Don’t just sit there!

We know sitting too much is bad, and most of us intuitively feel a little guilty after a long TV binge. But what exactly goes wrong in our bodies when we park ourselves for nearly eight hours per day, the average for a U.S. adult? Many things, say four experts, who detailed a chain of problems from head to toe.

### REPORTING BY BONNIE BERKOWITZ; GRAPHIC BY PATTERSON CLARK

#### ORGAN DAMAGE
Heart disease
Muscles burn less fat and blood flows more sluggishly during a long sit, allowing fatty acids to more easily clog the heart. Prolonged sitting has been linked to high blood pressure and elevated cholesterol, and people with the most sedentary time are more than twice as likely to have cardiovascular disease than those with the least.

Overproductive pancreas
The pancreas produces insulin, a hormone that carries glucose to cells for energy. But cells in idle muscles don’t respond as readily to insulin, so the pancreas produces more and more, which can lead to diabetes and other diseases. A 2011 study found a decline in insulin response just one day of prolonged sitting.

Colon cancer
Studies have linked sitting to a greater risk for colon, breast and endometrial cancers. The reason is unclear, but one theory is that excess insulin encourages cell growth. Another is that regular movement boosts natural antioxidants that kill cell-damaging — and potentially cancer-causing — free radicals.

#### MUSCLE DEGENERATION

Musky abs
When you stand, move or even sit up straight, abdominal muscles keep you upright. But when you slump in a chair, they go unused. Tight back muscles and wimpy abs form a posture-wrecking alliance that can exaggerate the spine’s natural arch, a condition called hyperlordosis, or swayback.

Tight hips
Flexible hips help keep you balanced, but chronic sitters so rarely extend the hip flexors in front that they become short and tight, limiting range of motion and stride length. Studies have found that decreased hip mobility is a main reason elderly people tend to fall.

Limp glutes
Sitting requires your glutes to do absolutely nothing, and they get used to it. So flat glutes hurt your stability, your ability to push off and your ability to maintain a powerful stride.

#### LEG DISORDERS
Poor circulation in legs
Sitting for long periods of time slows blood circulation, which causes fluid to pool in the legs. Problems range from swollen ankles and varicose veins to dangerous blood clots called deep vein thrombosis (DVT).

Soft bones
Weight-harming activities such as walking and running stimulate hip and lower-body bones to grow thicker, denser and stronger. Scientists partially attribute the recent surge in cases of osteoporosis to lack of activity.

### The experts

- Scientists interviewed for this report:
  - James A. Levine, inventor of the treadmill desk and director of Obesity Solutions at Mayo Clinic and Arizona State University.
  - Charles E. Matthews, National Cancer Institute investigator and author of several studies on sedentary behavior.
  - Jay Dicharry, director of the REP Biomechanics Lab in Bend, Ore., and author of “Anatomy for Runners.”
  - Tai Amass, biomechanist at Barry University’s Department of Sport and Exercise Sciences.


### Mortality of sitting

<table>
<thead>
<tr>
<th>Hours of TV per day</th>
<th>People who watched the most TV in an 8.5-year study</th>
<th>Greater risk of dying than those who watched less than one hour per day</th>
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<tbody>
<tr>
<td>1-2</td>
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<td>7+</td>
<td>61%</td>
<td>100%</td>
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</tbody>
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### So what can we do? The experts recommend . . .

- **Sitting on something wobbly**: such as an exercise ball or even a backless stool to force your core muscles to work, sit up straight and keep your feet flat on the floor in front of you so they support about a quarter of your weight.

- **Stretching the hip flexors** for three minutes per side once a day, like this: Walking during commercials when you’re watching TV. Even a snail-like pace of 1 mph would burn twice the calories of sitting, and the vigorous exercise would be even better.

- **Alternating between sitting and standing** at your work station, if you can’t do that, stand up every half hour or so and walk.

- **Trying yoga poses** — the cow pose and the cat — to improve extension and flexion in your back.

### The RIGHT WAY TO SIT

- **The experts** recommend:
  - Elbows bent 90 degrees
  - Shoulders relaxed
  - Elbows close to sides
  - Lower back may be supported
  - Feet flat on floor
  - Proper alignment of cervical vertebrae
  - Lumbar region low by shortened psoas