CANADIAN CONCUSSION CENTRE - WEBINAR SERIES

Return to ATHLETICS

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DISCLOSURES

Affiliations

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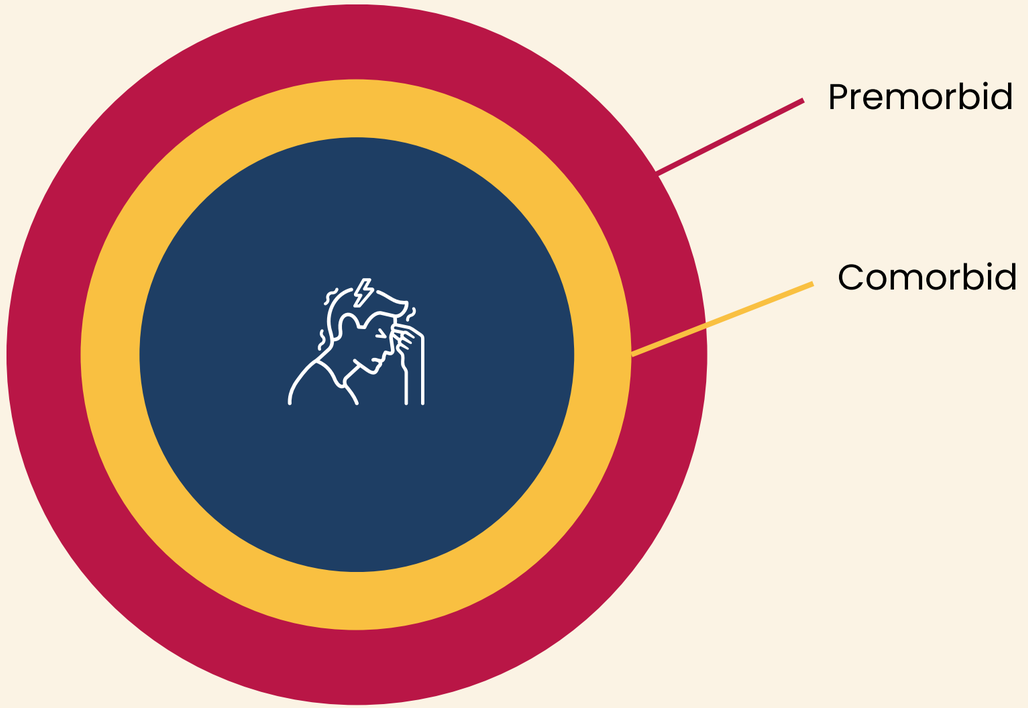
Commercial Interests

Rhea Health Inc. www.getrhea.com

Agenda

- CONCUSSION PRIMER
- ACUTE MANAGEMENT
- WHAT'S UNIQUE WITH SPORT?
- WHAT'S UNIQUE TO RTA?
- RETURN TO ATHLETICS
- QUESTION & ANSWERS

Concussion MULTIFACTORIAL



HEAD CONTACT

Direct or indirect head contact can result in concussion, but most concussions involve direct head contact

MEMORY

Most people have full memory of the “event” and complete recollection before and after the event

STANDARD IMAGING

Standard neuroimaging at the hospital will show no abnormalities

SYMPTOM ONSET

Symptom onset should be in close proximity to the “event”

