

The ups and downs of sit-stand desks

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April Chambers, assistant professor of bioengineering, University of Pittsburgh, Swanson School of Engineering Credit: Swanson School of Engineering

Have a seat. No, wait! Stand. With researchers suggesting that "sitting is the new smoking," sit-stand desks (SSD) have become a common tool to quell sedentary behavior in an office environment. As this furniture becomes ubiquitous, conflicting opinions have arisen on its

effectiveness. The University of Pittsburgh's Dr. April Chambers worked with collaborators to gather data from 53 studies and published a scoping review article detailing current information on the benefits of SSDs.

"There has been a great deal of scientific research about sit-stand desks in the past few years, but we have only scratched the surface of this topic," said Chambers, assistant professor of bioengineering in Pitt's Swanson School of Engineering. "With my background in occupational injury prevention, I wanted to gather what we know so far and figure out the next steps for how can we use these desks to better benefit people in the workplace."

This work was done in collaboration with Dr. Nancy A. Baker, associate professor of occupational therapy at Tufts University, and Dr. Michelle M. Robertson, executive director for the Office Ergonomics Research Committee (OERC). The scoping review, published recently in *Applied Ergonomics*, examines the effects of a sit-stand desk in the following domains: behavior, physiological, work performance, psychological, discomfort, and posture.

"The study found only minimal impacts on any of those areas, the strongest being changes in behavior and discomfort," said Baker.

Their work showed that use of a SSD effectively got participants to sit less and stand more and that the device made users more comfortable at work. However, many frustrations with SSDs stem from the physiological outcomes. Early adopters were fed the idea that these desks would be the miracle cure for obesity, but users were not achieving the results they expected. According to the review, physiological effects were the most studied, but within that domain, there were no significant results with regards to obesity.

"There are [health benefits](#) to using sit-stand desks, such as a small decrease in blood pressure or low back pain relief, but people simply are not yet burning enough calories to lose weight with these devices," said Chambers. "Though these are mild benefits, certain populations might benefit greatly from even a small change in their health. In order to achieve positive outcomes with sit-stand desks, we need a better understanding of how to properly use them; like any other tool, you have to use it correctly to get the full benefits out of it."

There are many considerations to most effectively use a SSD, such as desk height, monitor height, amount of time standing, or the use of an anti-fatigue mat. Chambers believes that workplace setup and dosage are two factors that should be further studied.

"There are basic ergonomic concepts that seem to be overlooked," said Chambers. "Many workers receive sit-stand desks and start using them without direction. I think proper usage will differ from person to person, and as we gather more research, we will be better able to suggest dosage for a variety of workers."

Chambers noted that the current research is limited because many of studies were done with young and healthy subjects who were asked to use the desk for a week or month at most. Since some of the significant benefits are with cardiovascular health or muscle discomfort, it may be beneficial to perform additional studies with middle-aged or overweight workers.

"There is still more to learn about sit-stand desks," said Chambers. "The science is catching up so let's use what we've studied in this area to advance the research and answer some of these pressing questions so that people can use sit-stand desks correctly and get the most benefit from them."

More information: April J. Chambers et al, The effect of sit-stand desks on office worker behavioral and health outcomes: A scoping review, *Applied Ergonomics* (2019). [DOI: 10.1016/j.apergo.2019.01.015](https://doi.org/10.1016/j.apergo.2019.01.015)

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