

# Is Sitting the Next Smoking?



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For the better part of my 37 year career as a chiropractor, I have been talking to individual patients, groups and companies about poor sitting posture and it's effect on back and neck pain.

Over the last few years more information has come to light that indicates that prolonged sitting has far more serious consequences. This information movement has gained speed under the new catch phrase... "Sitting Is The Next Smoking".

For years the concept that "smoking is bad" has been drilled into us. If we could associate the act of sitting with the act of smoking then the thought is that we would see that "sitting is bad"

In this paper I have put together all the information I could gather to present to you in hopes of using the new material to piggyback onto my concerns related to the physical consequences of sitting.

I will be giving you all the new material as well as my material.

I'd like to begin with the new material. There have been several very informative studies done in the last few years but in January of 2015 a study published in the Annals of Internal Medicine put all the eggs in one basket for everyone to understand. The study rocked the media world here in Canada as well as the United States and countries around the world.

Toronto researchers reviewed 41 recent peer reviewed international studies on this subject. They found that time sitting was definitely associated with heart, diabetes and cancer deaths and equally important was their finding that physical activity may not be enough to reduce the risk.

The paper found that prolonged sedentary behavior was associated with a 15 to 20% higher risk of death from **any** cause. (heart, cancer etc) and as much as 90%

increased risk of developing diabetes and that was after adjusting for the effects of regular exercise.

Dr. James Levine, co-director of the Mayo Clinic and the Arizona State University Obesity Initiative, and author of the book *Get Up! Why Your Chair Is Killing You and What You Can Do About It*, has dedicated a good part of his career to investigating the health effects of sitting. His investigations show that when you've been sitting for a long period of time and then get up, a number of molecular cascades occur. For example, within 90 seconds of standing up, the muscular and cellular systems that process blood sugar, triglycerides, and cholesterol—which are mediated by insulin—are activated.

All of these molecular effects are activated simply by carrying your own bodyweight. These cellular mechanisms are also responsible for pushing fuel into your cells and, if done regularly, will radically decrease your risk of diabetes and obesity. In short, at the molecular level, your body was designed to be active and on the move all day long. When you stop moving for extended periods of time, it's like telling your body it's time to shut down and prepare for death... As noted by Dr. Levine, while we clearly need to rest from time to time, that rest is supposed to break up activity—not the other way around! Inactivity—sitting—is not supposed to be a way of life.

## Negative Effects of Sitting

### 1. Diabetes

So how exactly does sitting cause diabetes you might ask?

All of the food we eat — fats, proteins and carbohydrates — is broken down during digestion into proteins, micronutrients and glucose (sugar). The body uses the proteins and nutrients in cellular metabolism, immune function, and cell replacement. The body uses glucose as its basic fuel, which is carried by the bloodstream to individual cells.

Within the cells a series of reactions take place that turns glucose into energy (ATP) which is then used to fuel all metabolism within the cell

Our demand for fuel varies from moment to moment, but the brain needs our blood sugar level to remain stable. So getting the cells the energy they need without changing that level is a critical function — and that’s the role that insulin plays. Insulin signals the cells to absorb glucose from the bloodstream. The body monitors what we’ve digested, blood sugar levels, and cell demands, and releases insulin in just the right amounts. That’s why a healthy body is described as **“insulin sensitive.”**

So what is insulin resistance?

Insulin is a hormone produced in the pancreas. It helps control glucose, or blood sugar levels.

Normally glucose is carried by the bloodstream to individual cells, and insulin signals the cells to absorb the glucose that fuels our body. But when there is too much glucose in the body, cells become desensitized and the body continues to release more insulin, allowing blood sugar levels to become high. Prolonged high levels of insulin disrupts cellular metabolism, increases inflammation, and eventually the cells quit responding to the signal from insulin — creating insulin resistance. Diabetes is just one of the common diseases resulting from insulin resistance, and occurs when the body is unable to manage blood glucose levels. Our metabolism evolved eons ago, when our diet included fewer (and more complex) carbohydrates. Today most calories in an average diet come in the form of carbohydrates, and most of those are simple carbohydrates — sugars that quickly enter the bloodstream. The body has to release high levels of insulin to keep the level of glucose in the bloodstream from spiraling out of control. But in time the cells quit responding to this signal. At this point the body is “insulin resistant.”

One immediate consequence is that the body is forced to release even more insulin. Letting blood sugar get too high is simply not acceptable. The resulting excess of insulin in the bloodstream is called hyperinsulinemia. But the body wasn’t designed for these prolonged high levels of insulin, which disrupt cellular metabolism and spread inflammation. Diabetes occurs when the body is unable to keep blood glucose under control.

There are 2 main types of diabetes

Type 1 is characterized by a defect in the islet cells of the pancreas that makes them unable to produce any insulin at all.

Type 2, also commonly referred to as adult onset diabetes mellitus or noninsulin-dependent diabetes, develops when cells become resistant to insulin.

This system is very dependent on a balance between energy intake (diet) and energy expenditure (activity).

