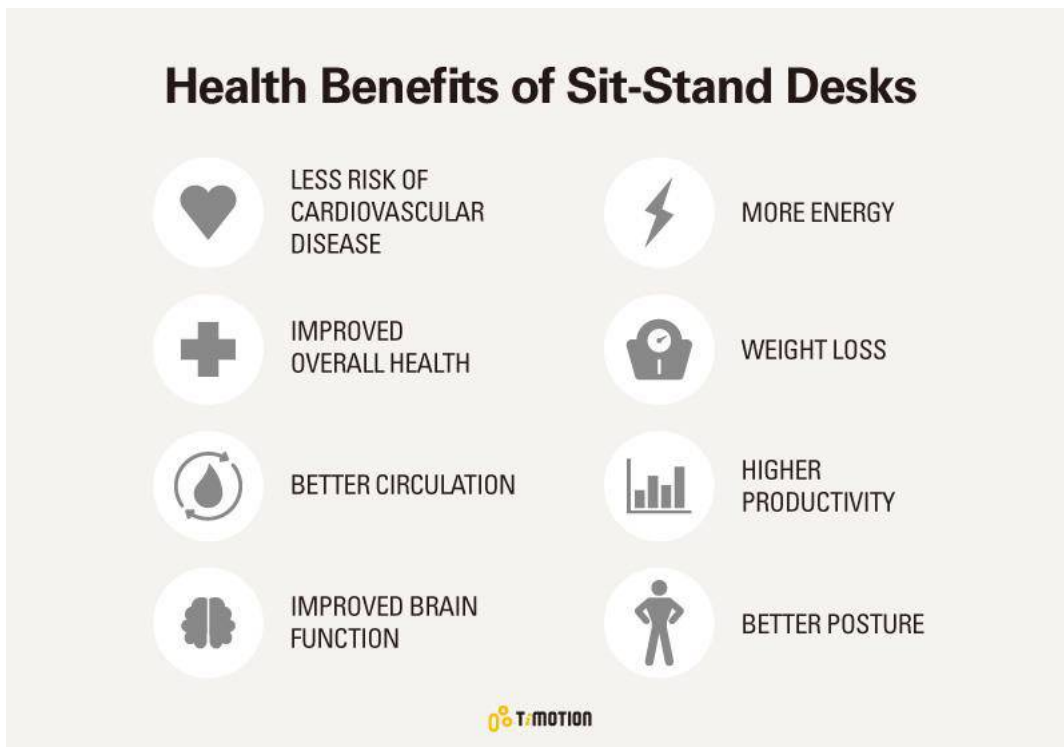


White Paper

Health Benefits of Sit-Stand Desks





In today's increasingly automated society, people in the workforce are finding that their lives are becoming more and more sedentary. The majority of office jobs require employees to be sitting for extended periods of time, anywhere from six to twelve hours a day. In addition to the time spent in the office, one must also factor in time spent commuting or enjoying sedentary activities outside of work. All of this combines to create an unhealthy environment for the average office worker. Multiple studies have been conducted that show how detrimental sitting can be to one's health and productivity. For example, a 2010 study by the American Cancer Society conducted on 123,000 adults found that sitting for more than six hours in a day increased mortality by up to 37% ([note1](#)). In this paper, we will discuss the harmful effects of prolonged sitting, as well as the benefits of ergonomic workstations that allow users to switch to a standing position. In addition, we will discuss the proper way to use a sit-stand desk.

One of the main byproducts of prolonged sitting is reduced circulation in one's body. When sitting, blood flows much slower throughout the body, and fluid tends to pool in the legs. The exchange of oxygen to cells is not as efficient as it would be in a standing position. In a sitting position, one's arteries are more easily clogged by fatty acids. This can lead to a host of other problems, such as varicose veins, swollen ankles, blood clots, strokes, cardiovascular disease, high blood pressure, and even heart attacks.

