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The Concussion Recognition Tool

Part One

Basic Information
for participants, coaches, instructors and parents
on concussions and mild traumatic brain injuries



Presenter Disclosure

- ▶ **Speaker Name:** Dr. Terry DeFreitas
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- ▶ **Other:** Shoulder Topic Expert Group: Alberta Bone and Joint

Objectives: PART ONE

- ▶ Define concussion, mild traumatic brain injury (mTBI)
- ▶ List RED FLAGS that require immediate medical doctor assessment of the injured person
- ▶ List Observable signs of concussions
- ▶ List symptoms associated with concussions after an injury to the head or neck





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How many of us has had a concussion?

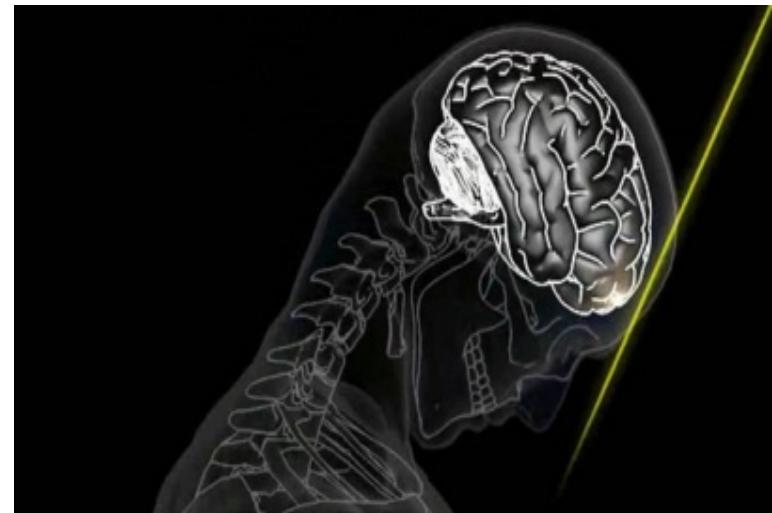
Some of us have been diagnosed with a concussion by a medical provider BUT many have not...

Who has had a hit to the head and suffered?

- ▶ A headache?
- ▶ Nausea?
- ▶ Fatigue?
- ▶ Feeling in 'a fog'?

Immediately or in hours or days after the injury

... you may have had a concussion!





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Concussion or "Mild Traumatic Brain Injury" What exactly is it?

The following slides are direct quotes of the definition of Sport related Concussion from the:

"Consensus statement on concussion in sport – the 5th international conference on concussion in sport held in Berlin, October 2016"

Sport related concussion (SRC) is a traumatic brain injury induced by biomechanical forces.

Several common features that may be utilized in clinically defining the nature of a concussive head injury include:

- ▶ *A direct blow to the head, face, neck, or elsewhere on the body with an impulsive force transmitted to the head*



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Sport related concussion (SRC) is a traumatic brain injury induced by biomechanical forces.

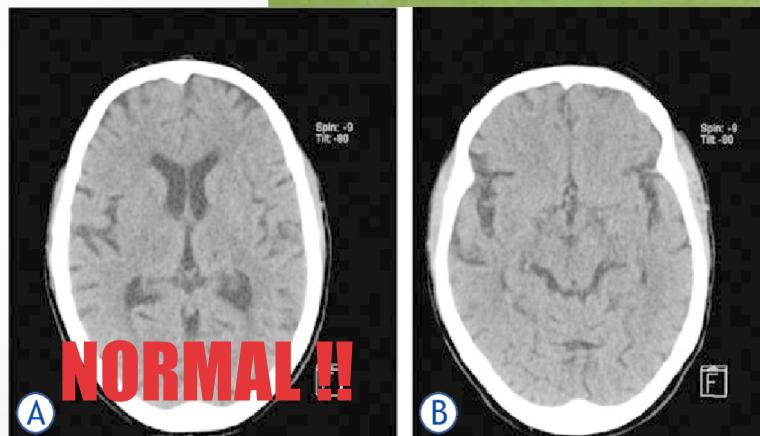
Several common features that may be utilized in clinically defining the nature of a concussive head injury include:

- ▶ *SRC typically results in the rapid onset of short-lived impairment of neurological function that resolves spontaneously. However, in some cases, signs and symptoms evolve over a number of minutes to hours.*



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- ▶ *SRC may result in neuropathological changes, but the acute clinical signs and symptoms largely reflect a functional disturbance rather than a structural injury and, as such, no abnormality is seen on standard structural neuroimaging studies.*
- ▶ *In a concussion, a CT Scan of the brain is normal (2020)*



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Resolution of the clinical and cognitive features typically follows a sequential course. However, in some cases symptoms may be prolonged.



