

Study finds 'digital humans' as effective as real ones in ergonomics training

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Could digital humans—realistic virtual representations of humans that communicate through text-to-speech and speech-to-text interfaces—provide online training that is as effective as that provided

by real humans?

The idea is promising, according to a new [study](#) published in *Applied Ergonomics* and conducted by Texas A&M University School of Public Health researchers Kaysey Aguilar, Mark Benden and Matthew Lee Smith, and a colleague from Texas A&M's Department of Psychology.

The researchers analyzed whether training by a digital human would give remote workers knowledge of [ergonomics](#) that would lead them to change their work behavior. The team found that digital human training outcomes are comparable to those from conventional online training.

"This is significant, given the dramatic growth in chatbots and other AI-driven interfaces," Aguilar said. "Digital humans can be customized in terms of their appearance, language, personality, script and gestures, which means that they might provide customizable training that is not possible with conventional online training technologies."

The research team recruited a sample of remote workers from a [telecommunications company](#) and randomly assigned them to a digital human group, a conventional online training group and a [control group](#) that did not receive training. The two courses used the same content to ensure they could be accurately compared. Additionally, the researchers assigned twice as many people to the digital human group as the others to address potential issues with using a new technology.

The researchers sent each participant a questionnaire that collected data on demographics, remote work practices, ergonomics knowledge, ergonomic behavior and incidence of musculoskeletal discomfort before and after training.

Analysis of the questionnaires found that both the conventional and digital human groups had improved ergonomics knowledge and

decreased musculoskeletal discomfort, showing that the two methods have comparable outcomes. However, only the conventional online training group had statistically significant improvements in ergonomic behavior.

In addition, the findings point to the potential for digital human-based training to improve remote workers' ergonomics knowledge and practices. The prevalence of remote work and the introduction of technological advances make innovation and research on remote ergonomics training an important factor in ensuring a healthy workforce, the researchers said.

Although the digital human training was not found to be superior to conventional methods, the researchers note a need for further research that fully utilizes the digital human's conversational abilities.

"Digital humans that are customized to the needs of workers and are able to engage in conversation could be more effective than typical [online training](#) methods," Aguilar said.

More information: Kaysey N. Aguilar et al, Digital human ergonomics training for remote office workers: Comparing a novel method to a traditional online format, *Applied Ergonomics* (2024). [DOI: 10.1016/j.apergo.2024.104239](#)

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