Skating Speed

Abstract

I like sports in general, but my favorite one is hockey. Just like everyone, I want to get better at something that I'm not the best at. Because of this, I decided that I could make my project about hockey. My experimental question was, "What is the best way to increase my skating speed?" This way, I could get better at my favorite sport, plus I had a topic for my experiment.

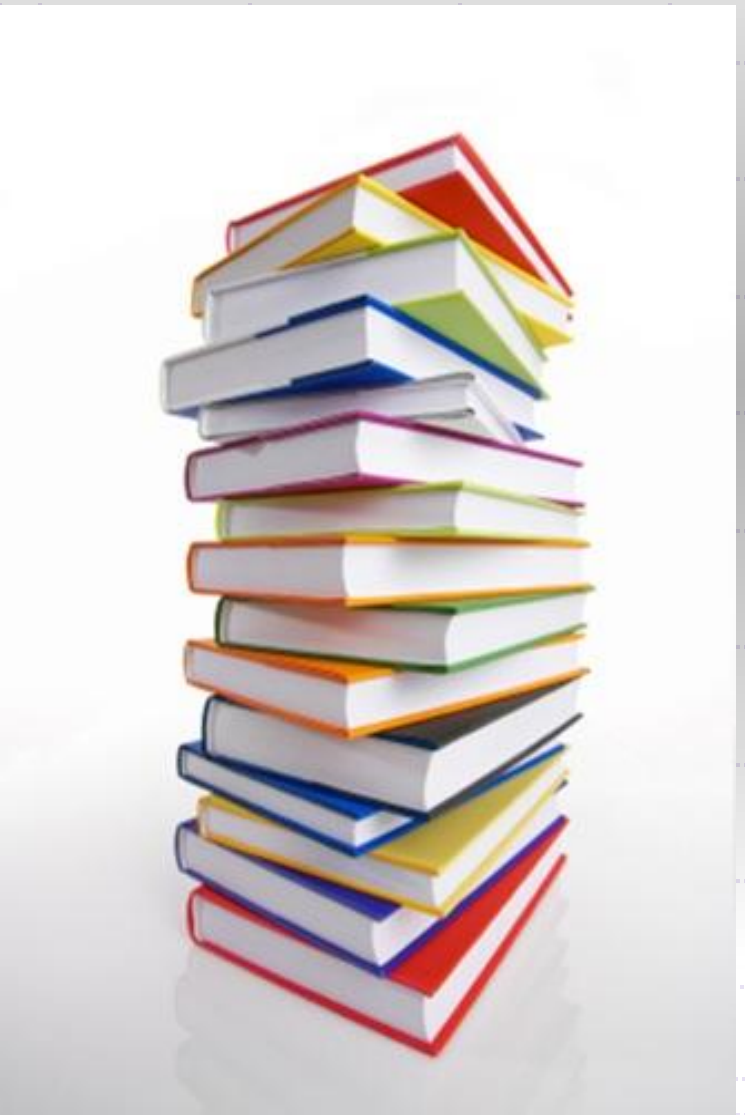
To accomplish my goal, it was going to take multiple steps. First, I had to find techniques/drills for me to do and a place to skate. Then I had to get there and use each technique, plus do a baseline skate, five times. I then recorded the data and created a chart to easily see which one was most beneficial. These results led to my conclusion, which was not what I expected it to be

Before I did my experiment, I hypothesized that doing short, off-ice, sprints would help me skate faster. After receiving my data, the results proved my hypothesis to be wrong. The experiment showed me that leaning forward was the most efficient way to increase my speed. That being said, the purpose of my experiment was still a success in finding out which method was the best. In conclusion, even though my hypothesis was wrong, I still accomplished my goal.

Hypothesis

I believe that if I measure the time it takes me to skate around a roller hockey rink multiple times, each time using a different improvement strategy from the five that I have researched, that on-foot training, which will be short sprints of 5-30 meters, will improve my skating speed by 5% and will be the most effective strategy to increase my skating speed.

Review of Literature



Whoosh! Sorry, I was just going so fast. That's because I, like many, play sports and, just like everyone else, strive to get better. Because of this, I decided to base my project on my favorite sport, which is hockey. My question for this experiment is "What is the best way to increase my skating speed?" In hockey, there are lots of important aspects, but speed is definitely one of the biggest. Of course, to get faster, I will absolutely need some tips from professionals, rather than just guessing as I go. This project will be long, but I have a feeling that I will have great benefit from it.

