



Restricted Environmental Stimulation Therapy for the Treatment of Acute Concussion

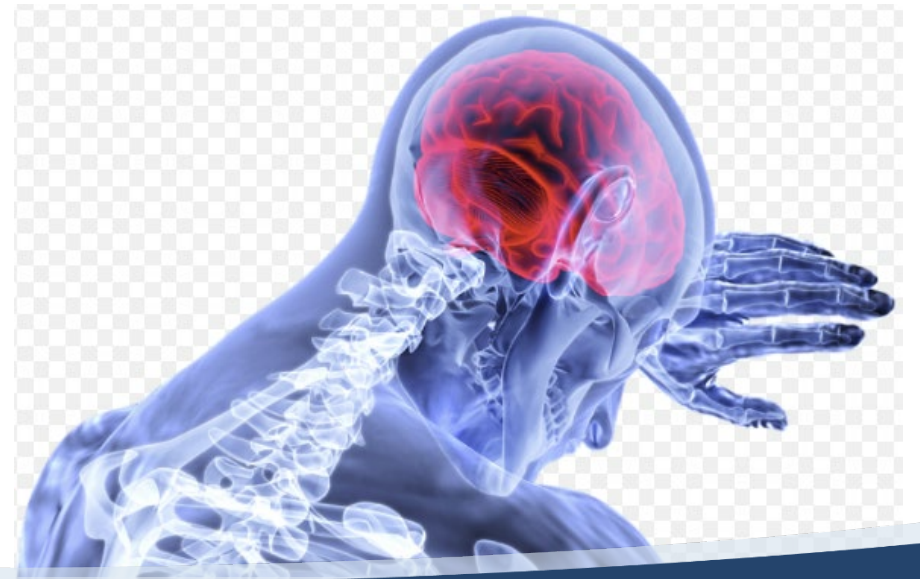
Valeria Dias, MD PGY-3

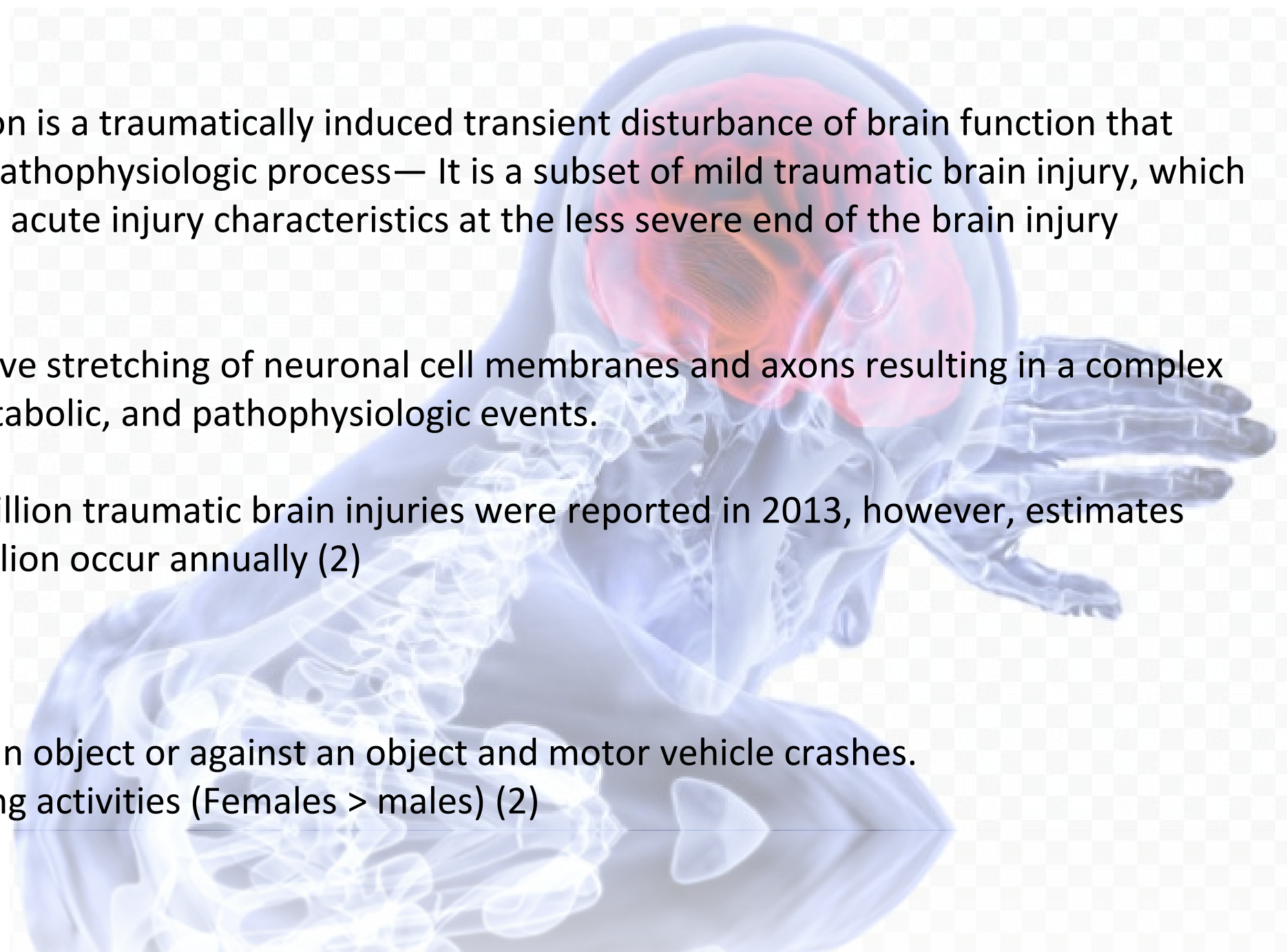
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Can induction of deep relaxation through sensory deprivation have beneficial recovery properties in concussed individuals?





