

# STANDING AND MOVING WORK STATION FOR NEW ERA

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**ABSTRACT:** Medical and ergonomic field studies indicate that bad standing and sitting postures are sometimes accompanied by pains in muscle and connective tissues of tendons, joint capsules and ligaments. There is evidence that such pains can become the symptoms of chronic diseases attributed to rheumatic disorders. Recent orthopedic research revealed that inadequate standing and sitting postures provoke excessive increases of in radical pressure. These orthopedic findings, together with ergonomic investigations on sitting behavior and somatic troubles, provide good bases for the construction of rest chairs and work seats. Sitting to standing involve complex interactions between the autonomic nervous system, which regulates blood pressure, and cerebral auto regulation, which maintains cerebral perfusion. We present a mathematical model that can predict dynamic changes in beat-to-beat arterial blood pressure and middle cerebral artery blood flow velocity during postural change from sitting to standing. By getting on your feet for three hours during your work day in stead of sitting down you will increase your heart rate and boost your metabolism. Research shows that, on an annual basis, the increased calorie consumption by standing work station. The above paper focuses on health benefits of standing desks, impact on health, benefit for health, comparison of traditional and standing work system and also primary interview taken by various people in different orgnisation.

## INTRODUCTION:

### Standing workstation:

Standing desks have been made in many styles and variations. Standing desks may be specialized to suit particular tasks, such as certain variations of the telephone desk and desks for architectural drafting. Some standing desks may only be used while standing while others allow users to sit or stand by adjusting the desk height with an electric motor, hand crank or counterbalance system.

While height of most seated desks is standardized, standing desks are made in many different heights ranging from 36 to 50 inches (91 to 127 cm). Ideally the height of a standing desk fits the height of its individual user. With seated desks, adjusting the height relative to the user can be accomplished by adjusting the height of the user's chair. However, because users of a standing desk move around more than when seated, using a pedestal to adjust the user's height is not practical.

To solve this issue, a standing desk may either be tailor made based on the height of the user or made with adjustable parts. In the case of a writing or drafting, the angle or slant of the surface may be adjustable, with a typical drawing table. If the desk is made for computer use, the legs may be adjustable. Another option is a platform made to sit on top of a regular seated desk that raises the desk's surface to a useful height for standing. Such platforms may be fixed height or adjustable.

### OBJECTIVES:

This paper focuses on the how standing and moving workstation is better for work environment and health also by the following research aims-

- i) To elaborate on the concept of moving and standing workstation
- ii) To study the effects of traditional seating arrangements at workplace.
- iii) To compare the traditional seating arrangement and moving workstation at workplace.

### What is Sitting and Standing at Work?

If too much sitting is the modern health equivalent of smoking and more people are spending longer hours sitting in front of their office computers, are standing desks the solution to rising rates of diabetes, heart disease, and obesity.

Sitting uses less energy than standing and it helps to stabilize the body, so we sit to perform fine motor tasks like driving, computer work, creating detailed drawings or fine micro-surgery. However, for many years ergonomists have recommended that sitting is broken up by periodic standing and moving during the day, preferably 1-2 minutes every 20 to 30 minutes. A large body of research has shwon that frequent microbreaks improves levels of comfort, work performance, and reduces the risks of musculoskeletal injuries.

But, standing to work has long known to be problematic, it is more tiring, for men with ischemic heart disease it increases the progression of carotid atherosclerosis because of the additional load on the circulatory system. Prolonged standing at work also increases the risks of varicose veins and accounts for more than one fifth of all

cases of working age. So standing all day is unhealthy. The performance of many fine motor skills also is less good when people stand rather than sit.

1) Posture

When using a standing workstation, keep your legs, torso, neck and head approximately in line and vertical.

2) Desk

Choose a desk that will allow you to keep your wrists straight and your hands at or slightly below the level of your elbows. Don't use books or boards to change the height of your desk.

3) Monitor

Place the monitor directly in front of you, about an arm's length away. The top of the screen should be at or slightly below eye level. Position your monitor so that the brightest light source is to the side.