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- ▶ The definition of concussion has become more detailed over the years, and some experts prefer the term “MILD TRAUMATIC BRAIN INJURY” or MTBI

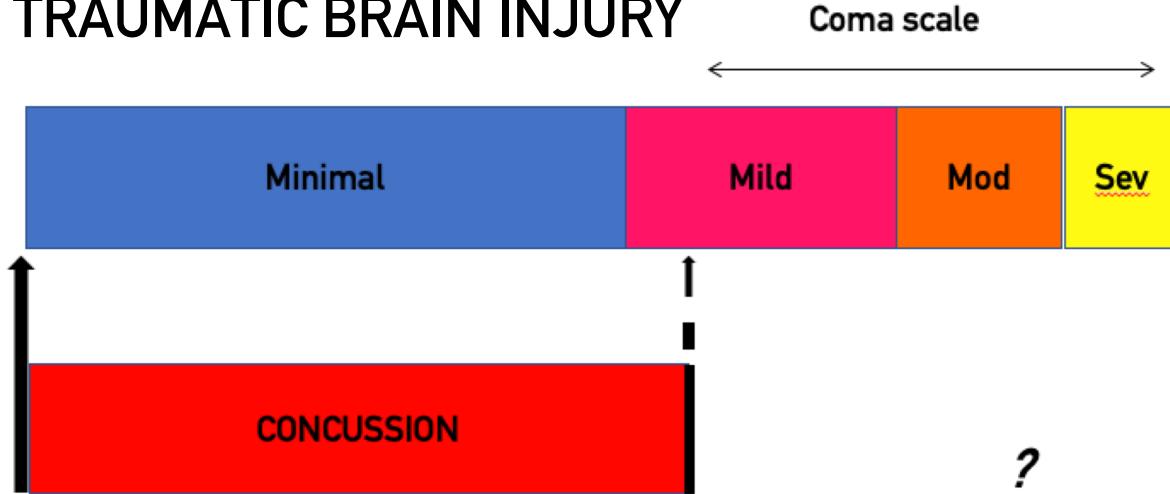
- ▶ MILD TRAUMATIC BRAIN INJURY better describes the condition, and the signs and symptoms which occur after a trauma to the head or neck but do resolve





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TRAUMATIC BRAIN INJURY



debatable where concussion falls along the scale of TBI

KEY POINTS

- ▶ After a blow to the head or neck either from impact or a fall in concussion, there is a **FUNCTIONAL IMPAIRMENT IN THE BRAIN**
- ▶ This is detectable by:
 - ▶ Observable signs of concussion
AND/OR
 - ▶ Reports symptoms associated with an injury to the head or neck





What can I do as an athlete, participant, coach, instructor, and parent in taekwondo?

- ▶ Be able to recognize the **signs** and **symptoms** of **head injury** in yourself and others
- ▶ Be able to use the “concussion recognition tool”
- ▶ Talk about the principle “**when in doubt, sit them out**” for head injuries at your dojang and your competition team
- ▶ Remember a participant with a concussion may appear perfectly fine, unlike an ankle or knee injury where there is often visible swelling and bruising
- ▶ In concussions, we must rely on reported symptoms and observed signs



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First, let's make sure we recognize concussions using the Concussion Recognition Tool 5

CONCUSSION RECOGNITION TOOL 5®

Pour aider à détecter une commotion cérébrale chez l'enfant, l'adolescent et l'adulte.



FIFA



FEI

IDENTIFIER ET RETIRER DU JEU

Les impacts au niveau du crâne peuvent être associés à des lésions cérébrales graves et potentiellement fatales. Le Concussion Recognition Tool 5 (CRT5 ou Outil d'identification d'une commotion cérébrale) sert à identifier une possible commotion cérébrale. Il n'est pas conçu pour diagnostiquer une commotion cérébrale.

