

Does *Stayin' Alive* Keep the Patient Alive? A Randomized Crossover Trial Evaluating the Efficacy of Using Music to Perform Chest Compressions**Study Purpose and Rationale**

Currently, the American Heart Association recommends that chest compressions be given at 100 per minute, similar “to the beat of the classic disco song ‘Stayin’ Alive’” [1]. A few studies have been conducted to determine whether the use of music is a good cue for compression rate. For example, a study in Spain showed that BLS students are more accurate when giving compressions while listening to the “Macarena,” a song recorded at 103 beats per minute. When tested again a month later, accuracy improves once again after listening to the “Macarena” [2]. However, a recent study in Australia showed that doctors and nurses give compressions faster than they should, even after listening to “Stayin’ Alive” [3]. This study will determine the rate at which healthcare providers perform chest compressions while singing “Stayin’ Alive” and if a better song is suited for the task.

[1] Two steps to staying alive with Hands-Only CPR. In *American Heart Association*. Retrieved July 16, 2013, from http://www.heart.org/HEARTORG/CPRandECC/HandsOnlyCPR/Hands-Only-CPR_UCM_440559_SubHomePage.jsp.

[2] Oulego-Erroz I, Busto-Cuiñas M, García-Sánchez N, Rodríguez-Blanco S, Rodríguez-Nuñez A. A popular song improves CPR compression rate and skill retention by schoolchildren: A manikin trial. *Resuscitation* 2011;82:499-500.

[3] Naushaduddin M, Holdgate A, Ung S. The use of popular audio in CPR (TUPAC)--Does music improve compliance with recommended chest compression rates? *Resuscitation*. 2010 May;81(5):631.

Study Design and Statistical Procedures

A prospectively randomized crossover trial will be performed with the goal of enrolling 100 subjects (75 current residents and 25 nurses). The subjects will self-identify as those “with extensive musical experience” (at least ten years of singing or playing a musical instrument) or “without extensive musical experience” (less than ten years of singing or playing a musical instrument). The individuals within the two subgroups will then be randomized into two further subgroups: one group first performing chest compressions while singing/humming “Stayin’ Alive” while the other group first performs CCs while singing/humming “I Want It That Way.” They will then be brought back on a later date to perform CCs singing/humming the other song.

A minimal number of subjects is necessary. Assuming a mean difference of 5 between the SA group and the IWITW group with a standard deviation of two, less than six subjects are required to show significance using a paired t-test with $p < 0.05$ and Power $> 80\%$. For the second portion of the study comparing subjects with musical experience against subjects who don’t, assuming a difference of 5 between the mean of the two groups and a comparable standard deviation of 2, less than six subjects are required in each group to show significance using an unpaired t-test with $p < 0.05$ and Power $> 80\%$.

Study Procedures

After the individuals in the musically experienced and non-musically experienced subgroups have been randomized, they will be asked to perform CCs for one minute while singing/humming the prescribed song and the number of compressions they give will be recorded. They will then be asked to come back at a later date (at least one day later and no more than seven days later) to perform another set of CCs for one minute while singing/humming the other song and the number of compressions they give will be recorded. The study will be conducted over the course of a month and the results will be analyzed using the statistical tests listed above. Participants will be reimbursed with a \$5 Starbucks gift card.

Study Drugs or Devices

N/A

Study Instruments

Questionnaire
Video camcorder

Study Questionnaire

Please circle the statement that best describes you:

- A. I have had **at least** ten years' experience singing or playing a musical instrument.
- B. I have had **less than** ten years' experience singing or playing a musical instrument.

Study Subjects

The study will include all residents and nurses at CHONY who agree to participate. The goal is to have 100 participants.

Recruitment E-mail

Hi all,

I am recruiting participants in a research study that will help us determine how we can improve the way we teach chest compressions to healthcare professionals. This will require two sessions on separate days, each taking no more than five minutes of your time. Please respond to this e-mail if you are interested in participating. You will be compensated for your time with a gift card to Starbucks. Thanks!

Confidentiality of Study Data

IRB Protocol

Sam Zhao, PGY-2
Clinical Research Rotation

Participants will be assigned a number on the questionnaire they fill out regarding their musical experience. The recording of their singing/humming and chest compressions will not include their faces or names. The recordings will subsequently be de-identified and labeled only with the same number as the one assigned to each participant on the questionnaire. After the completion of the study, the recordings will be destroyed.

Potential Conflict of Interest

N/A

Location of the Study

Morgan Stanley Children's Hospital of New York-Presbyterian

Potential Risks

N/A

Potential Benefits

We may find that IWITW is a better song for approximating the 100 compressions per minute recommended for CPR. We may also find that neither of the songs tested is a good way to improve frequency of CCs. We may also find that a certain subgroup is better at performing CCs with a song in mind than another subgroup.

Alternative Therapies

N/A

Compensation to Subjects

Each subject will be given a \$5 Starbucks gift card upon completion of the second session of CCs.

Minors as Research Subjects

N/A

Radiation or Radioactive Substances

N/A