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New study indicates students' cognitive functioning improves when using standing desks

TEXAS A&M UNIVERSITY

Do students think best when on their feet? A new study by the Texas A&M Health Science Center School of Public Health indicates they do.

Findings published recently in the *International Journal of Environmental Research and Public Health* provide the first evidence of neurocognitive benefits of stand-height desks in classrooms, where students are given the choice to stand or sit based on their preferences.

Ranjana Mehta, Ph.D., assistant professor at the Texas A&M School of Public Health, researched freshman high school students with who used standing desks. Testing was performed at the beginning and again at the end of their freshman year.

Through using an experimental design, Mehta explored the neurocognitive benefits using four computerized tests to assess executive functions. Executive functions are cognitive skills we all use to analyze tasks, break them into steps and keep them in mind until we get them done. These skills are directly related to the development of many academic skills that allow students to manage their time effectively, memorize facts, understand what they read, solve multi-step problems and organize their thoughts in writing. Because these functions are largely regulated in the frontal brain regions, a portable brain-imaging device (functional near infrared spectroscopy) was used to examine associated changes in the frontal brain function by placing biosensors on students' foreheads during testing.

"Test results indicated that continued use of standing desks was associated with significant improvements in executive function and working memory capabilities," Mehta said. "Changes in corresponding brain activation patterns were also observed."

In earlier studies that primarily focused on energy expenditure, teachers observed increased attention and better behavior of students using standing desks. Mehta's research study is the first study not subject to bias or interpretation that objectively exams students' cognitive responses and brain function while using standing desks.

"Interestingly, our research showed the use of standing desks improved neurocognitive function, which is consistent with results from previous studies on school-based exercise programs," Mehta said. "The next step would be to directly compare the neurocognitive benefits of standing desks to school-based exercise

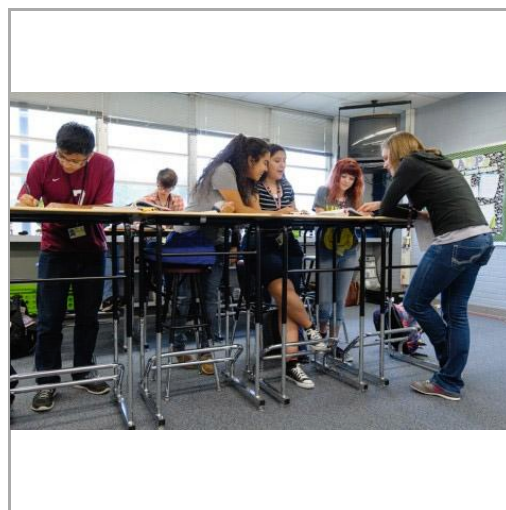


IMAGE: STUDENTS MAY THINK BEST WHEN ON THEIR FEET. [view more >](#)

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programs."

"There has been lots of anecdotal evidence from teachers that students focused and behaved better while using standing desks," added Mark Benden, Ph.D., CPE, co-researcher and director of the Texas A&M Ergonomics Center. "This is the first examination of students' cognitive responses to the standing desks, which to date have focused largely on sedentary time as it relates to childhood obesity."

Continued investigation of this research may have strong implications for policy makers, public health professionals and school administrators to consider simple and sustainable environmental changes in classrooms that can effectively increase energy expenditure and physical activity as well as enhance cognitive development and education outcomes.

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