CALIFORNIA STATE SCIENCE FAIR
2016 PROJECT SUMMARY

Name(s)

Brady J. Knowlton

Project Number

36682

Project Title

Is Your Head in the Game?

Abstract

Objectives/Goals

From this research, I formulate that I indeed will successfully find a way to show the force that is put on a brain for different sports that causes a concussion.

Methods/Materials

Materials:Battle Sports Science Adult Impact Indicator, Black
2 lbs. of Clay,Coconut,Sports Equipment,Sculpting Materials,Tape,Cameras,and Heat from Blow Dryer.
Procedures: Collect all materials. Then build a clay head with coconut as skull. Then put chin strap on head and make a are with .3048 meter increments for 5 of .3048 meters increments. Then attach cameras from 2 different angles and video throwing each item once and then resetting indicator. Once you have done that. Throw or kick item again until at 50% or red light start flashing. Then using the camera put into sports Techniques app and find the speed and acceleration of each item for each foot or .3048 meter step. Once the Acceleration is found, find the Force or F=MA.

Results

First, the fastest item on the graph was the baseball as it should be. Then the acceleration was all very similar for all of the items. Then the force graph shows that the greatest force for a concussion comes from the helmet. As it should with a shorter distance and greater mass.

Conclusions/Discussion

My project was successful in Hypothesis, but in a way it will never be finished. People spend their lives on researching and doing what I did working for the cause of others. They will most likely never be done figuring out concussions and the injury it not only does to people's brains but what it does to them as a person. People have died and been driven to suicide. I was happy because I was throughout this project able to realize that I would miss the head and it would hit the wall and make a dent and I thought people do crazy things for science. I started to doubt myself because I did not think that it would be able to be done with the time, I had. The way my project helps humanity is it makes people more aware of the injury and how life threatening it actually is. It may not be bad when people think about it but it is and this project may help save lives and as science and sports advance I think people will work to make sure and secure people are the safest they can possible be so they are as good before as they are after. People may under look this project but the amount of impact it could have is amazing.

Summary Statement

My project is about showing the exact force in Newtons that it takes to get a concussion and to get people more aware of the seriousness of head or brain injuries.

Help Received

I did all of the building and math on my own. But Mr.Elliott as my math teacher over the last two years taught me all the math to find speed, acceleration, and force.

Preliminary