner. You needn't worry about the harms of sedentary living because you're active, right? Well, not so fast. A growing body of research shows that people who spend many hours of the day glued to a seat die at an earlier age than those who sit less—even if those sitters exercise.

“Up until very recently, if you exercised for 60 minutes or more a day, you were considered physically active, case closed,” says Travis Saunders, a Ph.D. student and certified exercise physiologist at the Healthy Active Living and Obesity Research Group at Children's Hospital of Eastern Ontario. “Now a consistent body of emerging research suggests it is entirely possible to meet current physical activity guidelines while still being incredibly sedentary, and that sitting increases your risk of death and disease, even if you are getting plenty of physical activity. It's a bit like smoking. Smoking is bad for you even if you get lots of exercise. So is sitting too much.”

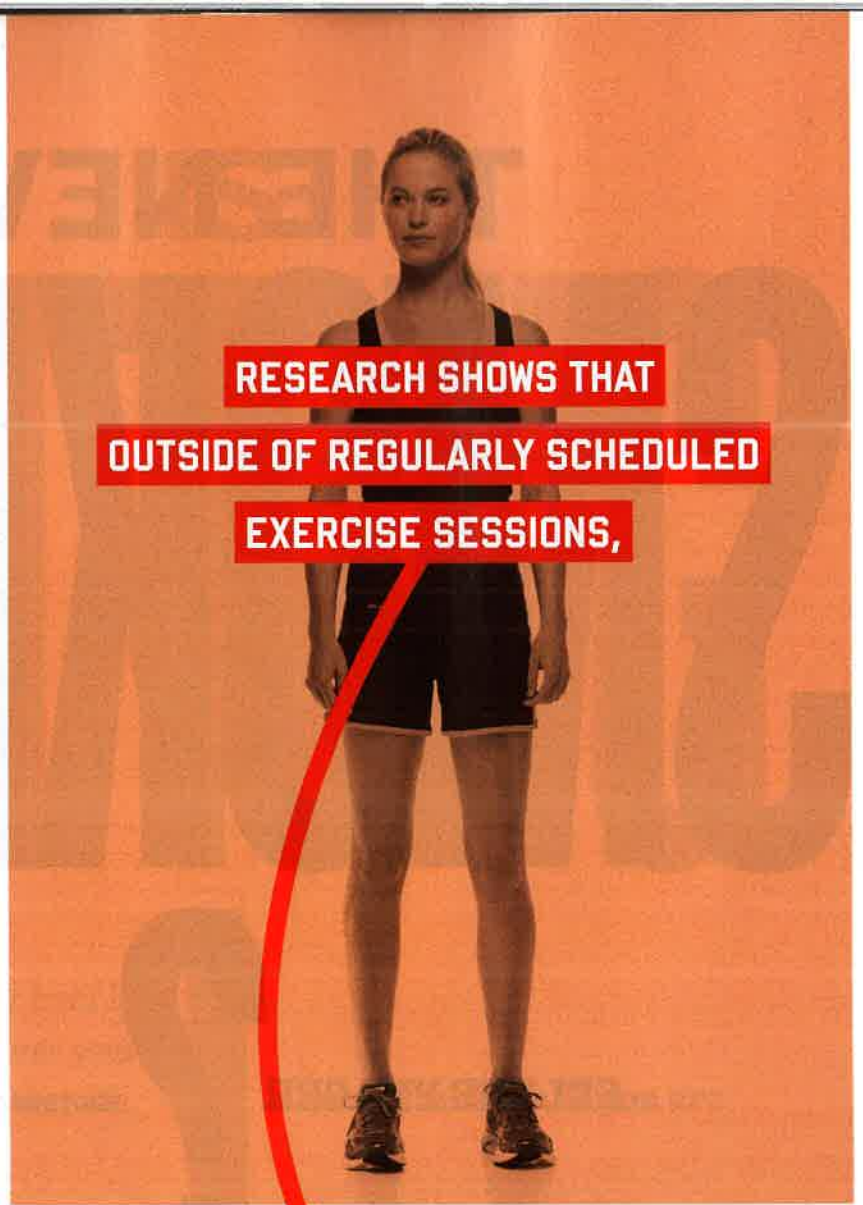
Unfortunately, outside of regularly scheduled exercise sessions, active people sit just as much as their couch-potato peers. In a 2012 study published in the *International Journal of Behavioral Nutrition and Physical Activity*, researchers reported that people spent an average of 64 hours a week sitting, 28 hours standing, and 11 hours milling about (nonexercise walking), whether or not they exercised the recommended 150 minutes a week. That's more than nine hours a day of sitting, no matter how active they otherwise were. “We were very surprised that even the highest level of exercise did not matter squat for reducing the time spent sitting,” says study author Marc Hamilton,

