

# The Mechanical-Human Mismatch: Fatigue and Injury Prevention In Motocross

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## Introduction-The Sport and Physical Demands

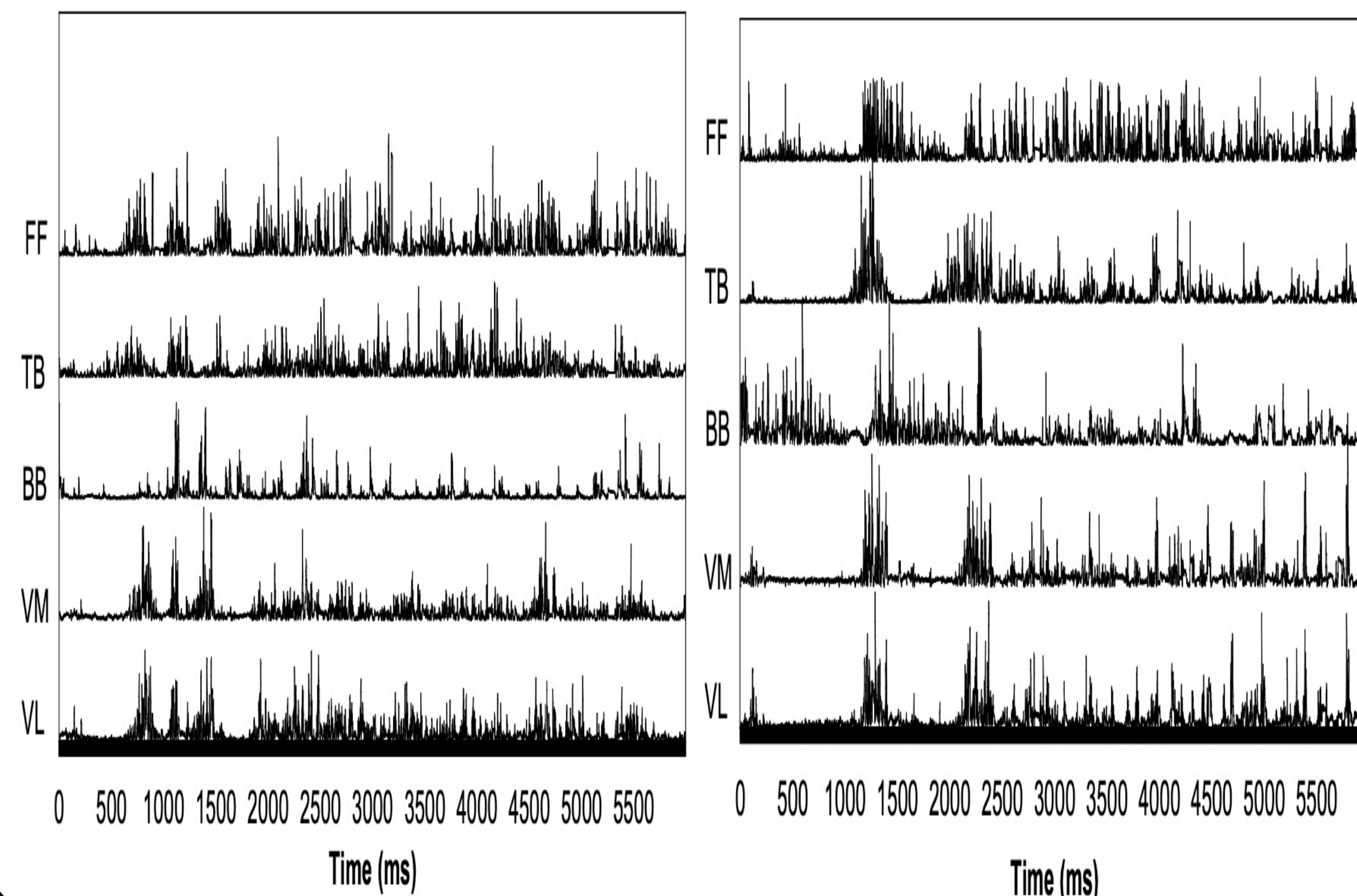
- How can the perspective of a PT help reduce the risk of injury in the sport of dirt bike racing?



