Decreasing Pickleball Noise

Introduction

I chose to research this topic because I like playing pickleball, and I was surprised to learn that a lot of people don’t like the sport because of how loud it is. I decided that I wanted to try and reduce the game’s volume, and wanted to do something that hadn’t been done before. I instead thought about what I could do to make the game quieter. I then found out that there were quite a few things you could do to quiet the game, and that I could do my part by researching the issue. I started this project in fall 2022.

I had 3 hypotheses coming into this project:

1. The sound generated by the ball will change the sound of the ball, therefore there needs to be a way to control the sound.
2. The sound generated by the ball will decrease the sound of the ball, therefore there needs to be a way to control the sound.
3. The sound generated by the ball will increase the sound of the ball, therefore there needs to be a way to control the sound.

The goal of this project was to change the ball, but not to replace it, while still keeping the game the same. I made a prototype (not counting the control ball) using an existing ball in the game that was quieter than the original ball, and one of them also became as well as the original ball. This new ball design could be a great compromise between pickleball players and their communities.

Methods

I read several papers on how to change the sound of a ball, as well as how to make a new ball. I then modified the materials used in the ball to make it quieter. I also used a sound meter to measure the sound of the ball.

Results

Average impact noise compared to the control (Figure 1)

Average bounce height of each ball compared to the control (Figure 2)

Average bounce height of each ball compared to the control (Figure 3)

Average bounce height of each ball compared to the control (Figure 4)

Conclusions

Now that we know that there can be a quieter ball, we can expect that potential customers would be interested in a quieter ball that is a good compromise between the two. We can also expect that the ball will be quieter than the original ball.

References


