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Headache As a Common Post-Concussion Symptom Among Striking and Grappling Fighters

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Introduction
Traumatic brain concussion is an injury that can result from direct impact to the cranial region or from another part of the body transferring energy to the head, causing acceleration and deceleration (shaking) of the brain. Concussion can occur in athletes participating in various sports, including combat sports, which are widely practiced worldwide. Striking and grappling are styles of combat used in combat sports. In the former, combat takes place while standing, involving striking techniques (e.g., Muay Thai, Boxing, Kickboxing), while in the latter, the fight involves grappling and can occur both standing and on the ground, with the objective of bringing the opponent to the ground (e.g., Jiu-jitsu, Judo, Wrestling). Due to the aim of striking the opponent in the head, close body contact, and falls in combat sports, the risk of traumatic brain concussion is significant and can manifest in various symptoms.

Objective
The objective of this study was to assess the history of concussion-related symptoms in Jiu-Jitsu (JJ) and Muay Thai (MT) athletes.

Methodology
This was a cross-sectional study involving a Brazilian sample of JJ athletes (n = 18) and MT athletes (n = 22). The sample included both professional and amateur athletes (with women constituting 20% of the sample). Individual interviews with a researcher were conducted to collect the following data: self-reported history of traumatic brain concussion and the timing of the injury (during training or competition). The
Post-Concussion Symptom Scale (PCSS) was also administered. In this study, a concussion was defined as a direct impact to the head followed by symptoms. This study received approval from a local Ethics Committee.

Results
Among JJ athletes, 61% reported a history of concussion, while among MT athletes, the percentage was higher (86%). The primary mechanisms of head impact were falls and elbow strikes to the head in JJ, and punches and knee strikes to the head in MT. There was no difference in post-concussion symptom scores between JJ and MT athletes (average of 11 vs. 10.7, respectively). The most common symptoms were headache, nausea, and dizziness in JJ athletes, and headache, nausea, drowsiness, and mental confusion in MT athletes.

Conclusion
These results suggest that traumatic brain concussions in MT and JJ occur through different mechanisms, with headache being a common post-concussion symptom in both fighting styles. While JJ athletes reported headaches along with potentially vestibular symptoms, MT athletes reported headaches and cognitive symptoms.

Keywords: Concussion; Headache; Combat sports; Traumatic Brain Concussion.