

WELCOME

ATHLETES & PARENTS

TO CONCUSSION INFORMATION NIGHT!

Kids PHYSIO GROUP

Presented by Kids Physio Group, with content from Complete Concussion Management

COMPLETE CONCUSSION MANAGEMENT™

Goal of this presentation



1) You will learn what a concussion is and understand the dangers of these injuries
2) You will leave with some myths busted!
3) You will gain confidence in recognizing the symptoms of a concussion and knowing when to seek help
4) You will feel empowered and motivated to inform other parents and coaches of what you learned tonight
5) We will answer your lingering questions and challenge your previous thoughts about concussions

Kids Physio Group

- ★ Private practice pediatric physiotherapy clinics across Canada. Just kids, just physio!
- ★ Our mission is to provide the care needed for ALL kids to reach their maximum potential and 100% recover from injury.
- ★ #wemakephysiofun



Hi, I'm Emma!



- ★ Paediatric Physiotherapist working at Hamilton Kids Physio.
- ★ Complete Concussion Management Trained.
- ★ Loved to play (almost) all sports - especially when I was a teen!
- ★ Minor undiagnosed concussion playing soccer.
- ★ My sister had 3+ major concussions, and saw a lot of healthcare professionals to get back to sport.

Concussion Overview



- ★ Mild traumatic brain injury
- ★ Prevalence: 10-20% of athletes
  - Widely underreported - an estimated ~50% of concussions are never reported
- ★ Improper management
  - Long term brain damage
  - Severe brain injury/fatalities
- ★ There is a lot of conflicting advice out there. We work with CCMI to stay as up-to-date as possible. Our treatment evolves as the research progresses.

CCMI

- Complete Concussion Management™(CCMI) is a concussion research company that educates healthcare practitioners on cutting-edge concussion therapies and management strategies
- CCMI provides us as practitioners with the most current up to date and consistent protocols for assessment rehabilitation and recovery.
- CCM practitioners are trained to manage concussions properly and safely to ensure adequate recovery, limiting the risk of further injury and long-term brain damage.

Who can get a concussion?



- ★ The truth is, anyone can get a concussion
- ★ Involvement in contact sport will increase the risk of a concussion, but they can happen at any time
  - ○ We see many cases where injuries have occured during PE or typical playground play
- ★ Younger athletes are definitely more susceptible to getting concussions
  - ○ They are smaller and their brains are not fully developed, making them more vulnerable to injury

You don’t need a direct hit to the head to sustain a concussion!

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What is a concussion?



- ★ A neurologic injury due to acceleration/deceleration of the brain within the skull.
  - This can be initiated by a hit to the head or body!
- ★ Injury occurs to brain cells due to stretching/shearing forces
- ★ Following a significant hit or fall that results in **ANY** symptoms, *we diagnose a concussion*
- ★ Concussions include two phases
  - Excitation (lasts seconds to hours) = ELECTRICAL "STORM"
  - Spreading Depression = ENERGY DEFICIT

What does it feel like?



Headache	"Pressure in head"	Neck pain
Nausea or vomiting	Dizziness	Blurred vision
Balance problems	Sensitivity to light	Sensitivity to noise
Feeling slowed down	Feeling like "in a fog"	"Don't feel right"
Difficulty concentrating	Difficulty remembering	Fatigue or low energy
Confusion	Drowsiness	Trouble falling asleep
More emotional	Irritability	Sadness
Nervous or anxious		

*****DOES NOT NECESSARILY RESULT IN A LOSS OF CONSCIOUSNESS**

What does it feel like to have a concussion?

- ★ Every person is different!
  - Wide range of symptoms, *each injury is different*
  - Pain, memory loss, confusion, changes in senses + movement, fear
- ★ Feelings after the injury
  - **Fear** of future injury and health impact
  - **Confusion** about return to play and status of injury
  - **Loss** of sense of self and identity with injury no one can see
  - Friends + teammates: chronic headaches, sensitivity to sound and light, neck pain, etc.



When in DOUBT, sit them OUT.

