sky sports

Dr Enda Devitt

A Guide for Coaches on how to Recognise & Manage Concussion

GAA GAA HANDBALL LGFA

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Berlin Consensus Statement 2016

- "It is important to note that SRC is an evolving injury in the acute phase, with rapidly changing clinical signs and symptoms, which may reflect the underlying physiological injury in the brain. SRC is considered to be among the **most complex** injuries in sports medicine to diagnose, assess and manage."

What is concussion?

A concussion is defined as a mild traumatic brain injury (mTBI) caused by a jolt to the head or body that disrupts the function of the brain.

This injury can result in physical, cognitive, emotional, and/or sleep-related symptoms that may or may not involve a loss of consciousness. The symptoms can last from several minutes, to days, weeks, months, or longer.

Physiology of Concussion

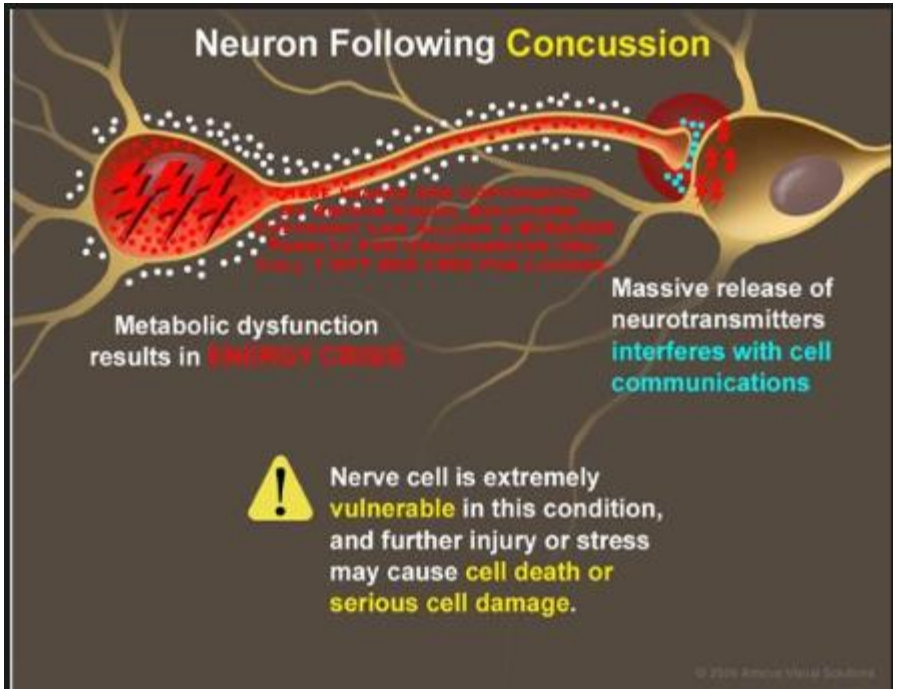
Change in permeability

-Loss of K+

- Influx of Ca++

- Vasospasm

Results in a Energy Crisis!



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What information is there to guide coaches/teams?

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Observable Signs Pitch Side

- No movement 1st 5 seconds post injury(slow to get up)
- LOC > 30-60 seconds
- Cervical Hypotonia
- Player clutching head/Facial Injury
- Tonic Posture*
- Ataxia/Stumbling
- Vacant stare
- Co-Player concern
- Video feedback

When should I Refer to ER

- Headaches 10/10 severity or worsening
- Loss of consciousness (especially greater than 30 secs)
- Seizures
- Significant drowsiness/hard time taking staying awake/deteriorating conscious state
- Vomiting
- Slurred speech
- A hard time recognising people/places that should be familiar
- Increasing irritability or significant behavioural change
- Weakness, numbness, tingling in the arms/legs
- Neck pain or focal neurological sign
- Double Vision