ÉTAPE 1: SIGNAUX D'ALERTE – APPElez UNE AMBULANCE

Si des éléments inquiétants sont présents à la suite d'une blessure, dont n'importe lequel des signes suivants observés ou rapportés, le joueur doit être immédiatement retiré, en toute sécurité, du match/du jeu/ de l'activité. Si aucun professionnel de santé qualifié n'est disponible, appelez une ambulance pour une évaluation médicale en urgence:

- | | | |
|--|--|---|
| • Douleur ou sensibilité dans le cou | • Maux de tête sévères ou s'intensifiant | • Détérioration de l'état de conscience |
| • Vision double | • Crise d'épilepsie ou convulsions | • Vomissements |
| • Faiblesse ou picotement/ brûlure dans les bras ou les jambes | • Perte de connaissance | • Agitation ou agressivité grandissante |

Rappelez-vous:

- Dans tous les cas, les principes de premiers secours doivent être respectés (danger, réactions, voies respiratoires, respiration, circulation).
- Un examen destiné à détecter un traumatisme médiullaire est crucial.
- Ne tentez pas de déplacer le joueur (sauf dégager ses voies respiratoires), à moins que vous n'ayez été formé pour le faire.
- Ne retirez jamais un casque ou tout autre équipement, à moins que vous n'ayez été formé pour le faire en toute sécurité.

En l'absence de signaux d'alerte, l'identification d'une possible commotion cérébrale doit respecter les étapes suivantes:

ÉTAPE 2: SIGNES VISIBLES

Les signes visibles d'une possible commotion cérébrale incluent:

- Rester couché immobile sur le terrain
- Lenteur à se relever après un coup direct ou indirect à la tête
- Regard inexpressif ou vide
- Déorientation ou confusion, ou encore incapacité à répondre correctement à des questions
- Blessure faciale après un traumatisme crânien
- Troubles de l'équilibre, démarche inégale, mauvaise coordination motrice, trébuchements ou mouvements lents et laborieux

ÉTAPE 3: SYMPTÔMES

- | | | | |
|----------------------------|------------------------------|-----------------------------|---|
| • Céphalée | • Vertiges | • «Ne pas se sentir normal» | • Douleur dans le cou |
| • «Pression dans le crâne» | • Vision trouble | • Émotivité accrue | • Difficulté à se concentrer |
| • Troubles de l'équilibre | • Sensibilité à la lumière | • Irritabilité | • Difficulté à se souvenir des détails |
| • Nausée ou vomissement | • Sensibilité au bruit | • Tristesse | • Sensation d'être ralenti |
| • Somnolence | • Fatigue et perte d'énergie | • Nervosité ou anxiété | • Sensation d'être «dans le brouillard» |

ÉTAPE 4 : ÉVALUATION DE LA MÉMOIRE

(CHEZ LES ATHLÈTES DE 12 ANS OU PLUS)

L'incapacité de répondre correctement à l'une de ces questions (adaptées selon les sports) peut suggérer une commotion cérébrale:

- | | |
|---|---|
| • «Dans quel stade sommes-nous aujourd'hui?» | • «Contre quelle équipe avez-vous joué la semaine dernière/le dernier match?» |
| • «À quelle mi-temps sommes-nous?» | • «Votre équipe a-t-elle gagné le dernier match?» |
| • «Qui a marqué en dernier au cours de ce match?» | |

Tout sportif présentant une suspicion de commotion cérébrale doit:

- Ne pas être laissé seul (au moins pendant une à deux heures suivants le choc).
- Ne pas boire d'alcool.
- Ne pas prendre de médicaments ou consommer de drogues.
- Ne pas rentrer chez lui seul. Restez en compagnie d'un adulte responsable.
- Ne pas conduire un véhicule motorisé avant d'en avoir eu l'autorisation par un professionnel de santé.

Le CRT5 peut être copié sous sa forme actuelle et distribué à des personnes individuelles, des équipes, des groupes et des organisations. N'importe quelle révision ou reproduction sous forme numérique est soumise à autorisation du consensus international sur les commotions cérébrales dans le sport (CISG). Il ne doit pas être modifié de quelque manière que ce soit, être distribué sous un autre nom ou vendu à des fins commerciales.

TOUT SPORTIF PRÉSENTANT DES SUSPICIONS DE COMMOTION CÉRÉBRALE DOIT IMMÉDIATEMENT ÊTRE RETIRÉ DU JEU OU DE L'ENTRAÎNEMENT ET NE DOIT PAS REPRENDRE UNE ACTIVITÉ AVANT D'AVOIR SUBI UN EXAMEN MÉDICAL, MÊME EN CAS DE DISPARITION DES SYMPTÔMES



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The Concussion Recognition Tool has 4 easy steps to follow:

1. Identify any red flags - if these are present, call an ambulance
2. Look for **observable signs of concussions**
3. Ask the person what **symptoms** they have
4. Ask the person **memory questions**

The use of the Concussion Recognition Tool by athletes, participants, coaches, instructors and parents will help identify concussions



AT THE FIELD OF PLAY...

