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Soccer study ties "heading" to brain damage

By Ryan Jaslow



Bolivia's goalkeeper Carlos Arias, right, stops a ball headed by Argentina's Nicolas Burdisso during a World Cup 2014 qualifying soccer game in Buenos Aires, Argentina, Friday Nov. 11, 2011.

(Credit: AP Photo/Natacha Pisarenko)

(CBS) Heads up, soccer players.

A jarring new study suggests that "heading" a soccer ball too much can cause brain damage.

Using MRI-like technology known as diffusion tensor imaging, researchers scanned the brains of 38 amateur soccer players - average ages of 31. Then the researchers asked them to recall the number of times they headed the ball in the past year. For those of us who don't bend it like Beckham, heading is deliberately striking the soccer ball with your noggin.

When the researchers compared the players head frequencies to their brain scans, they found that frequent headers were more likely to show evidence of mild traumatic brain injury - similar to what's seen in people who suffer concussions.

Just how many heads is too much? Further analysis determined the damage threshold to be between 1,000 to 1,500 heads per year. Once players exceeded that, their scans showed significant injury.

"While heading a ball 1,000 or 1,500 times a year may seem high to those who don't participate in the sport, it only amounts to a few times a day for a regular player," study author Dr. Michael Lipton, associate director of the Gruss Magnetic Resonance Research Center at the Albert Einstein College of Medicine, said in a written statement.

The soccer players also underwent cognitive tests. Frequent headers performed worse on memory and had worse hand-eye coordination.

The study authors said the impact of a soccer ball, which can travel 34 miles per hour, isn't strong enough to destroy the brains' nerves, but is likely causing other damage.

"Repetitive heading could set off a cascade of responses that can lead to degeneration of brain cells," Lipton said in a written statement released by the Radiological Society of North America. The researchers identified five areas of the brain that were affected by frequent heading, including regions that control attention, memory, and vision.

The findings, presented at an annual meeting of the Society, could raise concerns for parents and participants of one of the nation's most popular youth sports. Eighteen million Americans play soccer, 78 percent of which are younger than 18.

The study also adds to an ongoing debate on concussion and brain damage risk from sports. Repeated blows to the head suffered on the football field has been linked to a form of brain damage called chronic traumatic encephalopathy, CBS News reported.

Can soccer players prevent brain injury? Since heading is an essential part of the game unlikely to go anywhere, Lipton suggests soccer organizations establish guidelines with heading counts, similar to how Little League organizations put pitching counts on players to curb shoulder injuries .

Said Lipton, "Given that soccer is the most popular sport worldwide and is played extensively by children, these are findings that should be taken into consideration in order to protect soccer players."

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