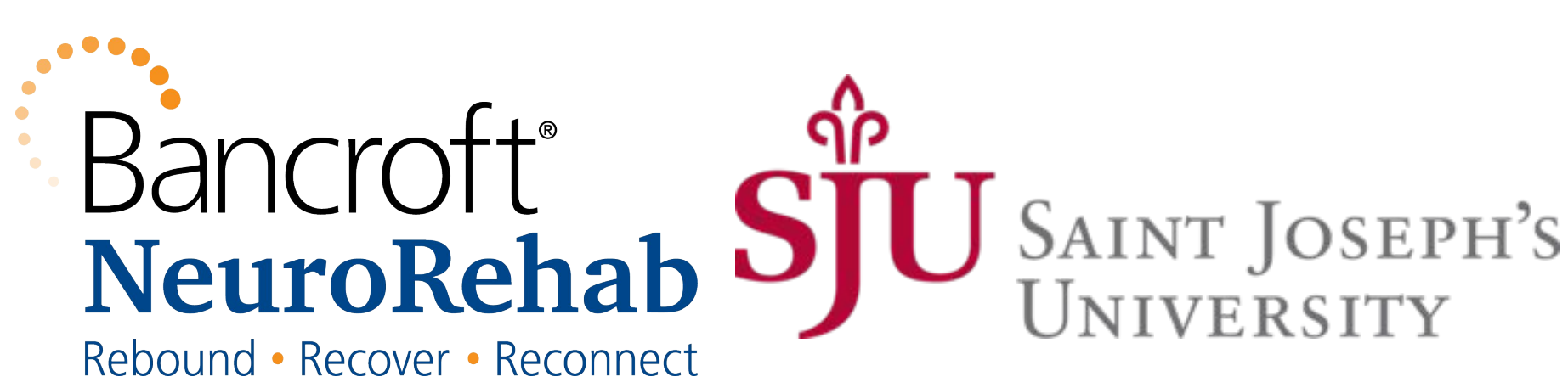


# Mind Over Movement: Taekwondo as a Multidimensional Rehab Strategy for Acquired Brain Injury

## PRESENTERS

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## INTRO

- Survivors of brain injury often have long term physical and cognitive deficits (3,4)
- EXERCISE IS BENEFICIAL TO BOTH PHYSICAL AND COGNITIVE HEALTH** (1,6)
- Many individuals with brain injury have **LIMITED ACCESS** to community resources and adapted fitness programs, or **MAY NOT BE MOTIVATED OR ENGAGED** by these activities
- Certain styles of martial arts have been used in practice for individuals with neurologic deficits (2,5) (e.g., tai chi or qigong) however **THE “HARD” STYLE OF TAEKWONDO HAS NOT YET BEEN EXPLORED IN THIS POPULATION.**