Ph.D., professor and director of the inactivity physiology department at Pennington Biomedical Research Center. In fact, regular exercisers may make less of an effort to move outside their designated workout time. Research presented at the 2013 annual meeting of the American College of Sports Medicine from Illinois State University reports that people are about 30 percent less active overall on days when they exercise versus days they don't hit the road or the gym. Maybe they think they've worked out enough for one day. But experts say most people simply aren't running or walking or even just standing enough to counteract all the harm that can result from sitting eight or nine or 10 hours a day.

### **SPUDS** on the RUN

**Unless you have** a job that keeps you moving, most of your nonrunning time is likely spent sitting. And that would make you an “active couch potato”—a term coined by Australian researcher Genevieve Healy, Ph.D., of the University of Queensland to describe exercisers who sit most of their day. If they aren't careful, she says, active couch potatoes face the same health risks as their completely inactive counterparts.

“Your body is designed to move,” Hamilton says. “Sitting for an extended period of time causes your body to shut down at the metabolic level.” When your muscles, especially certain leg muscles, are immobile, your circulation slows. So you use





**ACTIVE PEOPLE SIT AS MUCH  
AS COUCH POTATOES—AN AVERAGE  
OF 64 HOURS A WEEK.**

less of your blood sugar and you burn less fat, which increases your risk of heart disease and diabetes. Indeed, a study of 3,757 women found that for every two hours they sat in a given work day, their risk for developing diabetes went up seven percent, which means their risk is 56 percent higher on days they sit for eight hours. And a study published in the *American Journal of Epidemiology* reports that a man who sits more than six hours a day has an 18 percent increased risk of dying from heart disease and a 7.8 percent increased chance of dying from diabetes compared with someone who sits for three hours or less a day. Although running does much good for you, Healy says, if you spend the rest of your waking hours

sitting, those health benefits depreciate. In a 12-year study of more than 17,000 Canadians, researchers found that the more time people spent sitting, the earlier they died—regardless of age, body weight, or how much they exercised.

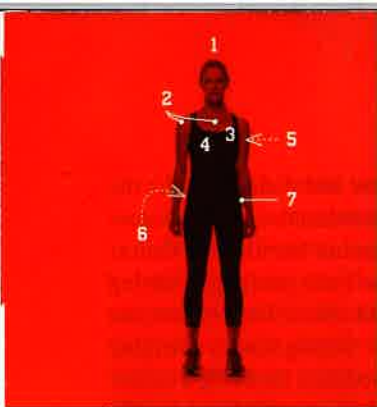
Adding to the mounting evidence, Hamilton recently discovered that a key gene (called lipid phosphate phosphatase-1 or LPP1) that helps prevent blood clotting and inflammation to keep your cardiovascular system healthy is significantly suppressed when you sit for a few hours. “The shocker was that LPP1 was not impacted by exercise if the muscles were inactive most of the day,” Hamilton says. “Pretty scary to say that LPP1 is sensitive to sitting but resistant to exercise.”

