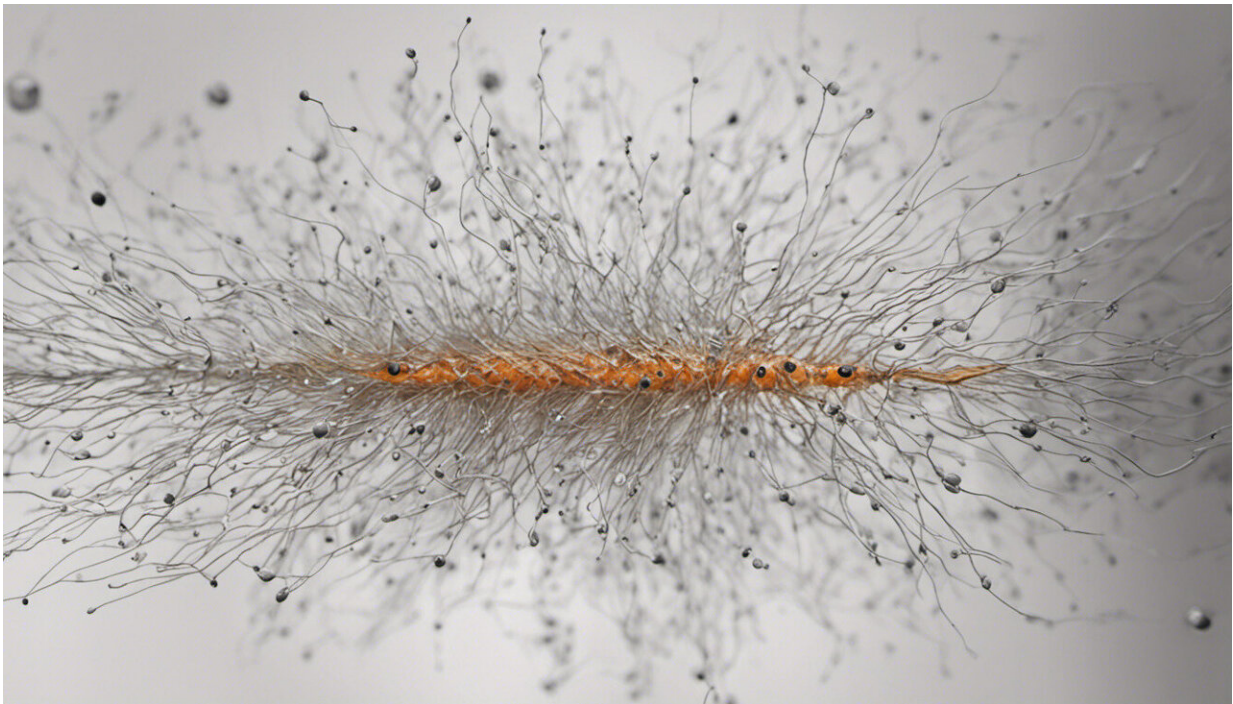


Concussion management is changing as more research suggests exercise is best approach

January 27 2022, by Bhanu Sharma



Credit: AI-generated image ([disclaimer](#))

[Public interest in concussion has exploded over the space of a generation](#), together with a new understanding of how best to help patients recover. Concussion patients were once prescribed rest in a dark room, but in recent years concussion management has literally come out of the dark.

This is in large part because of a research boom: the number of studies on this mild form of traumatic brain injury has [multiplied by 15 times over the last 20 years](#). This spike is a sign that the relatively young field of concussion research is maturing into a deeper science. It has created new evidence to support an entirely new approach to treating concussion. A recent wave of research papers has turned old practices on their heads.

Past approach: A dark room

For many years, concussion management followed a [rest-is-best](#) approach.

Under this passive approach, patients were advised to avoid cognitive and [physical activity](#) until their symptoms naturally resolved, leading to the notion that a dark room was the best environment for recovery.

The problem was that there was scant evidence to support the dark-room method.

The motivation for using rest as a concussion-management strategy was a desire to [limit exposure to environments and activities that might lead to secondary concussions](#), which can have compounding, longer-lasting effects. Avoiding secondary injury was prioritized over proactive recovery.

But we are now in the midst of a transformation in concussion management.

Exercise is medicine

In the past few years, scientists have started to study [aerobic exercise](#) (or cardio training) as a management strategy for concussion symptoms.

This [exercise-is-medicine](#) approach is diametrically opposed to the rest-is-best status quo.

[Many studies](#) have examined the effects of sub-maximal (low-to-moderate intensity) aerobic [exercise](#) on concussion symptoms. This research confirms the utility and safety of such exercise for managing concussion symptoms, which vary between individuals, but they are typically categorized as [somatic \(or physical\), cognitive, emotional and sleep-related](#). They can be assessed using adult- and child-specific [symptom](#) scales.

[An academic review](#) that summarizes the findings of individual studies shows that exercise is indeed one of the most effective, evidence-informed strategies for managing concussion symptoms. Beyond a brief period (24 to 48 hours) of rest after concussion, the science now suggests that exercise is more beneficial than rest.

Prescribing exercise in concussion typically involves a baseline test. The most widely studied tests require patients either to walk on a treadmill with the incline gradually increasing throughout the test or cycle on a stationary bicycle against progressively increasing resistance.

Patients exercise under supervision until they experience an increase in symptoms ([which research shows is transient and not associated with poor long-term outcome](#)) or are unable to continue exercising. The heart rate at the point where the test is terminated is noted, and patients are then prescribed an exercise program involving five to six days of aerobic exercise at an intensity equivalent to 80 percent of the maximum heart rate achieved during the test.

Ongoing research

As a next step, scientists are hard at work trying to determine the exact

mechanism by which such sub-maximal exercise improves concussion symptoms. [A leading hypothesis](#) is that the [autonomic nervous system](#) (which regulates involuntary physiological processes, such as [heart rate](#) and breathing) is disturbed following a concussion, with its two constituent sub-systems becoming "uncoupled."

Sub-maximal aerobic exercise is thought to engage the autonomic nervous system in a way that helps restore balance to this critical command center. Simply put, it looks like exercise can safely and effectively generate the biological change required to overcome the symptoms of concussion.

More research is needed to build on this growing base of exercise-concussion knowledge. We need to understand how different frequencies, intensities, times and types of exercise can lessen symptom burden.

Other research, including my ongoing work at McMaster University, aims to develop understanding of the effects of exercise by studying its impacts not only on symptoms, but also on brain activity. We need to know how exercise impacts brain function in concussion as, after all, concussions are brain injuries.

This shift in concussion management may mean better care will become available for patients. It is also a story about the power of bold science, the type of science which questions accepted wisdom and rebuilds first principles using evidence.

Challenging norms by changing perspective can lead to new approaches and better outcomes. Sometimes, as in the case with [concussion](#), the game needs to be changed.

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