RECOVERY

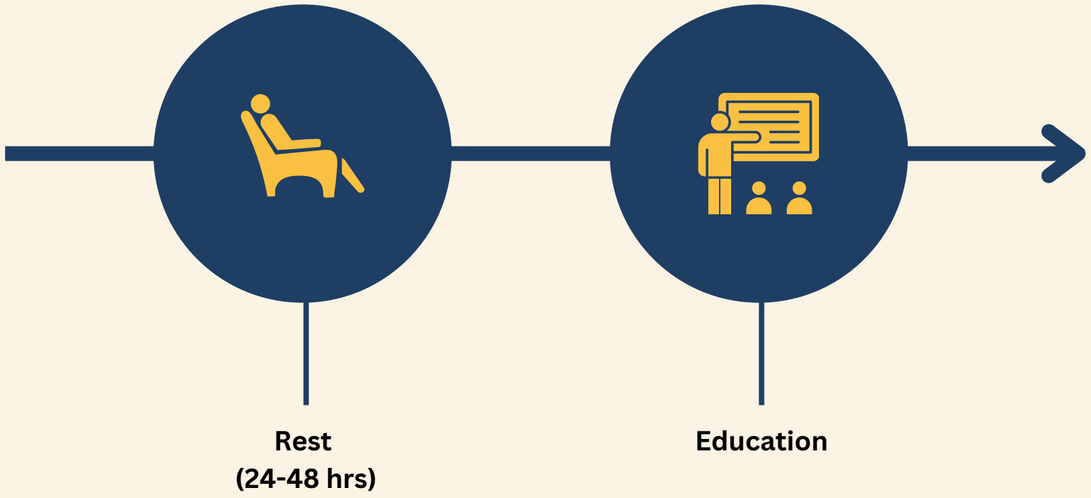
Most people recover within 2 to 4 weeks

PERSISTENT SX

Upwards of 30% of individuals with have symptoms >1 month
10-15% have symptoms for > 3 months