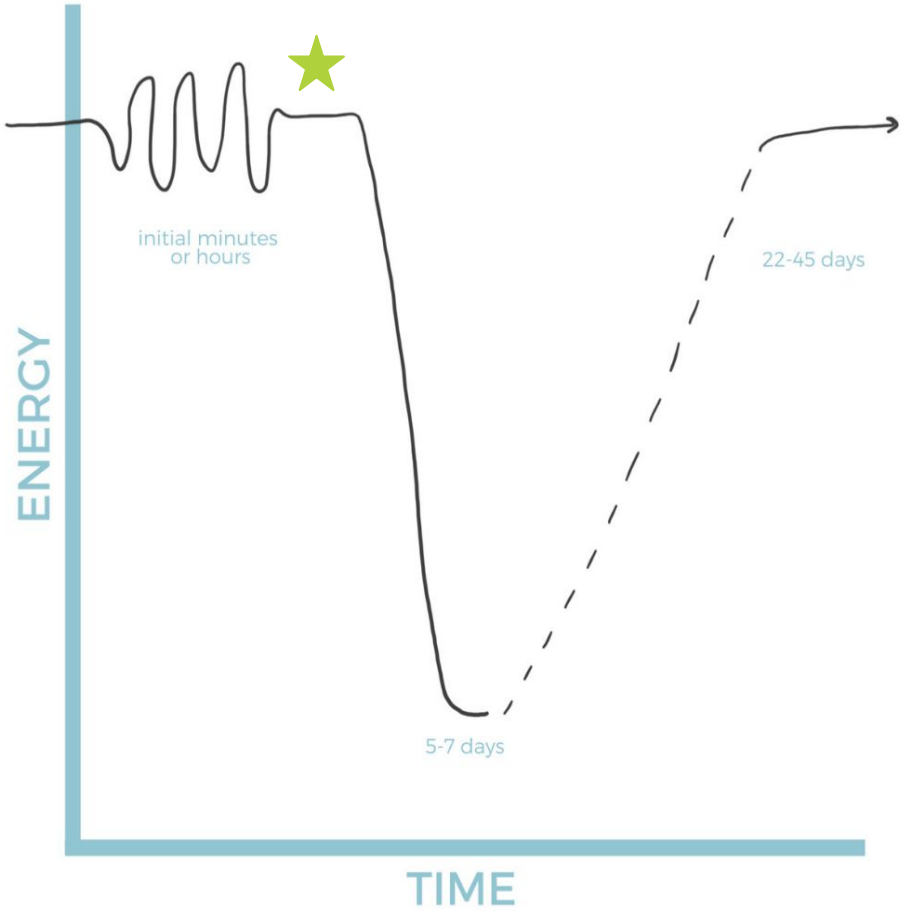
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Initial Symptoms



- The electrical storm phase occurs immediately after the injury and includes the initial symptoms
  - "Bell rung"
  - Dizziness
  - Nausea
  - Forgetfulness
  - "Out of it"
  - Seeing stars
  - Off balance
  - More!
- These symptoms often resolve within a few minutes
  - This does NOT mean the athlete has recovered
  - They should NOT return to play even if feeling better a few minutes later

Electrical Storm



What should you do if you suspect a concussion?



- ★ Sit them out.
- ★ Monitoring
  - The athlete should not be left alone for the next 2-3 hours. To ensure they are not deteriorating.
  - Handover to parent or guardian who has been informed of current state.
  - No sleep for 2-3 hours even if they are tired.
- ★ If symptoms worsen or if you are unsure, the athlete should be taken to the hospital
- ★ Overnight, no need to wake. But guidelines suggest checking every 1-2 hours for breathing. If concerned and not easily aroused. Call EMS

What should you do if you suspect a concussion?



- ★ Monitor for Red Flags - if any red flags are suspected, take athlete to emergency.
- ★ If no red flags, make an appointment to see a therapist certified in managing concussions

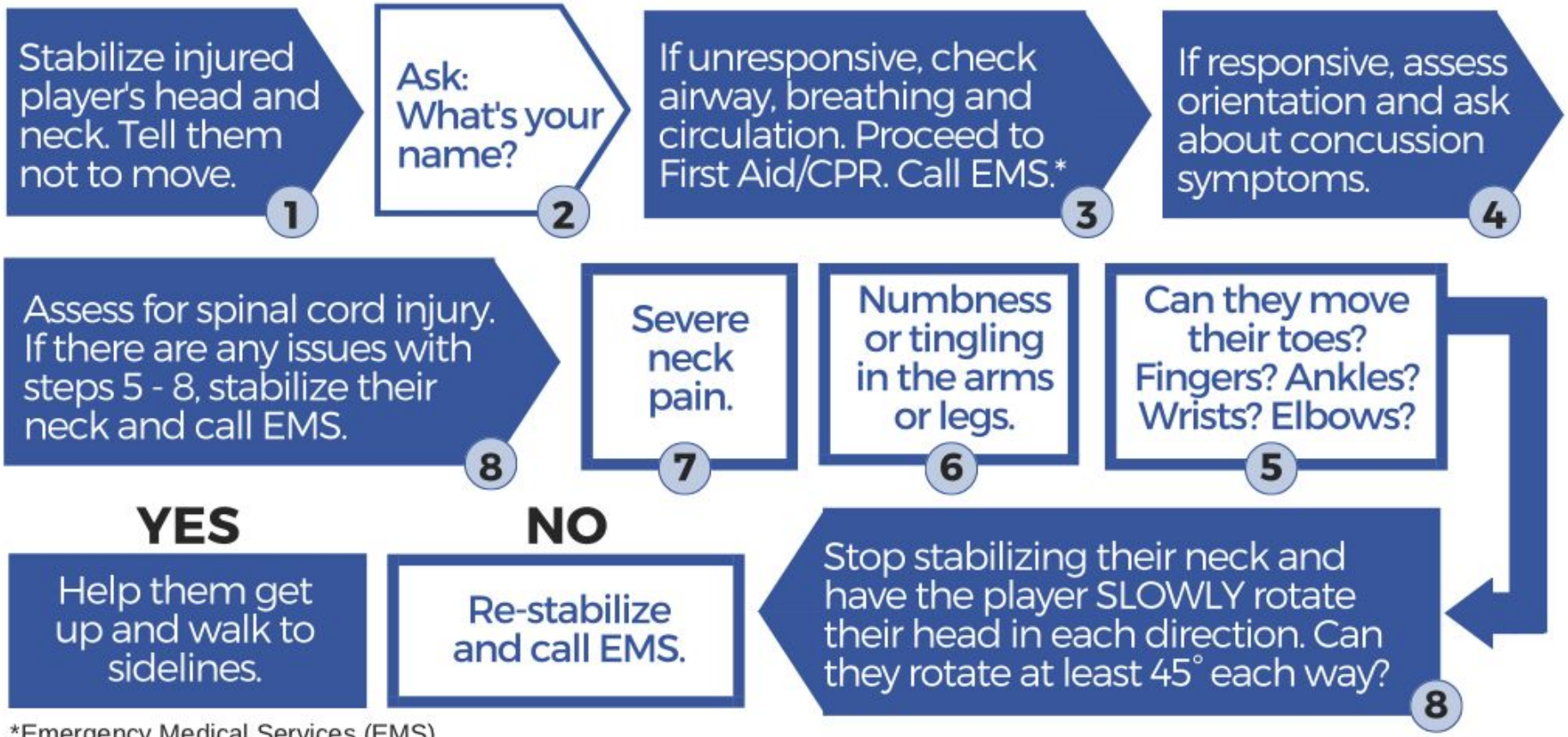
- ★ CCMI Online sideline course.
  - Flow chart for assessing the injured player.
  - Wallet card with symptoms and red flags.

