Swim England

If in doubt, SIT THEM OUT!

Concussion Guidance

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Introduction

A concussion is a brain injury caused by a blow to the head, neck or face. Symptoms may start immediately but, in some cases, can be delayed in onset for a few minutes up to hours after the trauma.

Concussion results in a range of clinical signs and symptoms that may or may not involve loss of consciousness. Resolution of the clinical and cognitive features typically follows a sequential course. However, in some cases symptoms may be prolonged.

Loss of consciousness does not always occur in concussion. It can happen to anyone of any age but children under 18 are more susceptible and may take longer to recover than adults.

Signs and symptoms

The following are signs and symptoms that may occur after a head injury. If these are present, a concussion should be suspected:

- Headache
- Loss of consciousness
- Pressure in the head
- Nausea or vomiting
- Dizziness
- Blurred vision
- Balance problems
- Sensitivity to light and noise
- Feeling ‘slowed down’
- Feeling like in a fog
- Difficulty concentrating
- Difficulty remembering
- Low energy
- Confusion
- Drowsiness
- Insomnia
- More emotional
- Irritability
- Upset
- Anxious or nervous
- Seizure

More severe "red flag" symptoms may include a worsening headache, seizures, repeated vomiting, increasing confusion, or unusual changes in behaviour.

Immediate management of concussion

If an athlete has a suspected concussion, they should be removed from training/competition and MUST NOT resume training/competing on the same day.

If an injury to the neck has occurred, they should be moved using spinal injury management methods.

If the following have occurred or are present, the athlete should go to A&E:

- Loss of consciousness.
- Repeated vomiting.
- Worsening headache not going away with painkillers.
- Change in behaviour.
- Crying more than usual in young children or babies.
- Memory loss.
- Previous brain injury or brain surgery.
- Blood clotting issues.
- Severe neck pain.
- Alcohol or drug intoxication.

If any of the following occur or are present, you must call 999:

- Unconsciousness has persisted.
- Difficulty remaining awake.
- Fits or seizure.
- Vision or hearing problems.
- Black eye without any eye injury.
- Bleeding from ears.
- Clear fluid coming from the ears or nose.
- Numbness or weakness in part of the body.
- Problems walking or with balance.
- Head wound.
- Has hit their head with force.

In all other instances the athlete should be given the following advice:

- See a doctor or call 111 within 24 hours of the injury.
- Must remain supervised by a responsible adult for 24 hours post injury.
- Do not consume alcohol until at least 24 hours afterwards or when are free of symptoms.
- Do not drive until medically cleared to do so or have no symptoms.
- Do not use aspirin or anti-inflammatory medication.
- Do not use sleeping tablets.
- Do not train or exercise until given clearance by a doctor or symptoms have resolved.
- Use an ice pack to reduce any swelling.
- Rest and avoid any stress.
- Minimise the use of mobile phones and smart screens.

In all cases of suspected concussion, the athlete should be advised to seek medical assessment within 24 hours which may be in person or call 111 even if the symptoms resolve quickly.

Return to training

Any suspected concussion should be assessed by an appropriately qualified medical practitioner who should guide return to sport.

If the injury occurred doing a different sport or activity, the return to training guidance should still be adhered to. For example, if an artistic swimmer fell off a bike and suffered concussion they should still rest for 24-48 hours and then go through the stages of returning to sport as outlined below.

After a minimum of 24-48 hours rest, a staged return to normal activities taking a further 48 hours and then sport should be taken place under the guidance of a suitably qualified medical professional.

Each stage should be a minimum of 24 hours' duration and individuals should only progress if they are completely symptom free.

Athletes aged 18 or younger should spend a minimum of 48 hours at each stage and those under 13 should seek guidance from a doctor about how quickly to progress through the stages.