0 500 ms 1000 ms 1500 ms 2000 ms 2500 ms



3000 ms 3500 ms 4000 ms 4500 ms 5000 ms 5500 ms  
Group H rider (Kontinen, n.d.) Group A rider

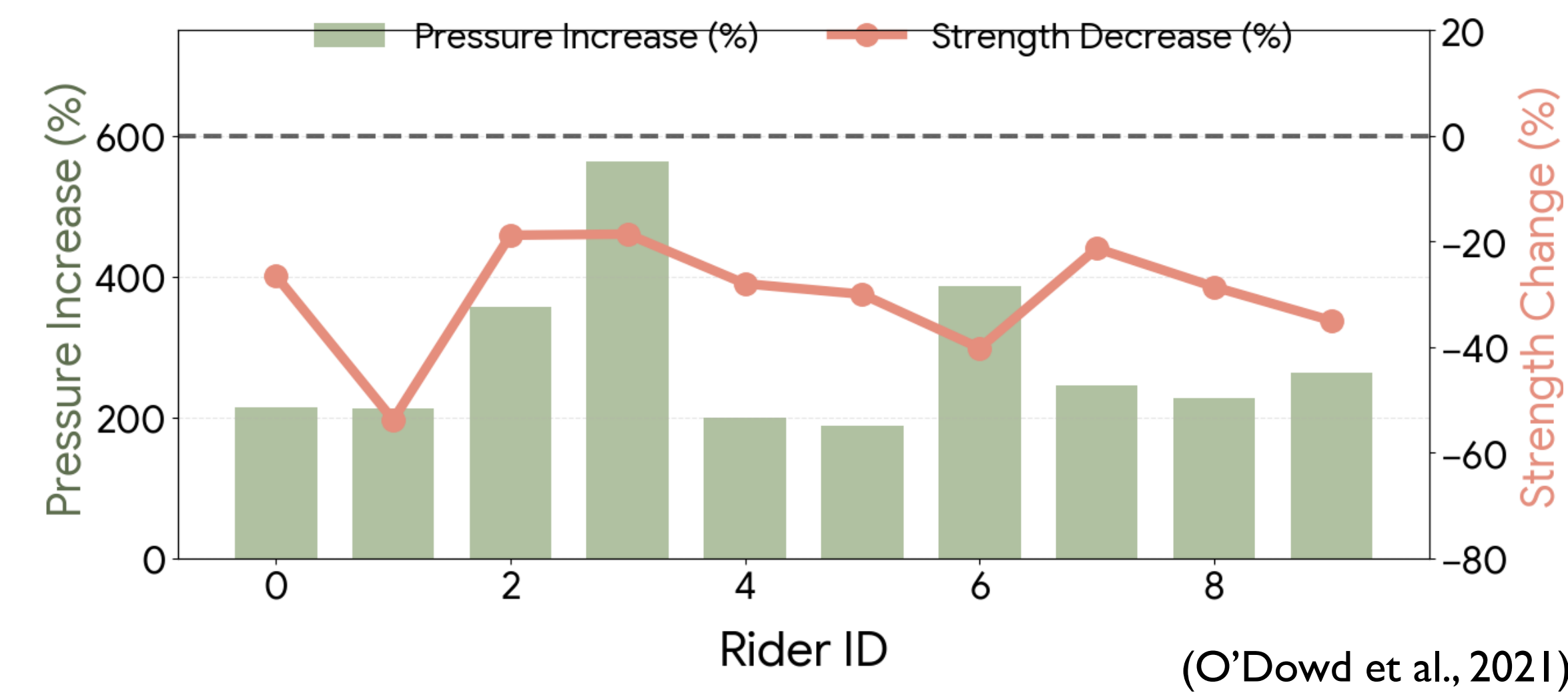


## Methods

- Literature of articles focused on the physical demands and consequences of motocross and other dirt bike related racing.
- Google Scholar was primary tool for finding credible and peer-reviewed content. Various search terms were used but the following produced the articles used for this research. They include motocross, injury, prevention, rehabilitation, common, fatigue, safety, equipment, riders, amateurs, professionals, training, therapy, strength, arm-pump, attack, position, technique, fitness, endurance, PPE, gear, personal, protective, equipment, medical, procedures, treatment, balance, postural control, physical therapy, physiotherapy, knee injuries and incidents.
- The articles referenced were chosen based on their relevance to injury, risk factors, prevention, and rehabilitation of the athletes.
- General search engines and AI-assisted research tools were used to identify and verify authoritative industry-based articles for context to the sport, equipment, and athletes.

