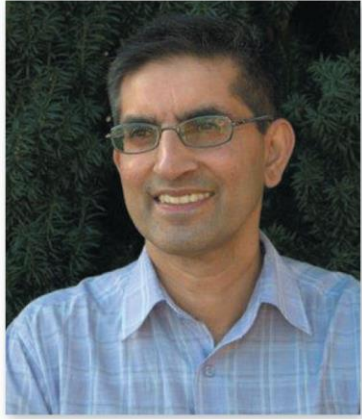




Dr Michael Kahan

Occupational Specialist
Waikato Occupational
Services, Hamilton



Dr Chris Milne

Sports Physician
Anglesea Clinic
Hamilton

Friday, June 9, 2017

(Room 11)

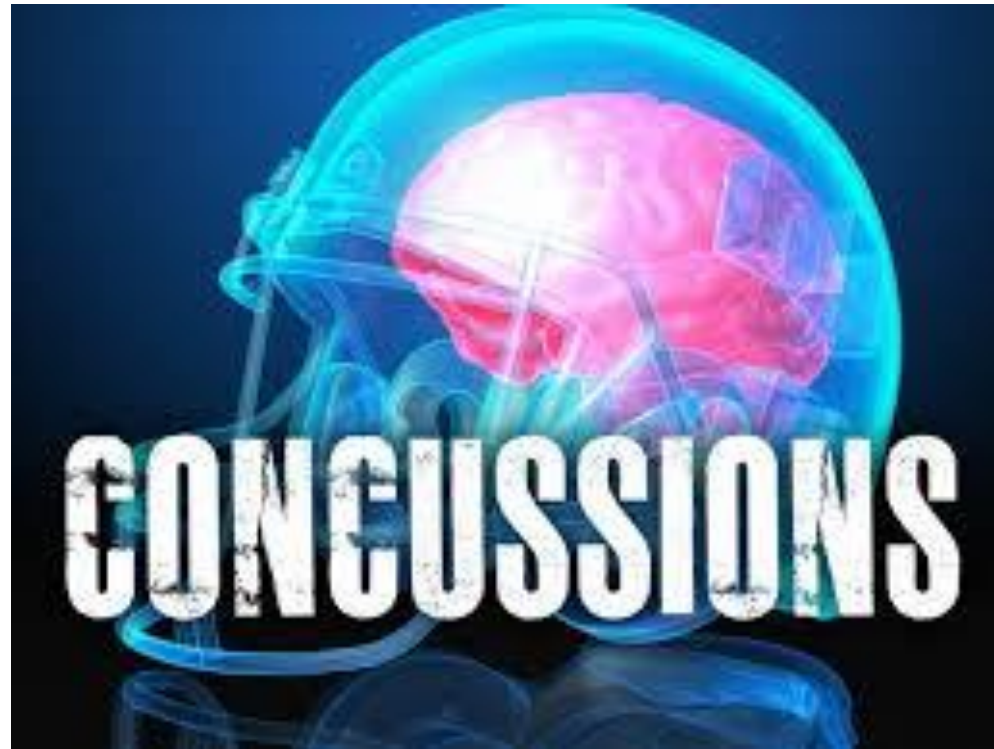
16:30 - 17:25 WS#71: Concussion - Clinical Considerations, Cares and Controversies
17:35 - 18:30 WS#83: Concussion - Clinical Considerations, Cares and Controversies
(Repeated)

Concussion update 2017

Dr Chris Milne
Sports and Exercise Physician
Hamilton NZ

Topics to be covered

- ▶ 2016 Berlin Consensus Statement
- ▶ NZ Rugby– Blue Card initiative



Concussion Consensus Statements– background

- ▶ Pre 2000–Lack of consistency in concussion diagnosis and management
- ▶ Post 2000–collaboration between experts from many countries, codes, organisations

2001–Vienna

2004–Prague

2008–Zurich

2012–Zurich

2016–Berlin

Result–progressive refinement of guidelines



This iteration– Berlin 2016

- ▶ Expert panel– 30 members
- ▶ Consensus questions developed
- ▶ Review of 60 000 articles– screened to provide evidence for best answer to these questions



What's new?

- ▶ Definition– Traumatic Brain Injury induced by biomechanical forces
 - ▶ Symptoms/signs reflect a functional disturbance rather than structural injury [imaging normal]
 - ▶ Symptoms/signs cannot be explained by other cause
 - 1–drugs/alcohol/medication
 - 2–other injury
 - 3–other medical condition eg peripheral vestibular dysfunction
- 

Helmet based systems to measure impact forces

- ▶ Do not reflect injury to the brain itself
- ▶ Capture only direct trauma, not transmitted forces

Concussions can be caused by a direct blow to the

- Head
- Face
- Neck

But direct impact to the head is NOT REQUIRED.