Red Flags



Repeating the same questions. (What happened? Where are we? Why are we here?)	Inability to remember more than 30 minutes before OR after injury	Severe or worsening headache
Severe drowsiness or can't be awakened	Weakness or numbness in the arms or legs	Vomiting
Seizures	Unsteadiness on feet or slurring of speech	Unusual behaviour (agitated, aggressive)
Decreasing consciousness	Fluid leaking from ears	Two black eyes
Bruising behind the ears	Neck pain or tenderness	Increasing confusion

*****IF IN ANY DOUBT, THE ATHLETE SHOULD BE TAKEN TO THE HOSPITAL**



*Emergency Medical Services (EMS)

ON-FIELD MANAGEMENT

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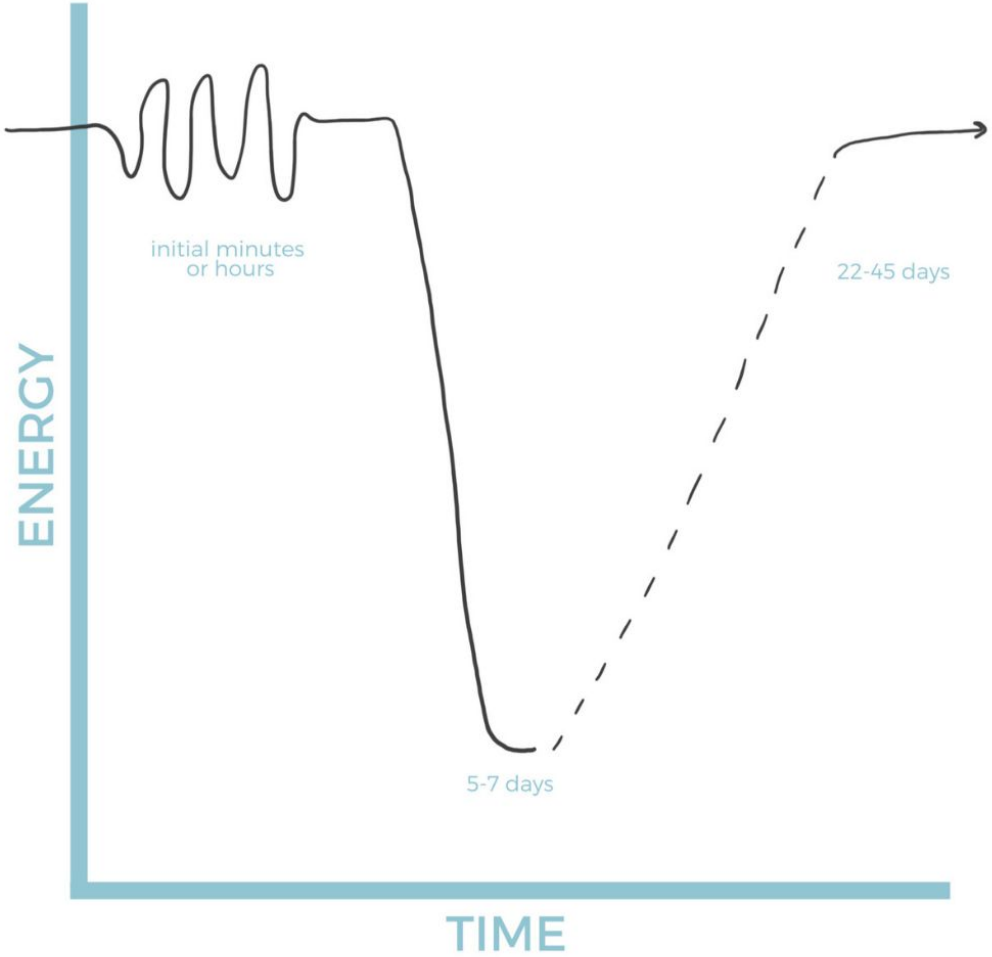
Resolution of symptoms does NOT equal recovery

