SYNOPSIS

KEY POINT SUMMARY

OBJECTIVES

The aim of this study was to objectively evaluate the effect of quiet conditions, noise, and music on the performance of a complex laparoscopic surgical task.

DESIGN IMPLICATIONS

Environmental measures should be taken to mitigate noise in the OR.

Objective Evaluation of the Effect of Noise on the Performance of a Complex Laparoscopic Task

Moorthy, K., Munz, Y., Undre, S., Darzi A.
2004 | Surgery
Volume 136, Issue 1, Pages 25-30

Key Concepts/Context

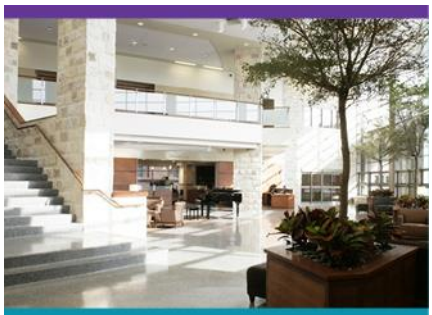
Noise in operating rooms has been found to be as much as two times higher than the recommended level of 45 dB. Music is played in some operating rooms to reduce patient anxiety, increase the surgeon's concentration, and mask noise in the operating theater. While some studies have shown the detrimental effect of noise and the beneficial effects of music on patients in the OR, few studies have covered the effects of these factors on the performance of medical staff.

Methods

Twelve surgeons with varying experience in laparoscopic suturing undertook three sutures in a laparoscopic trainer under three conditions: quiet, noise at 80 to 85 dB, and music. Other than the test conditions, all other conditions were standardized. A validated motion analysis system was used to assess performance. The tasks were recorded by video and played back to two blinded observers who rated the surgeons' performance on a global rating scale by observing the tasks for accuracy, knot quality, and number of nonpurposeful movements.

Findings

In this experiment, neither noise nor music had any significant effect on the technical dexterity, performance, or accuracy skills of a surgeon. While noise was determined not to interfere with the performance of those who participated in the study, noise has been reported to negatively interfere with communication, concentration, and the performance of noise-sensitive individuals.



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Limitations

The experiments were conducted under controlled laboratory conditions and did not truly replicate the simultaneous or consequent stressor conditions in the OR. Further, surgeons participating in the study were not surveyed regarding their preference or reaction to the conditions.