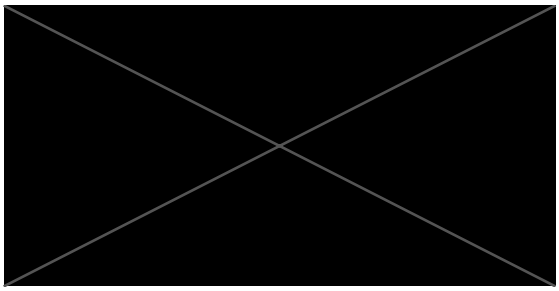
How Do Different Types of Video Games Affect Heart Rate



1-30-25

For 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.

Method

This section outlines procedures, materials, and participants involved in creating this experiment. The main question in this experiment 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.

This section outlines the specific materials and equipment used to carry out the experiment. Are described as below to allow for full replication of the procedures. I have 1 heart monitor to check blood pressure and heart rate. I have 1 camera so I can monitor the heart monitor and the person's body expressions. 1 notebook and pencil to graph the person's heart rate before, during, and after the experiment. About 1 to 3 electronic devices to play video games on. A tv or monitor if an electronic device does not come with a built in screen.

This section outlines the specific procedures used to carry out the experiment and gather reliable results. First gather all the materials needed. Then make them put on the heart monitor and ask them what game they want to play from the game list. Turn on the heart monitor and camera. Then check the heart rate and keep the heart monitor on . take a picture of the heart rate/monitor . Now make them play a game. Afterward, check their heart rate. Take another

picture of the heart rate/monitor. Repeat steps 6 through 10 until they played all the games they wanted

Based on the data collected, the results demonstrated a noticeable trend that supports the conclusion of this study. The results of this experiment told me that when playing fast paced intense games heart rate goes up. Your heart rate goes up because the human brain thinks that virtual reality is physical reality. The brain thinks that its in danger causing the fight or flight response and pumping adrenaline through your body.

Results

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.

Discussion

education.com conducted an experiment testing how video games affect heart rate. They tested the person's heart rate.They used a blood pressure monitor, a stop watch, and a fast paced video game. It was shown that their heart rate,blood pressure, and reaction time increased. This

happened because the sympathetic nervous system is programmed with the fight or flight response. So when the body thinks it's in danger the sympathetic nervous system enters into fight or flight mode and starts pumping adrenaline through your heart rate.

G Gwinup, T Haw, and A Elias conducted an experiment in 1983 testing how video games affect heart rate. They used a blood pressure monitor and heart rate monitor to conduct this experiment. It was shown that more skilled players ended up having higher blood pressure and heart rate.

Much information can be found about heart rate. “A normal resting heart rate ranges from 60 to 100 beats per minute for adults”.this shows that some people in my experiment were getting a higher heart rate. When playing video games your brain enters into a fight or flight response which pumps adrenaline and increases heart rate.

Conclusion & Future Study

The results of my project supported my hypothesis. It was predicted that playing an intense fast paced game would increase heart rate.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.Data shows that playing high intensity games can increase heart rate. Data also shows that the more skilled the player is at a video game the more drastically their heart rate increases. 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. 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. Overall, I felt that this experiment went really well and I learned a lot from it.

References

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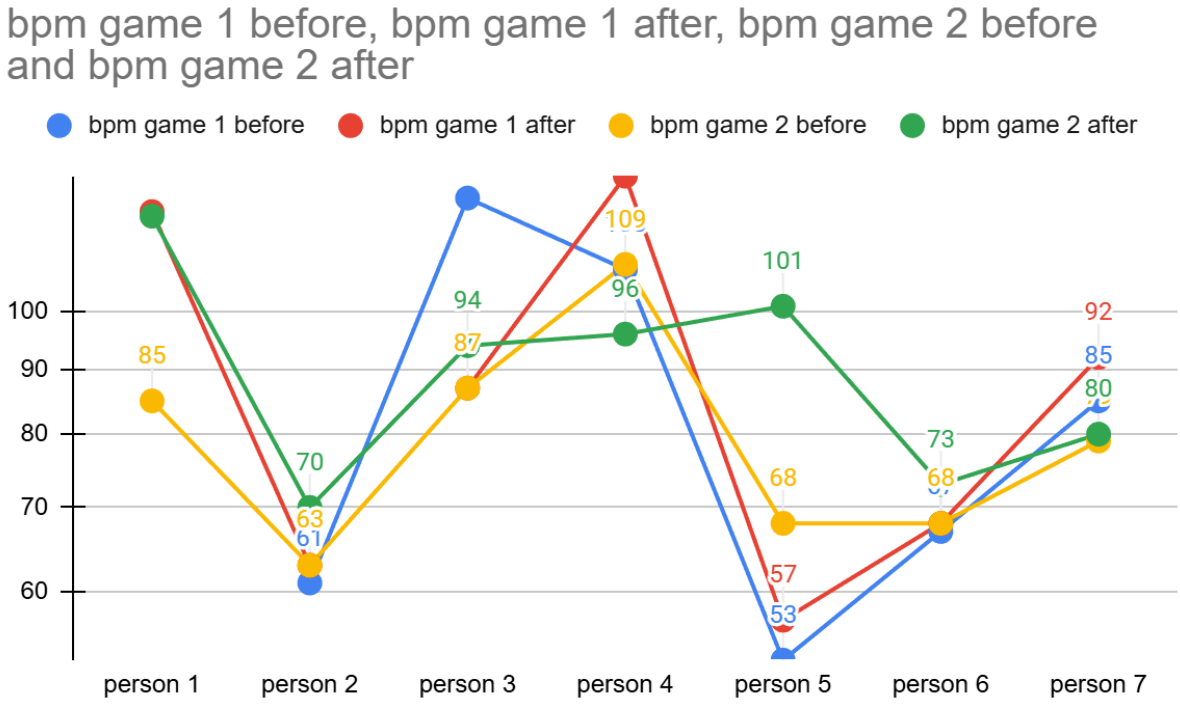

	person 1	person 2	person 3	person 4	person 5	person 6	person 7
bpm game 1 before		61	123	108	53	67	85
bpm game 1 after	120	63	87	128	57	68	92
bpm game 2 before	85	63	87	109	68	68	79
bpm game 2 after	119	70	94	96	101	73	80