

Research goals:

This informal study is designed to measure the symptoms of physical stress in professional opera singers while singing as demonstrated by blood pressure and heart rate. Further goals of this study are to understand the differences between the physical symptoms of stress during non-performance singing and during operatic performance. The findings in this study are intended to inform singers with intracranial aneurysm of factors that may increase their risk of rupture.

To participate in this study you are asked to

- be an opera singer between 22 and 65 years of age
- have performed, over at least the last two years, roles belonging to either one Fach or to two closely-related Fächer
- have access to a blood-pressure monitor and heart rate monitor, or to a combination blood-pressure/heart rate monitor

There are two phases of testing involved in this study, the first of which can be performed at home/in a location of your choosing. The second phase of testing involves taking measurements during the course of a day on which you are performing: singers are welcome to complete only phase one of this study but are asked, should they wish to complete phase two, to complete both phases. The order of phase one and two is unimportant; one can complete their performance day measurements prior to performing their singing stress test.

Questionnaire:

Phase one

1. To which Fach/Fächer do most of the roles that you have performed in the last two years belong?
2. Do you know yourself to have hyper or hypotension? Do you take any medications to manage this condition if so?
3. What is your age?
4. What are your height and weight? (Please specify cm/kg/lbs/inches)

5. On a scale of 1 to 10, with 1 representing no anxiety and 10 representing highest anxiety, how do you rate your anxiety while performing?
6. Have you ever, or do you regularly take beta blockers or other anti-anxiety medications to perform? If so, how often and which?
7. Please take three blood pressure and heart rate readings at rest at differing times of a day, and report them here. *Your blood pressure should be measured while sitting with your arm roughly at the level of your heart.* If you are unclear as to how best to take this measurement, please consult a youtube video to disambiguate.

8. Please perform the following singing stress test:

On a non-performance day, please begin these steps in a state of relaxation.

1. Measure your blood pressure and heart rate while at rest. Report these numbers here.
2. Vocalise or sing easily for 5 to 10 minutes **while sitting**, and then take your blood pressure and heart rate again. Try not to allow more than 60 seconds to elapse between ceasing phonation and initiating your measurement. Report these numbers here.
3. **Stand**, and sing a low-pressure, central-tessitura excerpt from your repertoire with a duration of between 1 and 2 minutes. Sit, and take another blood pressure and heart rate measurement. Report these numbers here.
4. **Stand**, and sing a demanding, high tessitura/dramatic excerpt from your repertoire— aim for this excerpt to be between 1 and 2 minutes in duration. Take another set of measurements immediately following this phrase. Report these numbers here.
5. Sing a standard aria (c. 3-6 minutes) from your repertoire **while standing**. Immediately following singing your aria, sit and take another set of measurements, and report these numbers here.

6. Wait for 10 minutes while remaining seated. Take another set of measurements.
7. If you do not feel that it violates your anonymity, please list the excerpts and aria that you sang during this stress test.

Phase two: Performance-day measurements

1. Please take three blood pressure and heart rate measurements over the course of a performance day *before leaving for the theatre* and report these numbers here.
2. Take a set of measurements approximately 30-60 minutes before the first entrance of your character while at rest (ie, please take these measurements while you're scrolling/seated, and not while you're actively vocalising). Report these numbers here. *If you use a beta blocker for performances, please indicate how many hours before this reading you took it, and which specific medication/dosage you took.*
3. Take a set of measurements directly following leaving the stage from a scene in which your character sings roughly to the end of the scene (ie, not following act 1 of the title role of Rusalka, or similar). When possible, take this reading within 60 seconds of leaving the stage (please do not return to your Garterobe if your Garterobe is located a significant distance from stage, and please avoid climbing stairs before these measurements). Report these numbers here.
4. Take a set of measurements directly after the final applause of the show, and report these numbers here.
5. Take a set of measurements 60 minutes following the performance and report these numbers here.