Definition: Concussion is a traumatically induced transient disturbance of brain function that involves a complex pathophysiologic process— It is a subset of mild traumatic brain injury, which is classified based on acute injury characteristics at the less severe end of the brain injury spectrum (1)

Mechanism: Disruptive stretching of neuronal cell membranes and axons resulting in a complex cascade of ionic, metabolic, and pathophysiologic events.

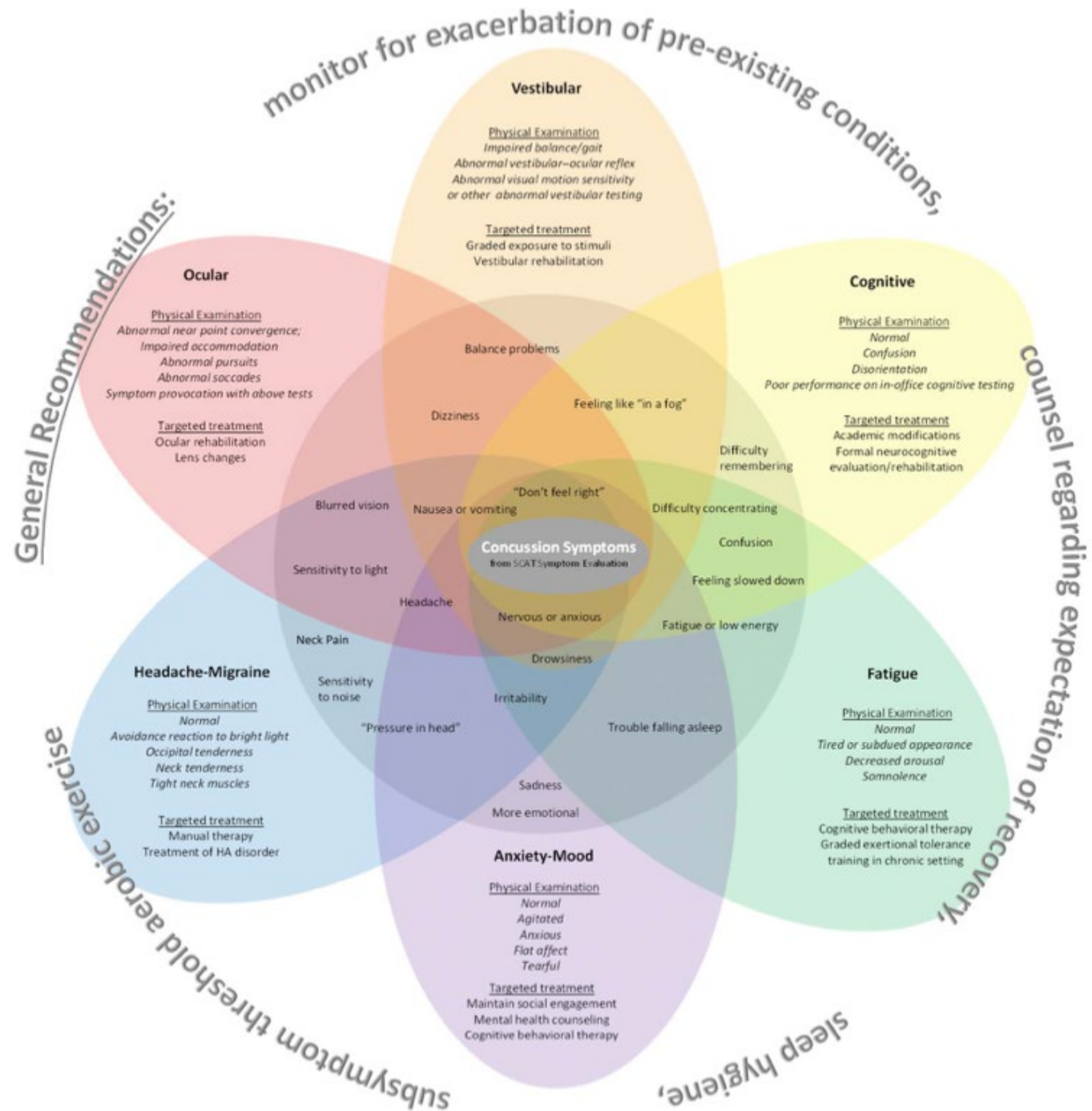
Epidemiology: 2.8 million traumatic brain injuries were reported in 2013, however, estimates suggest up to 3.8 million occur annually (2)

