

## Study examines surgeons' stress related to surgery and night duty

November 15 2010

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A small study of Japanese surgeons suggests that duration of surgery and the amount of blood loss are associated with increased stress scores, and that night duty is associated with reduced stress arousal scores, according to a report posted online today that will be published in the March print issue of *Archives of Surgery*.

Young [physicians](#) are decreasingly likely to choose surgery as a specialty, according to background information in the article. About 80 percent fewer chose the profession in 2000 compared with the 1980s. "One of the reasons is the unfavorable [working conditions](#) experienced by surgeons, which has led to a decrease in the number of surgeons and, in turn, has caused even greater increases in the surgeons' workload and risk of errors," the authors write. "It has therefore become a vicious circle."

The effect of surgical stress on patients has been widely studied, whereas the stress on surgeons due to surgery and night duty has not. Koji Yamaguchi, M.D., Ph.D., and colleagues at University of Occupational and Environmental Health, Kitakyushu, Japan, studied 66 surgeons at one university hospital and 15 community and [public hospitals](#). Both before and after day shifts, operations and night duty shifts, participants completed questionnaires assessing stress and workload and provided [urine samples](#), which were analyzed for levels of a compound (biopyrin) that indicates the body is under stress.

[Questionnaires](#) revealed that the surgeons experienced stress following

surgery, which increased with the duration of surgery and the amount of surgical [blood loss](#). "There were no significant associations between surgical stress and number of operations per day, number of operations as a surgeon, number of operations as an assistant or laparoscopic or conventional surgery," the authors write.

The average operating time was 210 minutes. Urine analysis showed that biopyrin levels were significantly higher after an operation that was 210 minutes or longer compared with 209 minutes or shorter, and also that these levels increased after an operation in which 200 grams or more of blood was lost.

Surgeons who had night duty got less sleep. Based on urine biopyrin levels, surgeons experienced more stress the morning after night duty. They also demonstrated lower stress arousal scores when they finished the day shift following night duty than they were when finishing a day shift not preceded by night duty.

"The problem of chronic sleep deprivation and overwork of surgical residents has become an important issue in the world, including Japan. A combination of poor-quality daytime sleep and increased sleep pressure during the night may result in lowered levels of alertness and an increased risk of errors in people on night duty, such as medical personnel," the authors write. "The present study demonstrated the stress of night duty on surgeons subjectively and objectively. Surgeons' working conditions, including night duty, should be improved to enhance the quality of life for surgeons, resulting in fewer errors in operations and medical treatments and better medical services for patients."

**More information:** *Arch Surg*. Published online November 15, 2010.  
[doi:10.1001/archsurg.2010.250](https://doi.org/10.1001/archsurg.2010.250)

Provided by JAMA and Archives Journals

Citation: Study examines surgeons' stress related to surgery and night duty (2010, November 15)  
retrieved 24 April 2024 from

<https://medicalxpress.com/news/2010-11-surgeons-stress-surgery-night-duty.html>

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