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- "As parents, now we know more about concussions than we've ever known in the past and **it's ultimately our decision** to sign our kids up for whatever sport it is that they want to participate in and unfortunately a lot of it falls on the parents right now, you know, to **make sure that we're guiding them in the right direction and we are looking out for their best interest...**" (Parent/coach)



NAVIGATING (UN)CERTAINTY: EXPLORING PARENTS'  
KNOWLEDGE OF CONCUSSION MANAGEMENT AND  
NEUROPSYCHOLOGICAL BASELINE TESTING

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## CONCUSSION IN YOUTH SPORT

- 94,000 concussions with many being a result of sport within Canada each year (Langlois et al., 2006)
- Mental, emotional physical consequences (Pinto et al., 2012)
- 31% may experience symptoms beyond 1 month affecting QoL and function (Babcock et al., 2013)
- Heightened risk of grave consequences with reinjury (i.e., Second Impact Syndrome)
- Proper management of youth sport concussion is critical



ROLE OF THE  
PARENT IN  
CONCUSSION  
MANAGEMENT



# WHAT DO PARENTS KNOW ABOUT CONCUSSION MANAGEMENT?



- **Understanding for the severity and consequences associated with concussion injury**  
(Black, Yeates, Babul, Nettel-Aguirre and Emery, 2020)
- **Lack understanding for concussion management and return to play guidelines**  
(Weerdenburg, Schneeweiss and Koo 2016)
- **No designated educational programs for parents on concussion management**  
(Feiss et al., 2020)

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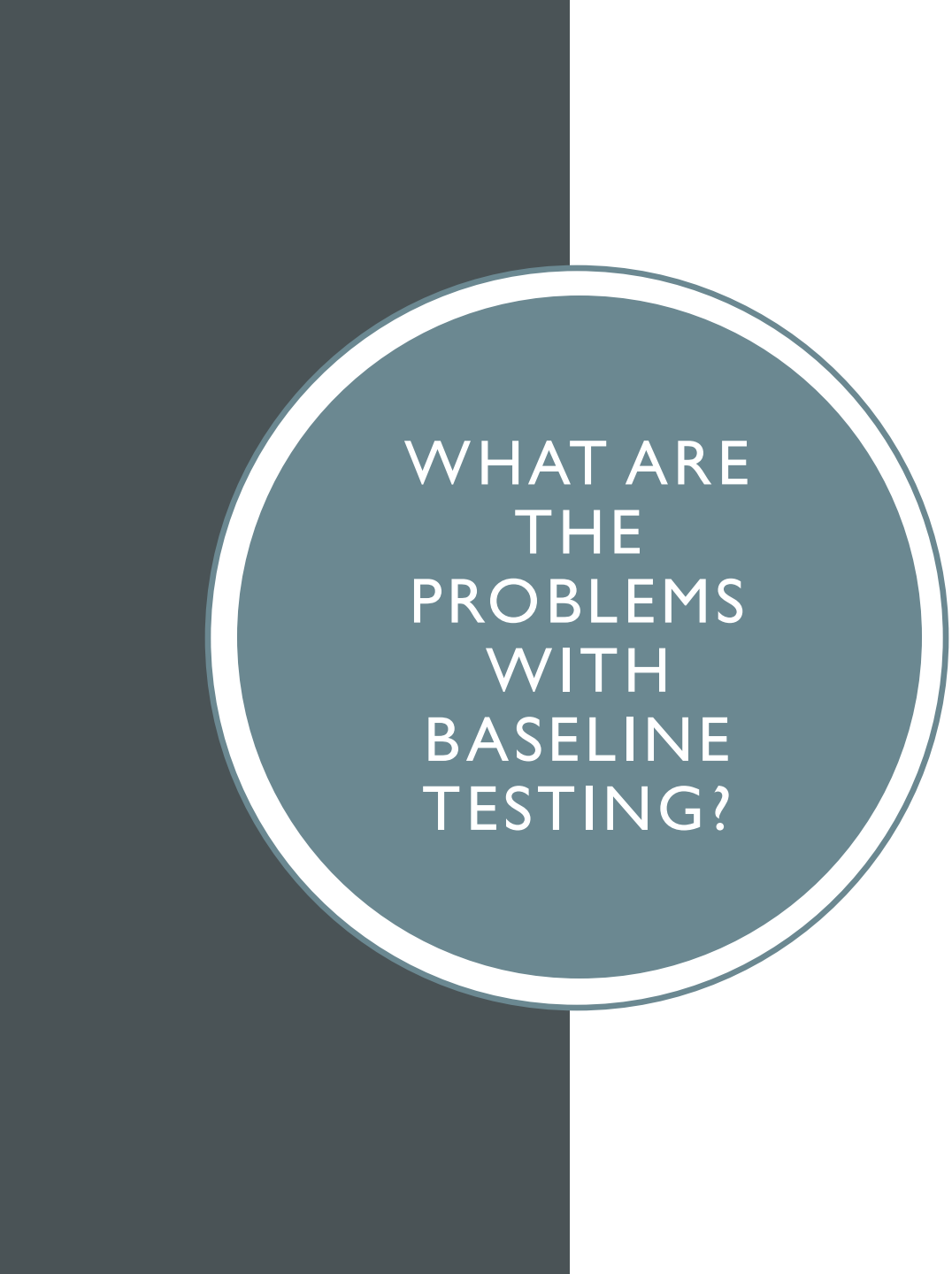
NEUROPSYCHOLOGICAL  
BASELINE TESTING