Leading cause:

1— Falls

2— being struck by an object or against an object and motor vehicle crashes.

> 25% during sporting activities (Females > males) (2)





REST or Restricted Environmental Stimulation Therapy



<https://www.youtube.com/watch?v=3KQm9WsZSx8>



REST has shown benefits in the adjunct treatment of stress (1), anxiety (2), depression and difficulty sleeping (3) symptoms from chronic whiplash injury (4), and blood lactate levels and perceived pain after eccentric exercises (5)





The Hypothesis

Does REST for one hour improve symptoms of acute concussion?

Ongoing Prospective Pilot Study

New Concussion

Screening for participation in the study

Begin daily recording of symptoms

Complete 3 REST sessions in a week as soon as possible after entering study

Continue to complete daily symptom sheet until completely cleared for full physical activity by your physician

Population:

Adult subjects with new concussion (<6 wks) from Weber State Athletics and McKay-Dee Sports medicine clinic

Inclusion Criteria

- ☐ concussion within the past 6 weeks
- ☐ Ages 18+* Sport and non-sport related injuries*
- ☐ Initial symptom score > 20 (as indicated by the SCAT 5)

Exclusion Criteria

- ☐ Open sores
- ☐ Current Menstrual flow
- ☐ Mental health disability that will not allow for laying in the pods for at least 1 hour
- ☐ Epilepsy
- ☐ Renal clearance conditions
- ☐ Severe TBI – more than a concussion

- ☐ Pre and post float symptoms survey

REST IN CONCUSSION

PRE/POST FORM

1 REST Information (may be filled out by subject or staff)

Subject ID:

Session number: ① ② ③

Date of session: / /

Hours of sleep last night:

2 Medications (may be filled out by subject or staff)

Have you taken any medications in the last 24 hours?

3 Symptom Score (to be filled out by subject)

0=none, 6=severe

Symptoms (rated 0-6)	Before Session	After Session
Headache	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Pressure in head	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Neck pain	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Nausea or vomiting	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Dizziness	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Blurred vision	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Balance problems	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Sensitivity to light	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Sensitivity to noise	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Feeling slowed down	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Feeling like in a fog	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Don't feel right	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Difficulty concentrating	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Difficulty remembering	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Fatigue or low energy	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Confusion	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Drowsiness	0 1 2 3 4 5 6	0 1 2 3 4 5 6
More emotional	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Irritability	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Sadness	0 1 2 3 4 5 6	0 1 2 3 4 5 6
Nervous or anxious	0 1 2 3 4 5 6	0 1 2 3 4 5 6

4 Problems (may be filled out by subject or staff)

Did you experience any problems during your REST session?

[No]

[Yes] Explain:

How did you "feel" during and after the session?