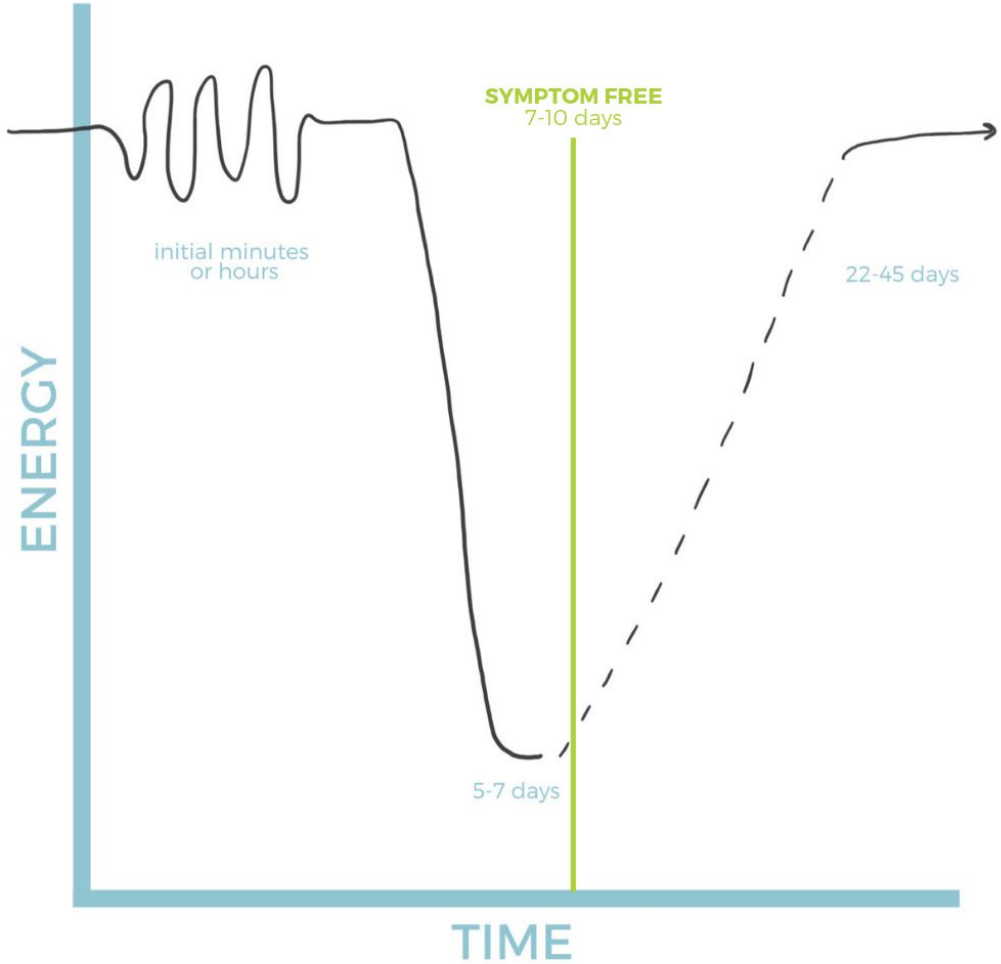
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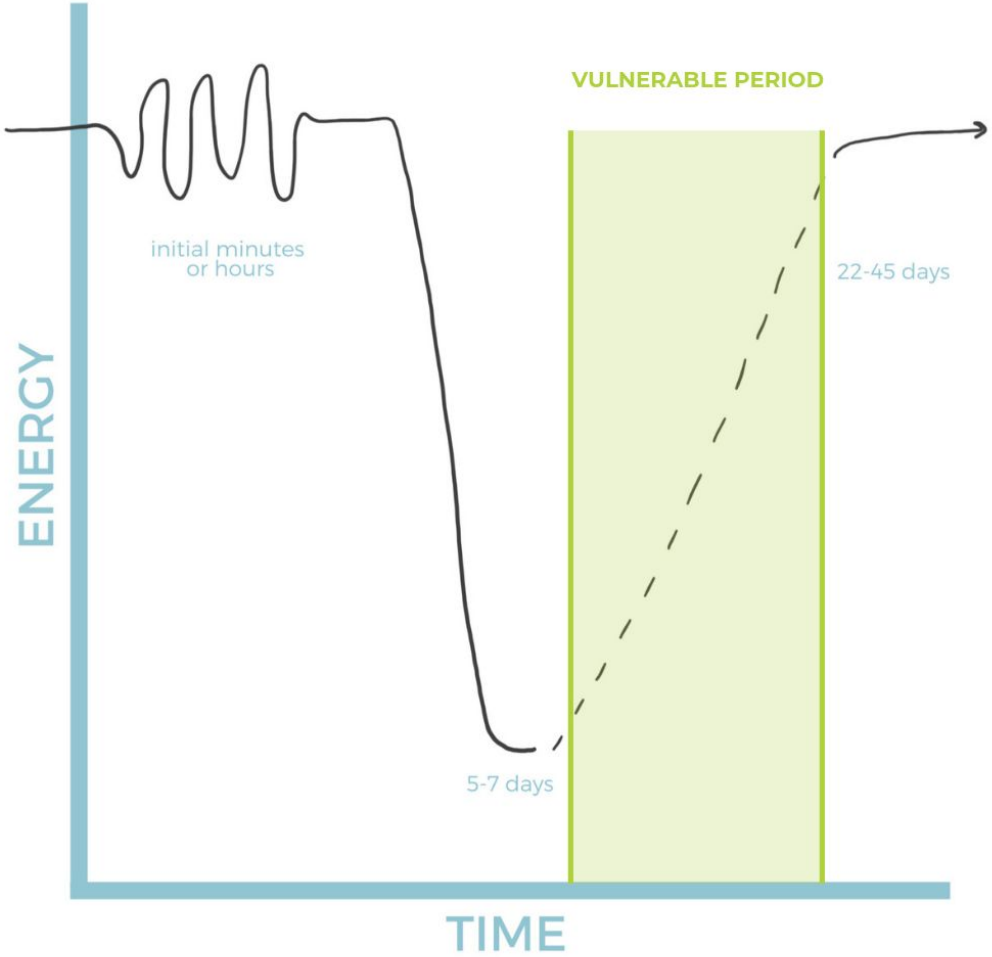
Feeling Better vs Being Better



