

## Preliminary Study

# Assessing Online Awareness Among Adolescents with Acquired Brain Injury During Performance of Motor, Cognitive and Functional Tasks

Melamed Snir, M, OT, BOT | Silberg, T, PhD | Bar, O, OT, Msc | Brezner, A, MD | Landa, J, MD | Gliboa, Y, OT, PhD

[Yafit.gilboa@mail.huji.ac.il](mailto:Yafit.gilboa@mail.huji.ac.il)

## Introduction

- Impaired awareness, manifesting as overestimation of cognitive and physical abilities, is often observed in adolescents with acquired brain injury (ABI).
- It can be associated with poor functional outcomes, poor motivation for rehabilitation and compromised safety.
- Online awareness is a dynamic, ongoing process which involves the ability to recognize and correct errors during performance of different tasks. It is critical for independent functioning.
- Research is lacking on online awareness among adolescents with ABI.

## Purpose

To assess online awareness during performance in motor, cognitive and functional tasks, among adolescents with ABI.

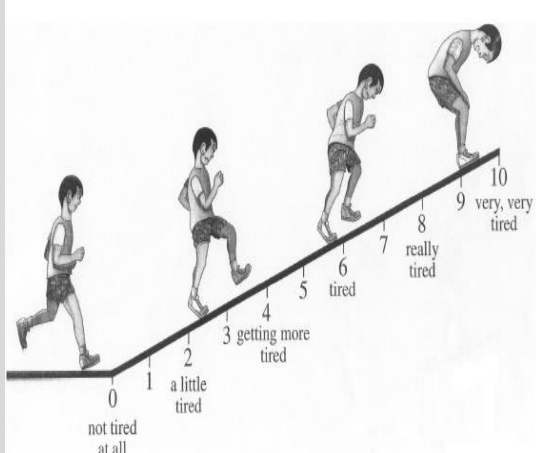


## Method

**Study design:** Cross-sectional study.

**Participants:** 9 adolescents (ages 11-18) with moderate to severe ABI, in chronic phase ( $\geq 6$  months from injury), with impairments in executive functions.

Recruited from the outpatient rehabilitation unit, or follow-up clinic at Safra Children's Hospital.

## Assessments:

	Motor Task	Cognitive Task	Functional Task
<b>Task</b>	Walking on treadmill in variable speeds and slopes	Tower test, from D-KEFS assessment	Children's Cooking Test (CCT)
<b>Online Awareness Assessment</b>	Children's OMNI Resistance Exercise Scale of Perceived Exertion	Awareness questionnaire	Awareness questionnaire
			

