



Sit. Stand. Move. Repeat.

The Importance of Moving as a Natural Part of the Workday



Key Points

- **In developed countries, people on average sit 3 to 8 hours a day.**
- **Prolonged sitting can cause injury, heart disease, and fatigue.**
- **Experts recommend standing 5 to 20 minutes each hour.**
- **Height-adjustable furniture can reduce sitting time by up to 60 percent.**
- **Training on how to adjust furniture multiplies its benefits.**

The human body is made to move, and for the first six million years, humans either did (quickly and often), or they didn't survive. Even during agrarian times, people spent their days moving from one chore to the next. Activity wasn't built into life; it was life. Then came the Industrial Revolution and the era of industry and, soon after, high technology.

Today, in an era of ideas in which the greatest value is derived from creativity, many people sit much of the time. Nearly 50,000 adults around the world reported they sit three to eight hours each workday, with many of those in developed countries sitting more than nine hours a day.¹ Sitting and seldom moving, office workers are therefore often drowsy, easily fatigued, and prone to injury. Providing people with natural ways to move throughout their workday can reverse these negative effects and contribute to people's overall health.

Solution Essay

What We Know

Our bodies are made for movement. Standing and moving are unique biological triggers that play a key role in being healthy. Unfortunately, the sedentary life that many office workers have adopted affects their health regardless of how much they eat or how much they exercise. A study that followed 17,000 Canadians, ages 18 to 90, for 12 years showed that “daily time spent sitting was associated with an elevated risk of all-cause and cardiovascular disease mortality...independent of leisure time physical activity levels and body mass index (BMI).”²

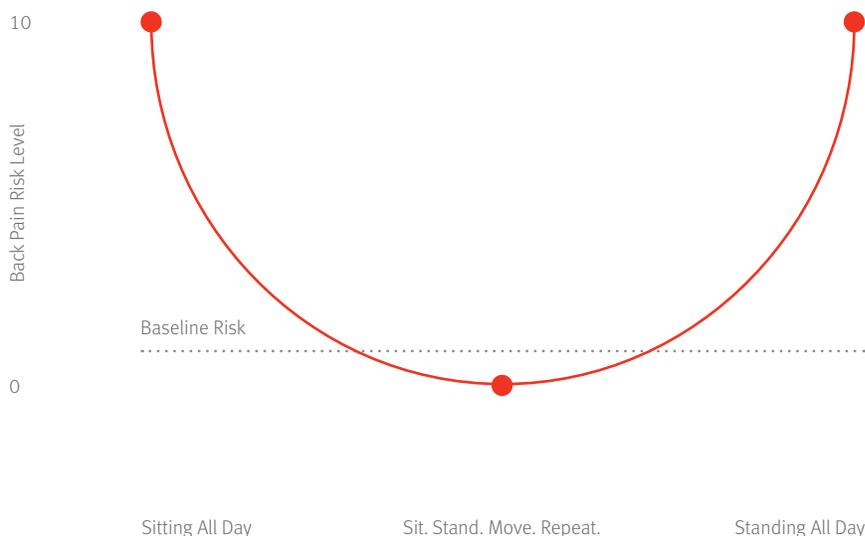
Sitting for extended time periods is linked with visual symptoms³, high triglycerides⁴, obesity⁵, insulin resistance⁶, cardiovascular disease⁷, and cancer⁸. Without regular and incidental standing and walking, the activity of lipo-protein lipase, the enzyme that breaks down plaque-causing fats in our blood, drops off significantly⁹.

Prolonged sitting has also been shown to result in increasing worker discomfort over the course of the workday.¹⁰ And, research shows an association between increasing discomfort and decreasing productivity, as well as future pain.¹¹ What’s more, the causal chain from prolonged, immobile sitting to possible health risks exists even when one sits in a highly adjustable, ergonomically supportive work chair.

If sitting all day poses such risks, some say the answer is to stand. However, abandoning one’s chair to work all day at a stand-up surface is associated with its own hazards: lower extremity discomfort and fatigue, lower extremity swelling and venous pooling, lower back pain, and entire body fatigue.¹²

The risks associated with prolonged standing have prompted some to propose methods for increasing walking time over the course of the workday. Attempts have included combining a treadmill or a bicycle with a work surface. However, the health risks these methods present—in terms of eye strain and fatigue from a mismatch in support for gross and fine motor activities—outweigh any potential benefits.¹⁴

A third way is needed: because work requires sitting, standing, and moving, the ideal landscape of the workplace would naturally afford people choice among a variety of postures. The result is an environment that is good for both mind and body.



A physical workload that’s too low (sitting all day) or too high (standing all day) increases the risk of back pain. Ergonomists recommend standing about five minutes out of every hour, with some, such as James Mallon of Humantech, recommending up to 20 minutes.¹³

The practice of alternating between sitting and standing at work has been linked to increased HDL (good cholesterol)¹⁵, more frequent muscle contractions,¹⁶ decreased incidence of breathing difficulties¹⁷, and decreased swelling of the lower limbs.¹⁸ Sit-to-stand practices have also been linked with helping our bodies properly express the genes necessary to build healthy muscle.¹⁹ Sit-to-stand work reduces low back discomfort²⁰ and causes significantly less discomfort compared to sitting-only work.²¹ Importantly, sit-to-stand working seems to show little or no decrease in productivity overall compared to seated office work.²² As discomfort decreases, in fact, productivity should increase.

Therefore

A combination of sitting, standing, and moving over the course of the workday—and not too much of any one activity—is the best approach to managing the balance between postural risk and physical comfort. Pairing a work landscape that includes postural choices with education to help people learn how to listen to their bodies equips them to make postural change a natural part of what they do at work.