Acute Phase

GENERALLY ACCEPTED PRINCIPLES



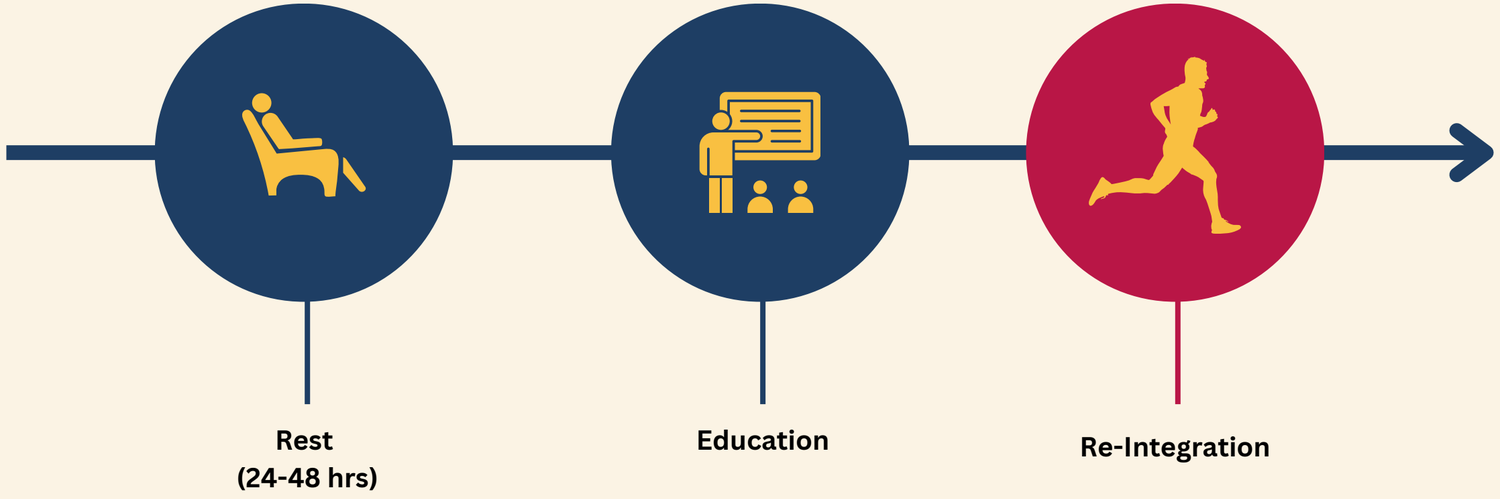
WHAT'S UNIQUE TO ATHLETES & RETURN TO ATHLETICS

IDENTITY

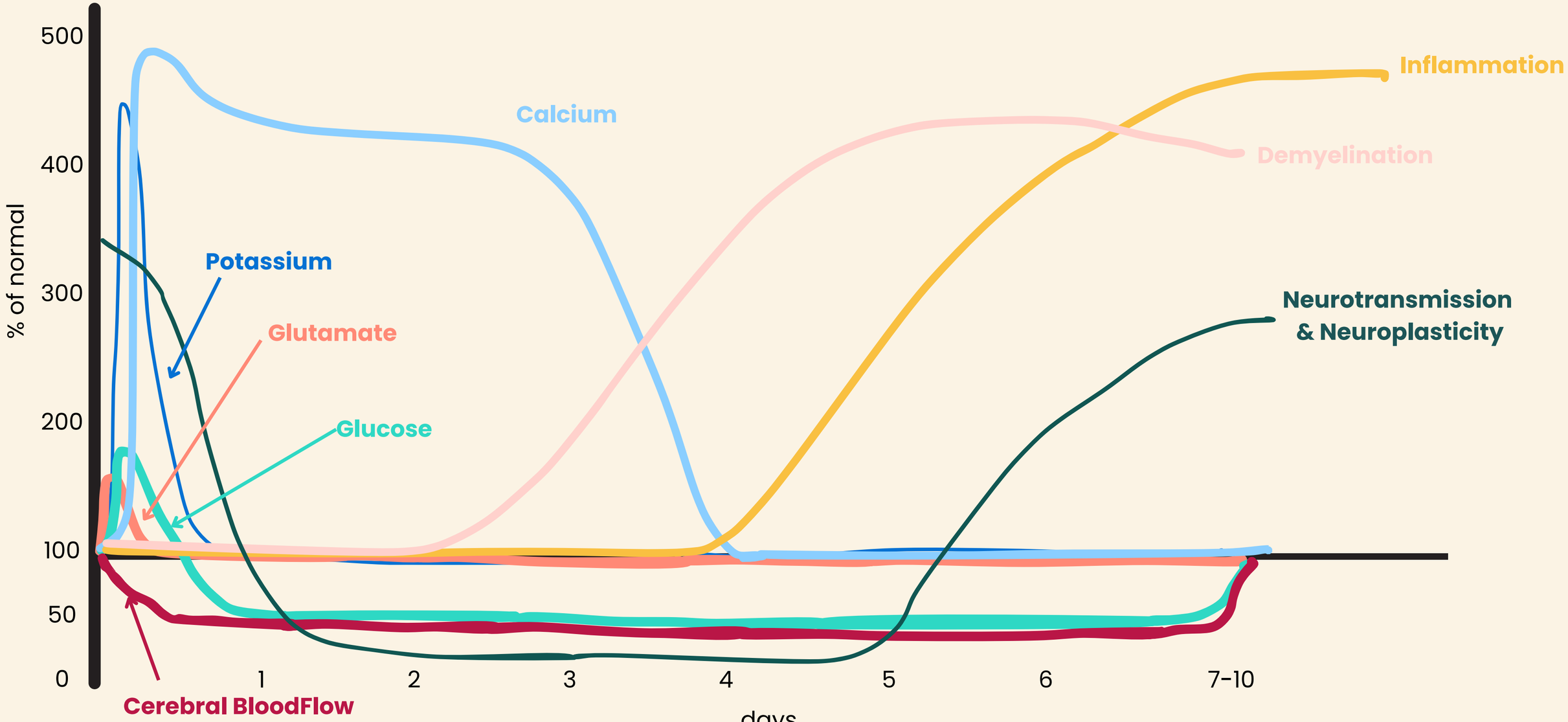
NOT ACTIVE ?!?!

PEER SUPPORT

GENERALLY ACCEPTED PRINCIPLES



NEW NEUROMETABOLIC CASCADE



Adapted from Giza & Hovda, Neurosurgery, 2014

RETURN TO ATHLETICS: PRINCIPLES

Table 2 Return-to-sport (RTS) strategy—each step typically takes a minimum of 24 hours