Heart disease and diabetes aren't the only health hazards active couch potatoes face. The American Institute for Cancer Research now links prolonged sitting with increased risk of both breast and colon cancers. “Sitting time is emerging as a strong candidate for being a cancer risk factor in its own right,” says Neville Owen, Ph.D., head of the Behavioral Epidemiology Laboratory at Australia's Baker IDI Heart and Diabetes Institute. “Emerging evidence suggests that the longer you sit, the higher your risk. It also seems that exercising won't compensate for too much sitting.” According to Alberta Health Services-Cancer Care in Canada, inactivity is linked to 49,000 cases of breast cancer, 43,000 cases of colon cancer, 37,200 cases of lung cancer, and 30,600 cases of prostate cancer a year.

As if that weren't enough to put you in a sad state, a 2013 survey of nearly 30,000 women found that those who sat nine or more hours a day were more likely to be depressed than those who sat fewer than six hours a day because prolonged sitting reduces circulation, causing fewer feel-good hormones to reach your brain.

Scared straight out of your chair? Good. Because the remedy is as simple as standing up and taking activity breaks. Stuart McGill, Ph.D., director of the Spine Biomechanics Laboratory at the University of Waterloo says that interrupting your sedentary time as often as possible and making frequent posture changes is important. “Even breaks as short as one minute can improve your health,” he says. Developing healthier habits will also improve your running performance, says Nikki Reiter, biomechanist with The Run S.M.A.R.T. Project (see “Avoid the Chair,” page 64). The combination of going for a run and then parking your butt for the rest of the day (or vice versa) could be a recipe for injury. “The static sitting position can cause certain muscles to become tight or overstretched, neither of which is good for your running,” she says. Even if you went for a really intense or long run, regular activity throughout the day will help your recovery. So stand up now: It's good for your body *and* mind.





# Avoid the Chair

It can hurt your health *and* your running

## **BAD** CHAIR

[1] Prolonged sitting reduces circulation to the brain, hurting creativity and mood.

[2] Hunching over a desk weakens back muscles and tightens chest muscles. When you run, your arms may move back and forth across the chest, which may spur lower-body rotation that can lead to iliotibial-band syndrome and shin and foot pain, biomechanist Nikki Reiter says.

[4] Sedentary behavior has been linked to various forms of cancer: breast, colon, lung, and prostate.

[5] Just 20 minutes of slouching in a chair increases laxity in your spinal ligaments—a bad thing for runners, says Stuart McGill, Ph.D., a professor of spine biomechanics at the University of Waterloo in Ontario. “Sitting stretches out your spine and essentially puts your muscles to sleep,” he says.

[3] Certain leg muscles contain enzymes that keep blood fats in check. They go idle when you sit for too long, and that increases your risk of heart disease.

It can take a half hour for the spine to regain its stiffness, and a stiff core gives your body the power to drive your hips and legs.

[6] Glute muscles (particularly the gluteus medius) get lengthened when you sit too long, and that interferes with their ability to fire quickly or stabilize the pelvis when you run. Other muscles and tendons step in to pick up the slack, says Reiter, which can lead to all sorts of runner woes, including hamstring strains, iliotibial-band syndrome, knee pain, and excessive pronation.

[7] When you're parked in a chair, your hip flexors tighten up, which decreases the range of motion in your hips and robs your ability to extend your hips, drive your knees, and produce power, Reiter says.



## **BETTER** STABILITY BALL

While sitting on a stability ball isn't enough of a core workout to score you six-pack abs, it promotes movement—and any extra movement you can squeeze into your day is good, says Douglas Lentz, M.S., C.S.C.S., a certified strength and conditioning specialist and the director of fitness and wellness for Summit Health in Chambersburg, Pennsylvania. “You'll engage more muscles than you would in a traditional office chair because you'll move around more on a ball,” he says. “You'll also likely stand up more often because you're not too comfortable and melting into a chair.”



## **BEST** ADJUSTABLE DESK

The ideal scenario is an adjustable workstation that allows you to work on your feet as well as your seat (see “Flex Your Desk,” opposite page). Why not just stand? Because being on your feet all day isn't necessarily good for you either, says Alan Hedge, Ph.D., C.P.E., director of the Human Factors and Ergonomics Laboratory at Cornell University. “Prolonged standing places an additional load on your heart and circulatory system, puts a strain on your legs and feet,” he says. “It's best to alternate between the two.”