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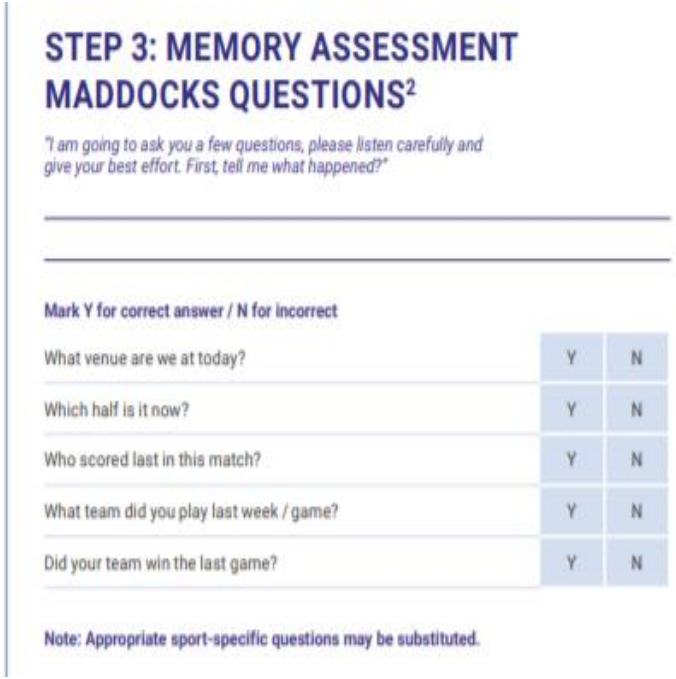
Concussion Symptoms

Headache	Sensitivity to Light	Nervous or Anxious
“Pressure in head”	Sensitivity to Noise	Neck Pain
Balance Problems	Fatigue or Low energy	Difficulty Concentrating
Nausea or Vomiting	***“Don’t Feel Right”***	Difficulty Remembering
Drowsiness	More Emotional	Feeling Slowed Down
Dizziness	More Irritable	Feeling Like “In a Fog”
Blurred Vision	Sadness	

Maddocks Questions



STEP 3: MEMORY ASSESSMENT MADDOCKS QUESTIONS[2]

"I am going to ask you a few questions, please listen carefully and give your best effort. First, tell me what happened?"

Mark Y for correct answer / N for incorrect

What venue are we at today?	Y	N
Which half is it now?	Y	N
Who scored last in this match?	Y	N
What team did you play last week / game?	Y	N
Did your team win the last game?	Y	N

Note: Appropriate sport-specific questions may be substituted.

- Familiar with past fixtures and results!
- Use to rule concussion

IN not OUT

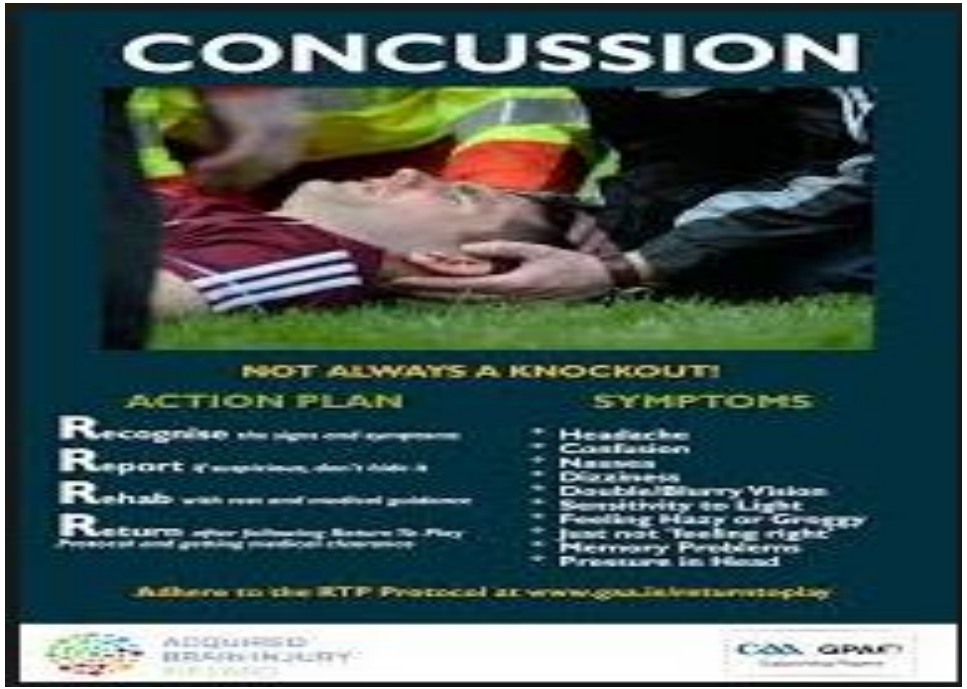
REMEMBER THE NECK!!!

IN A PATIENT WHO IS NOT LUCID OR FULLY CONSCIOUS, A CERVICAL SPINE INJURY SHOULD BE ASSUMED UNTIL PROVEN OTHERWISE

Remember

- Player not to be left alone
- Do not allow drive
- No alcohol
- Serial Monitoring
- Written player / Parent/Next of Kin information
- Priority return to school-work –play

IF IN DOUBT, SIT THEM OUT!!!