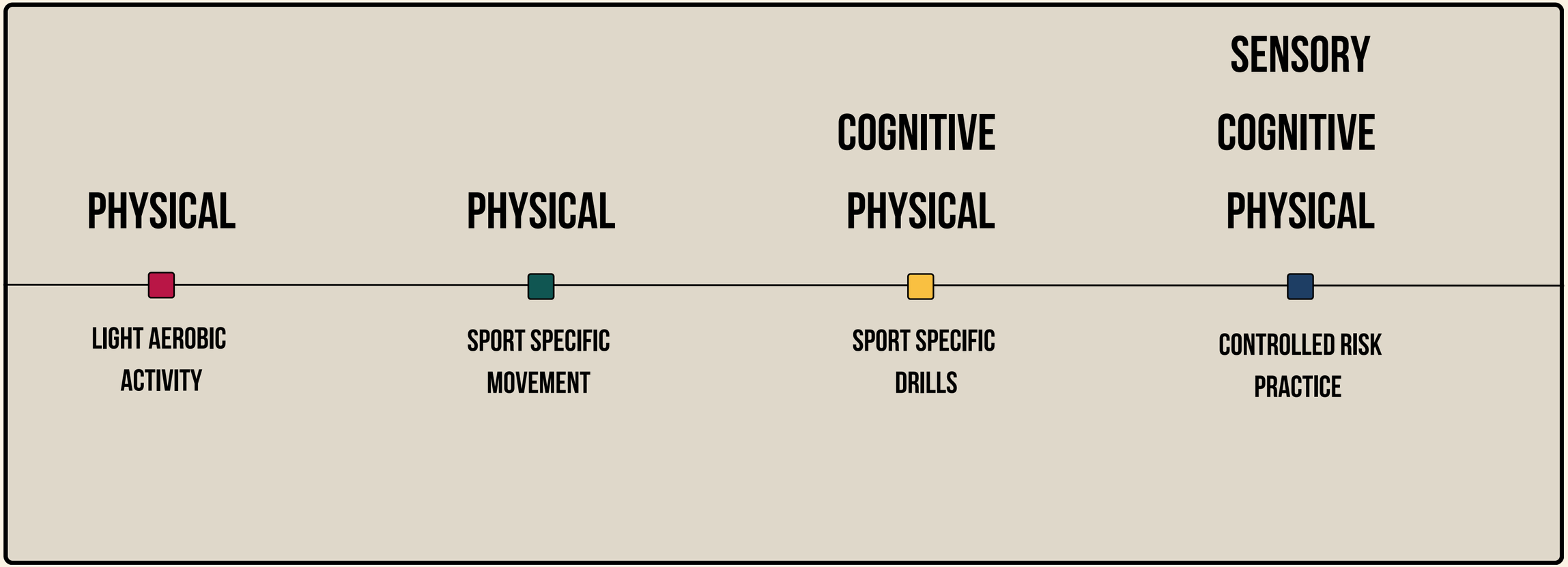
Step	Exercise strategy	Activity at each step	Goal
1	Symptom-limited activity	Daily activities that do not exacerbate symptoms (eg, walking).	Gradual reintroduction of work/school
2	Aerobic exercise **2A—Light** (up to approximately 55% maxHR) **then** **2B—Moderate** (up to approximately 70% maxHR)	Stationary cycling or walking at slow to medium pace. May start light resistance training that does not result in more than mild and brief exacerbation* of concussion symptoms.	Increase heart rate
3	Individual sport-specific exercise Note: If sport-specific training involves any risk of inadvertent head impact, medical clearance should occur prior to Step 3	Sport-specific training away from the team environment (eg, running, change of direction and/or individual training drills away from the team environment). No activities at risk of head impact.	Add movement, change of direction
Steps 4–6 should begin after the resolution of any symptoms, abnormalities in cognitive function and any other clinical findings related to the current concussion, including with and after physical exertion.			
4	Non-contact training drills	Exercise to high intensity including more challenging training drills (eg, passing drills, multiplayer training) can integrate into a team environment.	Resume usual intensity of exercise, coordination and increased thinking
5	Full contact practice	Participate in normal training activities.	Restore confidence and assess functional skills by coaching staff
6	Return to sport	Normal game play.	

*Mild and brief exacerbation of symptoms (ie, an increase of no more than 2 points on a 0–10 point scale for less than an hour when compared with the baseline value reported prior to physical activity). Athletes may begin Step 1 (ie, symptom-limited activity) within 24 hours of injury, with progression through each subsequent step typically taking a minimum of 24 hours. If more than mild exacerbation of symptoms (ie, more than 2 points on a 0–10 scale) occurs during Steps 1–3, the athlete should stop and attempt to exercise the next day. Athletes experiencing concussion-related symptoms during Steps 4–6 should return to Step 3 to establish full resolution of symptoms with exertion before engaging in at-risk activities. Written determination of readiness to RTS should be provided by an HCP before unrestricted RTS as directed by local laws and/or sporting regulations.

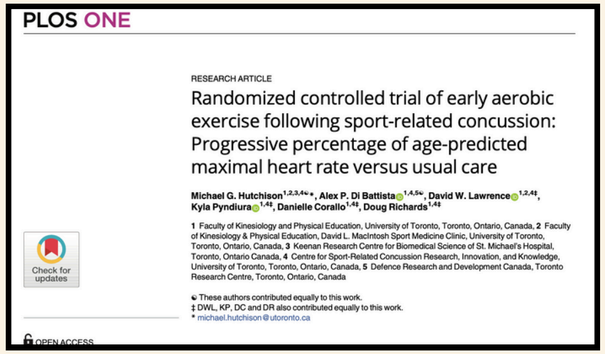
HCP, healthcare professional; maxHR, predicted maximal heart rate according to age (ie, 220-age)

Patricios JS, et al. Br J Sports Med 2023;57:695–711. doi:10.1136/bjsports-2023-106898

RETURN TO ATHLETICS: PRINCIPLES SIMPLIFIED



What's Aerobic Activity?