## Results

### Motor Task



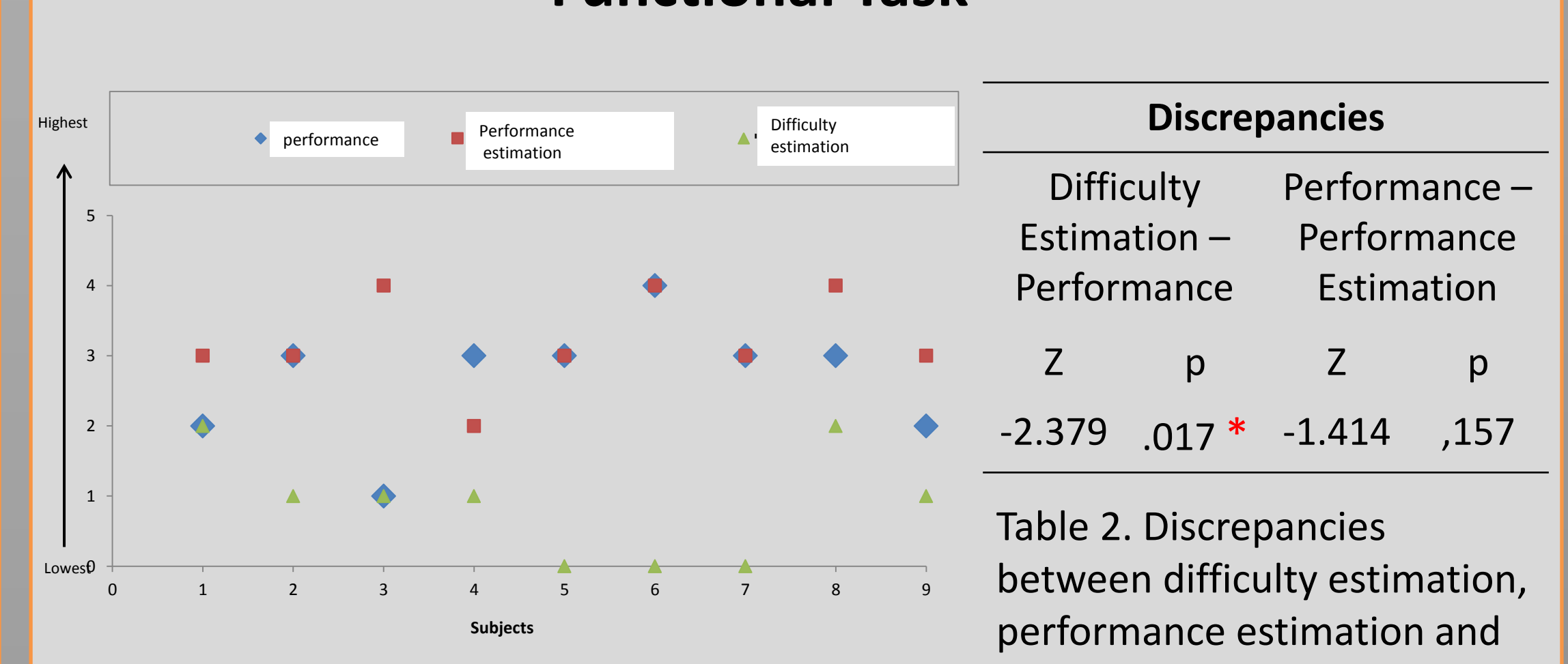
Graph 1. Correlations between OMNI and pulse, on each stage of task. (\*= significant correlation,  $p \leq 0.05$ ).

### Cognitive Task

Stages	Discrepancies			
	Difficulty Estimation – Performance	Performance – Performance Estimation	Z	p
1 (N=9)	-1.000	.317	.000	1.000
2 (N=9)	-1.000	.317	.000	1.000
3 (N=9)	.000	1.000	-1.414	.157
4 (N=8)	-.743	.458	1.342	.180
5 (N=8)	-1.372	.170	-1.890	.059 *
6 (N=8)	-2.565	.010 *	-2.401	.016 *
7 (N=7)	-2.333	.020 *	-2.414	.016 *
8 (N=7)	-2.220	.026 *	-2.214	.027 *

Table 1. Discrepancies between difficulty estimation, performance estimation and actual performance, across tasks stages. (\*= significant difference,  $p \leq 0.05$ )

### Functional Task



Graph 2. Discrepancies between difficulty estimation, performance estimation and actual performance, across subjects.

Discrepancies			
Difficulty Estimation – Performance	Performance – Performance Estimation	Z	p
-2.379	.017 *	-1.414	.157

Table 2. Discrepancies between difficulty estimation, performance estimation and actual performance. (\*= significant difference,  $p \leq 0.05$ ).

## Conclusions

- Online awareness depends on task characteristics.
- While online awareness of performance decreases with a challenging cognitive task, it increases with a challenging motor task.
- Functional tasks can help raise online awareness of performance.
- It is more challenging to estimate difficulty pre-task than to estimate the performance post-task.

## Clinical implications

- Online awareness needs to be assessed in different settings.
- Online awareness can rise when a task:
  - Has major physical input
  - Is mildly cognitive challenging
  - Has functional features