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Common Questions about Concussion

- **What about Second Impact Syndrome?**

- **“ But coach, I’m fine, I’m just a bit dizzy” - Predictor of protracted recovery [12]**

- **Why do we remove from play immediately? [11]**

Continuing to play with a concussion?

Athletes that continued to play with a concussion were 8.8 times more likely to have a protracted recovery >/= 21 days [11]

Erbin et al *Pediatrics.* *2016 Sep;138(3). pii: e20160910. doi: 10.1542/peds.2016-0910.*

Removal From Play After Concussion and Recovery Time.

Does it Matter How Long You Continue to Play?

WHEN REMOVED	RECOVERY TIME
Immediately	18.9 days
3-15 minutes	28.4 days
> 15 minutes	44.1 days

Gradual Return to Play Protocol

- Relative rest 24-48hrs
- Adult males - GRTP minimum 7 days
- Males < 18yrs - GRTP minimum 15 days
- ***Females*** all ages - GRTP minimum 15 days

Remember written clearance from a doctor?

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Table 2 Gradual Return to Play Protocol		
Rehabilitation Stage	**Functional exercise at stage**	**Objective of stage**
1. No Activity **(24-48 Hours)**	Physical and Cognitive Rest	Recovery
2. Light Activity **(At least 1 day)**	Walking, swimming, cycling, keeping intensity <70% maximum permitted heart rate	Increase HR
3. Sports Specific Exercise **(At least 1 day)**	Running drills,	Add Movement
4. No Contact Training Drills **(At least 1 day)**	Progress to more complex training drills - passing drills, progressive resistance training	Exercise, coordination and cognitive load
5. Full Contact Practice **(At least 1 day)**	**Following written medical clearance,** participate in normal training activities.	Restore confidence and assess functional skills by coaching staff
6. Return to play **(Minimum of 7 days since diagnosis)**	Normal game play	Return to competitive action

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DIFFERENT RTP GUIDELINES- WHICH ONE TO FOLLOW?

GAA

5-18YRS: RTP MINIMUM 14/7

ADULTS: RTP 7 DAYS

IRFU CONCUSSION GUIDELINES			
AGE GROUP	MINIMUM REST PERIOD POST CONCUSSION	GRTP	MINIMUM TIME OUT
U6's - U20's*	14 Days	8 Days	23 Days (3 Weekends Missed)
ADULT	14 Days	6 Days	21 Days (2 Weekends Missed)

**under age (U6's - U20's) players playing adult rugby must follow age group guidelines*

Concussion Facts

- Not just the Head- anywhere on body - force is transferred
- Concussions can occur even if consciousness is not lost(90%)
- A person is at risk for a concussion based on numerous factors, like medical history, age, gender
- An athlete displaying any of the many signs and symptoms of concussion should not be allowed to return to the practice or game even if symptoms clear quickly
- No two people have an identical concussion

Concussion facts

- There are existing evidence based active treatments, like vision therapy, vestibular therapy, exertion therapy, and medications.[3]

- Long term effects from concussion are typically due to poorly managed injuries.

- No definitive conclusions can be made because studies on long term effects of concussion are ongoing.

Concussion Myths

- An athlete can safely return to playing after suffering concussion-related symptoms
- ***All concussions,treatments,and recoveries are the same for everyone***
- Lie in a dark room, avoid phones,TV etc
- Once you have one concussion,you are at higher risk for future concussions
- You can prevent a concussion with helmets & mouthguards[2] [4] [7]

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- Dr Enda Devitt-Galway, Dr Tadhg Crowley-Kilkenny, Dr Sean Moffatt-Mayo, Dr Niamh Lynch-Cork, Expanding further
- GAA Approved Network
- Baseline & Post-Injury Neurocognitive Testing
- Comprehensive Individualized Approach to Concussion Management & Rehab

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Baseline Testing

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TAKE HOME MESSAGE

- DON'T FORGET RETURN TO SCHOOL/LIFE PRIORITY!
- IF IN DOUBT SIT THEM OUT!!!
- CLUB WELFARE OFFICER DEVELOP POLICY ON CONCUSSION
- NO 2 CONCUSSIONS ARE THE SAME
- REMEMBER SYMPTOMS CAN BE DELAYED
- RED FLAGS
- DOCTOR WITH EXPERIENCE IN CONCUSSION CLEARANCE & MANAGEMENT
- GRTP
- START TO THINK OF CONCUSSION AS A TREATABLE CONDITION/REHAB
- UPMC NETWORK -ConcussionIreland@UPMC.edu , 051-359757
- https://learning.gaa.ie/Concussion

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Thank You

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Patient Testimonial

"We were very frustrated and seemed to be getting nowhere until we heard of your clinic. Right away there was huge relief for us that someone understood the situation , was able to assess the type and severity of the problem, and had a clear path to recovery."