My first source was a StateofHockey article written by Jack Blatherwick. StateofHockey.com, which the internet recommended, has a few ways to increase speed. The one I'm going to focus on is making my strides longer. Coaches will tell you to do this, but it's hard to do when you're going at a fast rate of speed. But in this article, Blatherwick says to "push to the side with power, push backwards, and then turn your hips to get ready for the next one" (1). Personally, I think that this will be really useful, considering that if you push harder, you'll go faster, and if you push harder, you'll have a longer stride. You don't have to be a scientist to know that, even though I'm going to have to be.

Review of Literature

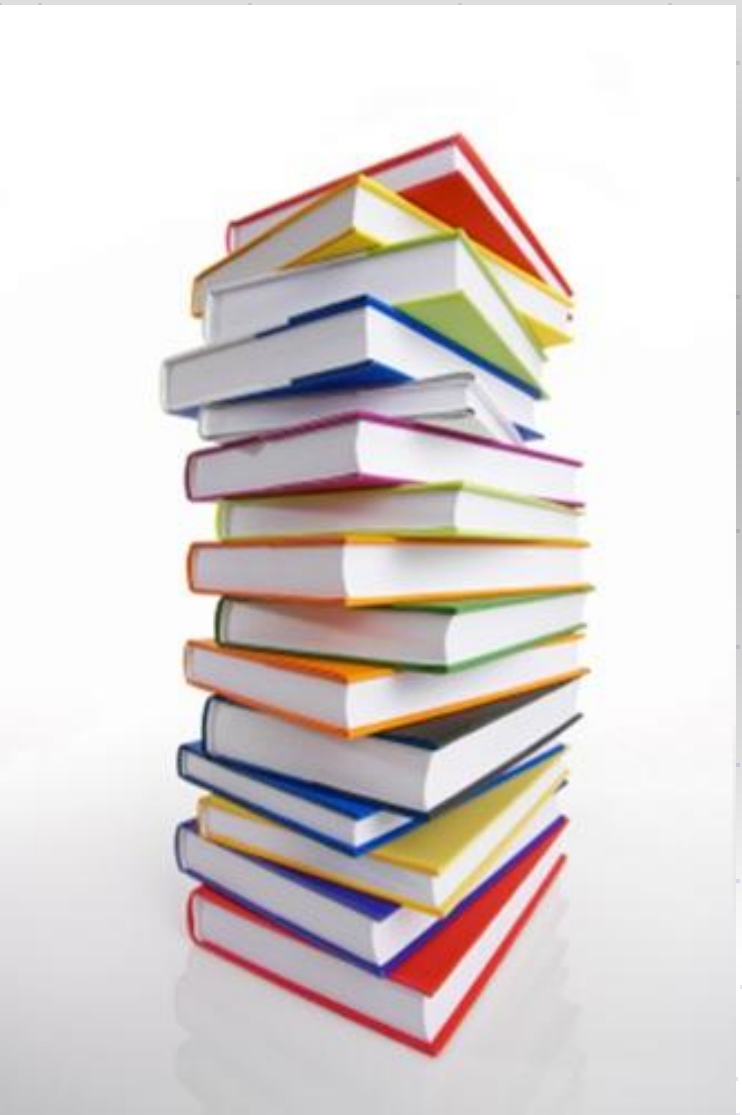
My second source, How to Hockey by Coach Jeremy, is a source that I've constantly used for hockey tips, especially since it's so accessible and even on YouTube. How to Hockey is a great website for lots of hockey tips like shooting, passing, and skating. HTH (How to Hockey) says that leaning forward increases speed. This makes sense since if you're going fast and leaning, your speed and momentum will make you go quicker because the momentum carries you. "Make sure you are leaning forwards so all your energy pushes you forward, you don't want to lose power by pushing UP instead of out" (2). If you're standing straight, well first you'll fall, but also, you will not be skating as well. But if you lean, you're automatically in the position to push and go forward. This is one of the first things I learned, and for a good reason, considering it's such an important thing. Also, my next source is from the same website and article as the previous one written by Jack Blatherwick. I decided that since StateofHockey had so many great drills, I'd use their website again. But this time, unlike the first, I'm doing another off-ice drill, sprints. It talks about efficiency being important in both sprinting and skating, which makes sense because they aren't too different. It says to lean at a 45 degree angle, go at your top speed for at least 5 meters and at the most 30, and then to walk back from where you started. I can relate to skating affecting my life because once I started skating, the muscles in my legs got stronger and I was faster, so I can see how the opposite could be true in this instance.