The biggest user of energy in our body is the skeletal muscle system. Inactive muscles (sitting) require less energy and therefore don't respond very well to insulin. The body then begins to produce more insulin in an attempt to regulate the excess blood sugar, putting more pressure on cells to use more. Unless energy intake is reduced to match the low expenditure, the cells of the body become **resistant** to the insulin and the whole system breaks down.

## 2. Obesity

A number of scientific papers over the last number of years have suggested that increased food intake is largely if not completely responsible for the obesity epidemic.

One of the arguments used to support this hypothesis is that time spent in leisure activities has remained unchanged for decades, leading to the conclusion that it is solely excessive caloric intake that has led to the upsurge in obesity.

A paper authored by Timothy Church and published in May 2011 entitled "Trends Over 5 Decades in U.S. Occupation Related Physical Activity and Their Association With Obesity" puts a different spin this issue.

He makes the point that time spent on leisure activity represents a relatively small portion of total hours in a week.

More importantly, occupational physical activity has a far greater potential to have a significant impact on total caloric expenditure.

This paper explores the question of decreased occupational activity.

Over the last 50 years there has been a progressive decrease in the percentage of individuals employed in goods producing and agricultural occupations and an increase in the percentage of individuals employed in service occupations.

This has resulted in a dramatic shift away from occupations that require moderate intensity physical activity to occupations that are largely composed of sitting and sedentary behavior.

In the early 1960's, 50% of the work force was engaged in activities requiring at least a moderate level of activity. Today it is now less than 20%.

Daily occupational related energy expenditures (waste) have decreased by 100 calories/day and their conclusion is that this reduction accounts for a large portion of the increase in weight gain.

The relationship between calorie consumption and caloric waste (usage or elimination) has always been the measurement stick.

As previously mentioned, it has always been assumed that increased caloric content was solely the problem. This paper has shown that caloric usage was grossly underestimated based on the decrease in occupational activity.

## 2. Risk of Colon, Breast & Endometrial Cancer

The effects of an increased level of insulin in the body have been well documented. The increased level produces an increase in Free Radicals which have been linked to all kinds of cancers.

A decrease in activity reduces the production of antioxidants that fight off these free radicals.

## 3. Circulation Problems

Good blood flow through the body is essential to the normal function of all cells of the body. The circulatory system is the transportation network for all nutrients required by the body.

While the heart is the main pumping mechanism for blood flow, muscle activity also provides a significant amount of the pumping action of blood through the system. A slow sluggish circulatory system can cause a number of problems ranging from plaque build-up and artery blockage in arteries to a slow down of all metabolic processes.

#### 4. Brain Fog

We all are aware of what damage a decreased blood flow in the extreme (stroke) can cause but lesser degrees of reduced flow can also cause problems.

Loss of concentration and confusion may result from a relatively minor reduction of blood flow.

#### 5. Decreased Energy Levels

Decrease in activity reduces the amount of endorphins released from within the muscles which in turn causes a noticeable reduction in energy levels. Productivity will decrease as we sit, relax and disengage.

A number of recent studies have found a link between sitting and illness.

In a study published in *Annals of Internal Medicine* in January 2015, Toronto researchers reviewed 41 international studies on this subject. They found that the amount of time sitting was definitely associated to heart disease, diabetes, cancer and death.

The benefits of physical activity may not be enough to reduce the risk.

The paper found that prolonged sedentary behavior was associated with a 15 to 20% higher risk of death from any cause and as much as a 90% risk of developing diabetes. And that was after adjusting for the effects of regular exercise.

While many studies show a link between sitting and illness they did not show how sitting actually causes ill health. The following paper sheds some light on this question.

In a study published in September 2014 in the British Journal of Sports Medicine, Swedish scientists were interested in whether changes in sedentary time would affect people's telomeres.

Telomeres are tiny caps on the ends of our DNA strands. These caps shorten and fray as cells age. The scientists found that obesity, illness and other conditions can accelerate the shortening, causing cells to age prematurely and that a healthy lifestyle preserves telomere length thus delaying cell ageing.

Within their study groups, the one who was sitting the least had lengthened telomeres. Their cells seemed to be growing physiologically younger. Meanwhile the control group who maintained a normal lifestyle with a fair bit of sitting, had their telomeres become shorter from the previous month.

Perhaps most interesting was the fact that a group that added exercise to its normal lifestyle showed little change in telomere length suggesting that exercise played a little role.

So if sitting for long periods is deadly and participating in physical exercise before or after work isn't useful then what can we do.

Many workplace specialists recommend getting up and moving about for short periods during the work day. This thinking is based on the theory that simply standing for short periods without moving about or walking is not sufficiently healthy and merely replaces one type of sedentariness with another.

If this is the case then we should see an increase in health problems and premature deaths just as sitting has been shown to do.