OM County Clare

Camogie Player 17yr Female

- REFERRAL FROM GP IN NEIGHBOURING COUNTY

- INITIAL INJURY JANUARY 2018 - BLOW TO LEFT SIDE HEAD WITH HANDLE HURL
- DISTRACTING INJURY LACERATION EAR GLUED IN A&E- NO OTHER ADVICE
- HEADACHES ++, PHOTOPHOBIA, PHONOPHOBIA,DIZZINESS
- MISSED SEVERAL DAYS SCHOOL
- GRADUAL IMPROVEMENT - FURTHER HX REVEALED NEVER REALLY RECOVERED FULLY - CONTINUED PLAYING BUT HEADACHES

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Camogie player 17yr Female

- MAY 2018 - JUMPING FOR BALL, LEGS TAKEN, ONTO R SHOULDER & HEAD
- IMMEDIATE SX VISION GOES BLACK THEN WHITE AND ONSET SEVERE HEADACHE
- BROUGHT A&E- FOCUSED ON SHOULDER INJURY AND DISCHARGED
- PERSISTENT HEADACHE SINCE 2-4/10 AGGRAVATED BY EXERCISE TO 7-8/10
- GP - MRI JULY 2018 - OLD FOCAL CEREBRAL HAEMORRHAGE LEFT FRONTAL LOBE 6/12 OLD RECOMMENDED NEUROLOGY FOLLOW UP
- PRIVATE NEUROLOGY APPOINTMENT - WILL DISCUSS AT CASE DISCUSSIONS
- NO FEEDBACK

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Camogie Player 17yr Female

- PHONOPHOBIA, INTERMITTENT DIZZINESS AND VISUAL DISTURBANCE WITH DIFFICULTY FOCUSING
- AS DAY PROGRESSES- CONCENTRATION DIFFICULTY AT SCHOOL AND HEADACHES WORSENING
- RUNNING ON TO PITCH AS WATER CARRIER AND PROVOKED HEADACHE & VOMITING
- NO SPORT OR EXERCISE
- REFER THROUGH UPMC CONCUSSION NETWORK - SEEN SEPT 13TH 2018

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VOMS

- NPCONVERGENCE 7CM WITH MILD LEFT SIDED SPASM- HEADACHE 4/10
- HEADACHE- 4/10 WITH VOR & VMS
- DIZZINESS- 4-5/10 WITH VOR(HORIZONTAL WORSE) , VMS 6/10
- OF NOTE BESS NORMAL

ImPACT®Clinical Report

[redacted]

Exam Type	Post-Injury 1	Post-Injury 2			
Date Tested	09/13/2018	11/08/2018			
Last Concussion					
Exam Language	English	English			
Test Version	3.4.0	3.6.0			

Composite Scores	Percentile scores if available are listed in small type.				
Memory composite (verbal)	87 49%	82 35%			
Memory composite (visual)	60 19%	81 73%			
Visual motor speed composite	33.25 18%	38.78 43%			
Reaction time composite	0.78 2%	0.59 34%			
Impulse control composite	2	4			
Total Symptom Score	24	2			
Cognitive Efficiency Index *	**0.30**	**0.48**			

UPMC LIFE CHANGING MEDICINE

DIAGNOSIS & MANAGEMENT

- VESTIBULAR OCULAR WITH MIGRAINOUS & COGNITIVE/FATIGUE FEATURES
- REFERRED CONCUSSION NETWORK REHAB SPECIALIST
- VESTIBULAR EXERCISES, OCULAR DIVERGENCE & VOR EXERCISES
- BROCK STRING AND VMS TURNS
- EDUCATED ON NEED TO DO THESE DAILY
- START GENTLE EXERCISES STRAIGHT AWAY
- EXPOSE/RECOVER - NB
- EXERTION TEST
- REPEAT VISITS- GRADUALLY INCREASING EXERTION WITH INDIVIDUALIZED PLAN AND ADVICE
- 3 VISITS TOTAL

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DIAGNOSIS & MANAGEMENT

- FOLLOW UP PHYSICIAN VISIT 8/52 LATER
- VOMS NEGATIVE
- RE-SIT ImPACT
- SMILING
- SCHOOL FINE
- NON CONTACT TRAINING DYNAMIC MOVEMENT WITHOUT DIFFICULTY
- EXIT TEST NEXT WEEK

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On-field Cognitive Testing

Orientation

Ask the athlete the following questions:

- What stadium is this?
- What city is this?
- Who is the opposing team?
- What month is it?
- What day is it?

