

# Workstation Ergonomics and On-desk Cardboard Platforms

Updated September 2017



The BC Public Service Agency is committed to evidence based health and safety strategies. At this time, Oristand and similar products are not recommended as a large scale solution for ergonomic issues in the workplace. They should not replace the use of more permanent, adjustable, durable solutions.

Evidence points to increased worker movement and equipment adjustability as the healthiest solutions. Single use items like the Oristand limit the ability to change working heights easily.

## Background

This article was originally published in 2016 when studies found that sedentary behaviors including sitting are associated with negative health outcomes.

Breaking up sitting time at work may lessen the risk of worker discomfort and long-term metabolic and cardiovascular disease. Sit-stand desks are one strategy that addresses sedentary time in the workplace. Studies continue to be done to investigate sit-stand stations and long term worker usage, optimal ratio of sitting to standing, effect on productivity, injury trade-offs and long-term health outcomes.

Current workplace ergonomic principles emphasize the benefits of neutral positions in sitting and standing positions. Workers that complete repetitive movements, or hold static and awkward postures are at risk of musculoskeletal injury.

Basic principles of body neutrality are that joints are positioned at a 90 - 110° angle for optimal ergonomic positioning. A monitor's position should optimally be one arm's length away for a single monitor, or more for dual monitors. Screen height is to be adjusted so the top line of text on the computer screen is at eye level, or approximately in line with the top third of the screen.

Additionally, it is generally recognized that workers benefit most from alternating positions. Many studies have investigated standing for 15 – 45 minutes per hour, however, the optimal ratio between sitting and standing has not yet been determined.

Oristand and similar low cost cardboard products were developed as an affordable option for a standing work station. It claims the following as per the company website:

Simple: No Screws. No assembly. No instructions needed. Ori's simplicity is the result of a lengthy design process focused on getting you all of the functionality with none of the fuss.

Flexible: Ori was designed to keep you and your workspace as flexible as possible. We've made sure to accommodate a wide range of laptops, monitors, keyboards and desks.

Affordable: Industrial grade cardboard is light, strong and affordable. Not to mention it is 100% recyclable. Meaning you can save some cash and we can save some trees.

The BCPSA Workplace Health & Safety team completed a review of the item and completed trials with workers ranging from 5'2 to 6'4 and determined the following:

- Ori is non-height adjustable, and as such does not adjust to appropriate heights to achieve neutral postures for all individuals. Further equipment would be required to ensure ergonomic principles of neutral positioning were achieved. Additional equipment may include a monitor riser to raise up monitor/laptop on top level.
- No adjustments are available if Ori is too high for user. Improper set up of Ori may put workers at risk for repetitive strain injury (RSI) due to lack of adjustability. Areas of concern are neck, shoulders, wrists, and back.
- Size of Ori is not compatible with government standard equipment or for alternating tasks between computer work and other uses such as writing or reading documents. Two Ori products would be required side by side to ensure appropriate room for standard keyboard and mouse usage.
- While the platform has adequate space to hold both the keyboard and mouse, it does not provide ample enough space to maneuver the mouse on the platform. Furthermore, Ori does not provide adequate strength to hold a government computer monitor, or dual screens. A single Ori could be used if a compact keyboard and laptop were made available.

**Ori dimensions:**

- o Lower platform: 21 inches width x 10 inches depth x 11.5 inches height
- o Upper platform: 21 inches width x 10 inches depth x 8.5 inches height

**Keyboard and mouse dimensions:**

- o Standard keyboard (Lenovo): 18 inches width x 7.5 inches depth
- o Standard mouse (Lenovo): 2.5 inches width x 5 inches depth
- In order to switch from sitting to standing all computer items will have to be moved on and off of Ori. The recommendations to move between sitting and standing positions would require movement multiple times per day, and may result in repetitive strain or musculoskeletal injury. Additional concerns include the increased risk of damage to assets if dropped.
- The long term durability of Ori is unknown at this time.

## Update September 2017

Since the original publication of this article, more research has emerged on sitting vs. standing at work, much of it conflicting with each other. One large study found a health advantage for workers who primary sit all day is to exercise two hours weekly. Some studies found the opposite. An August 2016 study that analyzed 16 existing studies which tracked exercise and sitting over time, found that that 60 to 75 minutes of moderate exercise daily eliminated the risks of negative health-effects due to prolonged sitting.

Recent studies have found most people cannot tolerate constrained standing (standing in place at a stand-up station) for extend periods of time. In many cases, they cannot stand for more than 20 minutes. A large Canadian study released in August 2017 found that prolonged standing increases the risk of heart attack.

## Updated Conclusion

An Oristand (or similar) may be suitable if:

- It fits an individual's stature and allows them to achieve neutral posture
  - o This may include cutting the stand down to a shorter height
- It is being used as a temporary return to work tool and achieves neutral posture
- There is enough room for keyboarding and mousing on the platform
  - o This may require the use of a compact keyboard or mouse
- A user wants to try a standing station prior to purchase
  - o The Oristand must achieve neutral posture to be an effective trial

With the Oristand correctly set up, the user should have enough desk working surface for non-computer tasks.

It should be noted there are several products similar to the Oristand that place the monitor and keyboard on the same platform. This will not allow for proper monitor height as it causes the user to bend their neck creating a risk of injury.

Contact AskMyHR for assistance with return to work cases where there are ergonomic limitations, restrictions and/or medical accommodation.

## References

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