

Sports-related concussion negatively affects heart rate, blood pressure

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A new study finds that concussion causes short-term impairment of the cardiovascular system but that these cardiovascular symptoms typically resolve within three days of the injury. The article is published ahead of print in the *American Journal of Physiology—Regulatory, Integrative and Comparative Physiology*.

Researchers studied 12 college students who suffered a concussion while participating in a recreational sport. The students were compared with a sex-, height- and weight-matched control group with no history of concussion. The research team administered tests that measured involuntary (autonomic) changes in [heart rate](#) and [blood pressure](#), including forced breathing tests while lying on the back and sitting, and standing up after lying down for three minutes. The tests were given at four times during the recovery period:

- Within 48 hours of being injured ("acute"),
- Twenty-four hours after the initial [test](#) ("sub-acute"),
- One week post-concussion, and
- Two weeks post-concussion.

Concussed volunteers had significantly higher resting blood pressure and changes in blood pressure while standing in the acute tests. Heart rate during forced breathing also increased in the early post-concussion tests. Symptoms "were evident up to 48 hours post-injury, but they resolved by 72 hours post-concussion," wrote the research team. "Our study provides additional support to a growing body of evidence that concussive injury

can temporarily disrupt autonomic control of [cardiovascular function](#) and that this dysfunction may be an effective biomarker for concussion recovery."

More information: John L Dobson et al. Sport-Related Concussion Induces Transient Cardiovascular Autonomic Dysfunction, *American Journal of Physiology - Regulatory, Integrative and Comparative Physiology* (2017). [DOI: 10.1152/ajpregu.00499.2016](https://doi.org/10.1152/ajpregu.00499.2016)

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