- ★ Over the hours to days following a concussion, symptoms generally continue to worsen
  - After sustaining a concussion, the brain's energy stores gradually decline over the first 5-7 days
- ★ By approximately day 7-10, symptoms will typically dramatically improve
  - HOWEVER, the energy deficit continues to exist and the brain continues to be in a vulnerable state for approximately 22-45 days
- ★ With our assessment tools we still see deficits in visual, balance and vestibular testing even when day to day there are no symptoms.


initial minutes
or hours
22-45 days
5-7 days
ENERGY
TIME

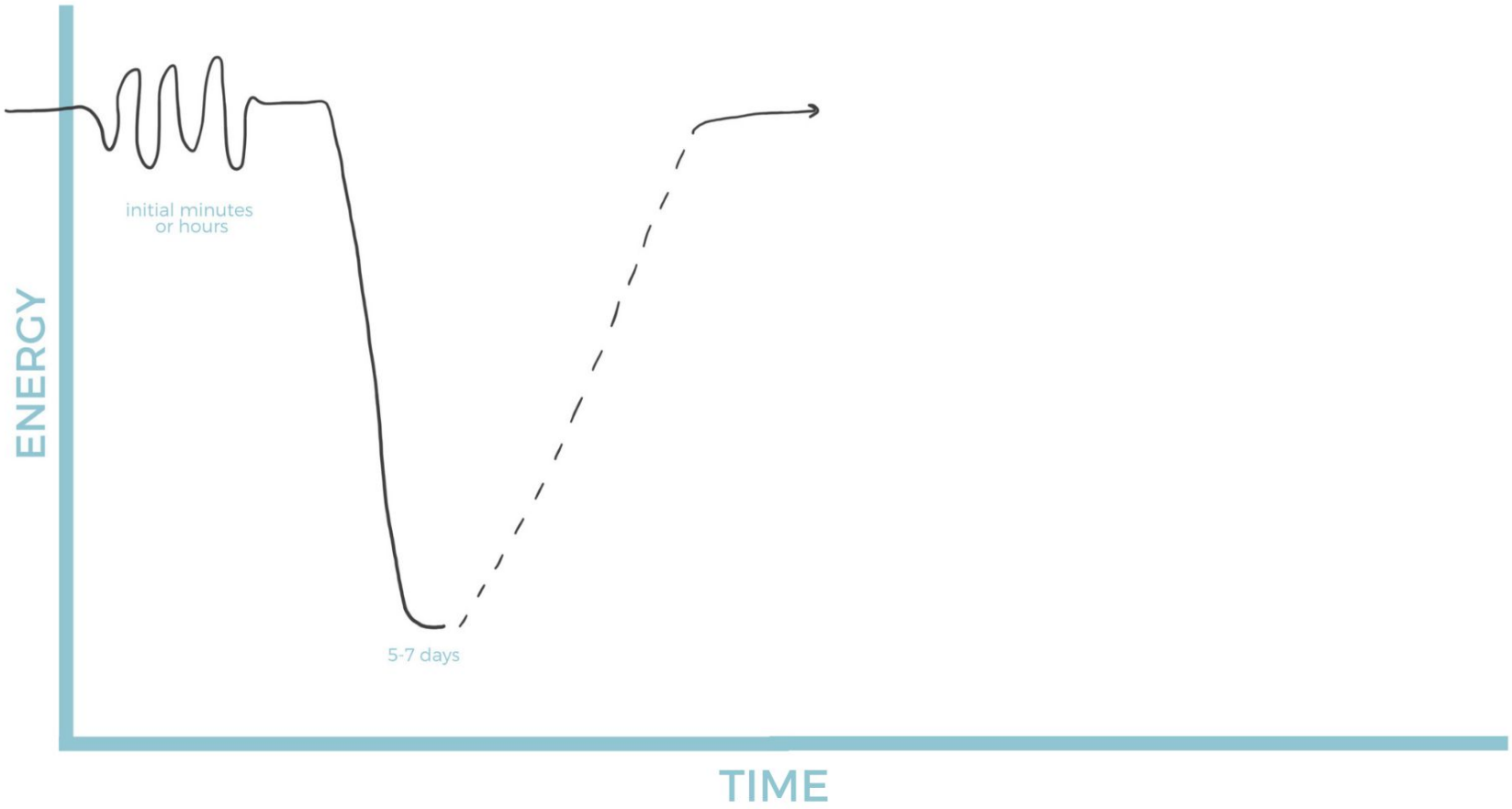

SYMPTOM FREE
7-10 days
initial minutes
or hours
22-45 days
5-7 days
ENERGY
TIME

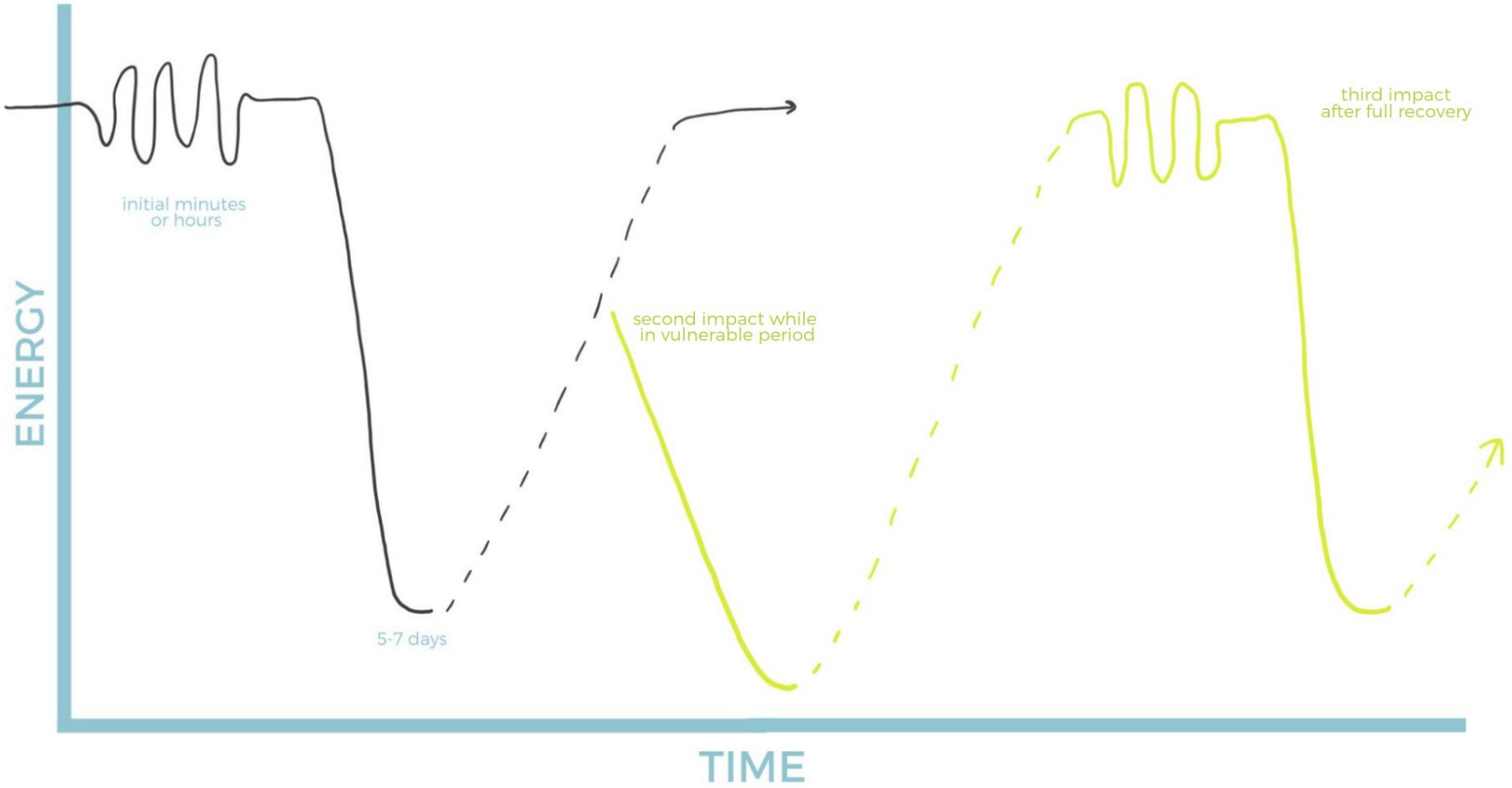

VULNERABLE PERIOD