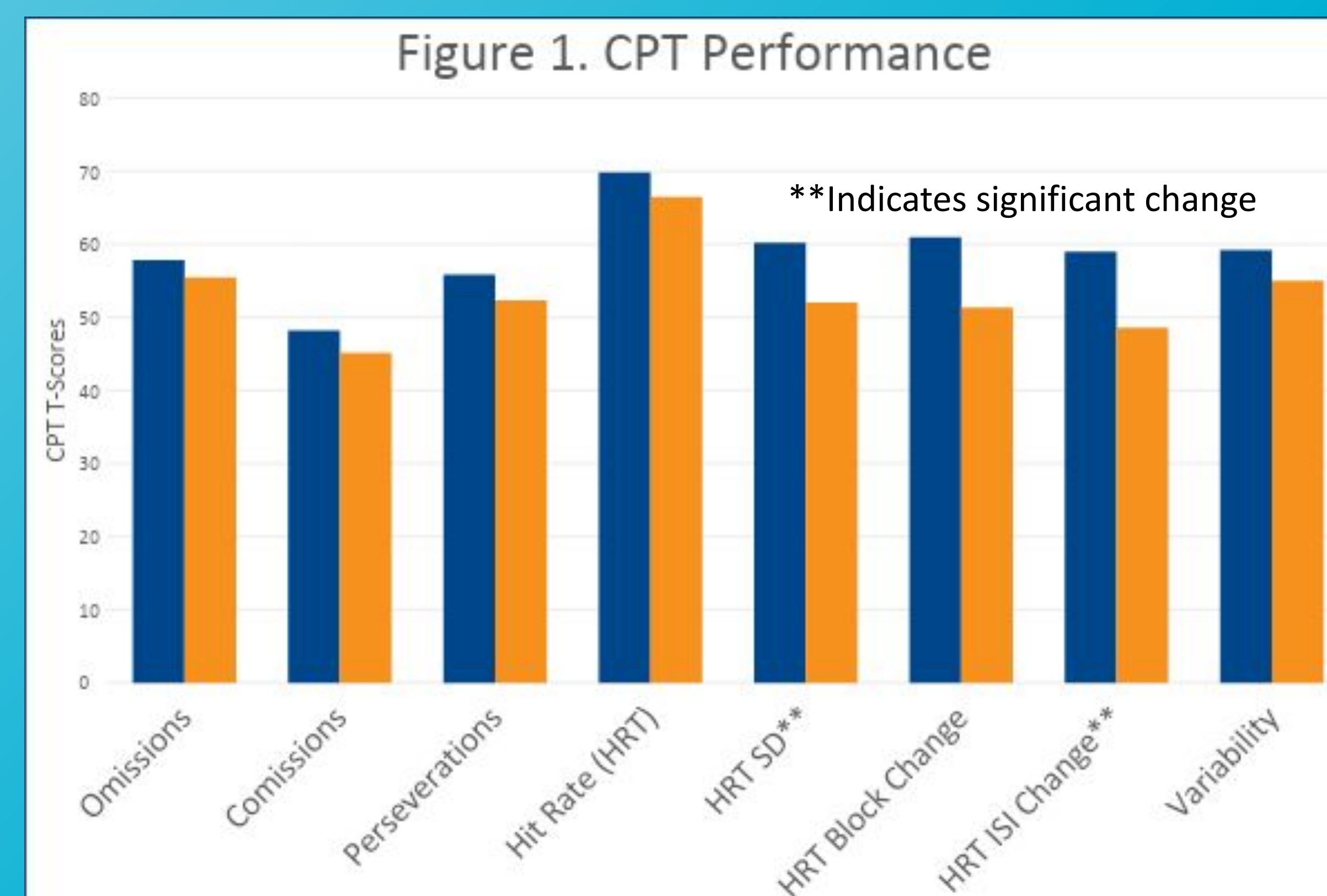
## PURPOSE

- Explore the impact and feasibility of an 8-week community-based Taekwondo program on aspects of cognition, occupational performance, and balance in individuals with chronic brain injury.

