

The Effects of a Play-Based Intervention on Cortisol Levels and Occupational Performance in Children with Attention Deficit Hyperactivity Disorder

Author

Jessica Solanlly García Valenzuela¹

Co-Authors

Eliana Isabel Parra-Esquivel²

Sandra Elizabeth Piñeros Ortiz³



¹ Occupational Therapist, MSc — Instructor, Occupational Therapy Program, Escuela Colombiana de Rehabilitación, Bogotá, Colombia

² Occupational Therapist, MSc, PhD — Full Professor, Department of Human Occupation, Universidad Nacional de Colombia, Bogotá, Colombia




³ MD, Child Psychiatrist — Associate Professor, Department of Psychiatry, Universidad Nacional de Colombia, Bogotá, Colombia

No financial disclosures







Introduction

What is ADHD?

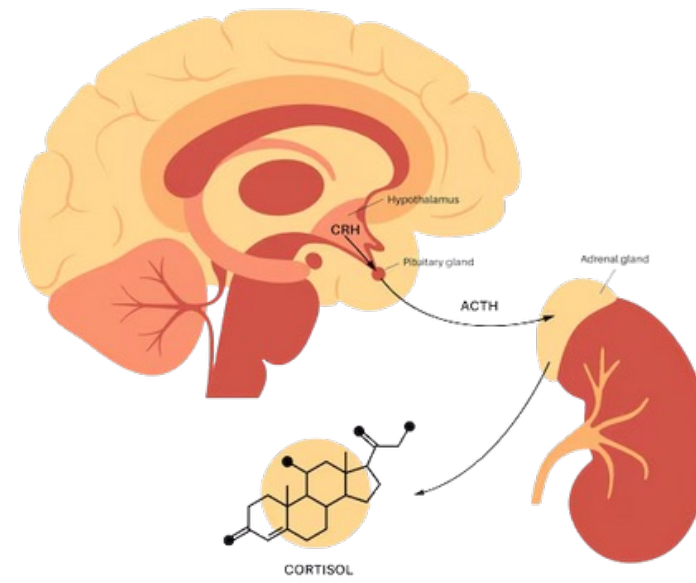
-  Inattention
-  Hyperactivity
-  Impulsivity

(DSM-5)