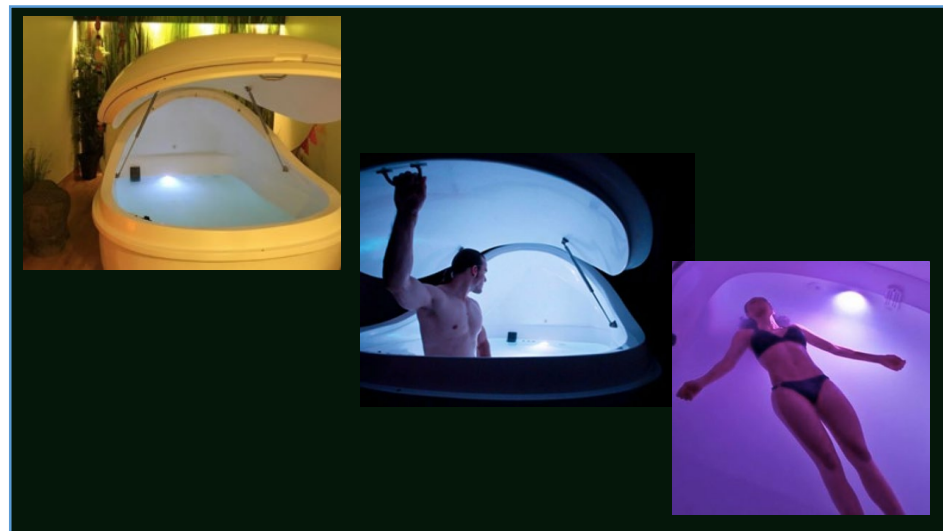
[Better]

[I don't know]

[The same]

[Other] Explain below:

[Worse]



