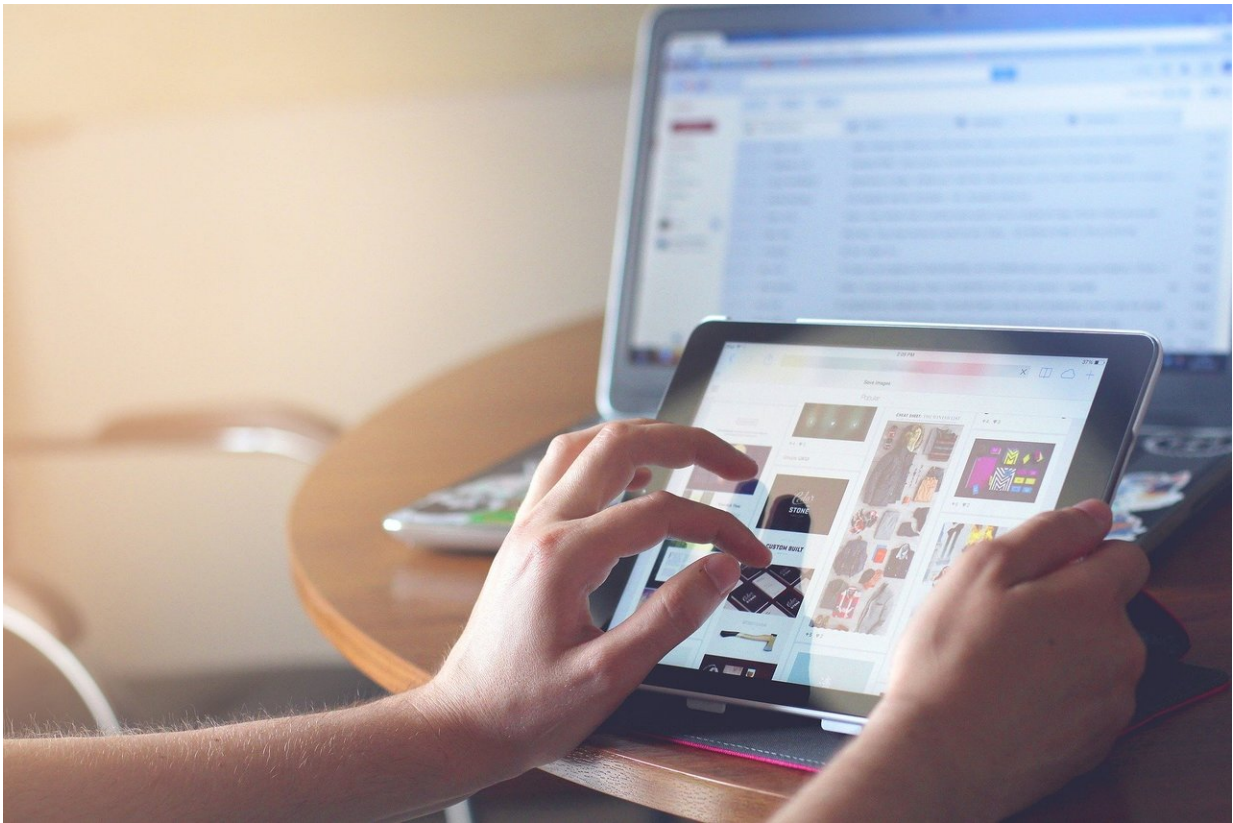


Using ergonomics to reduce pain from technology use

December 17 2021, by Tim Schnettler



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The use of smartphones, tablets and laptops has become commonplace throughout the world and has been especially prevalent among college students. Recent studies have found that college students have higher

levels of screen time, and they utilize multiple devices at higher rates compared to previous generations.

With the increased use of these devices, especially smartphones, students tend to use a less-traditional workplace such as a couch or chair with no desk, leading to an increase in musculoskeletal disorders in that age group. A team of Texas A&M researchers led by Mark E. Benden conducted a study looking at the technology students use, the postures they adapt when they use their devices, and the amount of pain the students were currently experiencing.

Benden and his co-authors found that smartphones have become the most common link to educational materials though they have the least favorable control and display scenario from an ergonomic perspective. Additionally, the team concluded that regardless of [device](#), ergonomic interventions focused on improving posture and facilitating stress management may reduce the likelihood of pain.

The results of the team's study were published recently in the open-access, peer reviewed journal *BMC Public Health*.

"When we started this study a few years ago it was because we had determined that [college students](#) were the heavy users of smartphones," Benden said. "Now those same levels we were concerned about in [college](#) students are seen in 40-year-olds and college students have increased to new levels."

Benden, professor and head of the Department of Environmental and Occupational Health (EOH) at the Texas A&M University School of Public Health and director of the Ergo Center, co-authored the study with EOH associate professors Adam Pickens, S. Camille Peres, and Matthew Lee Smith, Ranjana Mehta, associate professor in the Wm Michael Barnes '64 Department of Industrial & Systems

Engineering, Brett Harp, a recent EOH graduate, and Samuel Towne Jr., adjunct assistant professor at the School of Public Health.

The research team used a 35-minute online survey that asked participants about their technology use, posture when using the technology, current level of pain or discomfort, and their activity and stress levels.

Among the respondents, 64 percent indicated that their [smartphone](#) was the electronic device they used most frequently, followed by laptops, tablets and desktop computers. On average, the students used their smartphone 4.4 hours per day, and they indicated that when doing so, they were more likely to do so on the couch or at a chair with no desk.

"It is amazing to consider how quickly smartphones have become the dominant tech device in our daily lives with little research into how that level of use would impact our health," Benden said.

The researchers found that posture components and stress more consistently contributed to the pain reported by the students, not the variables associated with the devices they were using.

Still, the researchers point out that in our ever-increasing technology-focused society, efforts are needed to ensure that pain is deferred or delayed until an individual's later years to preserve the productivity of the workforce.

"Now that we are moving toward hybrid and/or remote workspaces for our jobs, college students are taking habits formed in dorm and apartment rooms during college into young adulthood as employees in home offices," Benden said. "We need to get this right or it could have adverse impacts on an entire generation."

More information: Mark Benden et al, Health-related consequences of the type and utilization rates of electronic devices by college students, *BMC Public Health* (2021). [DOI: 10.1186/s12889-021-11975-3](https://doi.org/10.1186/s12889-021-11975-3)

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