

Sport is health? No, if you score goals with headers, you play American football, boxing or rugby

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Scoring goals with the head is spectacular, but it is not good for the health of a footballer who uses his head instead of his legs.

Football is the most popular sport in the world - it is estimated that as many as 250 million people practice it.

Despite numerous health benefits (if not played competitively), it is one of the few sports in which the ball is sometimes deliberately hit with the head. Many of the most spectacular and award-winning goals have been scored this way.

However, surprisingly little research has been devoted to the impact of thinking on the brain. According to Alessandro Costanza, a psychiatrist from the University of Geneva:

"Most ideas about the sensitivity and resilience of the brain during sports are still based on assumptions rather than facts."

There is simply a lack of research.

[One of the few](#) indicated difficulties with memory after thinking. - Although the changes are temporary, we believe they are important to your health, especially if they continue to occur - said Magdalena Letswaart, co-author of that study.

The situation is changed by the results of a study by the team of Michael Lipton, a neuroradiologist from Columbia University, [presented at the annual conference](#) Radiological Society of North America.

As the first author of the paper, Michael Lipton, a professor at Columbia University's Vagelos College of Physicians and Surgeons, explains to Wyborcza - We decided to investigate this for two reasons. First, because so many people play football, so the adverse effect would be potentially significant. for public health. Secondly, heading is a very useful model for studying impacts to the head because we can observe players before and after the impact.

[Are you thinking? You're damaging your brain](#)

The study shows that players who often head the ball (over 1.5 thousand hits in two years) are characterized by unfavorable changes in the microstructure of white matter fibers.

They may negatively affect the speed of processing and remembering information.

- Our analysis showed that frequent thinking causes changes in brain microstructure similar to those observed with mild injuries - adds Lipton.

As Lipton explains to "Wyborcza" - Based on the data collected over the years by my research group and other experts, I am not surprised by the results. Football is, in fact, the leading cause of concussion worldwide. However, my research focused on repeated impacts that do not lead to concussions. They may not cause immediate symptoms, but may lead to future brain dysfunction.

According to the expert, the data seems to show that light head impacts have little impact on most people, but on the other hand they appear potentially dangerous.

Lipton adds - By conducting further research, we can confirm the safe level of thinking and consider limiting it if the results justify it. I am currently investigating the trade-off between the beneficial effects of playing soccer (aerobic fitness) and the potential adverse effects of headers.

The situation may be slightly improved by a change in regulations introduced in 2006, which imposes a red card for every elbow hit to the head. As he showed earlier in ["British Journal of Sports Medicine"](#) team of other experts, in the case of professional men's competitions, this resulted in a reduction in the number of injuries by almost 30%.

[Box. Every stroke could be the last](#)

So far, brain injuries have been analyzed mainly in combat sports. Neurodegenerative changes associated with [boxing](#) were [first reported](#) in... 1928.

Back then, the symptoms of brain damage were compared to drinking alcohol.

[A widely cited study](#) professional boxers from Great Britain taken between 1929 and 1955 showed that 17 percent of them suffered from chronic traumatic encephalopathy (an incurable disease resulting in memory disorders, mood changes, delusions and other mental disorders), 40 percent balance disorders, dysarthria (a speech disorder that most often occurs as a result of a neurological disease) or alcoholism.

Dozens of subsequent studies have added to the list of symptoms associated with boxing, neurofibrillary degeneration (characteristic of Alzheimer's disease), scarring of the cerebellum (responsible, among others, for the coordination of muscle tension and movement) and loss of the substantia nigra (coordination of involuntary and rapid movements).).

What should come as no surprise is that changes are most common among boxers who have had the most fights.

Although today we use the term "chronic traumatic encephalopathy", until recently it was referred to as "boxing encephalopathy".

The consequences of the disease become visible after several years. They can be compared to post-Covid "brain fog", which, however, does not go away.

Transient encephalopathies (combined with delirium or ischemic strokes) are one of the complications of severe COVID.

According to statistics, encephalopathy affects every fifth boxer. Its victims included, among others: the greatest of the greatest, i.e. Muhammad Ali.

During the 2008 Summer Olympics, boxing was the highest-risk sport. The injury rate was approximately 25 per 100 fights (for men).

Compared to men's boxing, women's boxing is relatively safe and requires hospitalization much less often. This is due to the difference in strength between the two sexes.

[Watch out for American football and rugby](#)

Another telling example is American football, played by four million people. In over 40 percent retired NFL [National Football League] players diagnosed with signs of brain damage. This is a much higher rate than the general US population.

Just two decades ago, the NFL tried to hide evidence and discredit scientists linking American football with brain injuries. Everything changed after [the famous publication of Bennet Omalu's team, which dissected the brain of the popular player Mike Webster](#). In the publication we can read:

"We present the first documented case of long-term neurodegenerative changes in a former professional NFL player - chronic traumatic encephalopathy."

Later, neuroscientist Jesse Mez's team analyzed as many as 202 brains of deceased players. Neurodegenerative changes were observed in 177. In the case of the highest level of NFL games, the percentage was as high as 99%. (110 of 111 brains analyzed).

Another study [analyzed mortality during American football matches](#). From 1945-99 and at the university level, they were recorded almost every year.

With the exception of 1990, every year several young men played their last match.

69 percent the causes of death were head injuries.

The sharp decline in whiplash injuries since the mid-1970s is partly attributed to rule changes that modified other players' grappling techniques. Newer helmets provide better protection against the most serious injuries, such as skull fractures, but do not protect against encephalopathy or brain injuries.

Serious health problems also affect rugby players. In 2020, a group of British rugby players, former stars of the discipline, sued the world federation of their sport.

They suffer from dementia, which is rare at their age. None of the eight players who filed the lawsuit was over 45 years of age.

Doctors also diagnosed them with chronic traumatic encephalopathy.

In both American football and rugby, many minor head injuries accumulate. It is similar in the case of heading football players.