Sit vs. Stand

This write up has been produced to assist any company considering implementing standing equipment into a traditional seating workstation environment. There are some key areas to know about to make this a successful transition.

The research available for sit vs stand work stations underlines that it is not an "either or" situation for most people. IT is not all or nothing when it comes to a sit or a stand workstation set up. No one person is exactly alike, so there is no one workstation set up that can be called the best or only way to accomplishing healthy computing.

How standing and sitting can affect people:

Standing in general is healthy: The average person can burn an extra 40 to 60 calories per hour just by standing.   Standing can improve concentration by increasing the blood flow to the brain. Standing offers constant low level activity for the body which is now being seen as more valuable than periodic intense level activity. The latter is what happens in a sedentary position.

The research also points out there are health concerns associated with prolonged sitting include: higher rates of heart disease, chance for obesity, higher body mass index, metabolic syndromes, type 2 diabetes, deep venous thrombosis and low back disorders. So standing seems like a great alterative to use a computer

Reports now find that a workstation change from sitting to standing can also present NEW health concerns. Employees using a standing workstation can experience: Work related MSD in the legs, knees and low back, varicose veins, Joint damage, foot problems, stroke, heart and circulatory problems and when appropriate, pregnancy difficulties.

How to approach this in an implementation stage
It is helpful to access the individual for health concerns related to light standing work.   Consider developing a basic health questionnaire with a doctor or a physical therapist. This will help in the decision process for areas of concern such as: who should not move into a standing work station or who might need to develop a tolerance over time to the switch. Some worksites ask for a physicians' note to ask the employer for a standing station. There are others that do not ask for medical necessity documentation because it moves away from prevention services.

Employee education:

Let the individual know what they would be getting into when switching from sitting all day to standing more while using a computer. Orient the employee on the pros and cons of standing vs. sitting for the individual. The web links at the end of this handout offer some data to share

with anyone considered for this change. Do employees look to your website for benefit education? Add the reference you select for Employee education on to the company website. Include the supervisor in on any educational information about changing workstations or equipment.

When employees move into a standing workstation this is the orientation to be reviewed:

Tips on healthy computer based standing work.

- ❖ Neutral wrist, neck and should postures are important to maintain.
- ❖ Do not hook your feet on the chair ring.   Use the tall foot stool to support your feet.
- ❖ You still need a change in posture.
  - o For the eyes: Every 20 minutes, look 20 feet for 20 seconds.
  - o For the arms and wrists: Resting your hands completely every 20-30 minutes for 30 seconds to 1 minute.
  - o If you have been standing, change to a sitting task.
- ❖ Use a low foot stool when standing to reduce pressure on the hip and low back from prolonged standing.
- ❖ When using a high pedestal chair, start low and raise the seat up using the tall foot stool to place the feet on.
- ❖ Wear good supportive shoes that have supportive arch support.
- ❖ There is no all or nothing in workstation arrangements. There are many types of computer workstations.   Know what is best for you. If you are not sure ask for help.

How to know if an employee needs an alternate option from sitting by asking a few questions:

 Ask if they have tried a standing workstation before. Ask if they have they tried standing or walking breaks from sitting at the computer each day. For example, every 30 minutes do they get up and stand and walk away for the desk? Does this no longer relieve the discomfort they might be experiencing. Then standing workstations are another option for this situation.

The next step:

 Often an Ergo Assessment is included at this point to ensure that the current equipment is being used properly as well as proper body posture is in use before considering a change.

When the employee is ready for a standing workstation:

 If the individual is a good match for a standing workstation, offer adjustable equipment options from a selection of three possible options.

1. An adjustable table that could move from sit to stand and chair that allows their feet on the ground when in a seated computer operating position.
2. An adjustable monitor and keyboard arm that can move from a sit to stand and a chair that allows their feet on the ground when in a seated computer operating position.

3. A fix standing workstation and a pedestal chair with tall foot stool to support the feet when sitting.

In selecting the equipment, there are two things to consider. **The ability to sit or stand and the adjustability to maintain neutral wrist.** So either the surface the tools are on need to be moved up and down to the person, **or** a chair needs to be provided at the standing fixed workstation.

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Some interesting things about a standing workstation:

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No one has the same hand height and body height. For most people the typing height when standing is higher than when sitting in a chair. The Link Analysis chart can offer a 2 inch margin for keying/mousing heights and a base line for table and tall chair height based on the height of the person. The Link Analysis is found at the end of this document

As most of the work force has not used a computer while only standing or there are tasks that need to be done sitting, typically a chair should still be provided at the work station. Research shows that 75% of the people that have been provided a standing workstation end up sitting. People need to sit to focus. The general expectation is that when someone is working they are sitting and focused. During standing posture people report less privacy, more distractions and inability to focus.

Employees can end up not standing at all. Consider adding a step in the early part of this process of the change to a standing workstation. **Offer a demo area where they can move their laptop or a usb drive to work for an hour a day until they work up to 4 hours and can verify it is a match for them.**

Demo area should offer an adjustable option.

