

Simulating medical situations helps students learn, retain basic science concepts

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Simulating medical scenarios helps medical students learn and retain vital information, according to a new study done by researchers at Wake Forest University School of Medicine.

The study, recently published in *Medical Teacher*, shows that medical students not only enjoy patient-simulation experiences but also learn more from them, said Michael T. Fitch, M.D., Ph.D., the senior author of the paper and an associate professor of [emergency medicine](#) at the School of Medicine.

"There's no question that people like it," Fitch said. "People really enjoy participating in an immersive learning environment. The purpose of this study was to find out whether this also makes our students learn and retain knowledge better."

For the study, first-year [medical students](#) received a traditional lecture on basic neuroscience concepts from a faculty member, followed by a brief questionnaire in an informal class exercise two days later.

Three days after that, without further discussion of the questionnaire or receiving answers, those same students participated in a 90-minute live simulation of a medical emergency. Students were told that the patient - "SimMan," a computerized mannequin that can be programmed to have different medical problems - had altered mental status, nausea and vomiting.

A team of physicians played the roles of EMS workers, nurses and family members, and the students worked through the decision making process to arrive at a diagnosis. The physician running the simulation stopped action periodically to lead the group in discussion of the basic neuroscience concepts being learned during the scenario.

Typically, such simulations are used in small groups and in clinical settings, but the School of Medicine started experimenting with the use of simulation in student neuroscience lecture settings in 2006.

Immediately after the simulation, the students were presented with the same four questions they were asked following the lecture. Their answers showed that they were much more likely to demonstrate mastery of the information by answering all four questions correctly on the post-simulation test than on the post-lecture only test, Fitch said.

For two of the four questions, significantly more students chose the correct answer on the post-simulation test than on the post-lecture test, while little or no change was seen on the other two questions.

"We're interested in developing new and innovative ways to teach medical information," Fitch said, adding that the results of the study could spur medical schools to consider more large-group simulation exercises in addition to traditional lectures.

"Seeing how things apply to clinical practice is very important in medical training. Students may remember a specific patient encounter and anchor that memory to the information provided, which can improve learning and lead to long-term retention of information."

Source: Wake Forest University Baptist Medical Center ([news](#) : [web](#))

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