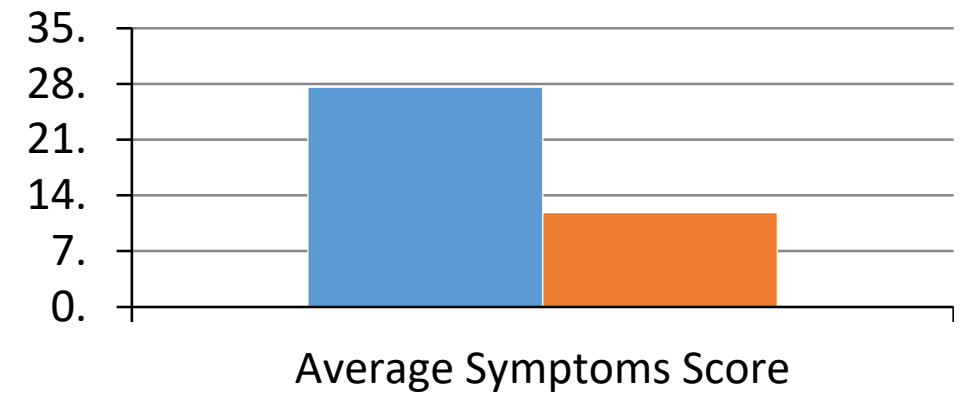
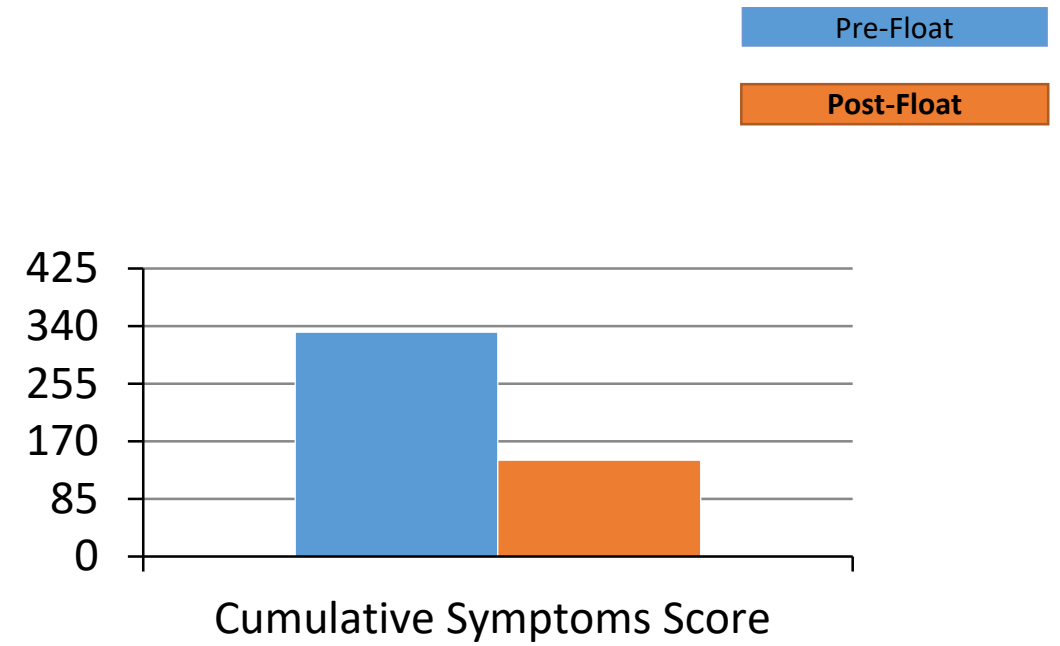
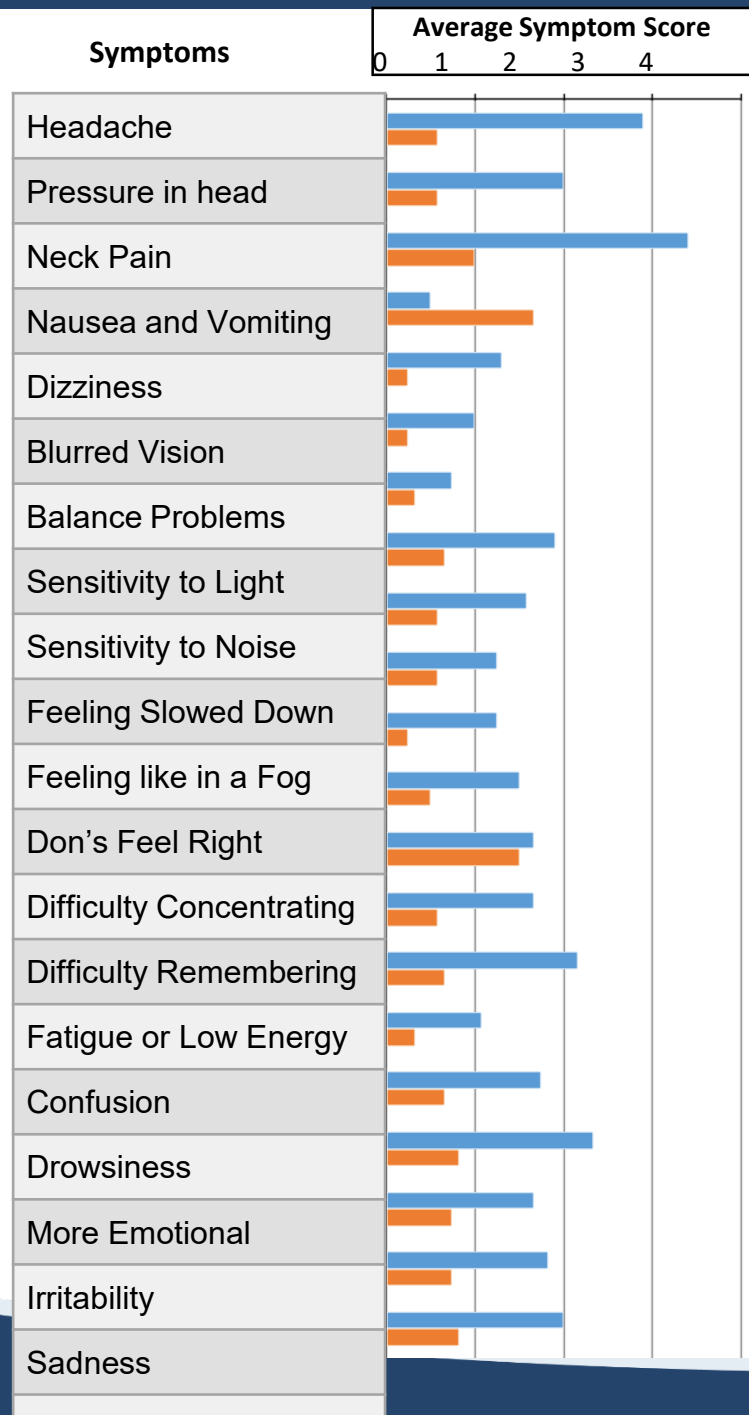
Demographics



Ages 18-45 years old
Average 1 previous concussion
No serious brain injuries
Median 2 days from accident to diagnosis

