

Sounds of Music

Project ID: #
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Introduction

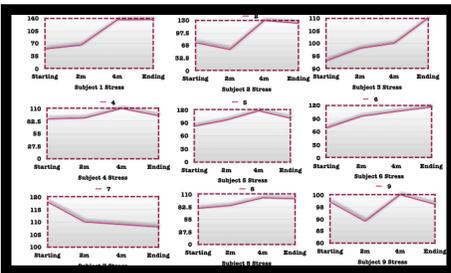
I have studied how heart rate can change in a certain period of time. According to *Medical News Today*, research shows that heart rate can change in a span of about 0.5 to 1 second I found that a heart rate can change in a span of 0.5 second and 1 second. I also studied how infrasound, and 432 Hz frequency speeds up and slow heart rate. Infrasound plays a huge part in making a horror film more intense and stressful. Whereas, the 432 Hz frequency is used in most calming sounds used in yoga meditation etc.

The purpose of the project was to figure out how Infrasound and 432 Hz frequency effects heart rate. I predict that the results will be that when playing the faster and louder song will speed up heart rate, While the slower and calmer song will lower the heart rate. To test my hypothesis, I had 9 separate subjects listen to two different songs for 4 minutes. I recorded the subjects heart rate every 2 minutes with a heart rate monitor.

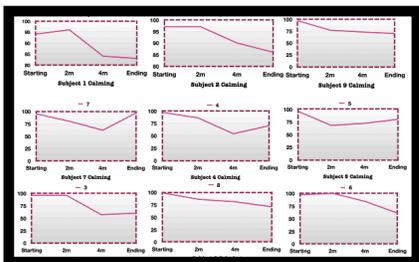
Methods

I recorded the subjects heart rate before the testing, and then again periodically (every 2 minutes) listening to a 4 minute slow, calming song with the 432 Hz frequency. I did the same for the second song. I used a horror movie soundtrack that had infrasound backing. This process was repeated for 9 different subjects. My control was the subjects resting heart rate, while the other variables were the music I used, and the amount of time the subject listened to the music.

Results



People	Calming			
	Starting	2m	4m	Ending
1	94bpm	96bpm	84bpm	83bpm
2	97bpm	97bpm	90bpm	86bpm
3	96bpm	96bpm	57bpm	60bpm
4	97bpm	86bpm	54bpm	70bpm
5	96bpm	68bpm	72bpm	80bpm
6	97bpm	100bpm	84bpm	61bpm
7	95bpm	80bpm	62bpm	97bpm
8	99bpm	86bpm	81bpm	71bpm
9	97bpm	77bpm	73bpm	70bpm



People	Stress			
	Starting	2m	4m	Ending
1	54bpm	65bpm	135bpm	136bpm
2	72bpm	54bpm	129bpm	122bpm
3	93bpm	98bpm	100bpm	110bpm
4	87bpm	89bpm	110bpm	94bpm
5	82bpm	96bpm	117bpm	100bpm
6	68bpm	95bpm	106bpm	116bpm
7	118bpm	110bpm	109bpm	108bpm
8	79bpm	85bpm	102bpm	100bpm
9	97bpm	89bpm	100bpm	96bpm

Discussion

These results show that the heart rate of the subjects was sped up by the infrasound backed audio, and the heart rate was slowed by the 432 Hz frequency. My hypothesis was correct and was all proven correct according to previous research on music and heart rate. I made a mistake doing the tests nearing the time we did interim testing, which may have impacted results. I wondered how the music effected the subjects blood pressure. The data didn't really vary between subjects considering the fact that all of their heart rates rose and dropped at almost the exact same time.

CONCLUSIONS

These results mean that a plausible theory would be that the 432 Hz frequency could help the people of the world in the future with anxiety, high blood pressure and heart rate. It also proved that Infrasound plays a big role in horror movies to rase tension and anxiety. These results prove my hypothesis to be correct. I can see athletes using my results to help with muscle tension and or anxiety, I also can see that my results could give people the idea that if they can somehow get used to the infrasound being used in the scariest horror movies, they can help with the tension, so they won't be as freaked out.

References

According to *Medical News Today*, research shows that heart rate can change in a span of about 0.5 to 1 second. This shows the depending on how long a person is exposed to a certain stressful Or calming sound, their heart rate can change in tenths of seconds.

According to *commons.chapman.edu* “ Infrasond, the sound that can't be heard, plays a vital role in setting an ominous tone. Infrasond has most commonly been described as “extreme bass waves or vibrations” and can be described as a low humming sound.”