- ➢ A pedestal chair (not to exceed 42 inches) and a foot rest along with a standing workstation that is adjustable for the demonstrations.
- ➢ A workstation device that holds a monitor or two, keyboard and mouse that can be moved up and down to a regular seated position chair then into a standing position.
- ➢ An articulating table that can be raised from sitting to a standing height with a regular height chair at this table.
- ➢ Offer a regular foot stool to alternate feet when standing or for the sit stand option, when the employee is sitting in a tall chair.
- ➢ Offer a height adjustable drafting table for employees that are reviewing manual drawings throughout the day
- ➢ Your demo area can include a variety of keyboard and mice options. For example, wireless, and various grip or angle options.

Here is some equipment to consider:

Device	Image	Description	Cost	Web reference
Taskmate Go, Single and Dual Models		Just clamp the Taskmate Go sit stand desk to existing work surface and mount computer monitor. A squeeze of the lever moves the monitor, keyboard, mouse and other items into a comfortable standing position. Releasing the lever at the desired height causes the unit to lock into place giving a sturdy, height adjustable computer work station. Monitor Mount: VESA Standard Monitor Mount 75mm & 100mm • Depth from monitor to wrist rest 22" • Weight capacity: 35lbs • Max. LCD Size Single: 30" • Max. LCD Size Dual: 24" • Tilt Keyboard Mechanism: Sits 4" below the work surface in lowest position • Degree of keyboard tilt 0, 5°, 10° Height Adjustability: Travel Range: 18" • Tabletop is 3" from the surface when in the lowest position • Tabletop is 20.5" from surface in the highest position Clamps: Min. desk thickness 7/8" • Max. desk thickness 2" Shipping: Shipping Dimensions: 33" x 20" x 16" • Shipping Weight: 45 lbs.	$663 Single Monitor or $944 Dual monitor	AliMed.com
HumanScale Quickstand and Quickstand Lite		Sit/stand add-on to existing workstation (mounted to back of desk) - for benching workstations that don't have individual work surface that can be retrofitted with electric base. For users with severe low back or upper extremity pain who need to frequently alternate between sitting and standing. Other symptoms it can address: radiating leg pain, circulation problems.	Approx: $800	https://www.humanscale.com/products/product.cfm?group=quickstand
Ergotron Work Fit Sit-Stand Desktop Workstation		Presenting an ultra easy standing desk solution, which quickly converts a tabletop into a healthy sit-stand workstation. Simply place the WorkFit-T on an open surface, stand up and you're ready to work!	Approx: $404.30	http://bit.ly/1V7sMwp

Sit/Stand Ergotron Workfit Back Worksurface (mounted)		Sit/stand add-on to existing workstation (mounted to back of desk. An option is also available for mounting to back of a desk) - for benching workstations that don't have individual work surface that can be retrofitted with electric base. For users with severe low back or upper extremity pain who need to frequently alternate between sitting and standing. Other symptoms it can address: radiating leg pain, circulation problems.	$500 to $800	http://www.staples.com/
Haworth Planes Adjustable Base		Sit/stand retrofit base of existing workstation for users with severe low back or upper extremity pain who need to frequently alternate between sitting and standing.	$1,500	http://www.haworth.com/products/tables/height-adjustable/planes

Ergonomic Footrest, Adjustable Height, Black		Fixed 8 degrees. Adjusts to nine height positions. Removable platform with textured anti-slip cover. Triangular tubular steel base. Black powder coat finish. Width: 20 inches; Height: 5-1/2 to 15 inches; Depth: 12 inches.	$110- $140	http://www.staples.com/Safco-Ergonomic-Industrial-Footrest-Black/product_733444?
STL ISE Steel Frame, Rocking Foot Rest		steel frame and steel platform combine with Height adjustable in 1" increments from 4" to 14". Three set tilt ranges - 0°, 10°, or 20°!	$278	http://www.airtech.net/qfstlisestfr.html
Herman Miller Aeron Stool		Offers Back Support: Adjustable lumbar support or Posture Fit Support and carpet or hard floor casters		http://www.hermanmiller.com/products/seating/stools/aeron-stool.html

Big and Tall Stool		Adjustable seat height to help stimulate proper blood circulation. Adjustable armrests help reduce stress to muscles of the upper back, neck and shoulders. Adjustable arm width. Adjustable foot ring provides users with extra foot and leg support. 300 lb weight capacity. For the taller individual.	Approx: $355.00	http://amzn.to/1suDsui
Anti-Fatigue Mat		Top Rated Standing Desk Anti-Fatigue Comfort Mat - Up to 97% thicker than other mats! CumulusPRO Mats are made with Cushion-Core Technology to reduce fatigue and increase comfort and productivity. Tested and certified by the National Floor Safety Institute & an American Chiropractic Association (ACA) Partner.	Approx: $94.97	http://amzn.to/1rRt6nC

Monitor the Employee's experience:

How do you know how this is going to play out? To further ensure the change to standing is a good match; conducting a survey after a short period of time. Perhaps 30, 60 or 90 days into using a new standing work station to monitor the employee experience and collect data on the value. It also gives to employee a chance to explain why it might not be working and redirect any new bad habits that could be forming. The survey should review if any prior reported discomfort is reduced. The survey would offer a chance to review some known standing task activity related discomfort questions to ensure nothing new is developing. Ask confidence based questions such as: "Are you confident that you can work in a standing position for 4 hours or more a day using the computer? Do you find yourself sitting and fell more confident returning to a sitting based computer workstation?" And ask an open ended question such as, "Do you have any questions or concerns about working in a standing workstation?"

