

## Shock Absorption Properties of Soccer Headgear

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Soccer have gained tremendous success in the US with more than 3 million registered youth playing this year. With the concurrent increase of concussion awareness, manufactures of soccer apparel have introduced headgear to help dissipate forces from impacts with the ball as well as other surfaces such as body parts, ground, or goal posts. Most manufactures claim that such headgear can significantly reduce impact forces by as much of 50% during a collision. Therefore, the purpose of this study was to evaluate the shock absorption properties of three commercially available soccer headgear [Full Gear 90 (F90), Head blast soccer band (HB), and Forcefield headband (FF)]. A drop test was used to the simulate head-surface collision. A hard medicine ball weighing 2.5 kg was dropped from distance of 1 meter onto the surface of an AMTI force platform. The force platform recorded the magnitude of the force at a sampling rate of 1000 Hz. Ten trials for each conditions (no head gear-control, F90, HB and FF) were recorded and the impulse and maximum impact force were calculate using SigmaPlot. Oneway-ANOVA were used to determine significant differences in force and impulse across headgear. Although significant difference were found between the headgears for impulse and maximum force, overall these difference were minimal. There were less than a 10% reduction in maximum force and 4% reduction in impulse. Manufacturer's claims of 50% reduction in impact forces seem to be unfounded. There is no scientific evidence that suggest that soccer headgear reduce the risk in injuries.

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