Standard return to training guidelines for mild concussion not requiring hospital treatment should include six basic steps:

1. **No activity**

    a. A recovery stage with complete physical and mental rest. This means no exercise or sports from 24 to 48 hours, but can also mean not going to school, or having a shortened day. This is a time to get lots of rest, get plenty of sleep, and eat well. This stage usually lasts a further 24 hours to 48 hours.

    b. Once symptoms have settled, start doing simple activities such as reading a book, walking to the shops for 10-15 minutes maximum. If symptoms persist after 48 hours of rest, medical assessment should be sourced. This stage lasts for a further 24 hours to 48 hours.

    It is imperative that this return is managed by a medical professional familiar with the sport and concussion management.

    Before returning to the next stage, all athletes should be symptom free and have returned to normal daily activity such as school and work.

    - This must be medically led.
    - Each stage should be a minimum of **24 hours' duration** and individuals should **only progress if they are completely symptom free**.
    - Athletes of **18 years of age or younger** should spend a minimum of **48 hours** at each step.
    - Those under 13 should seek guidance from a doctor about how quickly to progress through the stages.
    - If any symptoms recur/occur during the return to training process, the **athlete should be reviewed by a medical professional again and must return to the previous**

symptom free stage. They may only attempt progression once symptom free for a further 24 hours (48 hours if aged 18 and under).

2. **Light aerobic exercise** to increase their heart rate (keep to less than 70 per cent of maximum predicted heart rate), and activity should last for less than 15 minutes. Activities include five to 10 minutes of walking, light jogging, swimming, or stationary cycling, but no resistance training. Touch turns should be done but no tumble turns.

3. **Sport-specific exercise** to add movement, such as swimming drills, moderate jogging, brief running, throwing and catching in water polo, moderate-intensity stationary cycling, but no head impact activities such as diving or contact in water polo. The goal is to have some limited body and head movement, but the amount of time should still be limited to less than he or she usually spends exercising. Trampoline (no somersault up to 50), and springboard bouncing only (up to 50).

4. **Non-contact training drills** to raise exercise, coordination, and cognitive load, including progression to more complex training drills and resistance training, sprinting, high-intensity stationary cycling. This is a more intense workout that is close to the usual routine but is not to include any contact activity. It can include pilates, light resistance training, shooting and throwing in water polo. Examples in diving include dry land somersault landing to feet, arm stands, trampoline to feet in all directions. In the pool somersaults from pool side to the feet and 1 metre board to the feet in all directions.

5. **Full contact practice** to restore confidence and assess functional skills and following medical clearance may participate in normal training activities. Simulated open water sessions can occur and normal practice in water polo. In diving in the pool examples include Dive to hands up to 5m, Platform - Line-ups, entries, skill chains – nil to feet, lead ups - nil to feet, Springboard – Line-ups, entries, skill chains – nil to feet, lead ups - nil to feet.

