

# Young Athlete Injury Outcome Study (IOS): Health-Related Quality of Life (HRQoL) Analysis

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# Purpose

## Background

- 12 million athletes ages 5-22 suffer sport-associated injury annually (Valovich McLeod, et al., 2009)
- Patients undergoing ACL-R had residual physical & mental health deficits at 6-12 months post injury, which was significantly longer than those with other injuries (McGuine et al., 2014)
- Young athlete sport specialization increases overuse injury risk (Jayanthi et al., 2015; DiFiori et al., 2014)
- Concussion in young athletes affects multiple HRQoL domains (Ladevaia, et al., 2015)
- It is unknown which type of sport-related injury (SRI) has the greatest effect on health-related quality of life (HRQoL) in young athletes.

## Objectives

1. To determine whether the effect of injury on HRQoL and sport participation varies by injury type (i.e. overuse, acute, concussion).
2. To determine whether the effect of injury on HRQoL and sport participation varies by injury severity.
3. To determine whether sport-related injuries in young athletes lead to different effects on long-term HRQoL than non-sport-related injuries in children and adolescents who are not involved in organized sports.



# Study Design/Methods

- Prospective Longitudinal Clinical Cohort Study over 3 years

- Inclusion criteria

- Ages 8 – 18 at time of enrollment
- Acute, overuse, or concussion injury

- Exclusion criteria

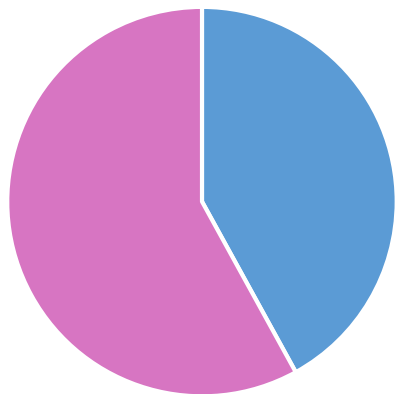
- Outside of ages 8 – 18

Baseline (0-1 Month)		6 Months		12 Months
Clinic Visit		E-Mail or Phone Contact		E-Mail or Phone Contact
PROMIS (HRQoL) (within 1 month)	→	Modified OSTRC	→	PROMIS (HRQoL)
Player Development Survey				Player Development Survey
Modified CLASS (within 1 month)				Modified CLASS
Modified OSTRC (within 1 month)				Modified OSTRC



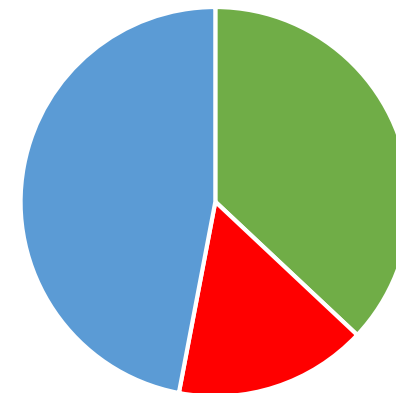
# Results from Cross Sectional Data Set

Sex Distribution (%)



■ Male ■ Female

Injury Classification (%)



■ Acute ■ Concussion ■ Overuse

PROMIS domains	Injury Type	N	Descriptive statistics					Mean [95% CI]		P Value from One way ANOVA
			Mean	SD	Median	Min	Max	Mean [95% CI]		
Pain Interference	Acute	45	48.5	8.3	48.2	37.1	64.9	48.5 [ 46.0, 51.1 ]	0.165	
	Concussion	20	52.9	9.1	53.3	37.1	64.9	52.9 [ 49.1, 56.7 ]	.	
	Overuse	60	50.1	8.6	50.0	37.1	72.0	50.1 [ 47.9, 52.3 ]	.	
Peer Relationships	Acute	46	51.5	11.1	55.5	22.9	61.1	51.5 [ 48.5, 54.5 ]	0.691	
	Concussion	20	53.5	11.4	61.1	22.9	61.1	53.5 [ 49.0, 58.0 ]	.	
	Overuse	60	52.9	8.9	54.9	22.9	61.1	52.9 [ 50.3, 55.5 ]	.	
Depression/Sadness	Acute	46	46.2	9.5	43.8	37.7	66.8	46.2 [ 43.5, 48.9 ]	0.971	
	Concussion	20	46.7	9.4	43.3	37.7	70.5	46.7 [ 42.6, 50.9 ]	.	
	Overuse	60	46.2	9.1	43.3	37.7	67.1	46.2 [ 43.8, 48.6 ]	.	
Fatigue	Acute	46	46.6	9.9	45.9	35.4	69.3	46.6 [ 43.7, 49.4 ]	0.287	
	Concussion	20	48.5	10.5	48.5	35.4	66.0	48.5 [ 44.1, 52.8 ]	.	
	Overuse	60	44.6	9.6	43.1	35.4	77.7	44.6 [ 42.1, 47.2 ]	.	
Anxiety/Fear	Acute	46	44.9	8.8	44.5	35.6	66.9	44.9 [ 42.2, 47.6 ]	0.683	
	Concussion	20	46.9	10.6	44.5	35.6	65.0	46.9 [ 42.8, 51.0 ]	.	
	Overuse	60	46.1	9.2	44.4	35.6	65.0	46.1 [ 43.7, 48.4 ]	.	
Mobility	Acute	47	48.4	9.8	49.5	23.1	57.1	48.4 [ 45.5, 51.3 ]	0.006	
	Concussion	20	51.2	9.2	57.1	27.5	57.1	51.2 [ 46.7, 55.6 ]	.	
	Overuse	60	43.8	10.5	44.7	23.1	57.1	43.8 [ 41.2, 46.3 ]	.	

Promis Domain	injury code	injury code	Mean Difference	95% Confidence Interval for Difference		P
				Lower CI	Upper CI	
Mobility	Acute	Overuse	4.7	0.8	8.5	0.02
	Concussion	Overuse	7.4	2.3	12.5	0.005
	Acute	Concussion	-2.7	-8.0	2.6	0.31

# Clinical Significance

## Limitations

- Analysis presented is preliminary data
- Risk for sampling bias

## Conclusions

- Overuse injuries have a more deleterious effect upon perceived mobility
- There are no differences in other PROMIS HRQoL domains based on injury type
- PROMIS results are generally minimally affected regardless of injury type, relative to the general pediatric population.
- Longitudinal data on HRQoL may guide sports medicine providers in counseling young athletes on effects by injury type

