mystery science

Grades K-5
Mini-Lesson: “What would happen if football players didn’t wear helmets?”

VIDEO TRANSCRIPT

Hi, it's Doug! That's about all I can do with a football right now, given my broken arm. I really wish I could go out and toss this thing around, but I guess I'll have to settle for watching the Super Bowl.

Someone named Diego has a question about football. Let's give him a call now.

[Video Call]
- Hi, Doug!
- Hi, Diego!
- I have a question for you. What would happen if football players didn't wear helmets?
- That's a great question.

If you've watched football—and I mean American football—you've probably noticed that the players seem to wear a lot of protective gear, like thick pads on their bodies and big helmets on their heads. Football is different from a lot of other sports. Like compared to soccer, where the players wear a lot less protective gear. Why do you think that is? Why do football players have to wear all this gear, but in other sports, they don't?

Now would be a good time to pause the video and discuss.

Okay. You ready?

Well, you might know that in American football the players are tackling each other *all* the time. If you tried to pull that off in soccer, you'd get yelled at by the ref. In American football, the players are supposed to run into each other. It is a pretty rough sport, which is why they have to wear all of that protective gear.

But it wasn't always that way. When American football was first invented, they didn't wear any gear at all. They didn't even have to wear helmets. It didn't take long for people to realize that with all of the tackling that goes on, players need something to protect their bodies. Helmets were especially important so that players wouldn't be bumping their heads.

Now, you might think with helmets and pads, the problem would be solved. But it turns out, even wearing a helmet, players can still really hurt their heads. Like, watch this player right here. Now he's just been tackled really hard. He hit his head when he got tackled.

Now, from the outside, you wouldn't see anything wrong. Even if you took off his helmet right now and checked his head, he doesn't have any scratches, there are no bumps, there are no broken bones.

But now watch. Notice as he tries to get up. You can see he's dizzy. He's a little confused. He can't really walk right. After getting tackled, even though his head looks all right on the outside, there can still be an injury on the inside.

A scientist named Dr. Bennet Omalu was very interested in discovering what was happening. It turns out that your brain is surrounded by a layer of liquid that cushions it from bouncing around too much.

Here's a helpful way to think about it. Picture an egg. Now think of the inside of the egg. You've got the yolk inside of there—it's surrounded by liquid. Well, the brain is kind of like that.

You see, normally if you open up an egg, the yolk looks nice and round, like this. But if you shake an egg and then you open it up—look! See? The yolk got damaged from being shaken, even though the outside of the egg was totally fine.

Now to be fair, your brain is a lot tougher than the yolk of an egg, and it doesn't get scrambled or anything when it gets shaken. But my point is, your brain is fragile. If you bump into something and the brain gets shaken, it won't work right, at least for a few moments you might feel dizzy and you might have trouble thinking.

When the brain gets shaken and stops working like that, that's what we call a *concussion*.

Now, getting a concussion doesn't mean that you have permanent brain damage. Most concussions heal quickly once the brain has a chance to rest.

In fact, when I fell and broke my arm recently, I also hit my head and I had a concussion. After getting some rest, my head was fine the next day.

Lots of people get a concussion at some point in their lives. After all, it is pretty easy to accidentally hit your head. That's why you should always wear a helmet doing any kind of activity where you might hit your head.

But what about football players? Think about it. Someone who plays football for a living might get a lot of concussions. They might get hit in the head lots of times over the years.

Well, there's good news, and there's bad news. That scientist, Dr. Bennet Omalu—he discovered that getting lots of concussions can lead to serious problems, like having trouble remembering things.

But here's the good news, because of Dr. Omalu's discoveries and his hard work, the National Football League—the NFL—has been trying to figure out how to keep players from injuring their brains, and they've already made some changes.

Like making it against the rules to hit another player helmet to helmet and having referees immediately stop the game if a player ever loses their helmet.

So in summary, helmets are so important for protecting your brain from injury. But even with helmets, football can be dangerous because of how often the brain gets shaken when players get tackled. Scientists and the NFL are working on ways to make football safer for players.

That's all for this week's question. Thanks, Diego, for asking it!