Heart Beat and High Scores.

(how do video games affect heart rate)

objective

In my science fair project, I will be testing how video games affect heart rate. The problem is how do video games affect heart rate. If I play a fast paced video game, then my heart rate should go up. Because the body is in a stressful environment it will signal the fight or flight response therefore, the heart rate will speed up.

Statement of the Problem

The problem in this experiment is how do video games affect heart rate. The purpose of this experiment is to see if people's heart rate can increase by playing video games. I want to do this experiment because I like to play video games and I think it can help others. The information gained from this experiment will help others because studies have shown that playing video games help lower bpm due to your heart rate increasing. It is important to the real world because many people suffer, some people who are sick or old can get cardiovascular exercise without physical strain.

Hypothesis

If I play a fast-paced video game, then my heart rate should go up. Because the body is in a stressful environment it will signal the fight-or-flight response therefore the heart rate will speed up.

Materials

- 1 heart monitor
- 1 cameras
- 1 notebook
- 1 pencil
- 1-3 electronic devices for playing video games
- Tv or Monitor (if needed)

Variables

- Independent- type of video game
- Dependent- the person's heart rate
- Control- The type of heart monitor used

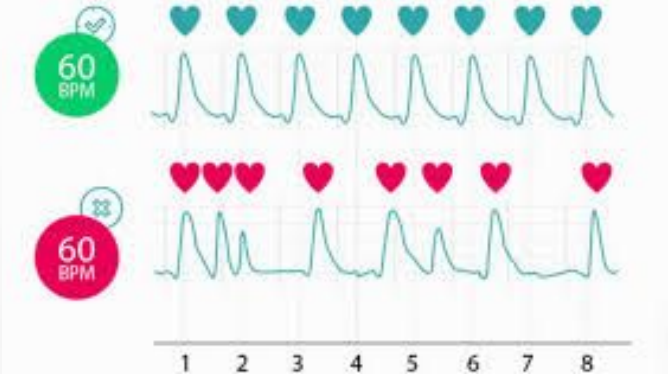
Type of heart monitor

Procedures

1. Gather all materials
2. Make them put on the heart monitor
3. Ask them what games they want to play from the link game list
4. Turn on the heart monitor and camera
5. Now turn on all the electronic devices
6. Check heart rate
7. Take picture of heart monitor
8. Make them play the video game
9. When done playing check heart rate again
10. Take picture of heart monitor
11. Repeat steps 6 through 10 until they played every game that they wanted to play