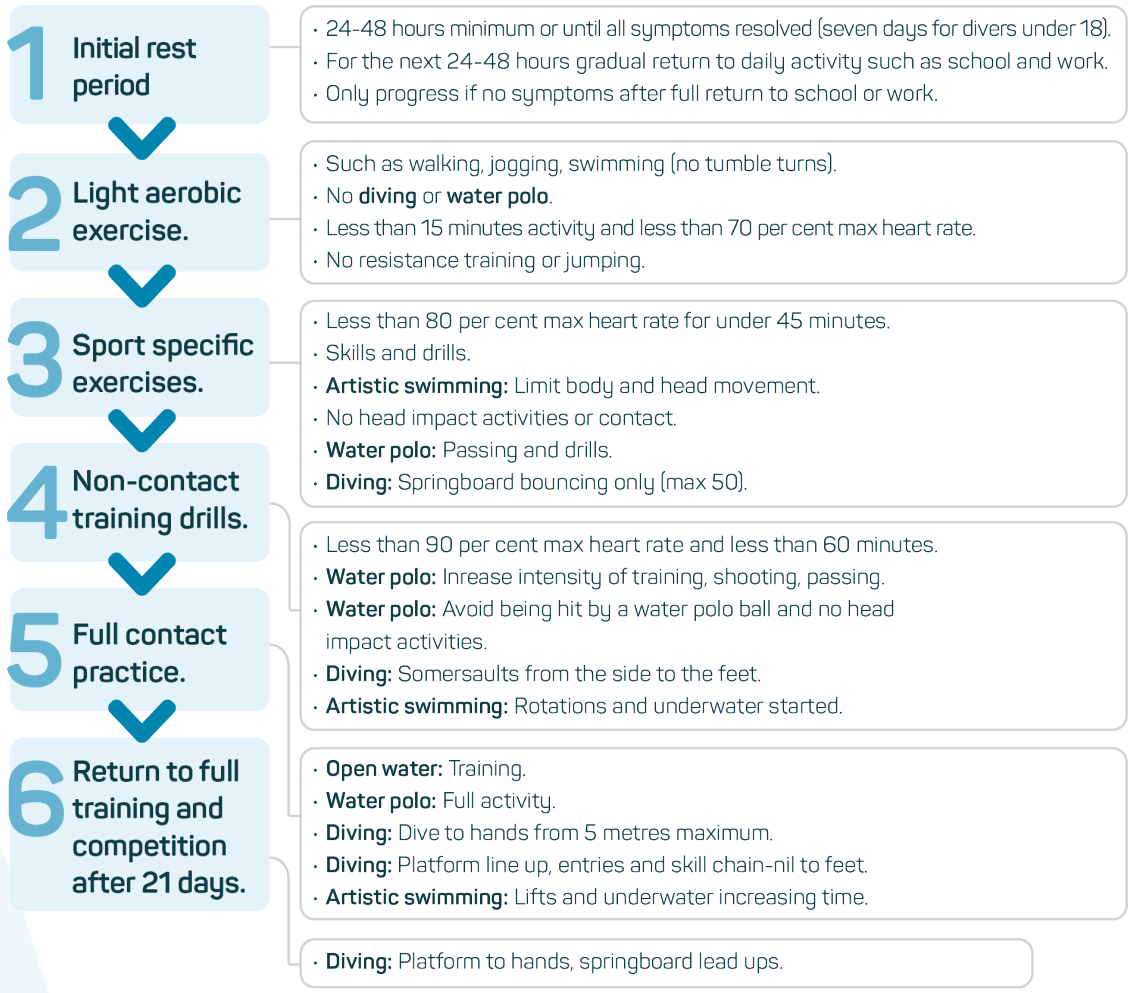
6. **Return to full training and competition**
   Full activities in water polo, swimming and artistic swimming. Diving to include dive to hands up to 10m, Platform – all skill chains and lead ups and optionals when appropriate, Springboard – Lead ups and optional when appropriate. Return to competition should be after 21 days.

Concussion symptoms should not come back during or after any of the exercises or activities during these return to training stages. If any symptoms return they should see a medical professional and if agreed they can still exercise, they return to the previous stage for 48 hours.

If symptoms are still present after 28 days they should see a medical professional.

Figure one

This shows the progressive return to training process for illustration only – this should be guided by a medical professional dependent on symptoms and examination findings.



Example of return to training plan for diving

Phase	Stage 1a	Stage 1b	Stage 2	Stage 3	Stage 4	Stage 5	Stage 6
Rehabilitation Stage	24 hours' rest (over 18) 7 days' rest under 18	After 24-28 hours rest	Light Exercise	Moderate Exercise	Sport Specific Drills	Return to Training	Full Training
Exercise Allowed	Rest	Return to normal daily activities such as school or work.	Walking, stationary bike, swimming.	• Running (jogging). • Trampoline (no s/s up to 50). • Springboard bouncing only (up to 50). • No hard running, no resistance exercise, no jumping or plyometrics.	**Dryland** • S/S (no landings to feet – foam pit only). • Arm stand starts to feet. • Springboard to feet or foam pit all directions. • Trampoline to feet all directions. • No running front take-offs. • Can begin dryland conditioning. • Can begin some resistance training – static. • No plyometrics. **Pool** • S/S from pool side to feet. • 1 metre to feet all directions.	**Dryland** • S/S (no landings to feet – foam pit only). • Springboard. • Running front take-offs. • Tumble track. • Plyometrics. **Pool** • Dive to hands up to 5 metre. • Platform – line-ups, entries, skill chains – nil to feet, lead ups – nil to feet. • Springboard – line-ups, entries, skill chains – nil to feet, lead ups – nil to feet. • ImPACT test.	**Dryland** • S/S • Springboard. • Running front take-offs. • Tumble track. **Pool** • Dive to hands up to 10 metre. • Platform – all skill chains and lead ups and optionals when appropriate. • Springboard – lead ups and optionals when appropriate.
Maximum HR			< 70% of predicted maximum	< 80% of predicted maximum	< 90% of predicted maximum		
Exercise Duration	nil	nil	15 minutes	45 minutes	1 hour		
Objective	Recovery and no increase in symptoms	Recovery and no increase in symptoms	No symptoms with increased heart rate	Addition of movement and increase heart rate	Exercise and co-ordination skills and cognitive load.	• Restore confidence and assess basic diving skills for proficiency and safety. • Pass **ImPACT** test.	Return to competition not until 21 days.