PLOS ONE

RESEARCH ARTICLE

Randomized controlled trial of early aerobic exercise following sport-related concussion: Progressive percentage of age-predicted maximal heart rate versus usual care

Michael G. Hutchison[1,2,3,4☯*], Alex P. Di Battista[1,4,5☯‡], David W. Lawrence[1,2,4‡], Kyla Pyndiura[1,4‡], Danielle Corallo[1,4‡], Doug Richards[1,4‡]

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‡ DWL, KP, DC and DR also contributed equally to this work.
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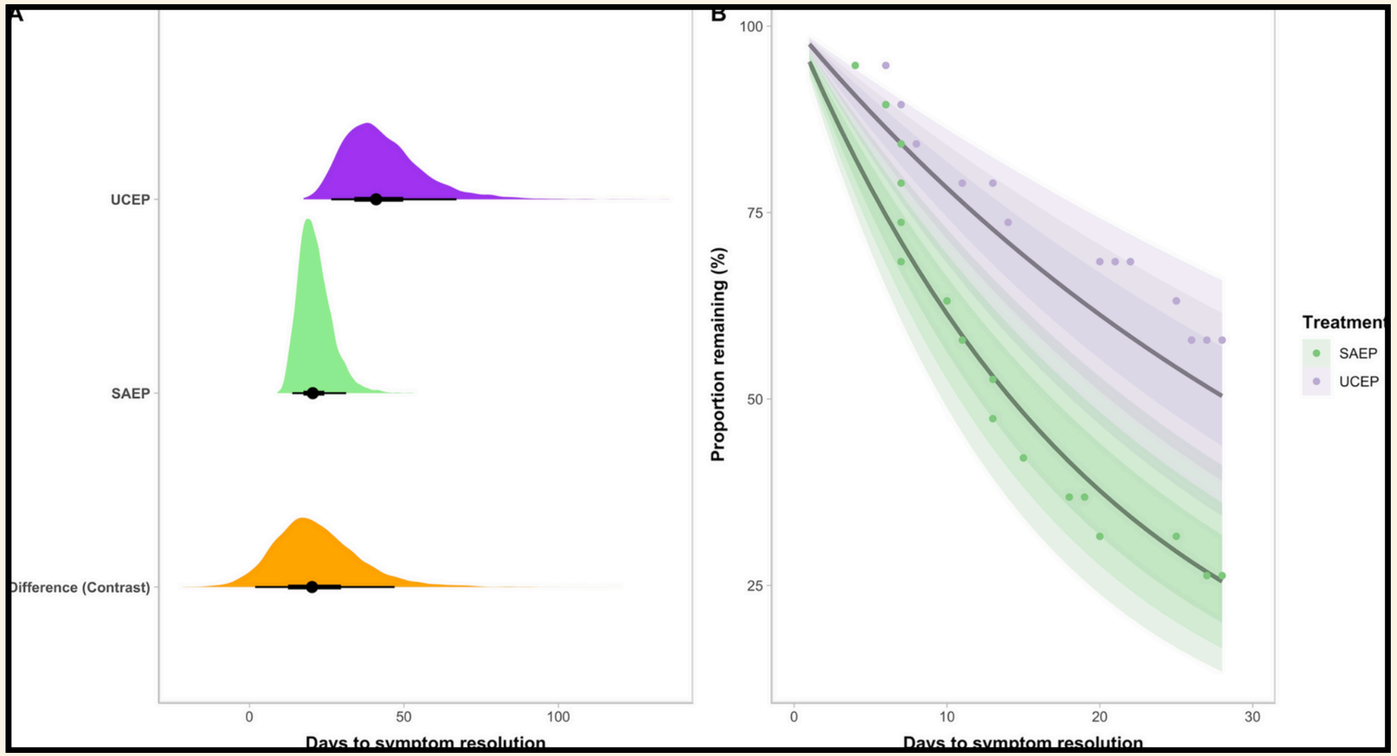
OPEN ACCESS



Hutchison MG, Di Battista AP, Lawrence DW, Pyndiura K, Corallo D, et al. (2022) Randomized controlled trial of early aerobic exercise following sport-related concussion: Progressive percentage of age-predicted maximal heart rate versus usual care. PLOS ONE 17(12): e0276336.

