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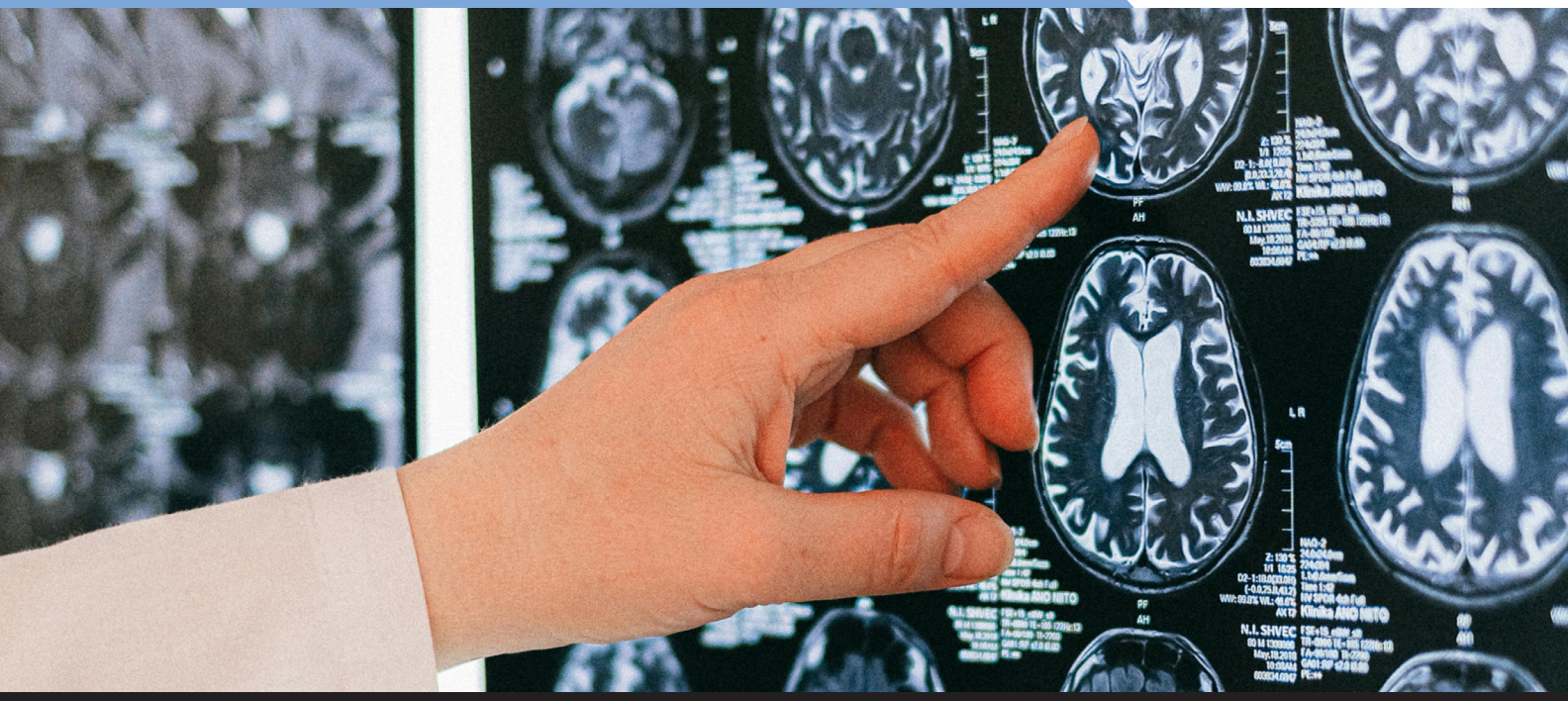

NEW MANAGEMENT OF SPORTS-RELATED CONCUSSION: ACTIVE REHABILITATION

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Concussions are not an uncommon sports-related injury. An estimated 1.9 million individuals under the age of 18 in the U.S experience a sports-related concussion (Broglio et al., 2024). As many know, a concussion is "a trauma induced alteration in mental status that may or may not involve loss of consciousness" (Broglio et al., 2014). As of recent, current guidelines and recommendations have been updated within athletic training legislation based on the ever-changing research. Medical literature has proved emerging advances in the management and treatment of concussions, with athletes having significant improvement, and a quicker return to activity with athletes that have done early active rehabilitation.

PHYSICAL ACTIVITY, REHABILITATION, AND RETURN TO SPORTS RECOMMENDATIONS:

Previous guidelines and recommendations supported strict cognitive and physical rest for concussion management and treatment. Compared to current literature, findings now show that there are negative aspects related to strict rest for treatment of a sports-related concussion, such as a longer recovery time. Return to play for a concussion before these new recommendations had athletes completely resting until symptoms were resolved, then starting light exercise. If there were any symptoms caused by this activity at either stage of the return-to-play process within a 24 hour time-span, the athlete would have to stop activity immediately and restart within another 24 hours.

New research suggests an immediate rest period of 24-48 hours followed by symptom-guided cognitive activity, physical activity, anaerobic exercise treatment, and clinician-led activities. Athletic trainers should guide the athlete to increase aerobic activity, while avoiding a mild increase in symptoms, such as two or more (out of a ten rating), during the activity or reactivity. Suggested steps as followed based on newer research, keeping in mind after 24-48 hour rest period post trauma, while monitoring systems throughout each phase:

- Step 1: Symptom-related activity: Daily activities that do not radically increase symptoms (e.i. walking).
- Step 2: Gradual aerobic exercise: Light (heart rate around 55% max) and progressively increase to moderate (heart rate around 70% max). This includes stationary bike, walking, and light resistance training. Always keeping in mind that this activity should not result in more than a mild/brief increase in concussion symptoms.
- Step 3: Start individual sport-specific exercise. Medical clearance from a clinician should also happen before this step.
- Step 4: Non-contact drills
- Step 5: Full contact
- Step 6: Return to sport

The data behind this new concept of starting aerobic exercise earlier during concussion recovery is its improvement in the body's involuntary responses (heart rate, blood pressure, respiration, and digestion) and the delivery of oxygen to the brain (Broglio et al., 2024). Prospective studies have also found that mild exacerbation of concussion symptoms during activity did not delay recovery, but, done safely, sped the recovery process up. Athletes that had a recovery plan that included symptom-tracked exercise and activity as soon as 2 days after contracting their concussion showed a speedy and healthy recovery. Evidence also supports exercise and rehabilitation not only in the early stage, but also late stages of the concussion management process. Cervicovestibular rehabilitation managed by athletic trainers and clinicians alike, are also newer recommendations for treatment of an athlete with persistent concussion symptoms. This includes cervical spine manual therapy and exercises, exercises that enhance stability in posture and gaze, and exercises to improve vertigo and daily living. Compared to past recommendations, an athlete has less opportunity for the brain to recover when they are at rest, especially for several days or weeks when waiting for all symptoms to subside. This deprives the brain and the body of increased oxygen, blood, and other healing properties, creating a slower recovery process. Overall, studies have shown that athletes that go through these clinically directed exercises and activities had a faster recovery and improved outcomes versus those that did not.

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