## FLEX YOUR DESK

*With a little ingenuity, you can create a sitting/standing workstation*

→ The simplest way to transform a traditional desk is to place boxes or books under your monitor and keyboard. A high-seat stool allows you to sit. For the best ergonomics, your keyboard should be at or slightly below elbow height, with your monitor at eye level. If you plan on standing for long periods of time, ergonomics expert Alan Hedge, Ph.D., recommends placing a footrest under your desk—propping one foot up will help you change positions and allow you to give each foot a break throughout the day. A padded mat can also reduce stress on your legs and feet. Forget about standing all day in high heels or unsupportive shoes. “You need anti-fatigue footwear,” Hedge says. (Running shoes, anyone?) If you’re committed to a bigger investment, here are a few high-tech solutions.

### Move your computer

Ergotron’s WorkFit sits atop your desk and holds your keyboard and monitor so you can manually slide them up and down (\$479, [ergotron.com](http://ergotron.com)).

**Move your desk** ErgoDepot sells several adjustable desks, which allow your entire work surface (computer, phone, coffee mug) to move up and down with you with the touch of a button (beginning at \$559, [ergodepot.com](http://ergodepot.com)).

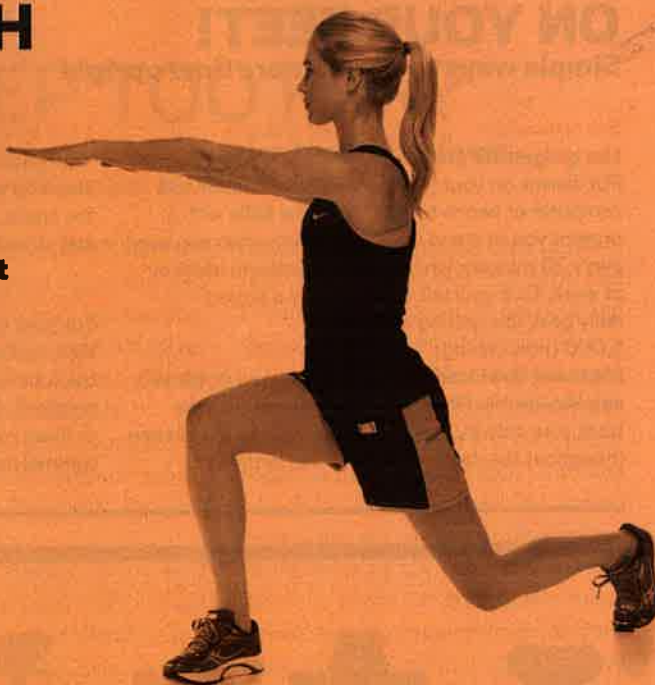
**Move your feet** Under-the-desk stair-stoppers, cycles, or elliptical machines allow you to move as you type. Since these devices are portable, you can easily push them aside when you want a break (most cost less than \$100, [amazon.com](http://amazon.com)). Treadmill workstations are more of a commitment (see “A Step Too Far?” page 67). The desk is affixed to a treadmill (\$1,300, [ergodepot.com](http://ergodepot.com)).

## STRETCH IT OUT

**Sit all day? Work these exercises into your routine to help you feel—and run—your best**

*This exercise wakes up muscles in your glutes, hamstrings, and lower back to prep them for a workout*

**BEFORE YOU RUN**



**ACTIVATION X-LUNGE** Stand with feet together and arms raised straight in front of you at shoulder height, palms facing down. Imagine you are standing on a clock, facing 12. Step out with your right foot to the 2 o’clock position and lower down into a lunge, keeping your right knee aligned over the toes of the right foot. As you lunge, rotate your torso toward the right. Push off with the right foot; return to start, and repeat to the left, stepping out to the 10 o’clock position. That’s one rep; do 10.

**IN YOUR OFFICE**

*These stretches reduce stress on your spine and open tight hips—do them a few times a day*



**REACH AND EXTEND** Stand up from your chair, kick off unsupportive shoes, and extend your arms overhead. Reach your palms toward the ceiling while bending backward and breathing deeply for several breaths.