Results and Data

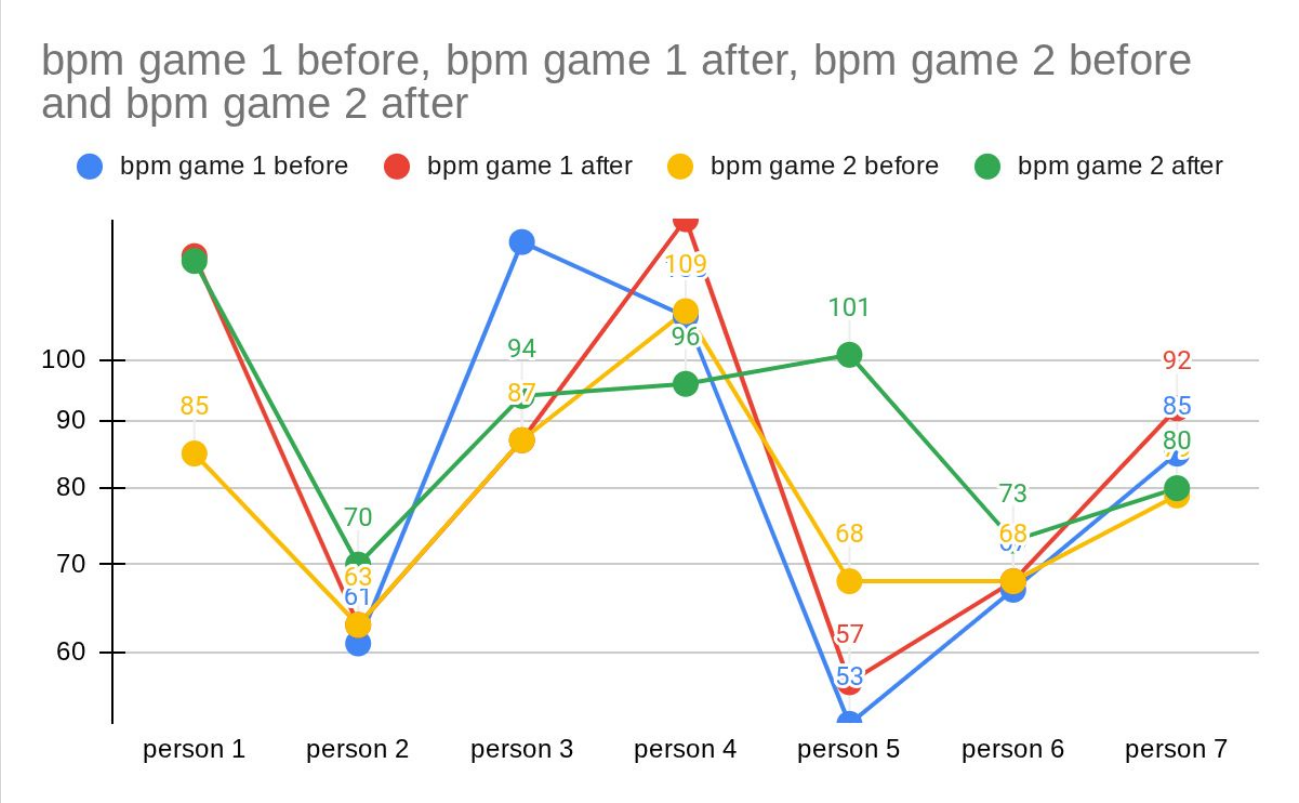
This section presents the results of the experiment, including measurements and observations recorded during each trial. The results of my project supported my hypothesis. It was predicted that when playing an intense fast paced game, it would increase heart rate, .The average heart rate before the game was 81.23. After playing the fast paced video game the heart rate went up to around 89.14. After this I conclude that the heart rate does go up when playing a fast paced video game. This shows that the data aligned with my prediction.



Results: Data Table

	person 1	person 2	person 3	person 4	person 5	person 6	person 7
bpm game 1 before		61	123	108	53	67	85
bpm game 1 after	120	63	87	128	57	68	92
bpm game 2 before	85	63	87	109	68	68	79
bpm game 2 after	119	70	94	96	101	73	80

Results: Data Graph



Photographs of Project:

Heart rate monitor with the heart rate

Conclusion

The objective of this experiment was to find out how video games affect heart rate. The objective was accomplished by comparing the heart rate before and after playing a fast paced game.

The results of my project supported my hypothesis. It was predicted that playing an intense fast paced game would increase heart rate, and the data aligned with the prediction.

Data shows that playing high intensity games can increase heart rate. Playing high intensity games could improve cardiovascular health. The brain couldn't figure out the difference between physical and virtual environments. This caused the body to enter into a fight or flight.

Implications and Ideas for Future Research…

From this experiment, I learned that the human brain thinks that virtual reality is physical reality. So when you play a fast-paced game your body activates your fight-or-flight response. This makes your heart rate higher.

If I were to conduct this experiment again I would make it so that they would play a calm slowed down game and a fast-paced intense game. I would also make sure that it's in a more controlled environment such as the lighting and the time.

References

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G Gwinup, T Haw, A Elias ,(1983 , december) cardiovascular changes in video game players. Cause for concern?national library of medicine pubmed.ncbi.nlm.nih.gov

Shiva Khoshnoud, Federico Alvarez Igarzabal, Marc Wittmann (2022, apr 28) Brain Heart Interaction and the Experience of Flow While Playing a Video Game. national library of Medicine Game.pmc.ncbi.nlm.nih.gov

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