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Concussions and Head Injuries in Football

By THE NEW YORK TIMES

Head injuries, including concussions, particularly in the game of American football, have become a subject of deep concern, much study and even Congressional hearings in the United States.

Concussions

Contrary to popular belief, a concussion is not a bruise to the brain caused by hitting a hard surface. Indeed, no physical swelling or bleeding is usually seen on radiological scans. The injury generally occurs when the head either accelerates rapidly and then is stopped, or is spun rapidly.

This violent shaking causes the brain cells to become depolarized and fire all their neurotransmitters at once in an unhealthy cascade, flooding the brain with chemicals and deadening certain receptors linked to learning and memory. The results often include confusion, blurred vision, memory loss, nausea and, sometimes, unconsciousness.

Neurologists say once a person suffers a concussion, he is as much as four times more likely to sustain a second one. Moreover, after several concussions, it takes less of a blow to cause the injury and requires more time to recover.

Studies on Head Injuries

A 2000 study surveyed 1,090 former N.F.L. players and found more than 60 percent had suffered at least one concussion in their careers and 26 percent had had three or more. Those who had had concussions reported more problems with memory, concentration, speech impediments, headaches and other neurological problems than those who had not, the survey found.

A 2007 study conducted by the University of North Carolina's Center for the Study of Retired Athletes found that of the 595 retired N.F.L. players who recalled sustaining three or more concussions on the football field, 20.2 percent said they had been found to have depression. That is three times the rate of players who have not sustained concussions.

As scrutiny of brain injuries in football players has escalated in the past few years, with prominent professionals reporting cognitive problems and academic studies supporting a link more generally, the N.F.L. and its medical committee on concussions have steadfastly denied the existence of reliable data on the issue.

But in September 2009, a study commissioned by the N.F.L. reported that Alzheimer's disease or similar memory-related diseases appear to have been diagnosed in the league's former players vastly more often than in the national population — including a rate of 19 times the normal rate for men ages 30 through 49.

The study, which was conducted by the University of Michigan's Institute for Social Research, has not been peer-reviewed, but the findings fall into step with several recent independent studies regarding N.F.L. players

and the effects of their occupational head injuries.

Congressional Hearing

After the study results were reported, Representative John Conyers Jr., a Michigan Democrat and chairman of the House Judiciary Committee, held a hearing on the impact of head injuries sustained by N.F.L. players.

The league and Commissioner Roger Goodell have insisted that the N.F.L.'s policies are safe and that no third-party involvement is necessary, pointing to research by its committee on concussions as proof. But after an embarrassing hearing on the issue before the House Judiciary Committee in which the league was compared to the tobacco industry, the N.F.L. seems to have begun to embrace the value of outside opinion.

Several members of Congress portrayed Mr. Goodell and the league as impeding proper player care and obfuscating the long-term effects of concussions. The league and a former co-chairman of its committee on brain injuries, Dr. Ira Casson, have consistently played down studies and anecdotal evidence linking retired N.F.L. players to brain damage commonly associated with boxers and dementia rates several times that of the national population.

The N.F.L. Players Association called for the removal of Dr. Casson, saying that he is too biased to lead the research and policy group.

On Nov. 24, 2009, Dr. Casson and Dr. David Viano, co-chairmen of the committee, resigned from the group.

In a memo to all teams in which he outlined several measures regarding concussions, Commissioner Goodell said that Dr. Casson and Dr. Viano would "continue to assist the committee," but offered no details of any future relationship.

Several doctors testified to links they have found between sports head trauma and later cognitive degeneration. Dr. Ann McKee, who has studied the brains of football players after death, testified that she believed the connection was clear and called for immediate changes to the game and concussion treatment.

Changes in N.F.L. Rules

The National Football League on Dec. 3, 2009, announced that it would impose its most stringent rules to date on managing concussions, requiring players who exhibit any significant sign of concussion to be removed from a game or practice and be barred from returning the same day.

The league's former practice of allowing players to return when their concussion symptoms subside has been criticized for putting its players at risk. It is widely known that symptoms of a concussion can reappear hours or days after the injury, indicating that the player had not healed from the initial blow.

Symptoms that require immediate removal include amnesia, poor balance and an abnormal neurological examination, whether or not those symptoms quickly subside. For symptoms like dizziness and headache, however, a player can return to the field unless they are "persistent," the statement said.

In July 2010, the N.F.L. asserted greater risks of head injury and toughened warnings by producing a poster that bluntly alerts its players to the long-term effects of concussions, using words like "depression" and "early onset of dementia".

The poster was by far the league's most definitive statement on the cognitive risks of football and presented a stark change in league approach. It replaced a pamphlet given since 2007 that said, "Current research with

professional athletes has not shown that having more than one or two concussions leads to permanent problems if each injury is treated properly."

Greg Aiello, a league spokesman, said that the poster "is intended to present the most current and objective medical information on concussions and will be distributed to the players and clubs in the near future." He said Commissioner Goodell provided his full support.

Beyond detailing the symptoms and severity of head injuries, the poster, to be hung in locker rooms leaguewide, extends the league's broad redirection in concussion policy since last fall.

Mr. Aiello and a union spokesman declined to discuss any possible effect the new poster might have on disability claims. Most likely, the onus will remain on players to assert that their individual conditions did derive from professional football — similar to how players must handle worker's compensation claims — although that assertion could gain credence with the league's imprimatur.

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