

# Music Genre May Not Hinder Surgical Performance

## The Problem

- Music in the operating room is now commonplace
- Several studies have characterized how music may affect surgeon performance (1,2,3)

## Aim/Goal

We seek to measure surgical performance in the presence of distractors such as music. In order to safely conduct this study without possibility of harm to human subjects during an operation, we do this in a second generation virtual reality environment. The purpose of this study is to determine whether the selection of music genre affects surgeon performance.

## The Team

**BIDMC:** Robert Sung, MD, Hussna Wakily, MD, Daniel Jones, MD

**Rensselaer Polytechnic Institute:** Ganesh Sankaranarayanan, PhD, Baichun Li, MS, Suvrano De, Sc.D

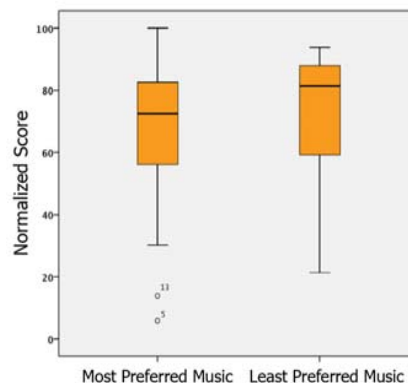
**Cambridge Health Alliance:** Amie Miller, MD, Kelly Manser, BSc, Steven Schwartzberg, MD

## The Interventions

Exemplars of various genres of music were selected. Surgeons were asked to rank each genre from most preferred to least preferred. Surgeons were then asked to perform a virtual reality peg transfer task similar to that found in the Fundamentals of Laparoscopic Surgery (FLS) exam. Musical distractors (most preferred and least preferred) were played during the peg transfer task. Along with music, two interruptions (fogging of the camera view and tool malfunction) were also presented to the subjects. Task performance was scored according to the standardized FLS methodology.

## The Results/Progress to Date

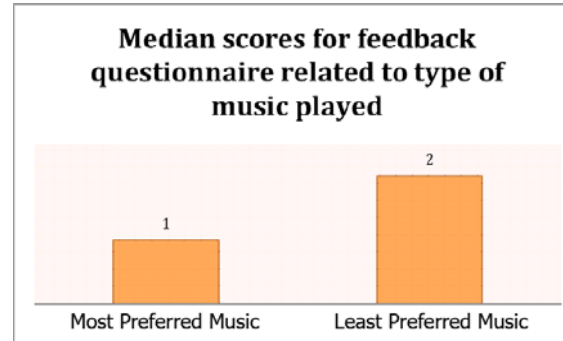
9 subjects (7 attendings and 2 medical students) participated in this study held at the American Society for Metabolic & Bariatric Surgery (ASMBS) Obesity Week conference in November 2013. A Wilcoxon Signed Rank test was used to test the difference in peg transfer task performance of subjects while subjected to their most and least preferred music. This showed no significant difference ( $p = 0.136$ ).



## The Results/Progress to Date (Cont.)

We specifically asked about subjective assessment of whether their most and least preferred music affected their surgical task performance. Subjects rated their feedback on a 5 point Likert Scale (1=not at all, 5=very much). In this study, performance was not substantially affected by:

- the most preferred music (median = 1) OR
- the least preferred music (median = 2)



## Lessons Learned

Virtual reality allows surgical performance assessment outside of the operating room in a safe environment. In this study, surgical performance did not degrade in the presence of musical distractors and interruptions. Specifically, music genre did not affect surgical performance. Therefore, our data suggests that any team member in the operating room can select music without hindering surgeon performance.

## Next Steps/What Should Happen Next

A peg transfer tasks may be too simplistic to challenge an experienced surgeon, even in the setting of musical distraction. Further studies are necessary to examine effect of surgical task complexity as well as variations in music rhythm, volume, and tempo.

## References

1. Allen K, Blascovich J. Effects of music on cardiovascular reactivity among surgeons. *JAMA*. 1994 Sep 21;272(11):882-4.
2. George S, Ahmed S, Mammen KJ, John GM. Influence of music on operation theatre staff. *J Anaesthesiol Clin Pharmacol*. 2011 Jul;27(3):354-7.
3. Conrad C, Konuk Y, Werner P, Coa C, Warshaw A, Rattner D, Jones DB, Gee D. The effect of defined auditory conditions versus mental loading on the laparoscopic motor skill performance of experts. *Surg Endosc* 2010, 24:1347-52