Review of Literature

My fourth source, is from the stack.com. On STACK, it gives multiple off-ice drills to increase skating speed, but for now, I'm going to focus on number 1, the fire hydrant drill. Before explaining what that is, I'd like to point out that I'm going to do this one last in my experiment, because if I do it at any other time, it might affect my speed for other skating skill tests. I think off-ice drills will be a good change from one-ice drills, because both can be beneficial. The fire hydrant is an exercise that is going to help have greater hip abduction, which is something that we've learned faster skaters have. To do this drill it says, "Assume all-fours position. Lift your leg directly to your side and hold for two counts. Keep your knee at 90 degrees. Lower to the start position." (4) and to do those 24 times. I'll probably watch the demonstration video that goes with it. From the past, I've done off-ice training before games and it's helped get me ready, so I'm hoping this will have the same kind of positive effect.

Finally, my last source is written by Kevin Neeld, which you can find on his website. The Kevin Neeld website has one simple, but important tip for skating speed, staying low. I've been skating for a long time, and the first thing I was ever taught was to bend my knees. This helps you keep balance, but according to Kevin Neeld, it also helps give you a longer stride without having to work too hard to get it. "Dropping your hips into a lower position directly translates into longer stride lengths, which increases contact time with the ice and generates more propulsive force" (5). I try to do this whenever I skate, but I guess focusing on doing it might help me, but I definitely don't think it will make the fastest out of all of the techniques/drills. Still, it's an important skill to have and know.

Review of Literature



I would like to point out that even though you might not understand hockey or sports in general, it's not too different from a project about running. Both involve speed and the ways to get faster generally would work for both, plus both build up endurance. Also, they both play a part in building up leg muscles. Also, a personal connection I can make to running and hockey is that when I started playing hockey, my legs got so much stronger, which made me faster and gave me more endurance in general. Thinking that running will help skating is something that previous evidence has given a good chance of being true. I'm sure there are other sports that are similar to skating like soccer or different stuff, but the main connector for it all is running.

After using all these drills/techniques, I will figure out which one makes me go the fastest by testing multiple times and by paying close attention to doing the techniques correctly. I believe that the end result will show me that short, off-ice, sprints will improve my speed the most. This is because, like I've said before, running and skating are very much connected. By the end of this project, I will definitely be faster than before. By the end of this project, I will have successfully reached my goal in finding the best way to get faster on my skates.

Procedures & Materials

- Secure a spot at a place where I can skate
- Get all my equipment and my stopwatch ready
- Put on equipment
- Have someone stand by and start stopwatch when I say go
- Skate one lap around the rink/surface
- Return to the exact spot where I said go and say stop
- Check my time
- Mark time on paper
- Use a speed-improvement strategy
- Repeat Steps 4-8
- Use a different strategy to improve speed
- Repeat 4-8 until all speed skills have been used and timed 5 times
- Record time it took me to skate without using the skills specifically and subtract that from the time it took me to skate while using each improvement method
- Record data in bar graphs to show the amount of time it took and the increase and decrease of time

- Hockey Helmet
- Shoulder Pads
- Elbow Pads
- Hockey Jersey
- Hockey Pants
- Shin Pads
- Roller Hockey Skates
- 1 Stopwatch/Phone that has stopwatch
- 1 Piece of paper/Science Notebook
- 1 Person to mark time
- 1 Rink/Skating Surface
- 1 Computer (for recording and analyzing data)