Some additional areas to Consider:

Can you learn anything from past reports of injury and the loss reduction techniques applied to correct future issues in light standing task based jobs within your company? For example, a report of leg fatigue from standing on a hard surface might have been corrected with adding a soft surface such as an anti-fatigue mat. Why reinvent the wheel if a parallel example exists in your company's history.

How will a department handle abandoned standing workstation equipment? One option is for Risk Mgt. to buy back the items at a reduced rate, until there is enough to create a demo area of a standing work station at main office buildings. Or can it be stored and resold to the next department when an order is made and the original department reimbursed at a reduced rate? How will new hires be given the option to try out a standing workstation option?

Link Analysis - Drills & Contini, 1966

The Link Analysis is one set of measurements to access for setting up a seated or standing workstation.   Make sure to include the employee in the final workstation changes.

Height = Inches	Seated Chair Height (Assumes approximately a 1 inch shoe heel, feet on the floor)	Seated Keyboard Height	Tall Chair Height	Foot Rest for Tall Chair Height	Standing Workstation Keyboard Height
4'7" = 55	16.8	21.18	29.2	13.5	34.7
4'8" = 56	17.1	21.56	29.7	13.7	35.3
4'9" = 57	17.43	21.95	30.2	14.02	35.9
5'0" = 60	18.28	23.10	30.7	14.76	36.5
5'1" = 61	18.56	23.49	32.3	15.0	38.4
5'2" = 62	18.85	23.87	32.9	15.25	39
5'3" = 63	19.14	24.29	33.4	15.5	39.7
5'4" = 64	19.42	24.64	33.92	15.74	40.32
5'5" = 65	19.7	25.03	34.5	15.9	41
5'6" = 66	20	25.41	35	16.23	41.6
5'7" = 67	20.3	25.8	35.5	16.48	42.2
5'8" = 68	20.5	26.18	36	16.72	42.8
5'9" = 69	20.8	26.57	36.6	16.97	43.5
5'10" = 70	21.1	26.95	37.1	17.2	44.1
6' = 72	21.7	27.72	38.2	17.7	45.4
6'1" = 73	21.9	28.11	38.7	17.9	46
6'2" = 74	22.27	28.49	39.2	18.2	46.6
6'3" = 75	22.55	28.88	39.8	18.45	47.3
6'4" = 76	22.84	29.26	40.3	18.69	47.9
6'5" = 77	23.12	29.65	40.8	18.94	48.5
6'6" = 78	23.41	30.03	41.3	19.18	49.1
6'7" = 79	23.95	30.42	41.87	19.43	49.77
Height X 12 inches	Inches X .285 + 1.18	Inches X .630 - .245 of inches	Inches X .53	Inches X .246	Inches X .630

Derived from Matherson Worksafe.   This analysis is based on theory developed by Drills & Contini, 1866. "The basic premise that the body (>1840) is made up of a series of links (joint to joint) and these links are proportional to the height of the individual."   Applied to both men and women and the measurements offer a range of 1 – 3 inches due to various body lengths and are to be used as a starting point.

Office Stretch Resources:

Sworkit

APP: Sworkit alllow you to customize and play personlaized video workouts. Choose from strength, cardio, yoga and stretching.

Android and I-Pad compatible.

Pro: Interactive video gives a visual of correct body position for each exercise.

Con: Not all of the exercises are designed for an office environment.

Ergociser

This is a free downloadable program that stays on the tool bar. It can be programmed when to flash an exercise to do in 30, 45, 60 or more minutes: http://www.ergocise.com/93.html

Pro: Reminders can be set for individualized time preferred increments.

Con: If you are away from you desk you might want to reprogram it so that you do not have multiple reminders on your desktop.

Stand-Up

I-pad APP: Stand-Up gives you a reminder to stand-up.

Pro: The timer can be customized to pop-up a reminder as well as audio reminder.

Con: This does not have interactive video for exercise.

Below are some research links that provided the collective information above:

Research links:

http://ihmspt.blogspot.com/2012/09/sitting-vs-standing-in-workplace.html

https://www.osha.gov/SLTC/etools/computerworkstations/positions.html

http://www.juststand.org/tabid/637/default.aspx

http://responsibility-project.libertymutual.com/blog/standing-up-on-the-job

http://www.slideshare.net/LibertyMutualInsurance/sit-to-stand-webinar

Video: https://www.youtube.com/watch?v=EiKfHD9cV8U   (You Tube Video, Stand for your life by Forbes)

Professional Safety Magazine, Vol 61, No 4 April 2016, Ergonomics Return on investment.

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