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Sports-related brain injury: evidence that cognitive and motor dysfunction share no commonality in their recovery patterns

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In the United States as well as Europe, sporting-related injuries to the brain have become a focus of intense interest and debate. In the U.S., most emphasis has been placed upon sporting-related concussion and the development of return-to-play rules that will minimize the athletes' risk for subsequent injury and/or potential enduring morbidity. While motor-related dysfunction in less common in the context of sporting-related injuries, it is seen in increasingly severe injuries and as such, it has become a focus of renewed interest. In this presentation, I will focus upon human and animal studies to explain the pathobiology of sporting-related brain injury and its overall implications for an athlete's cognitive and motor dysfunction as well as his or her subsequent recovery. These sequelae will be considered in the context of mild sporting-related injuries versus more severe forms of sporting-related insult. In addition to describing the relevant pathobiology, including circuit disruption and recovery, emphasis will be placed upon the findings that the loss of consciousness and cognitive recovery share no commonality with motor dysfunction and recovery, which, if not carefully considered, can complicate the overall interpretation of the patient's course of recovery.