## Contributors to Injury

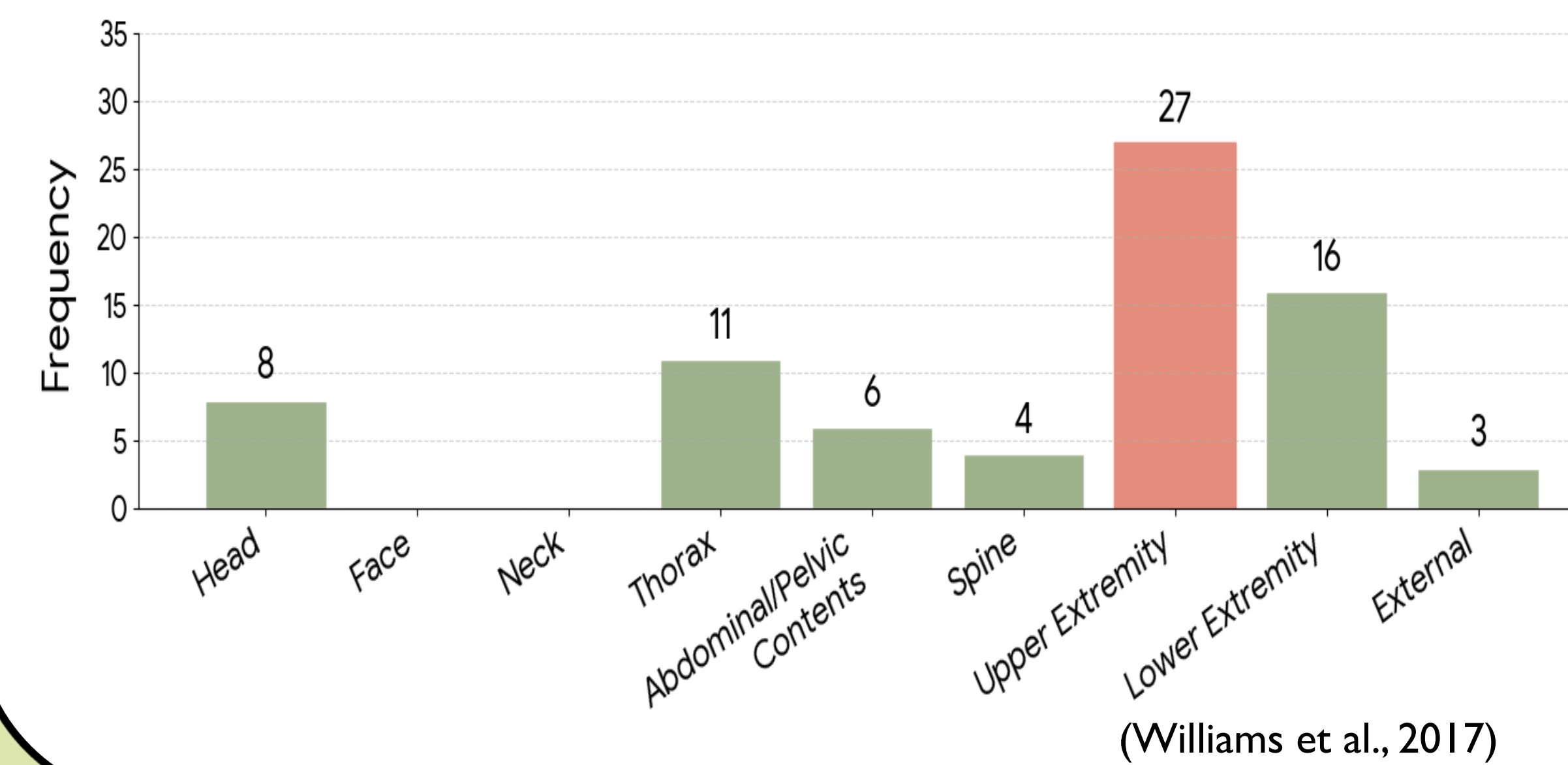
### Pressure vs. Strength Loss in CECS



- Experience, technique, and fitness play a crucial role in safer riding
- CECS (Chronic Exertional Compartment Syndrome)