In addition to damage done to the heart, sitting can also negatively affect another organ: the pancreas. The pancreas is responsible for producing insulin, which carries glucose to cells throughout the body, resulting in energy. However, when these muscles are idle, they do not respond very well to insulin. This tricks the

pancreas into producing more insulin than what is needed, potentially leading to disorders like diabetes.

Weight gain is also a negative side effect of a sedentary lifestyle. One reason for this is that sitting slows down the enzyme in our bodies called lipoprotein lipase, which is a fat-burning agent ([note 2](#)). In a study conducted by researcher James Levine of the Mayo Clinic, a group of office workers was monitored according to their daily movements in relation to weight gain. The findings indicated that those who sat 2.25 hours less than their peers did not gain weight, while the more sedentary ones did ([note 3](#)). In addition, another study indicated that standing at one's desk for an afternoon as opposed to sitting can result in burning an extra 170 calories ([note 4](#)). Over time, that amount will quickly add up to make a sizeable difference in one's weight and overall health.

Sitting for extended periods of time also wreaks havoc on one's posture and comfort. When one sits, his or her spine morphs into a "C" position, which compresses the spinal discs unevenly. This distributes the body weight disproportionately to the tailbone, causing collagen to harden around tendons and ligaments. This puts people who sit for long periods of time at risk for herniated lumbar disks. In contrast, a healthy spine is in an "S" position, allowing discs between vertebrae to soak up fresh blood and nutrients. Frequent sitters might also notice pain in their backs, legs, necks and shoulders caused by this unnatural state of the spine. They are at risk of muscle degeneration, since sitting does not require the use of certain muscles, such as the abdominals and the glutes, causing them to deteriorate over time.

Perhaps most frightening of all, studies have drawn a connection between prolonged sitting and a greater risk for certain types of cancer. In a study published in the *Journal of the National Cancer Institute*, researchers found that people who spend more time during the day sitting have up to a 66% higher risk of cancer than those who are more active ([note 5](#)). In addition, a study by the American Cancer Society reported that women who sat more than six hours a day were more susceptible to developing breast cancer, ovarian cancer, and the blood cancer called multiple myeloma ([note 6](#)). So how is sitting for long periods of time related to cancer? There are a couple of theories as to why this is. It could be that excess insulin spurs cell growth. Another possible factor is that routine movement allows for more natural antioxidants that destroy cell-damaging agents. Whatever the reason may be, it is hard to ignore these connections.

As evident from the health hazards listed above, prolonged sitting is not natural nor healthy for one's body. Many people erroneously believe that they can negate the side effects of prolonged sitting by simply performing the recommended amount of daily exercise. However, multiple studies have proved this to be wrong. While regular exercise will definitely help reduce the risk of some of these factors, it will not erase them. The solution is not to exercise more, but to sit less ([note 7](#)). As more and more people are realizing this, workplaces are making an effort to incorporate ergonomic furniture for their employees. The best way to improve employees' health and productivity while in the office is through the use of sit-stand desks. These

desks allow users to switch between sitting and standing, giving their bodies a respite from long periods of sitting. There are many benefits associated with these flexible workstations.

Sit-stand desks promote better circulation in the body, helping to reduce the risk of the cardiovascular issues mentioned above. A standing position allows for easier and more rapid blood flow throughout the entire body, delivering oxygen to the muscles. This not only helps to prevent serious heart issues, but it also improves focus, concentration, and energy. Also, standing up elongates the lungs, allowing for more oxygen and higher mental function. There have been several studies that link standing to these psychological benefits. One study conducted by the Texas A&M Health Science Center School of Public Health found that grade school students who used standing desks were more attentive than those who were seated. They reported a 12% greater engagement rate overall ([note 8](#)). Additionally, they also conducted a study on call center employees over a six month period, gauging productivity levels when using sit-stand desks versus using seated desks only. What they found was that users of the sit-stand desks were 45% more productive than their seated counterparts ([note 9](#)). Obviously, this increased productivity is invaluable in a workplace setting.