Less than 10% of concussive injuries result in a loss of consciousness.

You do not need to be "knocked-out" to get a concussion.



Sideline evaluation

- ▶ SCAT 5 immediately post injury can differentiate the concussed from the non concussed athlete
- ▶ If in doubt– pull them out
- ▶ NO same day return to play

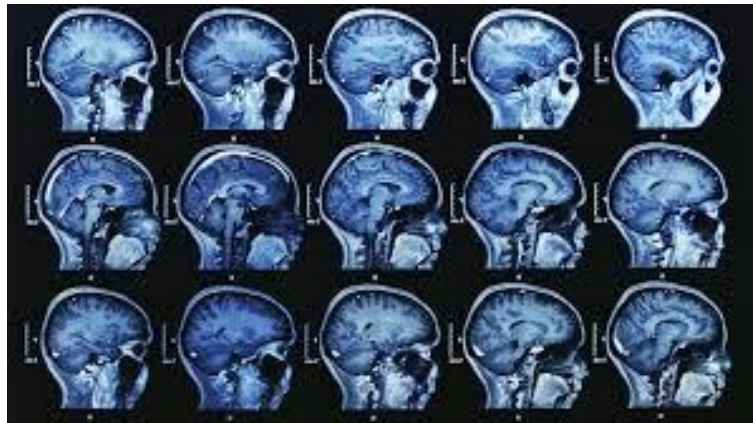


Re-evaluation– medical assessment

- ▶ History–SCAT symptoms
 - cognitive
 - sleep/wake symptoms
- ▶ Examination–cognition
 - ocular function
 - vestibular function
 - gait/balance

Neuropsychological/ Imaging

- ▶ Neuropsychological– in selected cases only
- ▶ Imaging– rarely required
 - 1–C spine x-ray inc flex/extension views if history suggests segmental instability
 - 2–CT/MRI scan only if severe head injury is likely



Rest

- ▶ First 24–48 hrs
- ▶ After that– progressive activity guided by symptoms



Recovery

- ▶ Natural history
- ▶ Simple concussion
 - Adults– 10–14 days
 - Children– within 4 weeks
- ▶ Strongest predictor of slow recovery is the severity of symptoms in the first few days



Return to sport

- ▶ After 48 hrs– stepwise increase in symptom limited activity
 - ▶ Gentle aerobic
 - ▶ Higher level aerobic
 - ▶ Skill based
 - ▶ Contact/collision
 - ▶ Team training– global assessment of function
 - ▶ Medical clearance
 - ▶ Return to play
- 

Specific subgroups– children/adolescents

- ▶ Limited data on children under age 13
- ▶ Teenage years may be most vulnerable age for developing persistent symptoms
- ▶ Return to school
- ▶ Progressive return to sport
- ▶ Pre-existing ADHD may complicate symptom analysis



Specific subgroups– professional athletes

- ▶ Often additional pressures, as it is their work
- ▶ Get a specialist assessment if outside your comfort zone



Residual effects of concussion

- ▶ Inconsistent literature on these
- ▶ Cognitive impairment
- ▶ Depression
- ▶ CTE– Chronic Traumatic Encephalopathy– a distinct tauopathy. Distinct cause and effect relationship with preceding concussion yet to be demonstrated

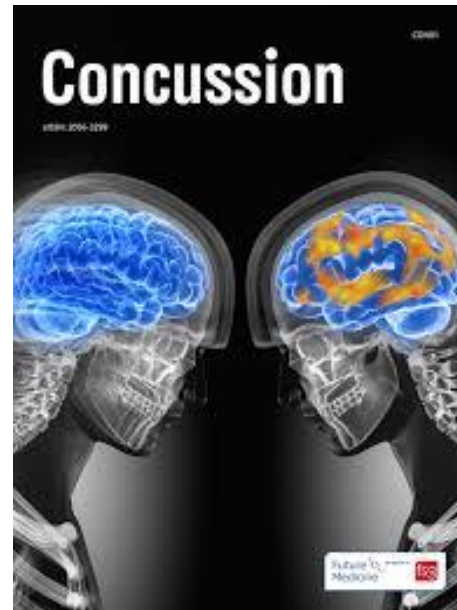


Prevention

- ▶ Headgear/helmets– useful in skiing and snowboarding
 - ▶ Mouth guards– prevent dental injury, not concussion
 - ▶ Rule changes– body checking in youth ice hockey
 - ▶ Limited contact/collision in very young players eg ripper rugby
- 

Summary of consensus statements

- ▶ Work in evolution
- ▶ Nothing's perfect, but it is the best evidence we have to guide treatment
- ▶ Beware vested interests