## Common Injuries

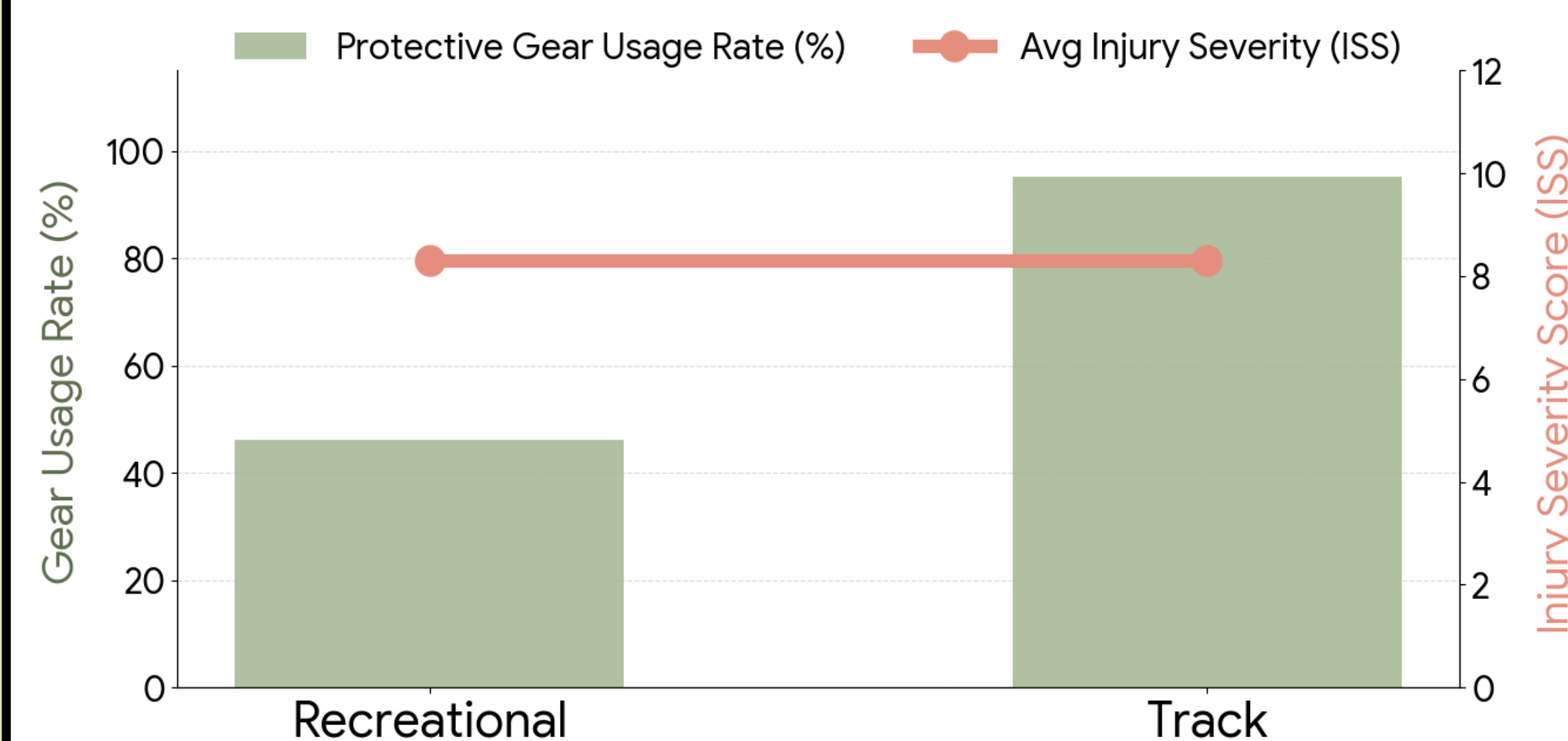
### Anatomic Distribution of 75 Motocross Injuries