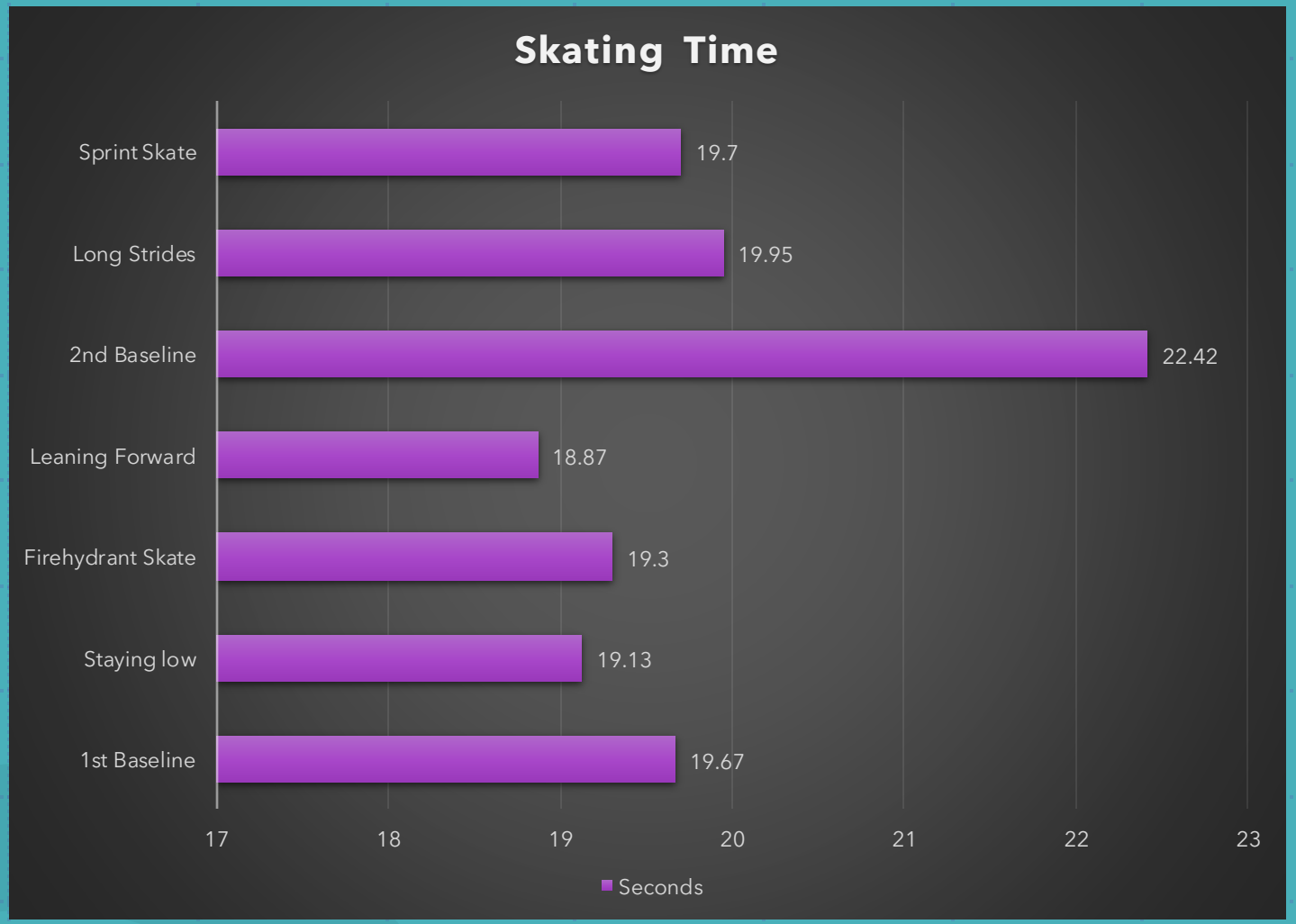
Variables

Controlled Variable – My controlled variable will be the amount of equipment I wear because if that stays the same, it's one less thing to affect my skating speed.

Dependent Variable – My dependent variable is the speed I'm skating at since that's what the independent variable is affecting, or at least it should affect it if my hypothesis is correct.

Independent Variable - My independent variable is the different skills to increase my skating speed, because they should affect my skating speed, whether I go faster or slower.

Results



This chart shows the average time it took me to skate around a hockey rink using each method.

Ranked from most effective to least effective	
1st	Leaning Forward
2nd	Staying Low
3rd	Firehydrant Skate
4th	1st Baseline
5th	Sprint Skate
6th	Long Strides
7th	2nd Baseline

Data Analysis

My experiment gave me a lot of useful data that absolutely answered my experimental question from the start of the project. To start with, my baseline skates, the first averaging at 19.67 seconds and the second at 22.42 seconds, were about where I thought they would be, considering I wasn't really focusing on anything with those. The second baseline was a for sure outlier in my set of data, but that's probably because it was very windy that day. All in all, the techniques to help me skate faster worked better than just skating normally, but there were a few like sprinting and long strides that were just a little less effective. Also, the data for the fastest speeds are pretty close to each other, so the fact I used averaging helped me get a better idea of which technique helped me go the fastest, rather than just testing each one once and getting data that didn't accurately represent the data I needed for my question to be answered. One familiar piece of data was that most of the times were in the 19 second range, which helps to show how some can take it down to 18 seconds, while others can hurt you to the point where you're at 22 seconds. To conclude, the data was very beneficial in giving me the results I need to make my conclusion.

Conclusion

After my experiment, it was clear that my hypothesis was wrong, and I was proven incorrect in thinking sprints would be most effective in increasing my skating speed. Instead of improving my speed by 5%, it slightly worsened my speed. This may be because I didn't sprint enough or a far enough distance, but either way my experiment proved that there are better ways to get faster. Even though my hypothesis was proven to be false, the purpose of my project was a success since I found the best way to increase my skating speed. To conclude, sprinting before skating is not as effective in building up more speed as leaning forwards while skating is.

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