

# Analyzing the Effect of Somatic Mediators on Post-Concussion Sleep Quality in the General Population: Findings from the Toronto Concussion Study

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## Background

- Sleep changes following concussion are mediated by somatic symptoms
- **This may be due to biomechanical cervicogenic injury** which impacts the brain's sleep-wake structures (i.e. the hypothalamus)
- **Early intervention to address neck pain and headache** from cervicogenic injury may prevent the development of long-term sleep disturbance

## Objective

To investigate the **relationship between cervicogenic injury-related pain and sleep post-concussion** in a naturalistic cohort of adults 8 weeks post-injury.

## Methods

- Adults diagnosed with a concussion, without pre-existing sleep disorders or sleep medication/supplement use, were recruited from the Hull-Ellis Concussion Clinic in Toronto, Canada
- Sleep was assessed by the Sleep and Concussion Questionnaire<sup>1</sup> (**SCQ**) and symptom severity by the Sport Concussion Assessment Tool<sup>2</sup> (**SCAT-5**)
- Headache and overall pain intensity were self-reported on a scale of 0-10

## Results

**Table 1: Participant demographics**

Category	Value (n=220)
Average age (years)	35.1 (SD 11.9)
% Female sex	65%
% Pre-existing condition	Depression (22%) Anxiety (25%) Migraine (27%)

**Table 2: Week 8 SCQ scores vs. neck pain**

Neck Pain	Median Week 8 SCQ Score	p-value
None	5 [IQR 1-10]	0.0033
Moderate to Severe	11 [IQR 6-14]	

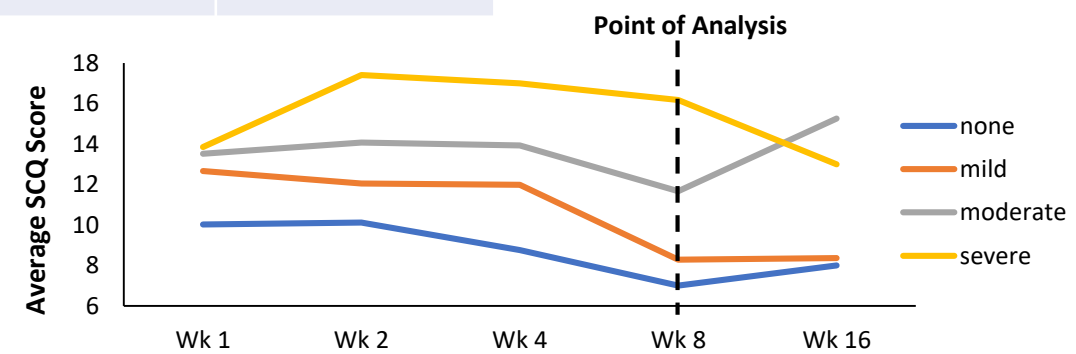


Figure 1: Relationship between average SCQ score and neck pain across recovery

**Table 3: Week 8 headache and overall pain intensity vs. SCQ correlations**

Measure	Correlation (ρ)	p-value
Headache Intensity	0.188	0.0068
Overall Pain Intensity	0.202	0.0027

Our findings suggest that **tailored assessment and non-pharmacological intervention for neck pain** may improve sleep quality in individuals with concussion.