

Quality-of-Life Differences Among Male and Female Adolescents After Concussion: A Comparison with Uninjured Controls

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Background

Concussions may negatively affect quality-of-life (QOL).

Adolescents with concussion may be at **increased risk for experiencing anxiety and depressive symptoms** compared to their uninjured peers.

After concussion, **females report worse QOL** compared to males.

Purpose: To examine whether concussion status and biological sex interact to affect QOL

Methods

Participants:

- Adolescents ages 13-18 years assessed within 18 days of concussion and uninjured controls

Outcome Measure:

- Patient-Reported Outcomes Measurement Information System (PROMIS) Pediatric Profile 25
 - Physical function/mobility
 - Fatigue
 - Pain
 - Anxiety
 - Depressive symptoms
 - Peer relationships
- T-Scores (standardized)
 - Mean = 50
 - Standard deviation = 10

Statistical Analysis

- 2 (group) x 2 (sex) ANOVA:** differences in T-scores for each PROMIS domain between groups and sexes

Results

We enrolled and tested 82 participants with concussion and 65 uninjured controls (Table 1)

Group differences:

- Compared to controls, concussion group had significantly worse:
 - Physical function/mobility (Fig 1A)
 - Fatigue (Fig 1B)
 - Pain (Fig 1C)

Sex differences:

- Compared to males, female participants reported significantly worse:
 - Anxiety (Fig 1D)
 - Depressive Symptoms (Fig 1E)

No group x sex interactions for any PROMIS domain.

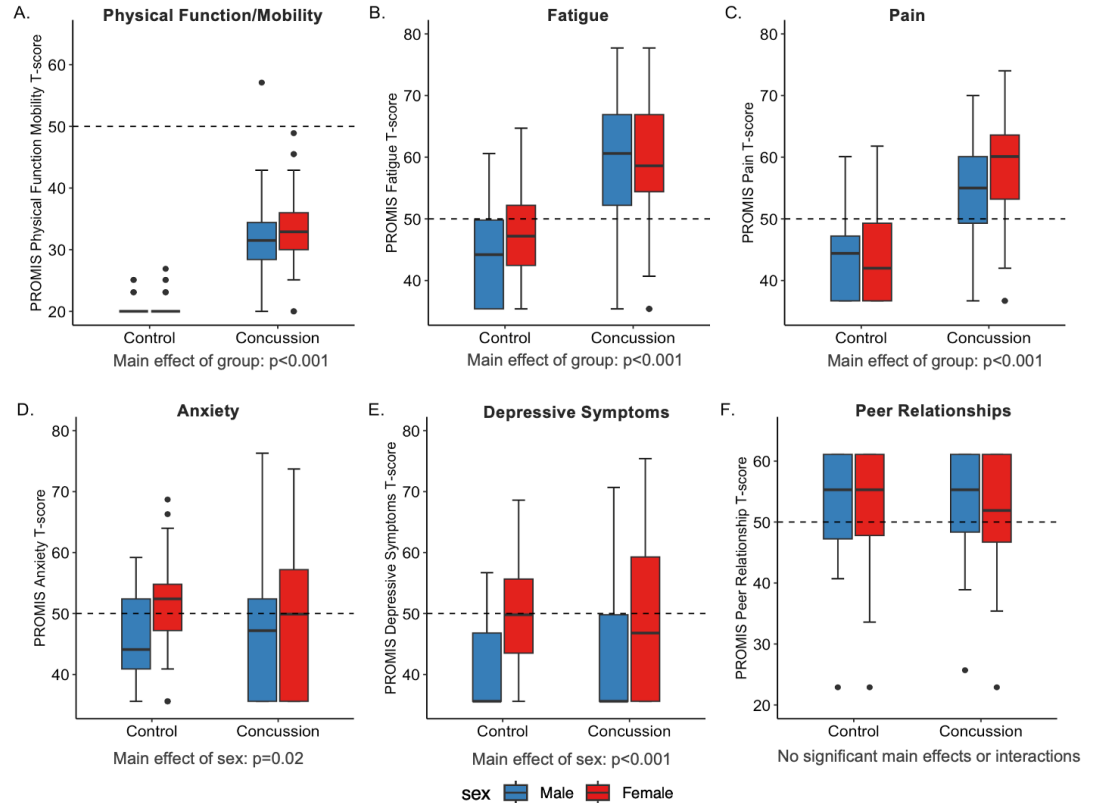


Figure 1. Boxplots demonstrating the distribution of T-scores for each PROMIS domain between concussion and control groups and male/female participants within each group. Data are presented as median (line in box) and interquartile range (box). Higher scores for peer relationships indicate better peer relationships, whereas higher scores are worse for all other domains.

Table 1. Participant characteristics stratified by group

	Control (N=65)	Concussion (N=82)	P-value
Age (years)	15.5 (±1.49)	15.1 (±1.71)	0.22
Sex (female)	39 (60%)	44 (54%)	0.50
Anxiety history	4 (6%)	10 (12%)	0.40
Depression history	2 (3%)	12 (15%)	0.04
Days since concussion	-	8.4 (±3.9)	-

Conclusions

- Regardless of sex,** adolescents with concussion had higher self-reported fatigue, pain, and physical function/mobility impairments compared to their uninjured counterparts.
- Independent of concussion status,** females self-reported higher anxiety and depressive symptoms compared to male participants.
- Anxiety and depression may contribute to poor concussion outcomes.
- Assessing/addressing anxiety/depressive symptoms, particularly among females, may help improve concussion outcomes.