Blue Card in NZ rugby

- ▶ Background
 - ▶ Response to growing concern re concussion
 - ▶ Referee is in control of the game and has no vested interest in the result [unlike the coach]
 - ▶ If the referee misses a concussion, the coach retains the power to remove that player from the field
- 

Blue Card timeline

- ▶ 2014– first trialled in Northland– 17 players Blue Carded
- ▶ 2017–extended to all Mitre 10 provincial unions
- ▶ 2017–Auckland expands criteria to include schoolboy rugby



Process

- ▶ Training of referees to recognise symptoms of concussion
- ▶ First year referees not eligible for training
- ▶ Player is identified, issued a Blue Card and must leave the field
- ▶ Data lodged with NZRU to monitor return to play



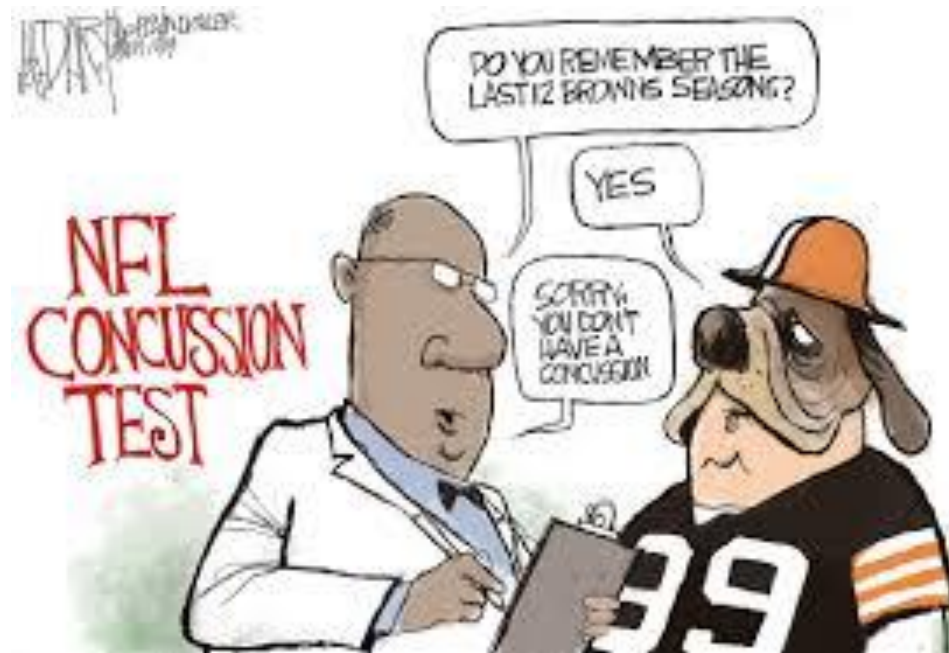
Process– continued

- ▶ Rest until symptoms resolve
- ▶ Complete mandatory stand down period
21 days for adults
23 days for Under 19 age group players
- ▶ Undertake Graduated Return To Play protocol
- ▶ Obtain medical clearance to play



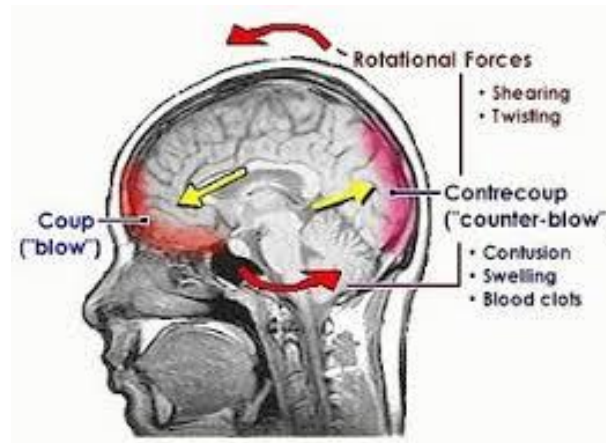
Appeals

- ▶ If players wish to contest the Blue Card, they must be assessed by an independent doctor with concussion expertise appointed by NZ Rugby



Procedure for GPs

- ▶ Use the SCAT 3 [now SCAT 5] system
- ▶ Symptoms
- ▶ Signs
- ▶ Conclusion– fit/unfit
- ▶ Sign off accordingly



Issues for GPs

- ▶ Time
- ▶ Philosophy– some GPs will resent doing these
- ▶ Options– need to refer to another GP who has the time/interest [as for ToP cases]
- ▶ Or– refer to a Sports Physician– who will have the time to evaluate these cases



Conclusion

- ▶ Nothing's perfect, but this is a worthwhile initiative by NZ rugby