(Williams et al., 2017)

## How effective is the PPE?

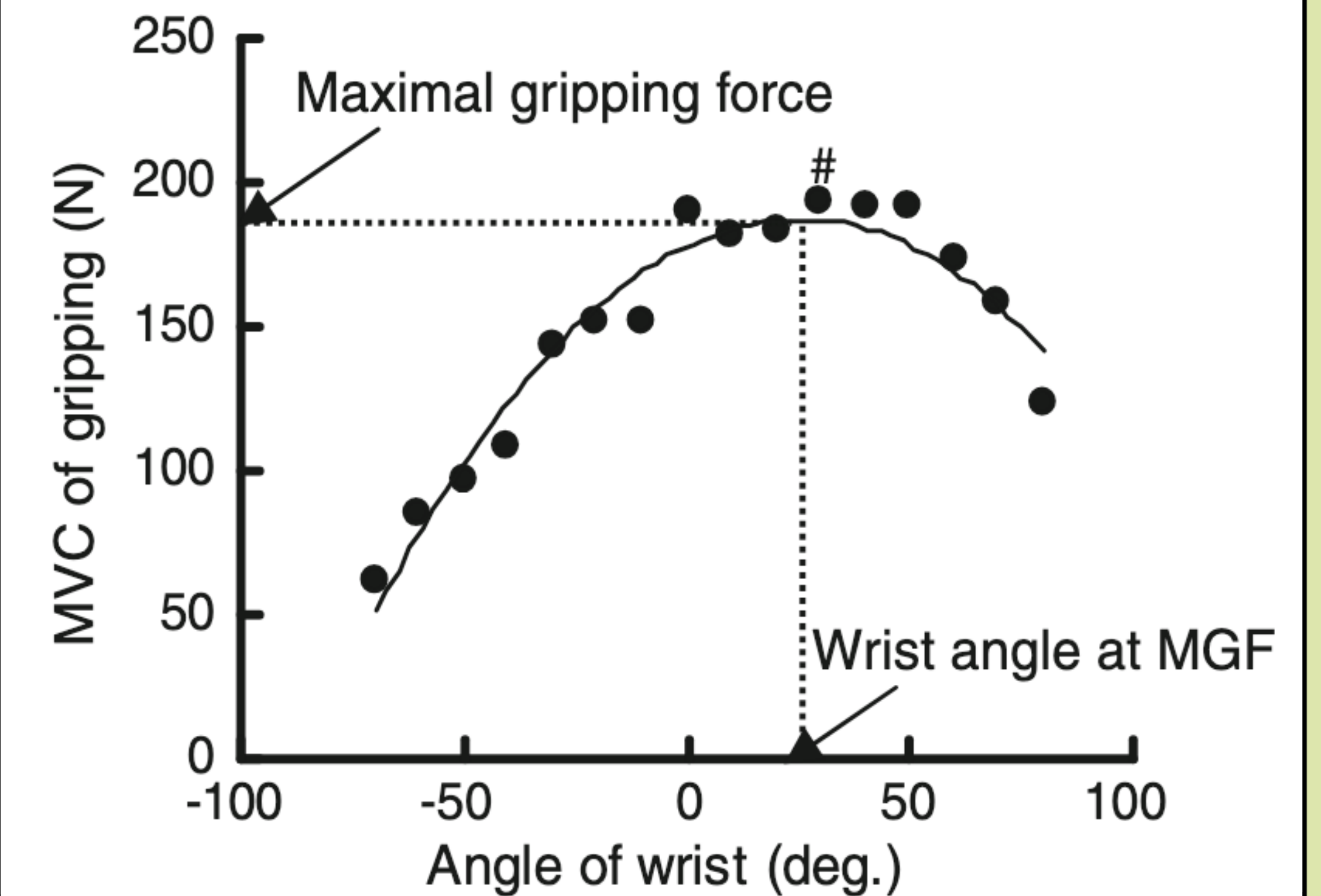
### PPE Usage vs. Injury Severity



- This data reflects a surprising stat that TR group injuries were slightly more severe even when wearing more protection in comparison to the RR group (Stiles et al., 2018)