- ▶ **Red Flags = OBSERVABLE SIGNS** requiring further assessment by a physician (Medical Doctor)
 - ▶ Neck pain or tenderness (midline)
 - ▶ Double vision
 - ▶ Weakness or tingling in arms or legs
 - ▶ Severe or increasing headache
 - ▶ Seizure or convulsion
 - ▶ Loss of consciousness
 - ▶ Deterioration of conscious state
 - ▶ Vomiting
 - ▶ Increasing restlessness





RED FLAGS IDENTIFIED

IS THERE A QUALIFIED MEDICAL DOCTOR
PRESENT WHO CAN FURTHER ASSESS?

NO
CALL AN AMBULANCE
Do NOT ATTEMPT TO
MOVE THE INJURED
PERSON

YES: the experienced
medical doctor will further
assess
Be prepared to call the
ambulance if the M.D
decides this is necessary

KEY POINTS

- ▶ In all cases, the basic principles of First Aid apply: airway, breathing & circulation
- ▶ Assessment for spinal cord injury is critical
- ▶ Do not attempt to move the player other than in a way required for airway support unless trained to do so
- ▶ Do not remove a helmet or any other equipment unless trained to do so



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Red Flag Observable Signs?

- NO.

Step 2
Other Observable Signs



OBSERVABLE SIGNS OF CONCUSSION

- ▶ Lying motionless on the playing surface
- ▶ Disorientation or confusion, or inability to respond appropriately to questions



OBSERVABLE SIGNS OF CONCUSSION

- ▶ Balance/gait difficulties/motor incoordination
- ▶ Stumbling, slow laboured movements
- ▶ Blank or vacant look
- ▶ Facial injury after head trauma

NOTE: in taekwondo, these may be observed during an 8 count, between rounds, or after a match where a head shot was received



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Step 3: Symptoms

- ▶ Ask the injured person if they have any of the following:

HEADACHE	BLURRED VISION	MORE EMOTIONAL	DIFFICULTY CONCENTRATING
PRESSURE IN HEAD	SENSITIVITY TO LIGHT	MORE IRRITABLE	DIFFICULTY REMEMBERING
BALANCE PROBLEMS	SENSITIVITY TO NOISE	SADNESS	FEELING SLOWED DOWN
NAUSEA OR VOMITING	FATIGUE OR LOW ENERGY	NERVOUS OR ANXIOUS	FEELING LIKE IN A FOG
DROWSINESS	DON'T FEEL RIGHT	NECK PAIN	
DIZZINESS			



Step 4: Memory Assessment

- ▶ Failure to answer any of these correctly may suggest a concussion:
 - ▶ What venue are we at today? OR what competition are we at today?
 - ▶ Which round of the match is this?
 - ▶ Who scored last in this match?
 - ▶ What was your last competition? (verify with coach)
 - ▶ What was the result of your last competition? (verify with coach)



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What next?

- ▶ Any red flags requires an experienced medical doctor assessment immediately
- ▶ If no red flags but presence of signs and/or symptoms or memory loss after an injury:
 - ▶ When in doubt, sit them out!
 - ▶ Recognize!
 - ▶ Remove!
 - ▶ Arrange further assessment by a qualified medical professional experienced in the assessment of head injuries





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Athletes with suspected concussions should:

- ▶ Not be left alone initially (at least the first 1-2 hours)
- ▶ Not drink alcohol
- ▶ Not use recreational/prescription drugs
- ▶ Not be sent home by themselves
- ▶ Be with a responsible adult
- ▶ Not drive a motor vehicle until cleared to do so by a health care professional

The athlete should not return to activity until assessed medically even if the symptoms resolve



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Part 2 & 3 coming soon:

Sideline assessment with scat5, management; return to learn AND return to play
Taekwondo Medical Rules regarding concussions

Review Questions

- 1.** Can you list the red flags you need to look for after observing a head injury?
- 2.** Can you list observable signs of concussion?
- 3.** Can you list some of the symptoms that occur after head injury that are associated with concussion?
- 4.** When you recognize a concussion, what should you do next to ensure the safety of the injured person?

References

Echemendia RJ, Meeuwisse W, McCrory P, *et al*. The Concussion Recognition Tool 5th Edition (CRT5): Background and rationale, *British Journal of Sports Medicine* 2017;51:870-871

McCrory P, Meeuwisse W, Dvorak J, *et al*, Consensus statement on concussion in sport—the 5th international conference on concussion in sport held in Berlin, October 2016, *British Journal of Sports Medicine* 2017;51:838-847

Thank you to the taekwondo athlete who provided photographs of the sport.