**The "Rise" Of the Standing Desk:**

Standing desks are nothing new. They've been around for centuries. Thomas Jefferson and Winston Churchill worked at standing desks every day of their lives. But more recently the impact of standing desks on our health has been quantified, and several reports have come out pointing out the dangers of sitting too long. Some have even gone so far as to tell us that sitting, citing studies that conclude that those who sit for the majority of the workday are 54% more likely to die of a heart attack. Other potential health issues include increased risk of fatal heart attacks, back pain, obesity, diabetes, heart disease, and more. That's enough for me to be convinced of the merits of standing for at least part of the day.

**Impact on health while sitting interventions:** The impact of workplace sitting reduction interventions on workplace sitting, health and social/economic outcomes is presented in Table 1 and discussed

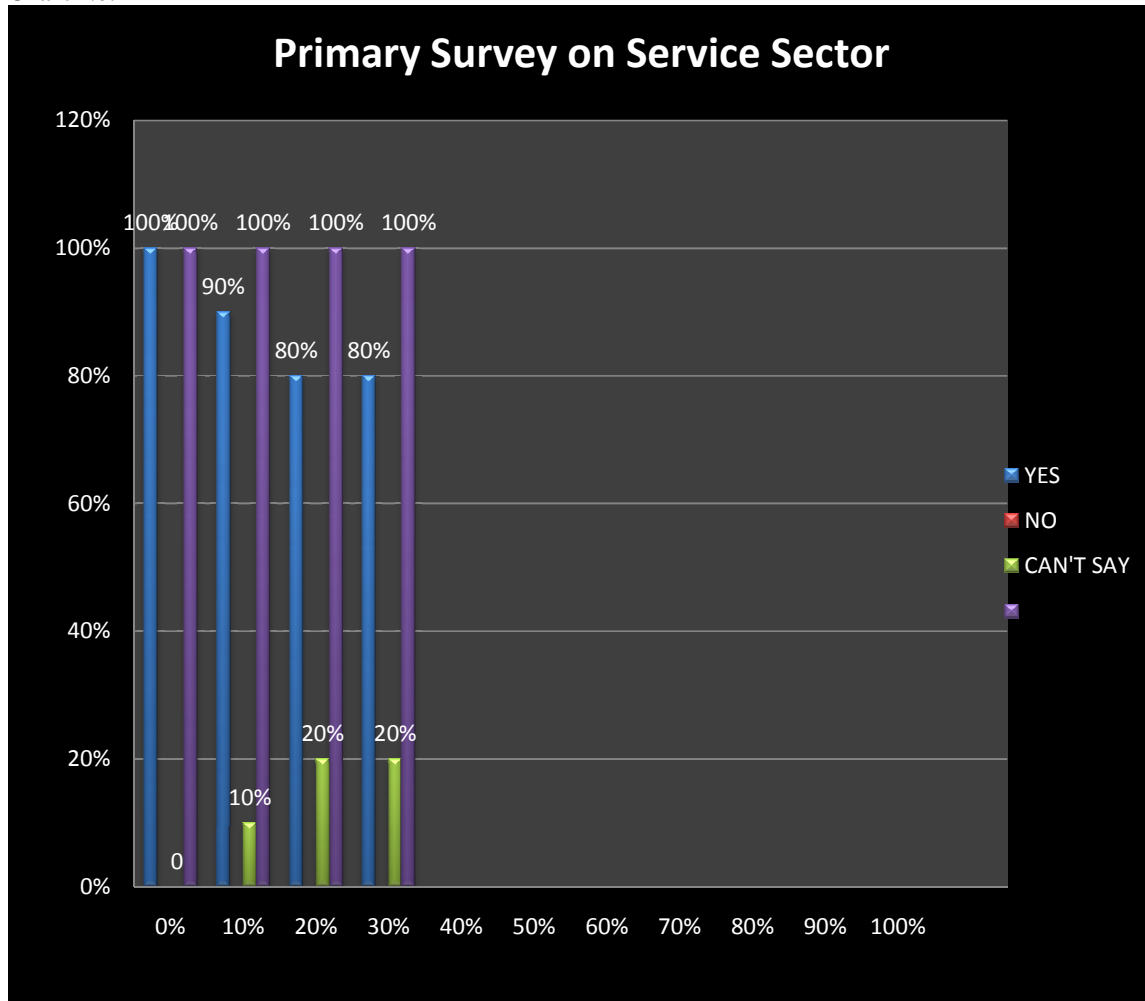
Category	Outcomes		
	Work place sitting	Health	Social/economic
Increasing the number of breaks from sitting time(n=4)	Increased number of breaks	<ul style="list-style-type: none"> <li>• Reduced maculate discomfort</li> <li>• .Reduced eye strain</li> </ul>	<ul style="list-style-type: none"> <li>Increased productivity</li> <li>No change</li> </ul>
Postal change(n=3)	<ul style="list-style-type: none"> <li>• Sit stand posture proffered over 'just sit or just stand'</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced maculate discomfort</li> <li>• Reduced spinal shrinkage</li> </ul>	
Ergonomic change to individual workplace(n=4)	<ul style="list-style-type: none"> <li>• Decreased sitting time</li> <li>• Increased standing time</li> </ul>	<ul style="list-style-type: none"> <li>• Reduced maculate discomfort</li> <li>• Reduced eye strain</li> <li>• Decreased illness and injury</li> </ul>	<ul style="list-style-type: none"> <li>Increased productivity</li> <li>• Reduced cost of injuries</li> <li>• Positive employee and employer feedback</li> </ul>
Altering the built design of the broader workplace(n=1)		<ul style="list-style-type: none"> <li>• Increased energy and reduced tiredness</li> </ul>	<ul style="list-style-type: none"> <li>• Increased employee communication and interaction</li> <li>• Decreased privacy</li> <li>• Increased distractions</li> </ul>
Multiple strategies (combinations of the above; n=1)	Increased number of breaks	<ul style="list-style-type: none"> <li>• Reduced health care system use</li> <li>• Reduced pain</li> <li>• Improved recovery rate for neck and upper limb symptoms</li> </ul>	Reduced health care system use