## How PTs can help in Motocross

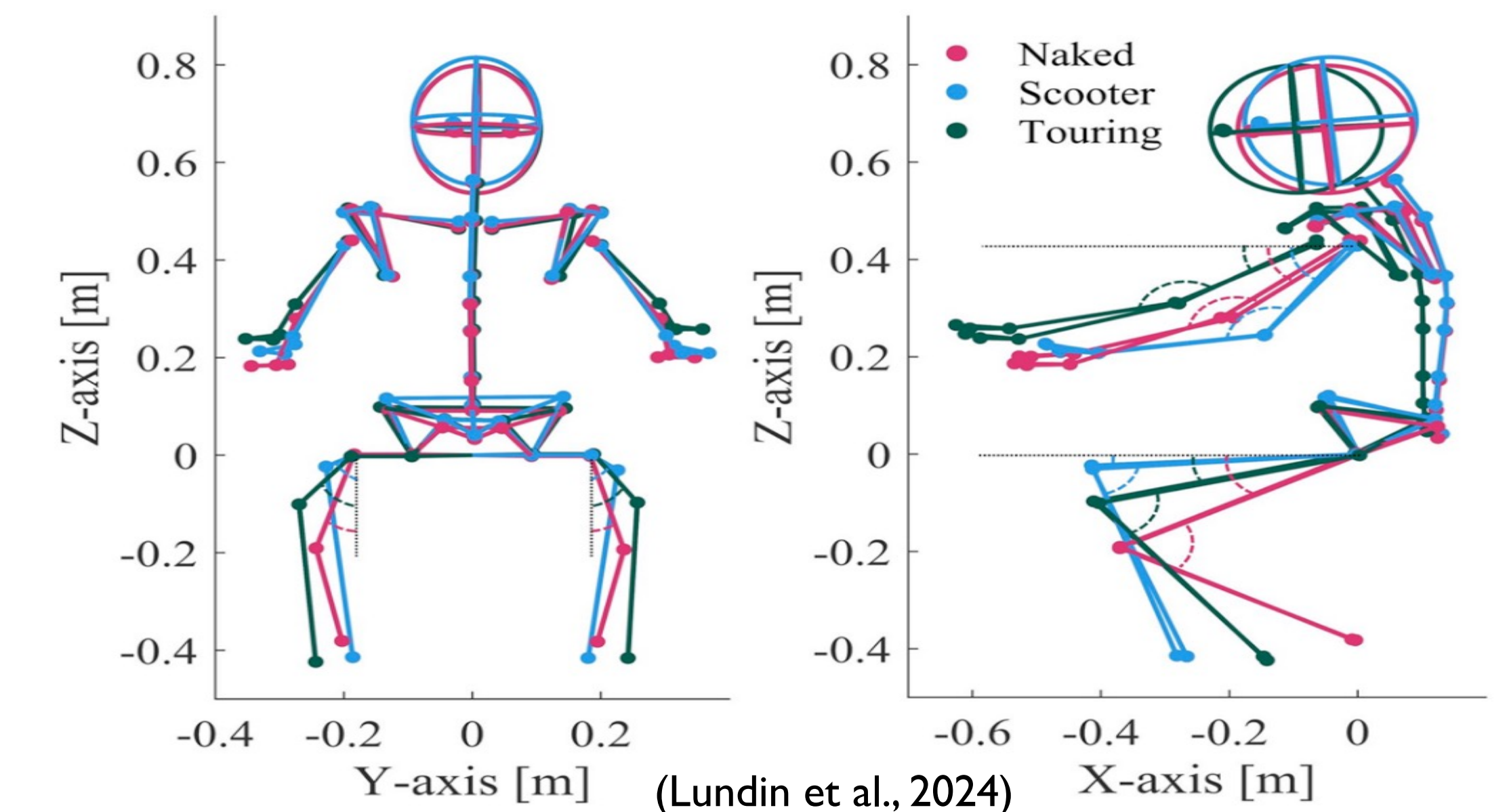
- How can a PT's perspective be utilized in athlete and equipment preparation?



(Shimose et al., 2011)

## Conclusions & Future Directions

- The mechanical-human relationship needs more in-depth study to promote safety and longevity for athletes and enthusiasts



(Lundin et al., 2024)

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References

