

# Active rehabilitation following concussion

UT Health Austin Pediatric Neurosciences at Dell Children's



The goal of concussion treatment is for your child to recover safely. There is solid research that a treatment plan called active rehabilitation promotes safe and rapid recovery following concussion. Although strict rest has been the main treatment in the past, the 2018 CDC Mild Traumatic Brain Injury Guideline states that rest and restriction beyond 1–3 days can worsen symptoms. Multiple studies in children and teens show that active rehabilitation is effective for both the brain and the body. Active rehabilitation for return to learn (academics) and return to play (noncontact physical activity) is a treatment plan that leads to healthy concussion recovery and decreases the risk of prolonged or worsened symptoms. The general guideline is that if symptoms such as headache or dizziness increase with an activity (mental or physical), your child should take a break from that activity. Most importantly, it is safe and helpful to use your brain and body after concussion, following 1–3 days of rest.

## Return to learn

Return to learn is priority! It is common to have difficulty concentrating and to feel mentally slowed down or “in a fog” following concussion. These symptoms generally improve over time and with gradual exposure to mental exertion. Mental activities (for example, reading, video games, and schoolwork) in moderation help with recovery because the brain needs to practice

thinking skills, concentration, and memory following concussion. There are many benefits of prompt return to school while still recovering, while repeated absences can lead to social isolation, missed assignments, and failing grades. This creates stress for students, and any stressors during recovery can worsen symptoms, even after the concussion has resolved. The goal of return to learn is for children to be back in school with rest breaks and temporary accommodations if needed. For instance, students may need to start with half days, and they may need extra time to complete assignments and tests.

## Return to play

Research supports that physical rest for more than a couple of days following concussion is not beneficial and may lead to persistent concussion symptoms. Changes in the nervous system cause many concussion symptoms, and exercise therapy is shown to improve nervous system function and speed recovery. Noncontact physical activity is safe during concussion recovery, and aerobic exercise is proven to be the most beneficial type of exercise. Children and teens will benefit from noncontact physical activity during recovery but should avoid high-risk activities, such as playgrounds, trampolines, or wheeled activities. Athletes and children of all ages can participate in aerobic/cardio activities, working up to 30 minutes or more per day, with rest breaks if needed.



# Exercise therapy

## Athletes

### Options:

- Treadmill, stationary bike, or other cardio machine if available at home or school
- Walking/jogging outside at home or at school

### Goals:

- Start with 5-10 minutes daily and work up to 20-30+ minutes of sustained cardio/aerobic exercise.
- Push through mild symptoms, which are expected during recovery.
- Cool down and take a rest break if symptoms worsen by 2 or more points on a 0-10 scale.
- Slow down if symptoms are worsening or if you feel short of breath.
- Teen athletes can gradually work up to a target heart rate of 140s-160s maintained for 20-30 minutes with a warm-up and cool-down.

## Nonathletes and younger children

### Options:

- Brisk walk or jog outside at home or at school (with adult supervision)
- Dance videos such as GoNoodle or other family exercise activities
- Outdoor play that is active but safe  
*No wheeled activities, trampolines, playgrounds, or contact sports until fully recovered and cleared by a qualified medical professional*

### Goals:

- Work up to 20-30 minutes of sustained cardio/aerobic activity daily.
- Stop and rest if concussion symptoms are worsening, but don't give up!

### Other safe physical activities:

- Noncontact sports drills (no balls or equipment)
- Shooting hoops, hitting a ball off a tee, playing golf
- Swimming (no jumping, diving, or rough play)



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