

FÉDÉRATION INTERNATIONALE DE GYMNASTIQUE



FIG – Sports Concussion Overview

- A concussion is a functional brain injury.
- All concussions, despite severity, are serious.
- Most concussions occur without a loss of consciousness.
- A gymnast with any symptoms following a head injury must be removed from training or competition, evaluated by a medical professional.
- A gymnast must not return to training until symptoms have resolved and the gymnast has been medically cleared.
- If in doubt, sit them out – to prevent worsening of the concussion or further injury.
- Concussions can be fatal.
- Most concussions recover efficiently and fully with rest and proper treatment.

What is Concussion?

A concussion is a traumatic brain injury resulting in a disturbance of brain function.

What causes concussion?

Gymnastics is considered a high-risk sport for concussion.

A concussion can be sustained by direct forces (e.g. a blow to the head), or indirect forces (e.g. a blow to the body, which causes the head to move rapidly).

Causes of concussion in gymnastics include:

- Direct contact with the apparatus/equipment or safety mats
- The whiplash effect of neck flexion and extension (head forced forward and backward)
- Rotational forces of the head and neck are not as common but may lead to more severe symptoms.

Direct, indirect, and rotational impacts are all possible in gymnastics.

Gymnasts may land hard on their buttocks and sustain a concussion through impact forces transmitted up the trunk to the brain.

What are the symptoms and signs of concussion?

Recognition of concussions occurs through

1. Observing an injury (e.g. blow to the head) and
2. Noticing changes in the gymnast's behaviour, thinking, or physical functioning.

Additionally, the gymnast may report symptoms to a coach, instructor or parent.

The presence of one or more of these signs and symptoms suggests a concussion:

- Headache
- Dizziness
- Mental clouding, confusion, feeling slowed down
- Visual problems
- Nausea and vomiting
- Tiredness
- Drowsiness/feeling 'in a fog'/difficult to concentrate
- Pressure in the head
- Sensitivity to light and noise

Coaches may also notice a disturbance in the gymnast's performance such as decreased balance and/or spatial awareness. Everyone should be aware of the signs and symptoms of concussion, recognise if an athlete is displaying them, and remove the gymnast from participation. 'If in doubt, sit them out'.

When to Seek Emergency Help

The following symptoms would give cause to seek emergency medical attention:

- A severe or worsening headache
- Weakness or numbness
- Repeated vomiting
- Slurred speech
- Neck Pain
- Double vision
- Seizure activity
- Deteriorating conscious state

Management of Concussion

Rest the body, and rest the brain

Rest is the cornerstone of concussion treatment, and this should be for a minimum of 48 hours. Rest includes restrictions from physical activities and brain activities, such as schoolwork, reading, television, and computer/video games. The goal of rest is to allow for symptom resolution. Symptom resolution includes a successful return to academic and/or work activities, when applicable.

It is important to note that symptom resolution can take an average of 7-10 days for adults, and 2-4 weeks for children. Appropriate expectations and time are essential for a safe return to sport.

In a setting that does NOT include close medical team oversight a defined period of rest can be considered prior to starting the following:

- Return-to-sport strategy: a minimum of 7 days for adults, and 14 days for children
- Clearance back to full sport participation: a minimum of 14 days for adults, and 28 days for children

After the initial period of rest, if the athlete has become symptom free, a graduated return to training protocol should be followed.

Below we present the Gymnastics-Specific Return-to-Sport Strategy that will enable coaches to safely return their gymnasts to full training. It provides a basic outline for return to gymnastics following a concussion event. The athlete should be symptom free for 24-48 hours before starting the Gymnastics-Specific Return-to-Sport Strategy. The athlete should take a minimum of 24 hours (in gymnasts 18 years old and younger, you should consider a longer period of time) to complete each step in the progression. If the athlete experiences new symptoms or worsening symptoms at any stage, they should go back to the previous stage that they completed symptom-free, wait for symptoms to resolve, and then begin the progression again.

SPORT CONCUSSION

Gymnastics-Specific Return-to-Sport Strategy

[Per protocol – Return-to-Sport strategy starts after 48 hours of symptom-free rest]
[24 hours should separate each step within this Return-to-Sport strategy]

STAGE	AIM	ACTIVITY	GOAL OF EACH STEP
1	Rest followed by light aerobic activity	Daily activities that do not provoke symptoms for 48 hours, then light aerobic activity that doesn't worsen symptoms <ul style="list-style-type: none"> - Stationary bike - Light jogging Stretching (no inverted positions)	Gradual reintroduction of work/school activities
2	Return to early sport specific training: <i>Inversion</i>	<ul style="list-style-type: none"> - Moderate intensity aerobics - Moderate intensity sprinting - Leaps, jumps on flat and low heights - Landing drills – floor based, low impact - Gymnastics strengthening – start slow and then progress - Static and dynamic stretching - Start basic, non-dynamic inversion (ie. Handstands) - Discipline-specific progression: <ul style="list-style-type: none"> ➤ Ar – FX/B/PH/PB – basic swings, leaps, jumps, dance ➤ R – basic dance, no rotation ➤ TT – non-impact, land-based drills ➤ Ac/G – limited lifts, choreography P - running, jump drills without obstacles	<ul style="list-style-type: none"> - Increase heart rate - Start non-dynamic basic skills - Limited inversion No twisting or flipping
3	Progress sport specific training: <i>Flipping</i>	<ul style="list-style-type: none"> - As above with increased intensity - Discipline-specific progression: <ul style="list-style-type: none"> ➤ Ar – add basics UB/R/HB, start V drills ➤ R – advance dance/rotation/basic throws (Indv/Non-Group) ➤ TT – single flipping skills, basic tumbling, timing drills ➤ Ac/G – basic tumbling, basic balance/lift drills P - low height hurdles/climbs, flipping drills	<ul style="list-style-type: none"> - Add full inversion - Advance to basics and limited flipping No twisting
4	Progress sport specific training: <i>Twisting</i>	<ul style="list-style-type: none"> - As above with increased complexity - Discipline-specific progression: <ul style="list-style-type: none"> ➤ Ar – skill progression all events, add twisting/complex flipping ➤ R – add full throws/rotation/sequences (Indv/Non-Group) ➤ TT – add complex flipping, single twisting ➤ Ac/G – advance balance/lift skills/tumbling P - high height hurdles/climbs, flip/twist without obstacles	<ul style="list-style-type: none"> - Add complex flipping Start basic twisting
5	Progress sport specific training: <i>Advanced Skills</i>	<ul style="list-style-type: none"> - As above with increased complexity - Discipline-specific progression: <ul style="list-style-type: none"> ➤ Ar – complex skills, higher risk skills (i.e. release skills) ➤ R – continue full skills/sequences, integrate with Group ➤ TT – complex flip/twist skills, basic sequences ➤ Ac/G – add full tumbling/lift/balance skills – FULL CLEARANCE P – add flip/twist with obstacles	<ul style="list-style-type: none"> - Combine complex inversion and rotation Improve endurance & strength
6	Return to full training	<ul style="list-style-type: none"> - Focus on slow increase in volume, to build stamina & strength - Ar/TT/P – FULL CLEARANCE - Progress through the following steps: <ol style="list-style-type: none"> 1. Single skill elements 2. Combined elements/Sequences 3. Routine parts Full routines	Final full reintegration

Ar = Artistic; R = Rhythmic; TT = Tumbling & Trampoline; Ac/G = Acro/Group; P = Parkour
 FX = Floor Exercise; B = Beam; PH = Pommel Horse; PB = Parallel Bars; UB = Uneven Bars; R = Rings; HB = High Bar
 Indv = Individual