AN INVESTIGATION INTO THE PHYSICAL EFFECTS OF VARIOUS GENRES OF MUSIC

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INTRODUCTION

We tested 15 college students in either undergraduate or graduate work ages 18-26. The information gained from this research will provide people with knowledge about how a genre of music affects one's body. This will enable people to make more informed decisions regarding what genre of music one plays when exposed to various environments.

OBJECTIVES

Our objective for this study is to explore the galvanic skin response (GSR) and heart rate changes to individuals during different genres of music and analyze the impact, if any, of their favorite genre of music. Our null hypothesis is that music will not have an effect on GSR and heart rate. Our alternative hypothesis is that music will have an effect on GSR and heart rate.

METHODS

- Take introductory survey
- Place Polartec Elastic Heart Rate band around chest and Galvanic Skin Response sensors on index and middle fingers (see figures 1 and 2)
- Take resting heart rate and skin conductance levels for 30 sec and then begin 5 minutes of the first genre of music
- Allow participant to walk around/relax for 4 minutes and then sit for 1 minute
- Repeat last two steps by varying the order of the genre of music for each individual to make sure there are no lurking variables
- Take post survey regarding favorite of the 5 genres

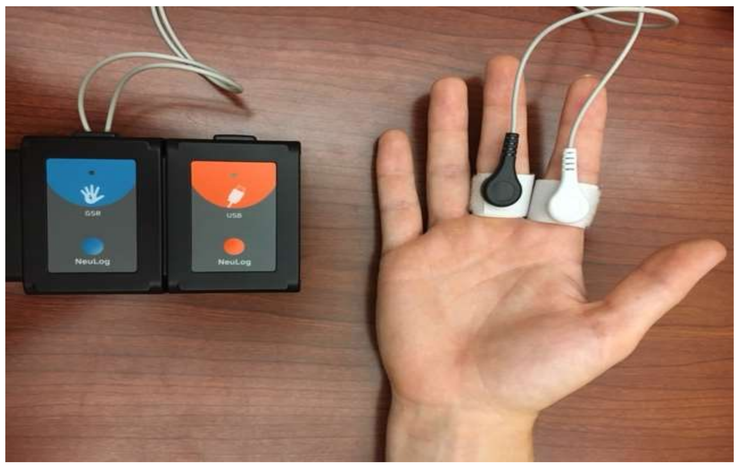

Figure 1. Galvanic Skin Response Sensors

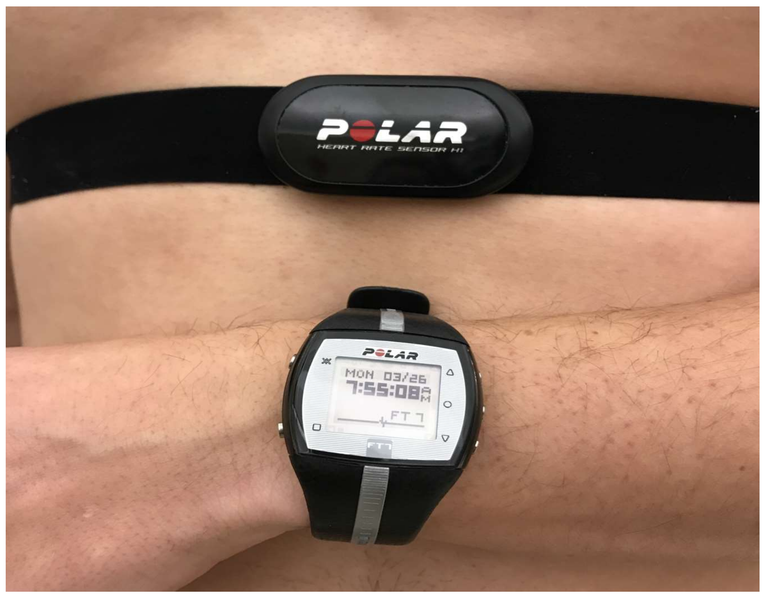

Figure 2. Polartec Heart Rate Monitor

RESULTS

- The largest statistical decrease in arousal occurred during classical music.
- The smallest decrease in arousal occurred during country music.
- The largest statistical increase in heart rate occurred during country music.
- The only decrease in heart rate occurred during classical music.

GSR Comparison	Mean Difference Pre – During (SD)	T-value	p
Classical	.477 (± 0.796)	2.322	0.036*
Country	.274 (± 0.753)	1.409	0.186
Heavy Metal	.425 (± 0.701)	2.351	0.034*
Pop	.333 (± 0.804)	1.605	0.131
Rap	.400 (± 0.690)	2.246	0.041*

*p < .05

Table 1. Paired T-tests Comparing Pre- and During-Tests of Galvanic Skin Response

CONCLUSIONS

Of the 15 subjects, most reported their favorite genre, of the 5 tested, to be country or pop. This information combined with our data suggests that the more popular a genre of music is, the less arousal it evokes. Regardless of their preference in music, classical music evoked the largest decrease in arousal and decrease in heart rate.

HR Comparison	Mean Difference Pre – During (SD)	T-value	p
Classical	0.840 (± 7.180)	1.433	0.154
Country	-3.460 (± 6.691)	-6.333	<0.001*
Heavy Metal	-1.233 (± 8.216)	-1.838	0.068
Pop	-1.327 (± 7.793)	-2.085	0.039*
Rap	-1.300 (± 8.125)	-1.959	0.052

*p < .05

Table 2. Paired T-tests Comparing Pre- and During-Tests of Heart Rates

FUTURE WORK

How do individuals react to lyrical music compared to instrumental?

- Do they sing along to the music?
- Does lyrical music increase arousal more than instrumental?
- We can test using various lyrical and instrumental songs.

References

Brownlow, Briana (2017) "The Effect of Music Tempo on the Psychophysiological Measures of Stress," *Continuum: The Spelman Undergraduate Research Journal*: Vol. 1 : Iss. 1 , Article 2.

Acknowledgments

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