Design Problem

The most appealing human environments are rooted in our natural modes of interaction and behavior. Because our bodies are made to move, we require environments that offer choices for a variety of postures throughout the day and across the office landscape. These choices must be such that people can immediately grasp where they can go and what they can do to achieve their goals and do their most meaningful work.

Design Solution

One part of the solution is providing furniture in appropriate settings so that people have options to sit, stand, and move during their workday. The other part consists of helping people understand the benefits of moving and changing their postures, as well as the basics of adjusting their furniture.

Furniture for Postural Variety

Herman Miller has always believed in the importance of supporting a variety of postures and encouraging healthy movement. In the 1960s, before the term ergonomics was widely known, designers such as George Nelson designed a stand-up, roll-top desk for the Action Office® line, and Robert Propst designed a “perch,” which was a cross between a stool and a chair.

Because they themselves stood for part of their workday, these designers knew the benefits of standing, and their designs reflect that. These insights laid the groundwork for Bill Stumpf to design the Herman Miller’s Ergon® Chair, which introduced the science of ergonomics to the furniture industry and established a focus on health-positive seating at Herman Miller that has continued ever since.

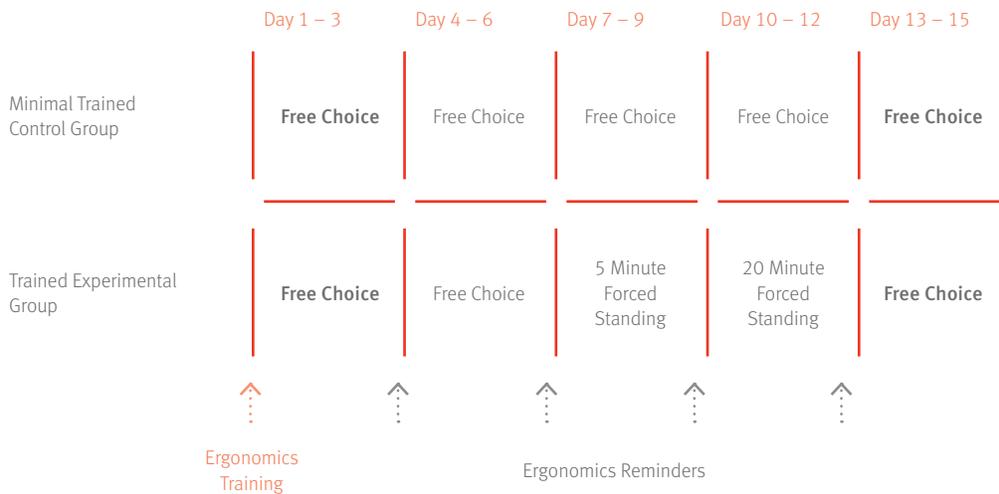
Today, in addition to its line-up of performance work chairs, Herman Miller offers a selection of tables and desks that provide postural options through fast, easy height adjustability. Using electric adjustment systems—as opposed to weight-balanced, cantilevered approaches—these products offer ease of use that furthers the goal of helping people incorporate postural change into their everyday activities.

One of these products is the Renew™ sit-to-stand table, which is designed to make moving between sitting and standing postures intuitive. Designer Brian Alexander designed the feel of the table’s soft-edged, paddle-shaped switch so it can be used without looking at it or even thinking about it. A range of adjustments lets the user choose the perfect sitting or standing height, or share a space with others without compromising on comfort. Combined with a highly adjustable work chair that both encourages movement and supports the sitter properly, Renew gives the office worker a full range of healthy movement.

Locale™ is another solution that incorporates the importance of movement. Recognizing collaboration as a necessity of good business, designers Sam Hecht and Kim Colin conceived of Locale as neighborhoods that allow people to effortlessly transition from individual work to collaborative group and social activities. People move and change positions naturally because of Locale’s curved work surfaces that invite interaction and generously accommodate several people collaborating. Height-adjustable elements allow easy movement from seated, focused work to standing, collaborative interactions.

Solution Essay

Study Design: Randomized Control Trial



During the study, there were some days when workers had to stand periodically and some days when they could choose not to.

Educating People

Research has shown a strong correlation between training and actually using the standing posture in workspaces that are equipped with sit-to-stand capability.²³ The most effective training focuses on helping people recognize musculoskeletal discomfort and risk, learn the value of varying their postures, and understand the reasons for behavioral change.²⁴

Providing a variety of postural options combined with training and organizational support have also proven effective at reducing sitting time.²⁵ On average, workers reduce their sitting time from 51 to 68 percent of their day to 20 to 30 percent when provided with a height-adjustable workstation.²⁶ And, physical activity minutes are greater in organizations where psychosocial and environmental factors are both supportive of physical activity.²⁷ Living in a supportive culture can result in 30 to 59 more minutes of physical activity per week for office workers who feel supported in the workplace.²⁸

A study that considered the effects of ergonomic training and adjustable workspace design on musculoskeletal discomfort and performance is illustrative.²⁹ During the first four days of the 15-day experiment, a control group of participants received standard instruction about the work setting and received

the manufacturer's pamphlet that gave instructions on chair adjustment. A second group of participants additionally heard a 1.5-hour instructional session that included case studies and hands-on practice periods.

The control group reported more than four times as many musculoskeletal symptoms as the trained group, which on some days had zero symptoms. In addition, performance accuracy was significantly higher for the trained group. They also reported a greater sense of control over the work environment because they were able to apply what they knew about the importance of sitting and standing throughout the day.

The results of the study underscore why training employees who spend much of their workday at the computer and following up with them is a smart investment for companies committed to a healthy workplace. The most basic tenet of ergonomics is that every solution should fit both the person and the task. Our tasks are changing, our work is changing, and our workplace must change with us. Part of that response should include changing the ways organizations provide for and individuals think about postural variety in the office.

Solution Essay

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