**JOURNAL OF INFORMATION, KNOWLEDGE AND RESEARCH IN  
BUSINESS MANAGEMENT AND ADMINISTRATION**

**Primary Survey on various service sectors: Table No:1**

Sr.No	Service Sector	'Yes'	'No'	'Cant Say'
1	Bank	100%	-	-
2	Chartered Accountant	90%	-	10%
3.	Transport (Goodawn)	0%	-	20%
4.	Administration	80%	-	20%

**Chart No:1**



**Health Benefits of Standing and Moving Desks:**

- **Reduced Risk of Obesity:**

Failing to take advantage of these constant movement opportunities, it turns out, is closely associated with obesity. It suggests that conventional exercise strategy—sitting all day at work, then hitting the gym or going for a run.

- **Reduced Risk of Type 2 Diabetes and Other Metabolic Problems**

The detrimental health impacts of sitting—and the benefits of standing—appear to go beyond simple obesity. Some of the same studies have found that sitting for extended periods of time is correlated with reduced effectiveness in regulating levels of glucose in the bloodstream, part of a condition known as metabolic syndrome that dramatically increases the chance of type 2 diabetes.

- **Reduced Risk of Cardiovascular Disease**

Scientific evidence that sitting is bad for the cardiovascular system goes all the way back to the 1950s, when British researchers compared rates of heart disease in London bus drivers (who sit) and bus conductors (who stand) and found that the former group experienced far more heart attacks and other problems.

- **Reduced Risk of Cancer**

A handful of studies have suggested that extended periods of sitting can be linked with a higher risk of many forms of cancer. Breast and colon cancer appear to be most influenced by physical activity (or lack thereof): a 2011 study found that prolonged sitting could be responsible for as much as 49,000 cases of breast cancer and 43,000 cases of colon cancer that are present in higher levels in people who sit for long periods of time. .