initial minutes
or hours
22-45 days
ENERGY
5-7 days
TIME

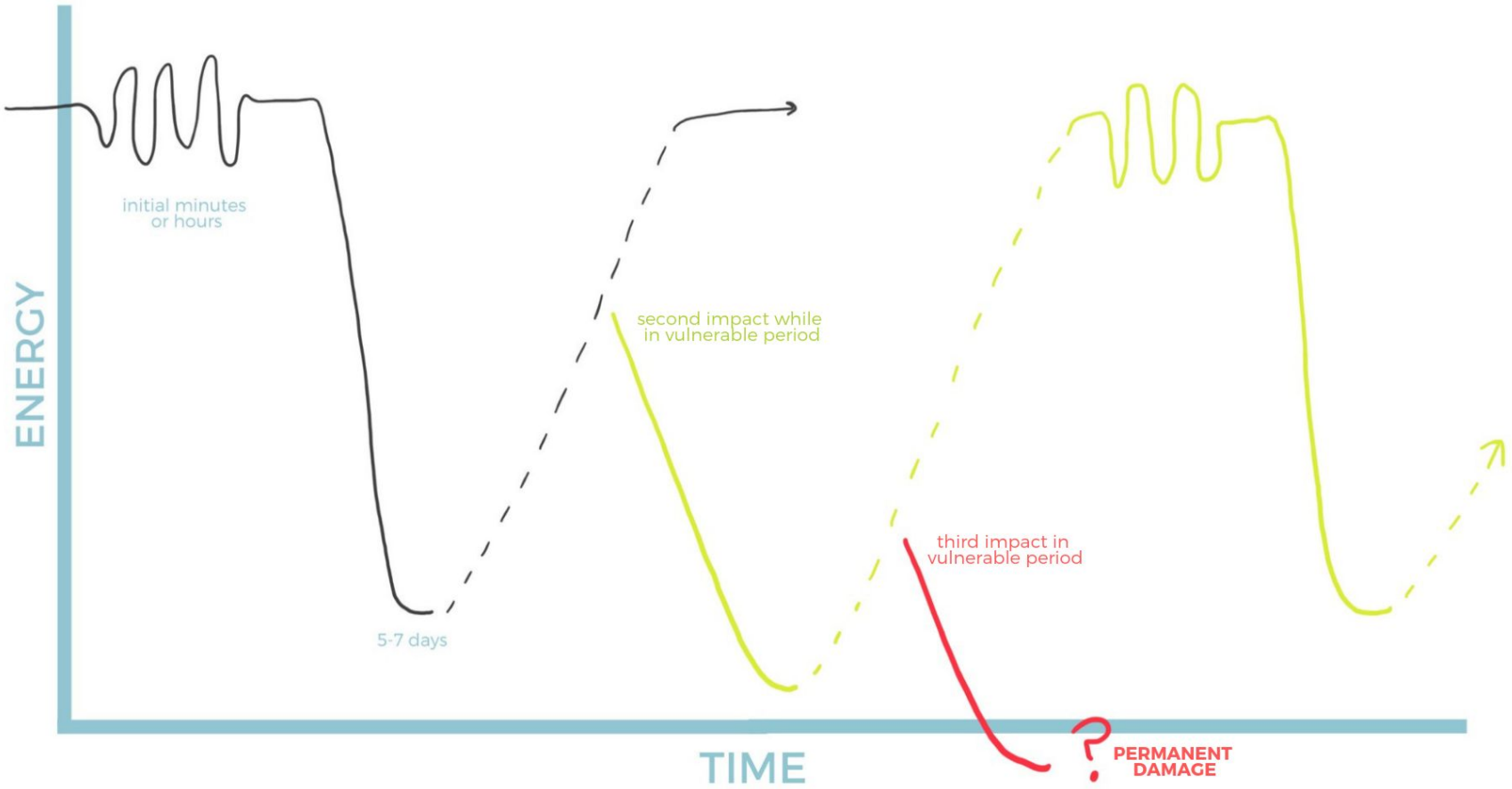
Second Impact Syndrome



- ★ The major issue with concussion is sustaining a second hit while the brain is still in an energy deficit
  - Causes the brain to go into FURTHER deficit
  - Second Impact Syndrome can be fatal or lead to severe disability
- ★ Concussion management is about helping the athlete feel better, but more importantly ensuring they are not at risk of second impact syndrome
  - Athletes should not return to play until it has been cleared that their brain has **FULLY** recovered


initial minutes
or hours
5-7 days
ENERGY
TIME


initial minutes
or hours
5-7 days
second impact while
in vulnerable period
third impact
after full recovery
ENERGY
TIME


ENERGY
initial minutes
or hours
5-7 days
second impact while
in vulnerable period
third impact in
vulnerable period
?
PERMANENT
DAMAGE
TIME

Management of Concussion

- ★ At KPG, our concussion certified therapists help children manage their specific concussion symptoms
  - Visual rehab
  - Balance practice
  - Vestibular rehab
  - Gradual increase in physical activity
  - Whiplash and neck involvement
  - And more!
- ★ We also follow the CCMI protocol for gradual return to learning and school



Rest is NOT best!

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Management of Concussion

Return to Learn / Work / Play



Each stage must be separated by at least **24 hours**.
If symptoms occur at any one stage, athlete **must return to previous stage**.