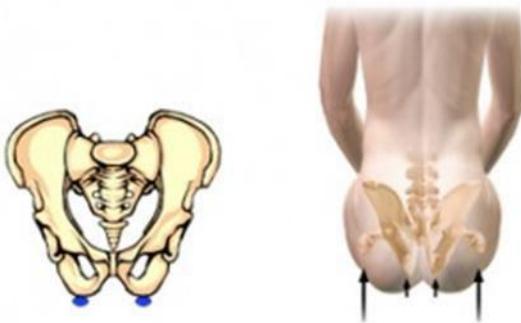
Well, a study published in May 2014 in Medicine and Science in Sports and Exercise seems to debunk this notion.

It found no link between standing and premature deaths and in fact it found mortality rates declined at higher levels of standing, suggesting that standing is not sedentary nor hazardous to our health.

## 6. Back Pain

Discomfort when sitting or getting up from sitting is the most common symptom of lower back and pelvic disorders. The problem is not specifically the act of sitting, but is connected to how you sit or what you sit on. Sitting in soft cushiony chairs or chairs where your bottom is sunk down in can be deadly. Unfortunately, many chairs or commercial seating are bad. Theatres and auditoriums have notoriously bad seating. Summer deck chairs that fold up or portable chairs can be aggravating.

In a proper sitting position, you are supposed to sit on the ischial tuberosities, which are located on the bottom of the pelvis.



Sitting on them properly produces the least stress on the sacroiliac (pelvic) joints. Sitting in a soft chair forces you to sit back onto the sacrum and sacroiliac joints putting greater stress on these areas. Similarly, bucket seats in cars and trucks can cause problems.

My favorite pet peeve revolves around giving advice on sitting at work. I can vividly remember for a number of years when the philosophy of the time was to sit with your knees above your hips. They even designed office chairs with little extensions to place your feet up off of the ground. Little steps or stools were promoted to place under your desk to raise your knees up. The premise was to flatten your lumbar spine. I am still trying to figure out what genius came up with

this outrageous idea. You have to sit with your thighs and knees level or slightly lower than your hips so that you are sitting on the bottom of your pelvis and not rocking back onto your sacrum and sacroiliac joints. You need to get your bottoms out of those soft cushiony chairs and couches. Consider a more level, not necessarily harder, living room set next time. Sit on a level deck chair and forego that Adirondack chair or sling chair. If you can, adjust the seat in your car or truck so that you are sitting level. If you can't adjust the seat in your vehicle, then get a simple wedge type cushion to put in the bottom of your seat.

This tidbit of information about sitting is my million-dollar recommendation to patients with chronic pelvic and lower back problems.

Try it because it will make a huge difference.

Another fact worth noting is the position sitting has on the scale below. This chart represents the amount of pressure being applied down the spine in various positions.



Notice the position of the two sitting positions in this chart

Most people come into my office with what I call the “second stage of a back problem”. They have severe lumbar spine pain. Sometimes it is a constant, nagging pain across the lower back that came on gradually. Sometimes it is a sharp, severe pain due to a seemingly harmless movement such as bending forward to tie up their shoes or pick up something.

They are often bent forward or sideways and are in great distress. Often their back pain is accompanied by pain and numbness in one or both legs. Some are totally debilitated: unable to do anything. They are now experiencing back pain that is affecting their daily lives.

X-ray examination reveals that many already have signs of degenerating discs and other arthritic changes. Magnetic resonance imaging (MRI) examinations often confirm one or more bulging or herniated discs.

During my consultation process one of my key questions is: “Have you had this problem before?” Their answers vary, but usually go something like this, “Oh, I’ve had some minor back pain before but nothing like this,” or “I am always stiff and sore in the mornings and it bothers me when I sit or get up from sitting, just normal back pain,” or “Yes, but it always goes away.” At this time that proverbial light bulb goes off in my head. What they are experiencing is the second or sometimes third stage of a back problem. Only now, it has begun to affect their ability to work or do home activities and is hindering their ability to participate in their favorite recreational pursuits and is seen as a problem. The reality is that their present problem is the end result of a process that began years ago that can, in many cases, be traced back to faulty pelvic mechanics.

For more information on pelvic and lower back mechanics visit.

[www.wiggleinyourwalk.com](http://www.wiggleinyourwalk.com)



## Definition of Insanity

Doing the same things over and over the same way and expecting different results.

Albert Einstein

For 39 years Dr. Richard Robson has been providing care and treatment to people of all ages with every conceivable physical ailment.

For him chiropractic is not a career or a job, it is a passion that he has been lucky to have shared with his wife, 3 grown children and one grandchild in Thunder Bay, Ontario.

Dr. Robson believes that in this modern age of health care, people need to take some of the responsibility for their own health so that they can make informed, safe choices for their care. This responsibility starts with knowledge and the understanding of what is going on with their body.

After a consultation and examination with Dr. Robson, he will answer the 5 questions all new patients want to know.

1. What is my problem
2. How and why did it happen
3. Can you fix it
4. How long will it take
5. How can I prevent it from happening again

So if you are someone experiencing their first problem and are nervous about seeing a chiropractor or someone with a long standing problem that is getting worse, then you need to: Contact Dr. Robson for a no-obligation consultation to discuss your problem and find out whether he is the right person to help you.

I guarantee that you will walk away from your visit knowing a lot more about yourself than you did before meeting him.

**345-1351**