

NFL

Most reported concussions occur on pass plays

By BARRY WILNER
Associated Press

NEW YORK — A video review of 459 reported concussions sustained during the past two NFL seasons has found far more occurred on passing plays than any other plays.

Yet quarterbacks ranked at the bottom of the list, ahead of only kickers, having suffered 5 percent of those concussions.

Of course, only one quarterback is on the field at a time. Positions in which multiple players are in action at the same time, cornerback and wide receiver, led the list of frequency at 22 percent and 15 percent, respectively.

Nearly half of the 459 concussions (44 percent) were on passes, while 30 percent were on running plays, 21 percent on punt or kickoff returns, 4 percent on sacks and 1 percent on field goal attempts.

The side of the helmet was the most common impact location at more than 50 percent, while 41 percent of concussions were experienced by a player

tackling an opponent rather than by the player being tackled or by someone who was blocking.

A higher percentage of helmet-to-body blows, 45 percent, caused concussions. Also on the rise were helmet-to-ground impacts at 19 percent. Helmet-to-helmet blows actually decreased to 36 percent.

The review was overseen by Dr. Jeff Crandall, chairman of the NFL's Engineering Committee and director of the Center for Applied Biomechanics at the University of Virginia.

"We've seen a shift," Crandall said regarding helmet-to-helmet hits. "Fifteen to 20 years ago we would have found a much higher relative percentage of helmet to helmet, as much 70 percent. Through a number of changes in rules it has altered how the game is played and reduced helmet-to-helmet hits."

"We see that helmet to shoulder and ground are larger percentages."

The data will help in testing and evaluating helmets and other equip-

ment. The numbers are shared with all concerned parties, from the players to coaches, doctors, trainers, equipment designers, researchers and manufacturers. Crandall said the information will be available to other levels of football and to other sports.

The video review is one component in the NFL's \$60 million "Engineering Roadmap" designed to improve the understanding of the biomechanics of head injuries in the sport. Crandall emphasizes the need to create incentives for innovators to develop new and improved protective equipment.

One portion of data that Crandall found particularly enlightening was the frequency of impacts to the back of the helmet (35 percent). He noted that many of those were to quarterbacks, who are most vulnerable to falling backward when hit or sacked.

"After you look at the impact source, you break it down by different locations of the helmet ... where would you be impacted on helmet," he said. "Quarter-

backs in particular, it was 50 percent and highest of any position, those hits coming from head-to-ground impacts. About 80 percent of those are to the upper rear of the helmet.

"This is such a large concentration of what we are seeing from quarterback hits, which leads us to: Is there a design opportunity here? Let's put this out to entrepreneurs and designers and see what they can come up with for counter measures."

Like many other physicians and scientists involved in concussion research, Crandall is eager to explore the worthiness of position-specific helmets. That has become a hot topic in the industry.

"We think it is an opportunity we can draft forward," he said. "we're going to study later with sensors and reconstructions to determine the severity, the locations, the impact sources. If you can think of tailoring or customizing a helmet for those particular impacts and injuries, that's is an opportunity."

SEAHAWKS: Next play at Atlanta on Monday Night Football on Nov. 20

Continued from 1B

down with a broken arm, completed 24 of 47 for 273 yards and a touchdown. Larry Fitzgerald caught 10 passes for 113 yards for the Cardinals, topping 15,000 yards receiving for his career in the process.

The night's biggest play came early in the fourth quarter. With his team leading 15-10, Wilson scrambled and spun his way out of serious trouble repeatedly before throwing from his heels to Doug Baldwin. Antoine Bethea fell down trying to knock the pass away and Baldwin raced downfield on a 54-yard play to the Arizona 2-yard line.

Wilson threw 2 yards to Graham on the next play and the Seahawks led 22-10 with 12:49 to play.

Kerwynn Williams scored on a one-yard run with 20 seconds to play for the Cardinals and Seattle recovered the onside kick try to seal the win.

INJURIES

Both teams lost important players.

Arizona left tackle D.J. Humphries and safety Tyvon Branch both left with right knee injuries early in the game. Humphries injured the same knee in the season opener. Branch was the Cardinals' leading tackler through eight games with 68.

Seahawks defensive tackle Jarran Reed left in the first quarter with a hamstring injury. And Seattle left tackle Duane Brown, in his second game since being acquired in a trade from Houston, went down with an ankle injury in the second quarter.

Seattle linebacker Michael Wilhoite (calf) and Arizona tight end Ifeanyi Momah (ankle) also had to leave the contest.

The Seahawks already were without safety Earl Thomas, who sat out the game with a hamstring injury.

UP NEXT

Seahawks: Host Atlanta on Monday, Nov. 20.

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