

Study finds surgical residents often fatigued

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A study involving 27 orthopedic surgery residents suggests that surgical residents are often fatigued during their awake time, according to a report in the May issue of *Archives of Surgery*.

Medical error is a problem worldwide, and a growing body of literature indicates that [fatigue](#) may play a significant role in [medical error](#), according to background information in the study.

Frank McCormick, M.D., from the Harvard Combined Orthopaedic Residency Program and Massachusetts General Hospital, and colleagues, evaluated surgical residents' sleep and awake periods that were continuously recorded via actigraphy, a wristwatch-type instrument worn to record and store data for sleep and awake intervals that can be used to assess individual [mental fatigue](#).

Of 33 volunteer orthopedic [surgical residents](#), 27 (82 percent) completed the study. The mean (average) amount of daily sleep for the residents was 5.3 hours, with individual mean amounts ranging from 2.8 hours to 7.2 hours.

The authors found that, overall, residents were functioning at less than 80 percent mental effectiveness due to fatigue during a mean of 48 percent of their time awake. Residents were also functioning at less than 70 percent mental effectiveness due to fatigue during a mean of 27 percent of their time awake.

Night-float rotations resulted in higher levels of fatigue than day-shift

rotations, with night-float residents sleeping an average of 5.1 hours daily and day-shift residents sleeping an average of 5.7 hours daily.

In conclusion, "resident fatigue was prevalent, pervasive, and variable," the authors conclude.

In an invited critique, Thomas F. Tracy Jr., M.S., M.D., of Hasbro Children's Hospital and Brown University, Providence, R.I., writes, "There is a lot to like in this study by McCormick and colleagues ... Their actual determination of fatigue during certain periods is not startling, but its pervasiveness is a finding we simply cannot avoid and may have paid lip service to in the past. It is unlikely that the data in this study will be refuted."

"Tested cognitive errors that occur in judgment or performance during fatigue infer medical error or the potential for it. Unfortunately, we have few examples of direct specific correlations from large-scale cause or high-fidelity systems failure analysis that clearly define the fatigue-harm axis across surgical services," Tracy continues.

"From this and other studies, it seems we have made things worse by our attempt to fill mandates of prescribed work hours on the basis of activities external to health care delivery systems. If we are really serious about this, it may be time to debate work hours and methods in training centers to mitigate patient error with the inclusion of these measurements to adequately design shift configuration," Tracy concludes.

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