The Unhealthy Effects of Sitting on The Human Body

Brain
The brain is highly energetic organ that requires a constant supply of blood, oxygen, and glucose. There is a direct link between exercising your muscles and supplying your brain with what it needs. Conversely, a lack of physical activity deprives your brain of blood and nutrients, which causes you to have difficulties in cognitive processing (thinking).\

Neck, Back, and Spine
Sitting for prolonged periods is a risk factor for neck pain, presumably because the neck is held in a constantly flexed (bent) position. This soreness extends to the shoulders and upper back, as well. Sitting with the back slouched for as little as 20 minutes can result in increased laxity of spinal ligaments, and it can take 30 minutes or more for these ligaments to regain their previous level of stiffness, which allows spinal discs to "creep." This increased laxity or looseness makes it more difficult for the muscles of the lower back control the spine and reduces the amount of weight that the spine can support. In other words, prolonged sitting makes the back weak and leads to lower back pain. Conversely, periodic standing sessions of 20 minutes seem to reduce fatigue and low back pain symptoms. Prolonged sitting can actually change the anatomy of the human spine, decreasing the distance between vertebral bones, compressing intervertebral discs, and predisposing the back to injury.

"Sitting all day is the worst thing in the world you can do for your back."

– Dr. Joel Press
Medical Director
Spine & Sports Institute
Rehabilitation Institute of Chicago

The Truth About Sitting And Your Health
Heart

Prolonged sitting is a risk factor for cardiovascular disease. In fact, sitting is a risk factor that is independent of cardiovascular fitness. This means even in people who are physically fit but who sit for prolonged periods (i.e., greater than 20 min.), are at increased risk for heart disease. Prolonged sitting increases blood pressure, just as increased activity decreases it. Sitting time correlates with cardiovascular disease mortality risk. In other words, the longer a person spends sitting, the higher his or her risk is of dying from cardiovascular disease.

Pancreas

Muscles at rest for long periods (like during sitting) become less sensitive to the effects of insulin. As a result, the pancreas increases its production of insulin to try to overcome this resistance. Over time, this increases the risk for type 2 diabetes. In fact, people considered to live a sedentary lifestyle nearly doubled their risk of developing diabetes compared to active individuals. Sadly, the definition of “sedentary” used in this study could apply to many Americans who have “desk jobs” or who watch television while seated for more than an hour a day.

Legs and Feet

Unlike arteries, veins contain very little muscle. Veins require muscle activity to squeeze the blood back to the heart. When someone is seated for an extended period time, blood tends to pool in the veins of the leg. This blood pooling greatly increases the risk of creating blood clots called deep vein thrombosis. Uninterrupted sitting increases factors within the blood that cause blood clots (i.e., fibrinogen) and makes the blood thicker, by reducing plasma volume.

The Entire Body

Essentially this means that prolonged sitting can shorten your life and increase your risk of several chronic diseases. What is more, even if you exercise as recommended and then sit for prolonged periods, you are still at increased risk of these diseases.

- Depression – Lack of physical activity can increase the risk of depression and depressive symptoms. Increasing depression leads to apathy and a lack of motivation, making it more difficult to get moving. When prolonged sitting leads to depression, it becomes a vicious, downward spiral.

- Diabetes – Prolonged sitting doubles the risk of developing type 2 diabetes. When the muscles go unused, they are less able to sense insulin. This means less glucose enters cells and more glucose stays in the blood, which is the definition of diabetes mellitus.

- Cancer – Sitting is even linked to increased cancer risk. The risk of colon cancer increases by 8% and endometrial cancer risk increases by 10% for every 2 hours of sitting. In other words, people who sit while watching television for 4 hours a day have an 8 and 10% increased risk of colon and endometrial cancer, respectively, than people who sit watching television for 2 hours a day. Sitting also increases the risk of lung cancer.

- Obesity – Time spent sedentary (e.g., sitting) is directly and strongly correlated with obesity. While moderate-to-vigorous physical activity can effectively reduce the risk of obesity, this appears to be separate from the increased risk associated with prolonged sitting. Nonetheless, a lack of moderate-to-vigorous physical activity and a sedentary lifestyle profoundly increases the rate of obesity.
A Simple Solution To The 20-Minute Rule:

The Stand4HealthApp

Let’s not overcomplicate this – if sitting too long is harmful, then you need to move more often! For those who are in a chair all day at work, I have designed a simple reminder app called Stand4HealthApp, which is available at the I-tunes AppStore and for download on Android devices. When you sit down at your workstation, just set the Stand4HealthApp, and you will be reminded to get up and move a bit every 20-minutes.

“Sitting time is associated with a higher risk of all causes of mortality: heart disease mortality, cancer mortality, and diabetes — independent of exercise.”

~ David Alter, M.D., Ph.D.,
Senior Scientist
Toronto Rehabilitation Institute
Institute for Clinical Evaluative Sciences

References
6. Billy GG, Lemieux SK, Chow MK. Changes in lumbar disc morphology associated with prolonged sitting assessed by magnetic resonance imaging. PMR. Sep 2014;6(9):790-795. doi:10.1016/j.pmrj.2014.02.014

About Dr. Douglas J. Taber

Dr. Douglas Taber is the award winning author of several books, including: The Back Pain Solution: Unlocking the Spinal Code, The Spinal Answer Exercise Program, Spinal Decompression & Stabilization Protocol, Overcoming Failed Back Surgery, Spinal Stabilization: A Functional Rehab Program, The Neck Pain Solution: A Guided Healing Approach, and Here: Mind-Body Harmony Through Present Moment Awareness. His audio releases include Guided Meditations, Presence, Mindful Eating, and Morning & Evening Affirmations, which are available as MP3 downloads on iTunes and amazon.com. Dr. Taber’s upcoming book, Success Today, which he is co-authoring with Brian Tracy, is scheduled for release this summer.

His latest release, Stand4HealthApp, is a downloadable timer for sedentary people and desk workers to remind them periodically to get out of their chairs and move as part of adapting a healthy lifestyle. The app is available for the Android and at the I-tunes AppStore.