H 7115

Materials, Procedure, and Results

For this experiment, I tested whether a Guardian Cap reduces the damage from an impact compared to a regular football helmet. To keep the results fair, I used two identical helmets. I borrowed one football helmet from my football team and then purchased the exact same model, a F7 Football Helmet. Using the same type of helmet ensured that any differences in the results were caused by the Guardian Cap and not by differences between helmets.

I also borrowed a Guardian Cap Football Helmet Cover from my football team. One helmet was left in its normal condition, while the other helmet had the Guardian Cap attached. To apply the Guardian Cap, I slipped the straps through the top and front of the facemask on both sides of the helmet and connected them to the small buckles on the cap. This secured the cap tightly so it would stay in place during testing.

For the impact tests, I purchased six watermelons that were all about the same size. Using watermelons of similar size helped keep the experiment consistent. If a watermelon cracked during testing, I replaced it with another one so the experiment could continue under the same conditions. After each drop, I used a tape measure to measure the length of any cracks that formed in the watermelon.

To drop the helmets from a height of more than six feet, I conducted the experiment at my local playground. The playground equipment allowed me to safely reach heights that I would not have been able to reach otherwise. Although it may have looked unusual to people passing by, dropping watermelons inside helmets from this height was an effective way to simulate impacts and collect measurable data for the experiment.

After completing the drops, I recorded the crack lengths for both helmets and organized the data into graphs. The graphs compare the damage to the watermelon when the helmet was used **without a Guardian Cap** and when the helmet was used **with a Guardian Cap**. The results showed that the watermelon placed in the helmet with the Guardian Cap generally had **shorter cracks**, which suggests that the Guardian Cap helped reduce the force of the impact. The graphs below show the comparison between the two conditions and help visually demonstrate how the Guardian Cap affected the results.

Overall, the data from the graphs shows that the helmet with the Guardian Cap reduced the amount of cracking compared to the regular helmet. This suggests that the extra padding from the Guardian Cap helps reduce impact resulting in injury or worse.

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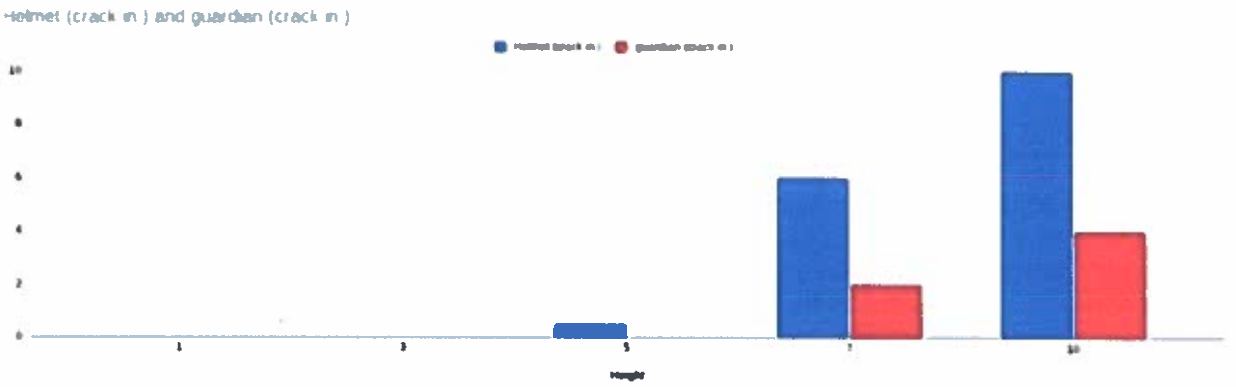

1 Select category 2 Choose calculator 3 Enter data 4 View results

Unpaired t test results

P value and statistical significance:

The two-tailed P value equals 0.3625

By conventional criteria, this difference is considered to be not statistically significant

Confidence interval:

The mean of Helmet minus Guardian equals 2.100

95% confidence interval of this difference: From -2.915 to 7.115

Intermediate values used in calculations:

t = 0.9656

df = 8

standard error of difference = 2.175

Review your data:

Group	Helmet	Guardian
Mean	3.300	1.200
SD	4.522	1.789
SEM	2.022	0.800
N	5	5

Tre Roberson

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