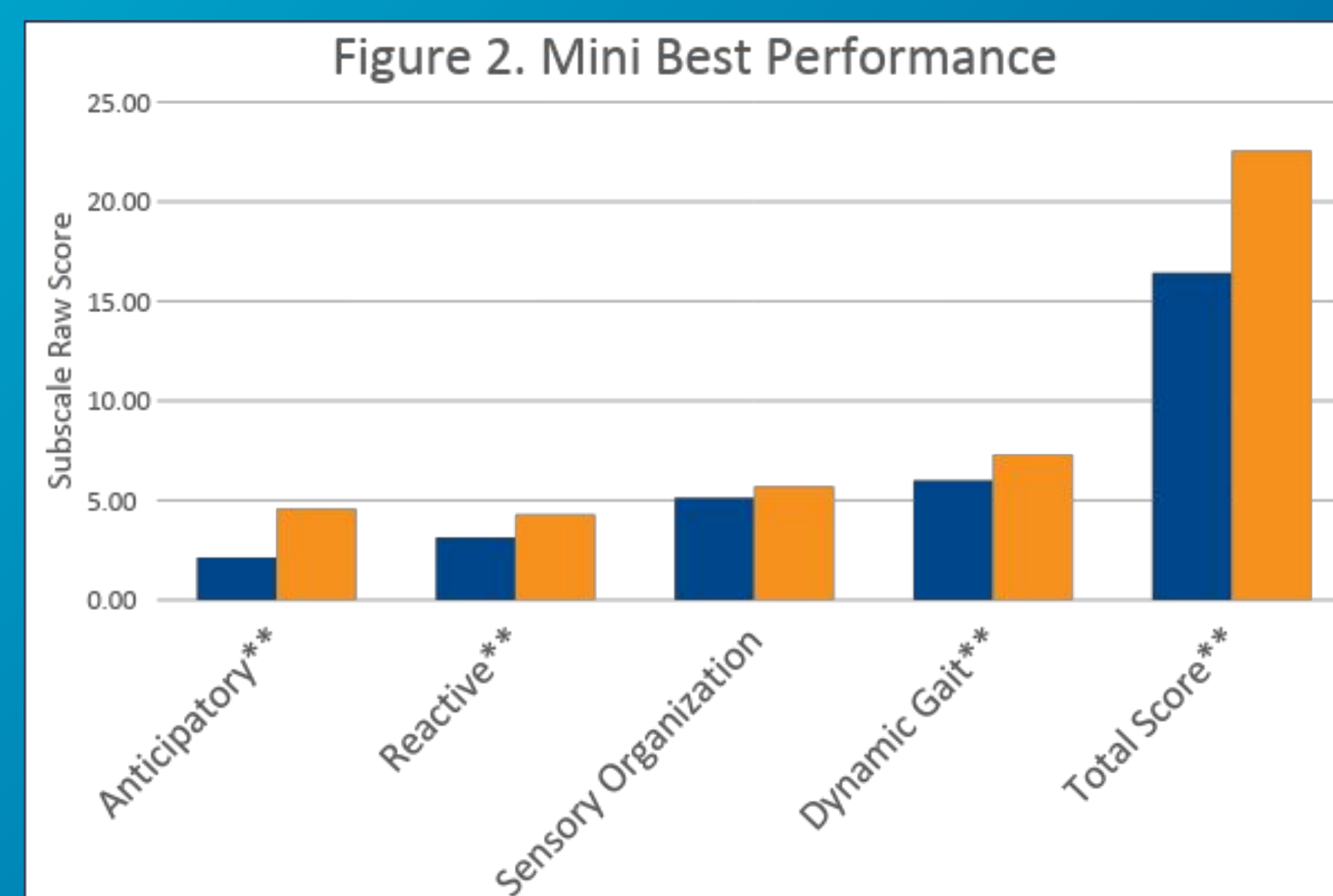
## METHODS

Inclusion Criteria	Exclusion Criteria
Community dwelling individuals	Primary diagnosis of a psychiatric disorder
Over 18 years old	Presence of neurodegenerative disorder
ABI or TBI at least 6 months prior to study	Presence of medical condition(s) that contraindicate exercise
Primary mode of mobility is ambulation	Determined via physician's clearance
Independent or supervision with ambulation and no more than a unilateral assistive device	<p><b>SCAN FOR VIDEO</b></p>
English speaking	
Able to follow at least 2-step instructions	
Physician clearance to participate	

Taekwondo is a dynamic intervention that can safely engage individuals with chronic brain injury and can positively impact aspects of attention and balance.



\*\*CPT3=Conners Performance Test, 3rd Edition:Sustained attention, includes measures of perseveration, omissions, commissions/impulsivity, reaction time, and performance change over time.  
**CPT HRT SD [t(5) =3.29, p =.02] and CPT ISI Change [ t(4) =3.58, p =.023] significantly improved following intervention**