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Management of Concussion

CCMI *REVISED* Return to Learn/Work/Sport Protocols

Stage	Return to Learn/Work	Stage	Return to Sport/Activity
1.	**Symptom-limited Cognitive activity** (eg., light reading, TV, etc – provided no increase in symptoms) - also encourage plenty of rest - "take it easy for a day or two – but don't just lie in bed all day" – 2-3 days MAX	1.	**Symptom-limited physical activity** (eg., encourage light daily walks, and household chores that do not provoke symptoms to a significant degree or place you at risk for hitting your head)
2.	**Light Cognitive Activity** (increase cognitive load) – encourage homework and working from home – emails, phone calls, assignments, etc.) – once able to tolerate 45 mins-1hr with minimal increase in symptoms, move on to stage 3	2.	**Light Physical Activity – Buffalo Concussion Treadmill Test (BCTT)** - if it's been any more than **5 to 7 days** since the injury – it's time to find a threshold and start a subsymptom threshold exercise program – can speed recovery vs. rest alone – get them moving Pass = Move on to Stage 3, Fail = Subsymptom program, re-test in 1 wk
3.	**½ days of school/work – with restrictions**: No tests, no gym, no recess, no (added) homework (or at least loose deadlines to reduce pressure)	3.	**Sport-Specific activity** – i.e., light, non-contact practice with the team or individually
4.	**Full Days of School/work – with restrictions**: same restrictions as above – once able to tolerate full days with no increase in symptoms, gradually lift restrictions	4.	**Non-Contact Training drills** – higher intensity, non-contact practice with team – can begin resistance training – start pushing yourself
5.	**Full Days of School/work – no restrictions -** (Discharge non-athletes)		
• *Stages 1-4 for RTL vs. RTP can be run independently (i.e., you can be on stage 3 of RTP and only stage 2 for RTL)* • *In order to progress to the medical clearance stage however, the athlete must be fully asymptomatic and back to all academic/cognitive/work activities and capabilities before even considering a return to contact.*		5.	**Medical Clearance** – Once completely ASYMPTOMATIC and back to full time school/work with no issues, & no increased symptoms with physical activity/practices – **Blackhawks test** (if a high-risk/contact athlete) **& comprehensive baseline re-test** (if available) in exerted state
		6.	**Full Return to Contact/Discharge** – should have at least 1 full contact practice prior to playing in a game

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Return to Learn



- ★ Following a concussion, we want to gradually increase stimulus including cognitive load
- ★ Concussion symptoms can make the return to school very challenging
  - Visual disturbances
  - Noise sensitivity
  - Headache
  - Fatigue
- ★ Collaborations with schools
  - Accomodations to keep child below their symptomatic levels
  - This can be a challenging process for kids and we're here to help!

Return to Play



- First, improve tolerance to physical activity
  - **Buffalo Treadmill Test:** exertion test using heart rate monitor to determine physical workload that brings on symptoms
  - Results guide training program
  - Once athlete can perform test at maximum exertion with no concussion symptoms, they can return to **NON-CONTACT** training

Return to Play

- We use a strict protocol to guide the return to contact sport
  - Timing, must be past vulnerable stage
  - No remaining symptoms with any activities
  - Repeat visual, vestibular and balance testing
  - **Chicago Blackhawks Concussion Test** before return to contact sport, intensive physical exertion test
  - Repeat baseline test



Role of Baseline Testing



- ★ Not used for diagnosis
- ★ Baseline testing is a series of **physical** and **cognitive** tests that provides a pre-injury overview of healthy brain function.
  - Includes reaction time, grip strength, balance testing, memory and eye tracking.
- ★ Objective data that allows comparison to YOURSELF
  - Without a baseline, can be challenging to determine when back to “normal”
- ★ Gives us confidence to **SAFELY** allow return to play
  - Fastest and lowest risk way of clearing to return
  - Without a baseline, our decision will be less informed and we will take additional caution with return to play



Assessment in Clinic 3-4 days later.



- ★ Made an appointment with us for a concussion assessment to find out whether or not he had one?
- ★ Presentation: headaches, dizziness, sensitivity to light, more emotional, irritated, trouble travelling in a car.
- ★ Education!!!!
- ★ Treatment: breathing exercises, tracking eye movements, diet and lifestyle advice.
- ★ Liaised with teachers and coaches to give solid guidelines for what he can and can’t do.
- ★ This kid followed our protocol, and was structured around him and his symptoms.

Correct management of a concussion will get your child SAFELY back in sport as quickly as possible

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What is the effect of many concussions?



- ★ Very hot topic with mixed information available
- ★ Most recent research suggests NO cumulative effect as long as full recovery is made between concussions
  - ○ We need to ensure athletes do NOT return to sport before ready to prevent cumulative effects
  - ○ We also need to support our athletes in reporting their concussions

You can help change the culture of how concussions are managed!

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How you can help!



- ★ Inform other parents and coaches of the information you learned this evening
- ★ Complete the free **CCMI Sideline Course** to increase your concussion education
  - Including sideline screening and assessment
- ★ Ensure your athletes are **baseline tested**!
  - Team rate discounts will be distributed tonight
  - Covered by extended benefits

How you can help!



- ★ Advocate!
  - Ruling changes to protect player
  - Mandated baseline testing
  - Enforced return to play protocols
- ★ Spread protective culture
  - Encourage the importance of reporting and management of concussions
- ★ Coming this evening is a great step to helping change concussion management and protect your athletes!

Goals of this presentation

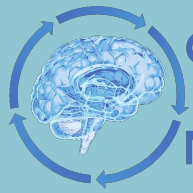


1) Learned what a concussion is and understand the dangers of these injuries
2) Be leaving with some myths seriously busted
3) Feel empowered and motivated to inform other parents and coaches of what you learned tonight
4) Gained confidence in recognizing the symptoms of a concussion and knowing when to seek help
5) We will now answer any lingering questions that you may have!

THANK YOU!

Q & A Time!

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