



SCHOOL OF OPTOMETRY  
UNIVERSITY OF CALIFORNIA, BERKELEY  
360 MINOR HALL, #2020  
BERKELEY, CALIFORNIA 94720-2020

## **Title of Study: Pitch Perception and Reproduction**

### Purpose and Background

My name is Michael Silver, Ph.D. I am a professor in the School of Optometry and the Helen Wills Neuroscience Institute at the University of California, Berkeley. I invite you to take part in a research study. The research deals with pitch perception. We are attempting to understand how information is processed in the human brain. We are specifically interested in various forms of absolute pitch, the ability to name musical pitches without a reference. Our goal is to document expert musicians' ability to produce pitch names, sing pitches, and play pitches on their instrument.

### Eligibility Criteria

In order to participate in this study, you must meet the following eligibility criteria:

- 18-65 years of age
- No history of neurological or hearing problems
- Your primary instrument is violin, piano, voice, or clarinet
- You are pursuing or have completed formal (classical or jazz) training at a bachelor's level (or equivalent) in music performance with your primary instrument
- You actively practice your preferred instrument on a regular basis, at least 5 hours per week
- You started learning your preferred instrument before age 10
- Violin/clarinet only: You have brought your preferred instrument to the research study

### Procedure

If you meet the eligibility criteria and agree to participate, you will receive an explanation of the type of listening and performance tasks that you will perform. You will perform listening and music performance tasks for approximately 1.5-2 hours. These tasks involve listening to tones (auditory stimuli) and reporting the note name, singing the pitch, and/or producing the pitch on your instrument. Your singing and instrument playing will be audio recorded in short several-second clips, but no other parts of the study will be audio recorded, and these recordings will not contain your speaking voice. You will be provided with regular breaks, and you can ask for additional breaks if you desire.

If you play a mobile instrument (not piano or voice) you will have brought your own instrument to perform on. Note that you can stop your participation at any stage, without risk of any penalty. All the sessions will take place in a behavioral testing room in Minor Hall on the University of California, Berkeley campus.

Subject Initials \_\_\_\_\_

### Risks

There are no known risks associated with these behavioral procedures, which have been used extensively in previous research. The auditory stimuli are presented at a comfortable sound level through headphones, and button/instrument responses require a minimal amount of effort. However, you may feel tired or bored during the testing and after. While there is a small chance that the confidentiality of the information collected could be compromised, we will take care to prevent this from happening.

### Benefits

It is important that you understand there is no benefit to you from this research. We hope that this knowledge will prove useful in the future understanding of human psychology.

### Compensation

You will be paid at the rate of \$12 per hour for your participation. Cash or a check for the total amount of compensation will be given to you at the end of the study. In the event you do not complete the study, you will be compensated at \$12 per hour for the time you spent participating in the study.

### Confidentiality

If you decide not to enter the study, all personal information will be immediately destroyed, including this consent form. All of the information obtained during the study will be handled as confidentially as possible, and only a code will be used to identify your results.

Audio recordings of your singing voice will have their pitch extracted, and will be destroyed, within 1 year of your participation. However, there is a risk that security of the experimental data could be compromised before the recordings are destroyed, and you could be identified by someone who knows your voice well. We will do everything possible to keep this from happening. We will keep recordings, and all other data, on firewall-protected and password-protected computers in locked offices that only the experimenters have access to. Audio recordings that include your voice will be encrypted until they are destroyed. All data will be identified by an alphanumeric code, and not by your name or any other label that could be linked to you.

We will never release recordings of you singing, which could be identified by someone who knows your voice well. These recordings will be heard only by the experimenters and will never be used in public presentations.

When the research is completed, we may save the data, but not the voice audio recordings, for use in future research. We will retain this study information indefinitely after the study is over. The same measures described above will be taken to protect confidentiality of this study data.

Identifiable information collected for payment, such as your name and address, will be kept for one year after your participation, in case payment questions arise, and will then be destroyed. These records will be kept separate from your data, and will not be linked to your data by alphanumeric code or any other means.

### Voluntary Nature of Participation in Research

Please understand that your participation in the research is voluntary and that you are free to refuse to participate in this study. You may also withdraw your consent and discontinue participation in the research at any time. If you decide to refuse to participate or to discontinue your participation, there will be no penalty or loss of benefits to which you would be otherwise entitled.

Subject Initials \_\_\_\_\_

Contact Information

If you have any questions about your rights or treatment as a research participant in this study, please contact the University of California at Berkeley's Committee for the Protection of Human Subjects at (510) 642-7461 or email [subjects@berkeley.edu](mailto:subjects@berkeley.edu). If you have any questions about the research, please call me, Michael Silver, at (510) 387-8251.

I have read this consent form and I agree to take part in the research.

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Subject's Signature

Date

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Investigator's Signature

Date

You have been given a copy of this consent form to keep.