5cm

5cm

DIR TR 480.0  
TE 14.0  
SP R3.3  
TA 01:31  
FOV 230\*230  
MND  
A1  
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DIR TR 480.0  
TE 14.0  
SP R3.3  
TA 01:31  
FOV 230\*230  
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A1  
VR



WHAT ARE  
THE  
PROBLEMS  
WITH  
BASELINE  
TESTING?

- Lack of test re-test reliability among athletes between the ages of 11-14  
(Womble, Reynolds, Schatz & Kontos, 2016).
- Noted as a test that should not be used alone to detect or manage a concussion  
(McCrory et al., 2017).
- Athletes have been known to purposefully score poorly (coined "Sandbagging")  
(Schatz and Glatts, 2013, Tsushima et al., 2021)

## AIMS

Understand parents' knowledge, beliefs and attitudes towards concussion management

Experience and beliefs surrounding the inclusion of neuropsychological baseline testing in the management process





Qualitative design



Focus group guide informed by the  
Protection Motivation Theory  
(Rogers, 1975)



Two semi-structured focus groups  
(4-7 participants)



Conventional content analysis

## METHODS

# FOCUS GROUP GUIDE



- **Parent's experiences dealing with concussion management**
  - Ex. Do you have any personal experiences dealing with a sport-related concussion regarding your child?
- **Knowledge of concussion injury**
  - Ex. What do you know about sport related concussion?
- **Views on concussion management and baseline testing**
  - Ex. A type of management process that has been gaining popularity is neuropsychological baseline testing, do you have any thoughts on this tool?



# RESULTS

## PARTICIPANTS

11 parents of youth in contact sport

6 men, 5 women

Range of sports  
(i.e., hockey, rugby, football)

Recreational to national  
level competition

5 were coaches



# NAVIGATING UNCERTAINTY



**Inconsistency in concussion identification and management advice created uncertainty for parents and factored into decisions to seek alternative management solutions**



**Direct or indirect experience with concussion helped to reduce uncertainty in concussion identification and management beyond what current education provided**



**Concerns about communication with youth and across sport organizations lead to uncertainty in concussion management**



**Removing the "grey area": Concussion policy limits the uncertainty around concussion management decisions for parent-coaches**