Psychologically speaking, sit-stand desks also have a positive effect on one's mood. In a study published by the National Institute of Health, called the "Take-a-Stand Project," employees with sedentary jobs were observed with and without using sit-stand desks. During the time they were using the height adjustable desks, they reported high mood levels in the form of increased vigor, energy, and happiness. However, when they returned to their normal sitting desks, their mood levels returned to baseline levels ([note 10](#)).

Now that we have established the many benefits of sit-stand desks, it is important to know how to use them. Here are some tips to help you get the most out of your sit-stand desk:

1. Alternate Positions

- Just as sitting all day is not good for your health, neither is standing all day. Standing for hours on end can lead to back and leg pain, as well. It is recommended that you switch positions every 30 to 60 minutes. An optimal ratio of sitting to standing time is 1:1 or 2:1, meaning every hour or two hours of sitting time should be matched by an hour of standing time ([note 11](#)). If you are someone who has not used a standing desk before, you might find it difficult to stand for this amount of time at first. You should start out by standing for short amounts of time, and then ease your way into standing for longer periods.

2. Maintain Optimal Posture

- In order to use your sit-stand desk effectively, it is important to maintain proper posture. Your elbows should be at a ninety-degree angle, and your monitor should be eye-level. Take care to make sure that you are not hunched over or straining your muscles in any way. The best way to ensure that you are

operating at an optimal height level at all times is to invest in a desk that has memory function. This will allow you to program different height settings that will transform the desk into the best position for you just by pushing a button.

3. Protect Your Feet

- When you are standing for long periods of time, it is always a good idea to wear comfortable shoes with arch support. This will help prevent against long term medical issues and discomfort. Additionally, it is a good idea to invest in an anti-fatigue mat. These mats not only provide cushion support for hard floors, but they also keep you slightly off balance, forcing your muscles to contract and circulate blood more easily.

4. Keep Moving

- Although standing is a vast improvement over prolonged sitting, it is not enough in itself to eliminate all of the risks associated with the sedentary office lifestyle. Instead, office workers should make efforts throughout the day to move more, whether that's taking more bathroom breaks, walking to the water cooler, or walking over to a coworker's desk to discuss something as opposed to sending an email. Having a height adjustable desk encourages more of this type of movement, since users find it easier to move once they are in a standing position.

5. Know When to Sit and When to Stand

- People who have started to use a height adjustable desk may notice that they find certain tasks easier to do in different positions. It is true that there are certain tasks that are more suited to sitting than standing, and vice versa. The general consensus is that sitting is optimal for more focused, writing intensive work, while standing is optimal for more collaborative work.

In conclusion, sit-stand desks are the solution to today's dangerous sedentary lifestyle. If you follow these recommendations for height adjustable desks, then over time you should start to notice a vast improvement in your health, productivity, and mood. Starting small with your sit-stand desk and then building up to a greater amount of time spent standing will help normalize your body's association with being more active, causing you to live a less sedentary lifestyle. For more information on height adjustable workstations, visit our website here.

Appendix:

Note 1:

<http://pressroom.cancer.org/releases?item=257>

Note 2:

<https://www.ncbi.nlm.nih.gov/pubmed/15604935>

Note 3:

http://www.washingtonpost.com/wp-dyn/articles/A41897-2005Jan27.html?utm_source=huffingtonpost.com&utm_medium=referral&utm_campaign=pubexchange_article

Note 4:

<https://authoritynutrition.com/7-benefits-of-a-standing-desk/>

Note 5:

<http://time.com/2884953/sitting-can-increase-your-risk-of-cancer-by-up-to-66/>

Note 6:

<https://www.livescience.com/51564-sitting-womens-cancer-risk.html>

Note 7:

<https://academic.oup.com/aje/article/172/4/419/85345/Leisure-Time-Spent-Sitting-in-Relation-to-Total>

Note 8:

<https://www.sciencedaily.com/releases/2015/04/150424121118.htm>

Note 9:

<http://www.tandfonline.com/doi/full/10.1080/21577323.2016.1183534?scroll=top&needAccess=true>

Note 10:

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3477898/>

Note 11:

<http://www.healthline.com/nutrition/6-tips-for-using-a-standing-desk#section2>