Return to training plan for swimming/open water

Stage	Objective	Swim specific	S&C
Stage 1a	• Recovery. • 24 hours rest.	• 24 hours rest and then must be symptom free.	None.
Stage 1b	• Return to normal daily activities such as school or work for a further 24 to 48 hours.		None.
Stage 2	• Increase heart rate.	• 15 minute bike or swim at 7 RPE or <70% HR max. • No tumble turns.	None.
Stage 3	• Increase intensity.	• 45 minute swim at 8/10 RPE or <80% HR max. • Tumble turns included.	None.
Stage 4	• Increase duration and start resistance training.	• 60 minute swim at 9/10 RPE and <90% HR max. • No diving.	Light Pilates and conditioning with movement patterning.
Stage 5	• Increase intensity. • Consider second session.	• Full pool training including dives. • Consider open water simulated training.	Increase loading.
Stage 6	• Unrestricted training and competition.		Full strength training. Return to competition not until 21 days

Return to training plan for water polo

Stage	Objective	Swim specific	S&C
Stage 1a	• Recovery.	• 48 hours rest and then must be symptom free before returning to exercise.	None.
Stage 1b	• Return to normal daily activities such as school or work for a further 24 to 48 hours.		None.
Stage 2	• Increase heart rate.	• 15 minute bike or swim at 7 RPE or <70% HR max. • No tumble turns. • No ball play.	None.
Stage 3	• Increase intensity.	• 45 minute swim at 8/10 RPE or <80% HR max. • Simple ball passing and throwing. • No contact. • Egg beater drills, swimming drills.	None.
Stage 4	• Increase duration and start resistance training.	• Shooting, passing, no goal keeping or scrummaging.	Light Pilates and conditioning with movement patterning.
Stage 5	• Increase intensity. • Consider second session.	• Full pool training. • Including goal keeping and scrummaging.	Increase loading.
Stage 6	• Unrestricted training and competition.	• Competition can be undertaken.	Full strength training. Return to competition not until 21 days.

Return to training plan for artistic swimming

Stage	Objective	Swim specific	S&C
Stage 1a	• Recovery.	• 24-48 hours rest and then must be symptom free.	None.
Stage 1b	• Return to normal daily activities such as school or work for further 24 to 48 hours.		None.
Stage 2	• Increase heart rate.	• 15 minute bike or swim at 7 RPE or <70% HR max. • No tumble turns. • No underwater work	None.
Stage 3	• Increase intensity.	• 45 minute swim at 8/10 RPE or <80% HR max. • Tumble turns included. • Start simple synchro figures.	Mobility work can be undertaken.
Stage 4	• Increase duration and start resistance training.	• Rotation moves can be started and start underwater work.	Light Pilates and conditioning with movement patterning.
Stage 5	• Increase intensity. • Consider second session.	• Full pool training including lifts and increased underwater time.	Increase loading.
Stage 6	• Unrestricted training and competition.	• Return to full activity.	Full strength training. Return to competition not until 21 days.

Swim England

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02344SE 02/23