- **Lower Long-Term Mortality Risk**

Because of the reduced chance of obesity, diabetes, cardiovascular disease and cancer, a number of studies have found strong correlations between the amount of time a person spends sitting and his or her chance of dying within a given period of time.

**Compare the traditional seating arrangement and moving workstation at workplace:**

- **Sitting down for many hours**

A survey shows that many of us sit for 12 hours or more each day. At work, in the car, at home, etc. If you add to this the number of hours spent sleeping, it amounts to quite a lot of hours in a horizontal or semi-horizontal position.

- **Changing the body's blood sugar control and metabolism**

The breakdown of food to sugar and the concurrent production of insulin to control the blood sugar level is influenced by how physically active we are. But by standing up we get increased muscle activity, and the participants in the study even showed increased heart rate by an average of 10 beats per minute.

- **One marathon every five weeks**

Based on a rule of thumb that we burn one calorie for each kilo of body weight per kilometre we run, in just five weeks, one man who weighs 70 kilos will be able to burn the same amount of calories as when running a marathon. This means 8-10 marathons in 45-46 work weeks.

- **A different form of exercise**

While exercise is generally good for many things, the body also needs the constant muscle activity that you achieve by standing up, for instance to control the body's blood sugar level.

- **Higher energy levels.** By standing during the day, we're able to keep energy levels constant. You're not getting the 3 o'clock slump, and you avoid the dreaded food coma. As a result, your mind doesn't drift, your eyes don't droop, and you can get through your day without experiencing an energy roller coaster.

- **Higher concentration on tasks.** Several of employees testing the desk noted the same psychological experience: they get to sit once completed a certain task. For example, the employee sat down after finished writing article. This lets focus better, and also compartmentalize tasks.

- **Fewer headaches.** The programmer has been professionally sitting for more than eight hours a day for eight years. They found that they got headaches from sitting so long. The standing desk cured this issue.

**TEN WORKPLACE DESIGN CONSIDERATIONS**

Ten fundamental design elements can positively impact the workplace environment and support the work being done:

- Thermal Comfort and Temperature
- Access to Nature, Views and Daylight
- Sensory Change and Variability
- Color
- Noise Control
- Crowding
- Human Factors and Ergonomics
- Indoor Air Quality

**RECOMMENDATIONS-**

- **Stand up every 20 minutes.**

Studies have shown that our bodies can benefit from simply standing up, contracting muscles, and moving. Think of standing as pushing a reset button on your body. If you press the reset button before the timer hits 20 minutes, you'll avoid any of the negative side effects of a sedentary job.

- **Set a timer for 20 minutes:**

Stand Walking in between each work place injects multiple opportunities for movement into your day. Though you won't be popping from station to station every 20 minutes, you can supplement the 20-minute ruler small.

- **Move to a new area: Workstation popcorn:**

You start your day with a to-do list, then plan your list around different cafes, coffee shops, and workstations, popping from one to the next once you've completed a set of tasks.

• **Stand while you work: How to find the right standing desk:**

Perhaps the most obvious (and increasingly popular) idea of how to stand and move more at work is to convert your workstation with a standing desk. If you're curious to try this for yourself, all the best advice is to start small and cheap.

**CONCLUSION-**

In above research paper Considering all the relevant evidence and experience, this review recommends that high quality studies be conducted in workplaces that in corporate organisational, systems and individual change elements. Such studies should assess multiple healths, economic and social outcomes and use validated measurement methods for standing and moving workstation.

In the interview study, 78 per cent of respondents considered that the sit-stand workstation had improved their working environment for the companies, the key benefits of the introduction of the stand and moving workstations were the reduced floor space utilised and the open office landscapes for mobile and flexible personnel groups. In that paper their are taken various primary survey on different organization this will give the result on how standing and moving workstation is better for today's work environment.

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