**GIANT STEP STRETCH** Take a giant step back with your right foot and lower into a lunge position. Bend your left knee and tuck your pelvis. Raise your right arm out to the side and then extend it overhead. Lean slightly to the left from the waist. Hold 10 seconds. Repeat two or three times on each side.



# ON YOUR FEET!

## Simple ways to spend more time upright

### Set reminders

Use gadgets for good: Put alarms on your computer or phone to prompt you to stand up every 20 minutes while at work. Give yourself a daily goal, like getting in 5,000 (nonrunning) steps and download an app like Garmin Fit to track your activity level throughout the day.

### Walk and talk

Skip the stodgy conference room and walk the halls with a coworker when you need to brainstorm ideas or discuss a project.

### Chat them up

Take phone calls while standing up. If you have the space, pace around and stretch.

### Exercise limits

Cut back on TV and Web-surfing time. Watch the tube from your treadmill. Or do planks or foam roll during commercials.

### Drink more

Refilling your bottle will require you to make more trips to the kitchen and the bathroom.



# In Good Company

Three out of four full-time desk-jockeys wish they didn't have to sit all day, says a survey from Just Stand.org. And employers are responding: An increasing number of companies, including Rodale (owner of *Runner's World*), are allowing employees to swap out traditional desks and chairs for workspaces that get them up on their feet. David Kahl, president of Ergo Depot, an online hub for ergonomic furniture, has outfitted offices at Nike, MTV, Disney, Intel, and Harvard University with active workspaces, including adjustable desks and treadmill workstations. "We've averaged about 60 percent growth per year over the last three years," Kahl says of the retailer he started in 2005. "I think there's a shift happening where people really want to make a change and do things in a healthier way." These four active-minded companies lead the charge.

**GOOGLE** The tech giant has been offering adjustable and standing desks since 2005 (36 percent of workers chose them). It even has a dedicated space in its Mountain View, California, office dubbed Living Lab, where employees test innovative workspaces. "It definitely feels like we're working in the office of the future," says Chrissy Persico, a consumer media manager at the company. "At my previous job, I felt chained to my desk. But at Google, there's a lot of movement. People get up and find new places to work; they sit in communal areas or book time at the treadmill desks. It's a huge part of our culture."



## NOT YOUR AVERAGE CHAIR

*Sometimes you just have to sit, and when you must, there are some dynamic designs that promote more movement than the traditional office chair. Be wary of any seat that's too soft, says ergonomics expert Alan Hedge, Ph.D., as you might be tempted to sit all day. —MEGAN HETZEL*

### [1] Gaiam Balance

**Ball Chair** This hybrid between a standard chair and a stability ball has a rounded, unstable surface as a seat, which engages core muscles. Since it's attached to a base with wheels, it's easier to maneuver around a workspace, and the ball won't roll away when you're not using it (\$80, [gaiam.com](http://gaiam.com)).

### [2] HAG Capisco

**Chair** Designed for sit-to-stand workstations, this adjustable-height chair's molded plastic seat allows your legs to hang comfortably down (like in a saddle), which allows for a more natural hip angle and encourages better circulation in your legs. The seat also bends and flexes in all directions, so it encourages more movement even while you're sitting (\$676, [ergodepot.com](http://ergodepot.com)).

### [3] Varier Move

**Stool** Also meant for adjustable workstations, this stool features a convex base, which allows the stool to rotate in all directions, encouraging you to shift spontaneously as you work (\$475, [ergodepot.com](http://ergodepot.com)).

### [4] Locus Seat

**Designed by Martin Keen** (founder of Keen Footwear), this unique half-standing, half-sitting stool puts you in a "perching" position. Your body is upright, which relieves pressure off your back and helps keep your hips open, but you get a bit of a rest from the seat that supports your rear (\$690, [store.focaluprightfurniture.com](http://store.focaluprightfurniture.com)).