**Parents felt that neuropsychological baseline testing was informative but remained uncertain of its utility in managing concussions**

**Clarity**

**Uncertainty**

**INCONSISTENCY IN CONCUSSION IDENTIFICATION AND MANAGEMENT ADVICE CREATED UNCERTAINTY FOR PARENTS AND FACTORED INTO DECISIONS TO SEEK ALTERNATIVE MANAGEMENT SOLUTIONS**



- “Our daughter was knocked out cold, **maybe she had a concussion** and we had three days of her in a dark room with absolutely no noise. But **we just kinda played it safe** because the doctor said, “we think she has a concussion”.
- “I think when my son had his first concussion, it was a bit of a learning curve of **does he have it, does he not have it and not fully understanding** and I think the education isn’t out there enough for a lot of people and I think going through it the first time it was kind of easing in [to managing the concussion].”

**Uncertainty**

## CONCERNS ABOUT COMMUNICATION WITH YOUTH AND ACROSS SPORT ORGANIZATIONS LEAD TO UNCERTAINTY IN CONCUSSION MANAGEMENT



- “Where I think it’s lacking a little bit [communication] is these kids can go play for their spring teams suffer an injury and **their regular team that they’re going back to has no idea that this has happened.**”
- “**Some kids might not be truthful**, leading up to a tournament or something where they really want to play a certain game and I have experienced that firsthand with one of our teams.”

**Uncertainty**

**DIRECT OR INDIRECT EXPERIENCE WITH CONCUSSION HELPED TO REDUCE UNCERTAINTY IN CONCUSSION IDENTIFICATION AND MANAGEMENT BEYOND WHAT CURRENT EDUCATION PROVIDED**



- “the **personal experience is really valuable as well**. Ya know even if someone hasn’t experienced it cause we can all attest to the fact that the the proximity that you have to this kind of experience the the better understanding and appreciation you have for the severity of it [*concussion*].”
- “Well the social emotional part of a concussion that **people that haven’t been around concussion’s really don’t know** that it’s just not physical, it’s just not the fact that you have blurred vision or difficulty seeing with light and have headaches and all the rest, it’s the social emotional bit like I had a friend that their son had a bad concussion and he literally became a different boy for six months he was he became very moody and very in bad moods.”

**Clarity**



## REMOVING THE "GREY AREA": CONCUSSION POLICY LIMITS THE UNCERTAINTY AROUND CONCUSSION MANAGEMENT DECISIONS FOR PARENT-COACHES



- “Like Rowan’s law and a little bit of awareness in the community and in the sport’s, community has made my life as a coach way easier. Soon as soon as it’s ok there was clear contact to the head uh one or more symptoms, you’re done for the and day talk with the parents afterwards, here’s the form uhm they need to see a doctor **it’s out of my hands we’re all just trying to keep your kid safe...**”

**Clarity**

**PARENTS FELT THAT NEUROPSYCHOLOGICAL BASELINE TESTING WAS INFORMATIVE BUT REMAINED UNCERTAIN OF ITS UTILITY IN MANAGING CONCUSSIONS**



- “I think uh any extra tool that we can use at this point to try and diagnose a concussion is very helpful because like a like it is it’s an invisible injury for the most part and I think that’s the biggest, troubling thing for most parents and the athletes themselves is a **any information is good information.**”
- “I get that the idea is that if a kid has a concussion they’re checking them to see if they’re back at that baseline like I said kids change so say they had their baseline done and the concussion happens uh **even eight months later the baseline could have changed in between that time and they don’t know.**”

**Clarity**

**Uncertainty**

## IMPLICATIONS/TAKEAWAYS

Parent expectations in urgent care encounters need to be realistic

Pressures on youth athletes to play and perform need to be balanced with health

Creation of a cross-sporting network for injury identification and management

Current policies add value by easing friction for sport community members

Parent-focused concussion education that includes experiential components

NBT should find a place based on evidence for value in management

QUESTIONS?

