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MEDIA RELEASE

CONCUSSION IN TEENS: LINKS TO SUICIDALITY NEED PROBING

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THE overlap in the parts of the brain undergoing most development in an adolescent and the areas most effected by concussion mean the management of concussion in young Australians requires special consideration, according to the authors of a Perspective published in the Medical Journal of Australia.

Young people who play sport are exposed to a range of neurological, emotional and developmental benefits but are also at risk of injuries that can threaten these, according to researchers led by Dr Amanda Clacy, a post-doctoral research fellow in suicide prevention at the Sunshine Coast Mind and Neuroscience – Thompson Institute at the University of the Sunshine Coast.

“Adolescents with a history of concussion have been found to be up to 3.3 times more likely to experience depression in their lifetime than their uninjured counterparts,” wrote Clacy and colleagues.

“A longitudinal understanding of the neurobiological mechanisms associated with concussion recovery in adolescents is urgently needed, as the same structures in the frontal cortices and hippocampus that are known to undergo rapid development throughout adolescence are also implicated following concussion and in young people experiencing depression and suicidal behaviours.”

Physical activity and team sports have been shown to significantly benefit adolescent psychological health, including improvements in depressed mood, suicidality, anxiety and stress. Physical activity in the context of team sports even affords additional protection against negative affect by “facilitating social support and integration”.

“Unfortunately, the benefits of participation in sport and the associated risk of injury present potentially contrasting outcomes when it comes to the risk of developing a mood disorder,” wrote Clacy and colleagues.

“Given the overlap in the regions of the brain significantly associated with depression and concussion and those most sensitive during development, two main concerns are raised.

“First, whether these developmental neurophysiological changes render adolescents more susceptible to emotional disturbances following concussion; and second, what can be done to make these mechanisms more resilient to adverse and ongoing consequences of concussion.”

The authors identified three “key gaps in knowledge”:

- the neurophysiological mechanisms involved in sport-related concussion recovery in adolescents have not been explored longitudinally, therefore current concussion management protocols do not have a strong evidence base in terms of neural recovery or appropriateness for the developmental uniqueness of adolescents;
- the neurobiological concussion recovery profile has not been considered with regard to the onset of mood disorders such as depression and suicidality; and,
- the efficacy of physical activity and team sport interventions as both prevention and treatment tools for concussion-related and general mood disorders in adolescents has not been explored from a neurological perspective.

“An improved understanding of the neurological and developmental benefits of physical activity for the treatment of mood disorders in adolescents would offer the opportunity to concurrently promote neurological development and recovery while also mitigating many of the known risks of depression and suicidality, such as social isolation and lack of engagement,” Clacy and colleagues concluded.

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CONTACTS: Dr Amanda Clacy
Postdoctoral Research Fellow
University of the Sunshine Coast
Email: aclacy@usc.edu.au