Anterograde amnesia

Ask the athlete to repeat the following words:

Girl, dog, green

Retrograde amnesia

Ask the athlete the following questions:

- What happened in the prior quarter/period?
- What do you remember just prior to the hit?
- What was the score of the game prior to the hit?
- Do you remember the hit?

Concentration

Ask the athlete to do the following:

- Repeat the days of the week backward (starting with today).
- Repeat these numbers backward:

  63 (36 is correct)
  419 (914 is correct)

Word list memory

Ask the athlete to repeat the three words from earlier:

Girl, dog, green

Any failure should be considered abnormal.

Consult a physician following a suspected concussion.

Player Example

Exam Type	Baseline	Post-Injury 1	Post-Injury 2	Post-Injury 3	Post-Injury 4
Date Tested	01/23/2017	07/11/2017	07/14/2017	07/17/2017	07/23/2017
Last Concussion	08/26/2015				
Exam Language	English	English	English	English	English
Test Version	2.1	3.2.2	3.2.2	3.2.3	3.2.3

Composite Scores	Percentile scores if available are listed in small type.				
Memory composite (verbal)	82 39%	**63** 2%	78 25%	77 25%	98 94%
Memory composite (visual)	74 44%	**51** <1%	64 20%	67 26%	65 23%
Visual motor speed composite	42.78 60%	**26.83** 1%	**29.85** 4%	**34.77** 22%	42.00 58%
Reaction time composite	0.59 33%	**0.85** 1%	**0.68** 10%	**0.70** 7%	0.58 37%
Impulse control composite	3	4	2	3	2
Total Symptom Score	3	**35**	**19**	1	0
Cognitive Efficiency Index *	0.27	0.17	0.29	0.28	0.43

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In the event players have:

> prolonged symptoms (greater than 4 weeks for under-18s OR greater than 10-14 days for adult players)

OR

> suffered multiple concussions previously

OR

>are experiencing educational/learning difficulties post concussion

players should be referred to an appropriate specialist or multidisciplinary clinic. If the injury occured during a GAA training or practice match, and the other terms of the GAA Injury Benefit fund are met, costs for such consulatations other than related physiotherapy treatment, can be claimed via the Injury Benefit Fun.

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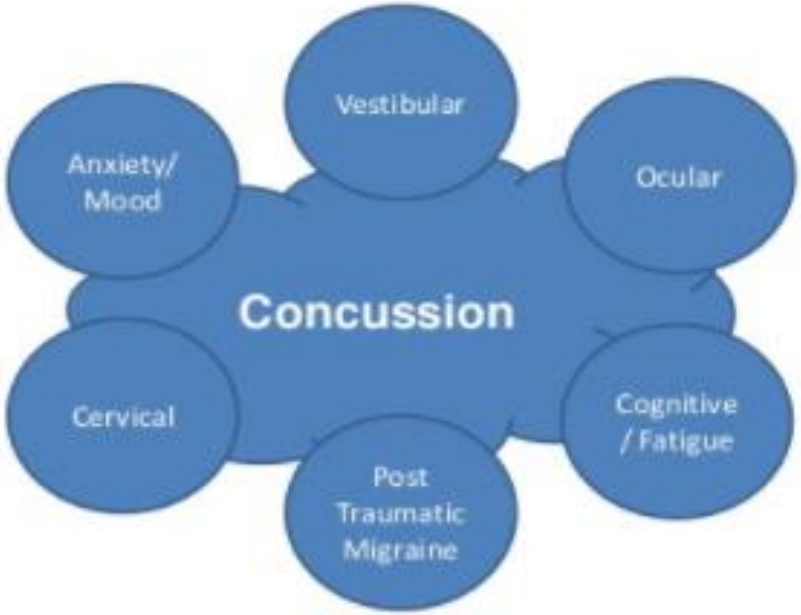
Breakdown of Concussion Types



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Launch of UPMC Nationwide Concussion Network

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