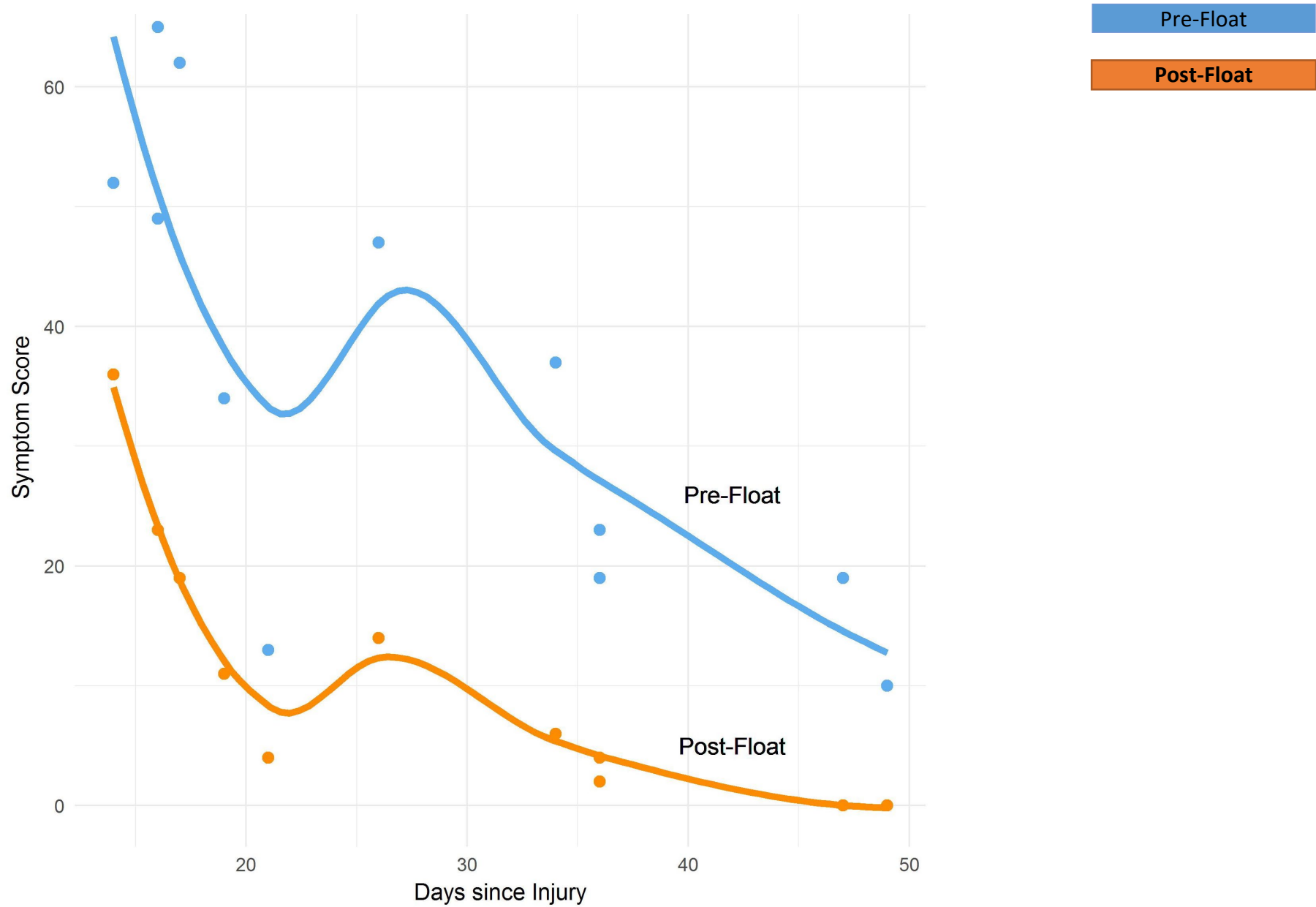


Results



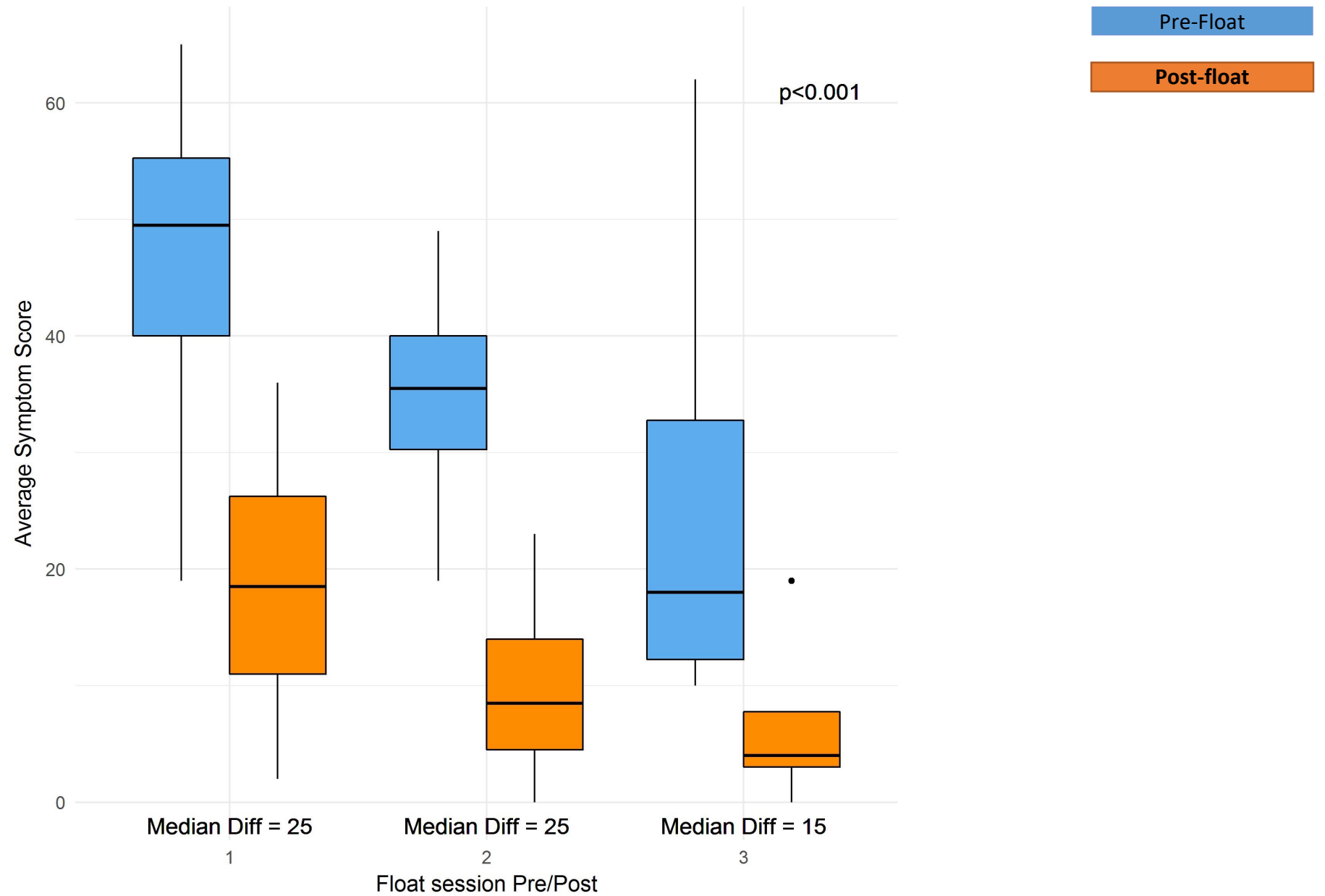


Results





Results



IN SUMMARY:

In this Ongoing Prospective Pilot Study, Restricted Environmental Stimulation Therapy lead to improvement in concussion symptoms.

100 % of the subjects:

Have gone back to school and work

Said they have fully recovered from their concussion

Denied any negative side effects from float

Would recommend to another individual suffering with concussion symptoms

Continuation of this Prospective Pilot study to be presented at 2020 Ogden Surgical Conference:



Haleigh Emerson, MD

Medical School: University of Utah School of Medicine

Undergraduate: University of Utah

Hometown: Roy, Utah

Future questions to be addressed through planned randomized controlled trial:

- What is the rate of recovery using float vs sitting in a quiet place for 1 hour?
- Can float sessions improve chronic post concussive symptoms?
- Is it helpful for young athletes?
- Are the effects of REST different in sport vs non-sport related concussions?



REFERENCES

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2016



Keith Guetschow



2019

THANK YOU!!!