**GROUPON** Sparked by employees who began MacGyver-ing standing workstations, Chicago-based Groupon is now helping employees make the switch to official standing setups. "It was born out of our employees' desire," says Shannon Welling, an engineering process improvements coordinator at the company. "They tell us they don't get mentally stuck and feel less bogged down when they stand." Groupon also offers high tables, stability balls, and swings (yes, swings!) in communal spaces and promotes "stand-ups," where employees circle-up for meetings.

**EPIPHEO** This small, quirky video production agency aims to foster an imaginative environment. So when it was time to outfit its Portland, Oregon, and Cincinnati, Ohio, office spaces in 2010, founders put in several adjustable desks that raise and lower with the touch of a button, allowing members of its creative team to sit or stand as the mood strikes. "We're not a huge corporation that has an on-site gym, so it's our way of trying to offer a healthier environment," says Ryan JD Christensen, brand strategy ambassador.

**WESTTOWN-THORNBURY ELEMENTARY SCHOOL** Forget desk chairs—and antsy students, for that matter. When Robbi Giuliano heard of a company that increased productivity when employees sat on stability balls, the fifth-grade teacher in West Chester, Pennsylvania, encouraged her students to bring the balls to class. Three years later: "I can get through a lot more curriculum because the kids are so attentive," she says. The balls engage kids' muscles and boost circulation, helping improve focus. Although some studies question the core workout ball-sitters get, Giuliano doesn't. "Every year, we do a balance test—no hands, no feet on the ground," she says. "In August, they can do it for a few seconds. In June, I have to stop them at 10 minutes." —M.H.

## A STEP TOO FAR?

At a treadmill desk, a runner tries to mix business with "pleasure" BY MARK REMY

→ *I'm working on a treadmill!* That's the first thought you have when you step onto the belt of a treadmill workstation, press START, and dive into whatever task is before you. (Writing about treadmill workstations, for instance.)

And here's the second thought you have, once the novelty wears off, which for me took about 90 seconds: *I'm working. On a treadmill.*

Then come the gawkers. If you use a treadmill desk in a public office space, as I did here at *Runner's World*, people pause, ogle, inquire, joke. Even the runners. You can't blame them—after all, here's someone working on a treadmill!—though it's hard to focus when you feel like a sideshow attraction.

After a few days of working on one, this is the most honest assessment I can offer. From the get-go, the incline of my enthusiasm level was stuck at zero. But, hey, tedium is a small price to pay for keeping death at bay, right? Because surely you know by now that sitting all day will kill you. Really, if research is to be believed, if you sit too much you might as well have a pack-a-day habit.

This is why I've been using an adjustable stand-up desk for about two years now. When I feel like sitting, I lower the keyboard tray and monitor; when I want to stand, I raise it. Easy as pie. This arrangement has made a real difference

in how I feel and maybe even in how I run—my muscles feel less tight, and I've noticed fewer knots in my neck and shoulders at the end of the day.

You'd think, then, that taking the next logical step—onto a treadmill workstation—would make me feel even better. Right? Well, it certainly didn't hurt. But I didn't feel that walking while I worked helped me, say, recover quicker from a run or warm up any better before one. It didn't do much for my creative juices either: Strolling outdoors might help me clear my head. Running outdoors almost always does. But on a treadmill? Not so much. And I couldn't see it much affecting my weight. On the one hand, the treadmill told me I was burning about 400 extra calories per workday; on the other hand, after work, another beer was that much easier to justify.

So what does working on a treadmill feel like? Mostly it feels...strange. You notice a disconnect between the lower half of your body and the upper half. Above the waist, you're typing. Below, you're taking a stroll. It's odd. You start to feel like a mythological creature with the legs of a pedestrian and the torso of a white-collar worker.

None of which is to say that my time on the treadmill desk was a total drag. It wasn't. The FitWork Walkstation I used was a fine machine, with a stable deck and whisper-quiet motor. It was a snap to use. (Though I was bummed to discover that the top speed was two miles per hour. So much for my "conference call fartlek" plan.)

Of course, if you have the means and the motivation to try a treadmill desk, by all means, do so. True, it didn't transform my running. But your mileage, as the saying goes, may vary. **RW**