Do you even need equipment?

JMIR FORMATIVE RESEARCH Hutchison et al

Original Paper

A Continuous Aerobic Resistance Exercise Protocol for Concussion Rehabilitation Delivered Remotely via a Mobile App: Feasibility Study

Michael G Hutchison[1,2*], MSc, PhD; Alex P Di Battista[3,4*], MSc, PhD; Matthew M Loenhart[3], BPHE

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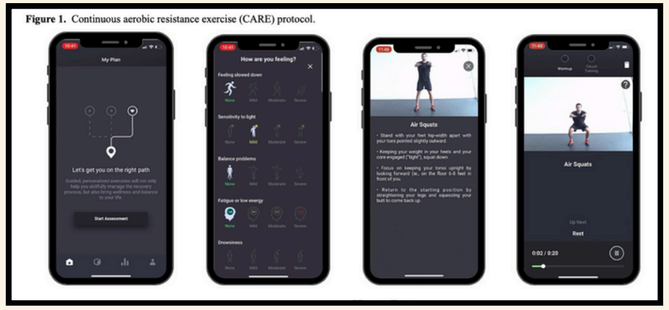
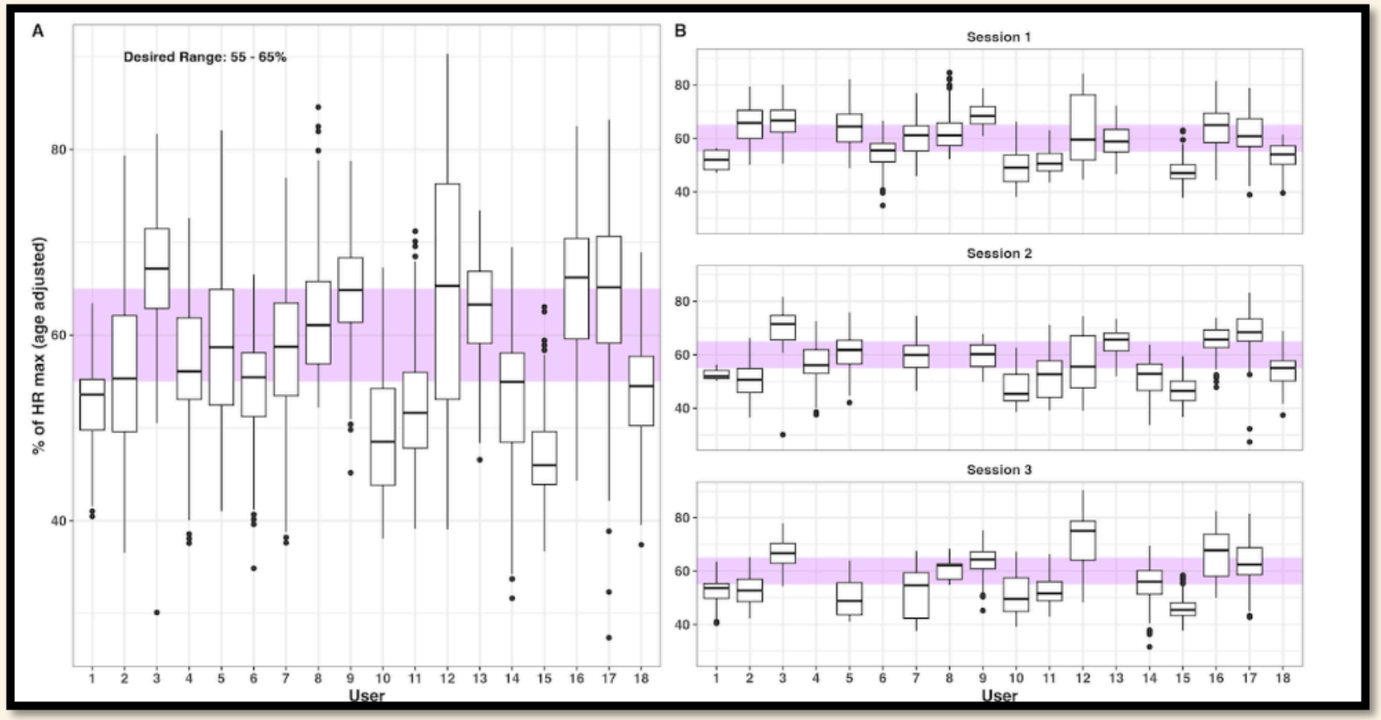
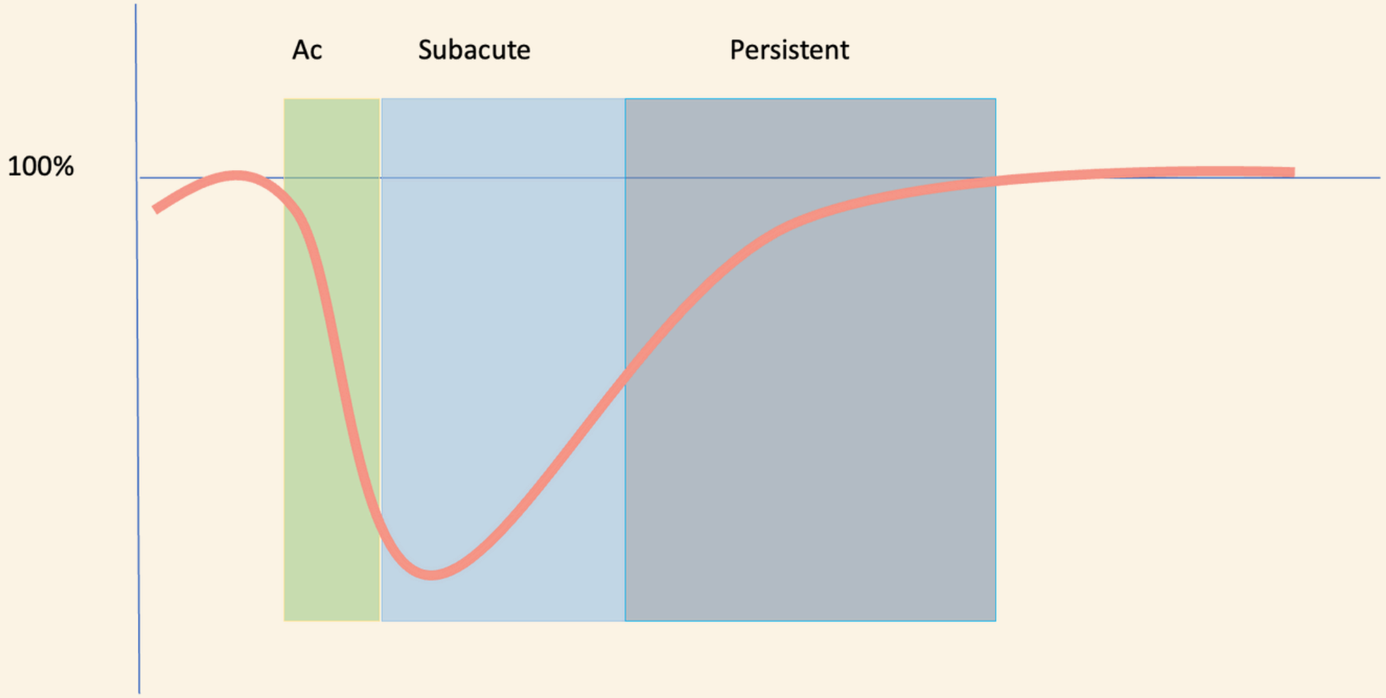




Hutchison MG, Di Battista AP, Loenhart MM. A Continuous Aerobic Resistance Exercise Protocol for Concussion Rehabilitation Delivered Remotely via a Mobile App: Feasibility Study JMIR Form Res 2023;7:e45321 doi: 10.2196/45321

Who to see

RETURN TO ATHLETICS



PERSISTING SYMPTOMS AFTER CONCUSSION

Deconditioning
Exercise Prescription
Nurtrition
Hydration

Anxiety / Depression
Psychotherapy
Exercise Prescription
CBT
Medications

Sleep Disturbance
Sleep Hygiene
Melatonin
Sleep Study?

Dizziness
Vestibular Tx
Hydration
Migraine
Autonomic Evaluation

Headache
Abortive Meds
Preventive Meds
PT/Cervical
Injections

Cognitive
Neuropsych Evaluation
Treat Comorbidities
CBT
Medications

Slide courtesy of Dr. Giza 2025

Question Period

Thank You

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