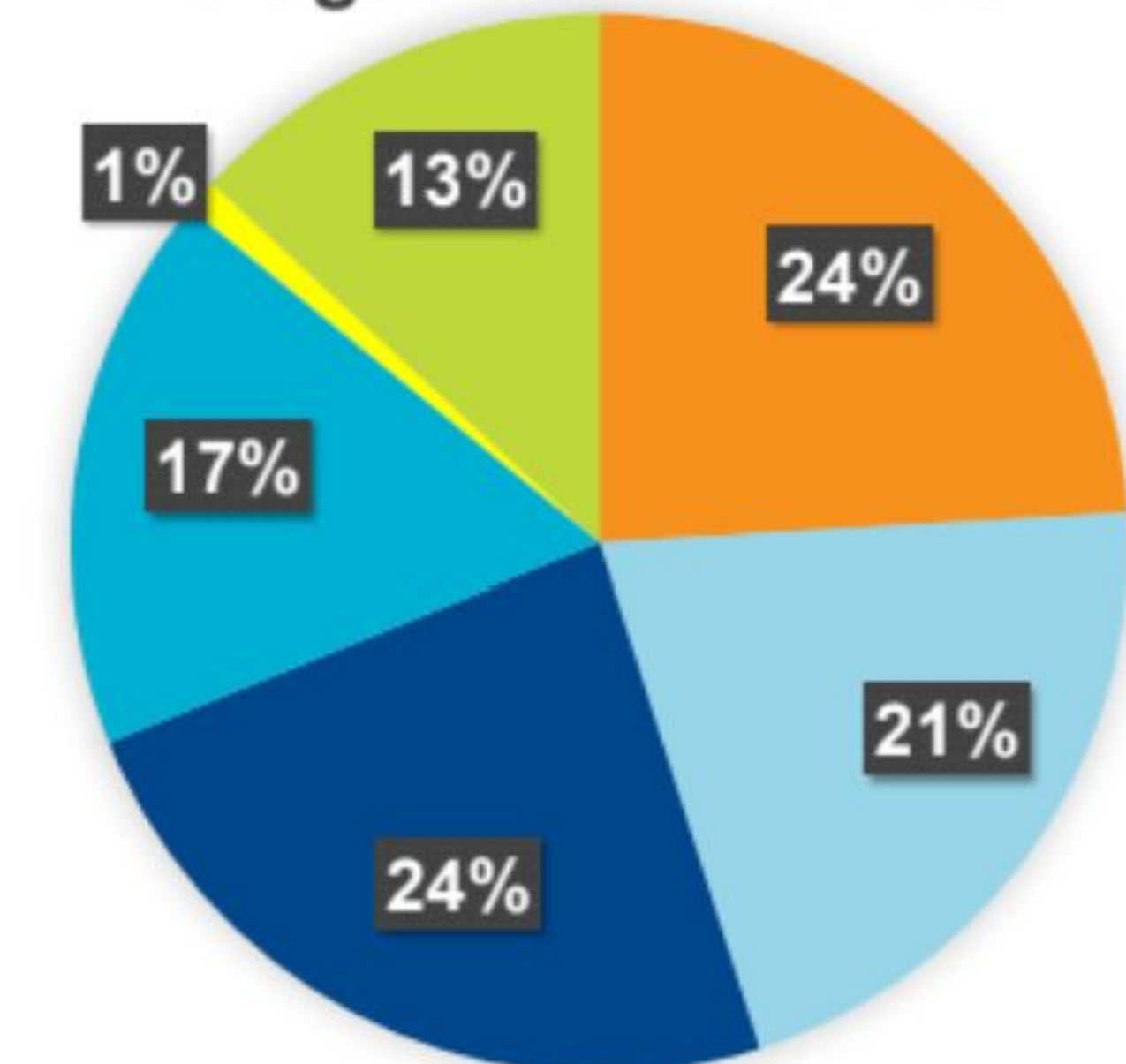


\*\*MiniBest=Anticipatory and reactive balance, sensory organization, dynamic gait.  
**Total Score [F (1,2) = 11.32, p = .005] significantly improved across timepoints. Post hoc pairwise comparisons revealed significant improvements between baseline performance and immediately following the intervention (p = .023) as well as at 30-day retention**

## METHODS CONTINUED

- Intervention
  - 60-min classes, 3x per week, 8 weeks
    - Modifications (e.g., poles) were used for physical support as needed
- Participants required to attend at least 18 classes
- Measures administered at
  - Baseline (pre) and within 72 hours of final class (post)

## Average Class Breakdown



## RESULTS

- No significant change in Canadian Occupational Performance Measure: (p = 0.33)
- Safety:
  - 5 falls total- 2 individuals
  - 0 injuries
- Qualitative improvements noted by care team & families
  - ↑ Initiation and alertness in rehabilitation therapies
  - ↑ Social engagement with peers at day programming
  - ↑ Motivation for learning
  - ↑ Balance, memory, mood, and engagement

## CONCLUSIONS AND FUTURE DIRECTIONS

- Taekwondo is **SAFE AND FEASIBLE** as a community intervention for individuals with chronic brain injury.
- RESULTS DEMONSTRATED A SIGNIFICANT IMPROVEMENT IN ATTENTION AND BALANCE FOLLOWING A RELATIVELY BRIEF TRAINING PROGRAM.**
- No change found in self perception of performance and satisfaction with daily tasks
- Future directions should include investigations of
  - Long term training in Taekwondo
  - Additional cognitive, emotional/behavioral, and motor metrics to better understand the impact of these gains on function, quality of life, and community engagement.
  - The effect on social interactions and self-efficacy
  - The impact of exercise intensity on functional gains

## ACKNOWLEDGEMENTS AND REFERENCES:

- Master Joseph Mertz: Cherry Hill Academy of Martial Arts
- Urban Poling for donating trekking poles utilized for balance support

SCAN FOR REFERENCES

