



# MYTH OR SCIENCE: THE SOUND OF MUSIC IN THE OPERATING ROOM

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## Introduction

## Critical Appraisal

For millennia, music has been used as a tool to lighten the burden of labour. The Egyptian pyramids were built while great masses were chanting, Native Americans would be accompanied by playing flutes during healing rituals, and soldiers have been led into battle to the sounds of beating drums. It appears this habit is being continued in the operating room (OR). Have you ever wondered how surgeons can stay awake during an 8-hour long surgery? Well, apparently music has the ability to enhance concentration and subsequently improve your performance [1]. However, there are debates as to whether music in the OR is actually helpful or harmful.

Whereas hospitals once were famous for their quiet and serene environment, one could state that this is no longer the case. While the hallway and cafeteria are clear frontrunners in the race for 'noisiest place in a hospital', an underestimated contestant is the operating theatre. With noisy equipment, loud operation-related activities, and conversations during surgical procedures, ORs are becoming increasingly tumultuous. Peak noise levels in the OR can even exceed 120 decibels, which is louder than a busy highway [2]. According to health and safety regulations in the workplace (ARBO-wet), a daily exposure of >80 dB could already be harmful to your hearing [3]. Furthermore, these high levels of background noise may impair concentration and communication between OR staff where miscommunication is one of the leading causes of errors [4]. However, does music actually act as an extra hurdle or does it, in fact, lead to a less stressful environment?

Regarding the effect of music on the operating room staff's performance, various effects have been described. A questionnaire conducted by Ullmann et al. demonstrated that >60% of OR personnel listens to music in the OR. Interestingly, 1 out of 10 participants indicated that it had a negative effect on communication due to excessive noise, but at the same time, many (77%) reported that music created a calm atmosphere and enhanced their work efficiency [5]. Another study found that autonomic reactivity was lower and the speed and accuracy of cognitive tasks increased in surgeons listening to self-selected music compared to no music or stress-reducing music [6]. In a multicenter trial, around 80% of the OR staff reported that music alleviated anxiety and elevated their mood, which allowed them to be more calm and thoughtful in stressful situations. Especially in nurses and female responders, who showed the highest preference for music during surgery [1,7].

However, it is important to note that the effects of music may vary depends on several factors. For instance, in one randomized controlled trial of less experienced surgeons, music during training procedures was perceived as distracting and impaired performance [8]. Likewise, in the UK, an observational study of teamwork in operating rooms through video recordings was conducted and revealed that repeating questions occurred five times more in settings that involved playing music [9]. Anesthesiologists in particular declared that music can reduce the ease and accuracy of carrying out their tasks. 26% believed that music negatively affected their alertness and their communication with other staff members. 51% felt that music was distracting when a complication was encountered, especially with music that they disliked [10]. In contrast, Hawksworth et al. found that the anaesthetist's performance was not affected by self-chosen or classical music compared to silence [11]. Interestingly, music also affected patients in the OR by showing an anxiolytic and sedative effect before, during, and after surgery. It even helped patients physically and mentally relax during unpleasant or invasive procedures and enhanced their cognitive function [12-14].

Overall, these individual studies show the challenge to research such an easily influential topic. The effect of music on the different staff members in the OR is dependent on many factors including personal taste, the required tasks and environmental factors. However, it is clear that music does have a certain effect on all individuals, whether positive or negative, and this should be taken into account when deciding who controls the playlist for that day. Even though 'Staying alive' has the best rhythm for CPR, the search for the best song during other OR activities continues!

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