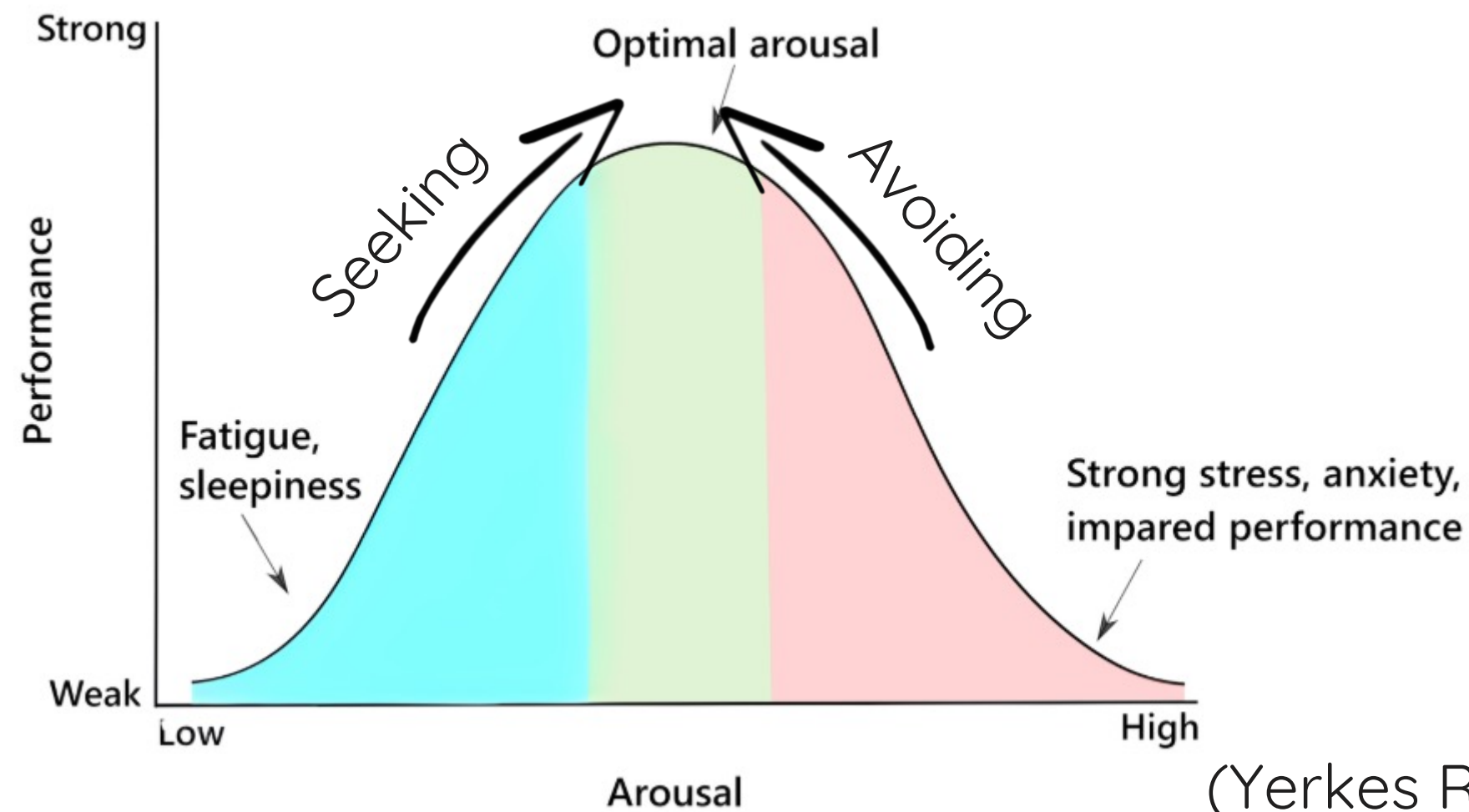
Public Health issue

-  Global and national prevalence (Rohner et al., 2023)
-  Treatment costs (McKenna et al., 2024)
-  Barriers to access to health services (McKenna et al., 2024)
-  Functional impairment (Schein et al., 2023)





- Alteration in cortisol synthesis.
- Impairment of cortical arousal



(Yerkes RM & Dodson JD, 1908)

Why play as a treatment?

Child-centered approach focused on the needs of children

(Lane et al., 2019)

Facilitates behavioral modeling

(Bashash & Moghtader, 2022)

Easy to implement across different contexts and environments, involving multiple stakeholders

(Zagmi, 2022)

Evidence-based treatment approach for ADHD

(The Royal College of Occupational Therapists, 2023)



Promotion of emotional regulation
(Docking et al., 2013)

Development of communication skills
for peer interaction

Wilkes-Gillan et al., 2016, 2022

Objective

To analyze the effects of a play-based intervention on **morning salivary cortisol** levels and the occupational performance of playfulness in a sample of **7 to 11-year-old** children with ADHD residing in the city of Bogotá.



(Ministerio de Salud y Protección Social, 2015)



Methodology



Informed consent

Informed assent



Daily routine questionnaire

OQ - MOHO

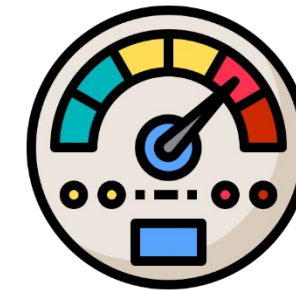


Clinical interview

Takata's Taxonomy of Play

SNAP-IV Scale

Sensory Profile 2



Salivette® cortisol test

Electrochemiluminescence (ECL)

Test of Playfulness (ToP) v4.

Goal Attainment Scale (GAS)



Intervention

Play-Based Intervention

16 therapeutic sessions

8 weeks

Sensory Integration Frame of Reference

PEOP model

Self regulation -Approach

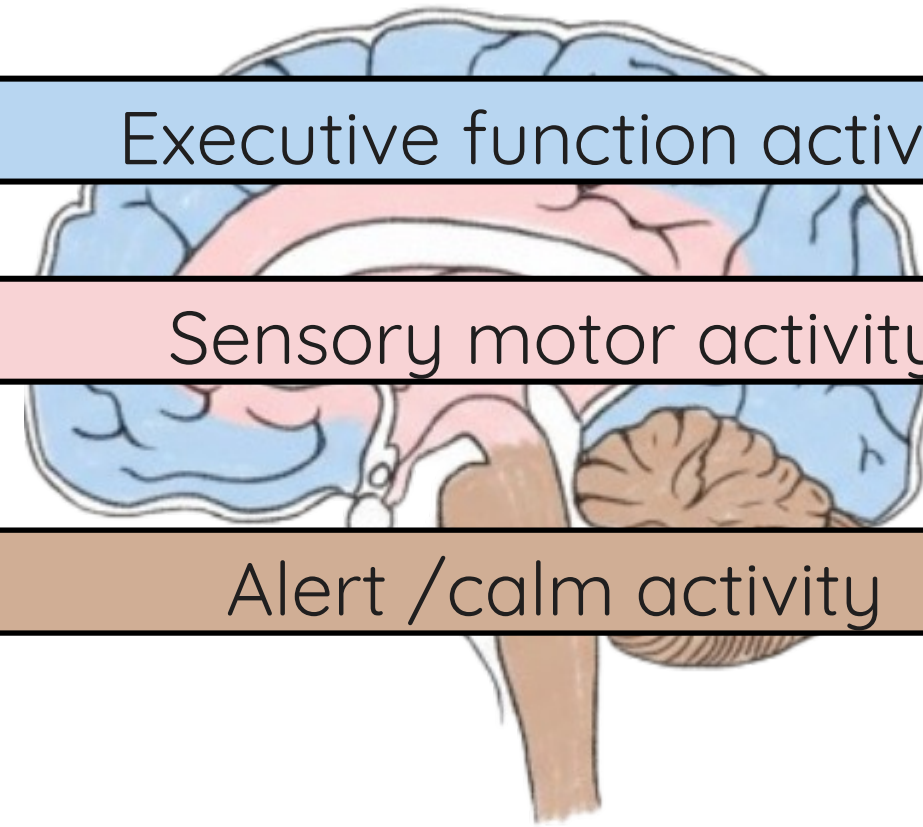
Play routine



Executive function activity

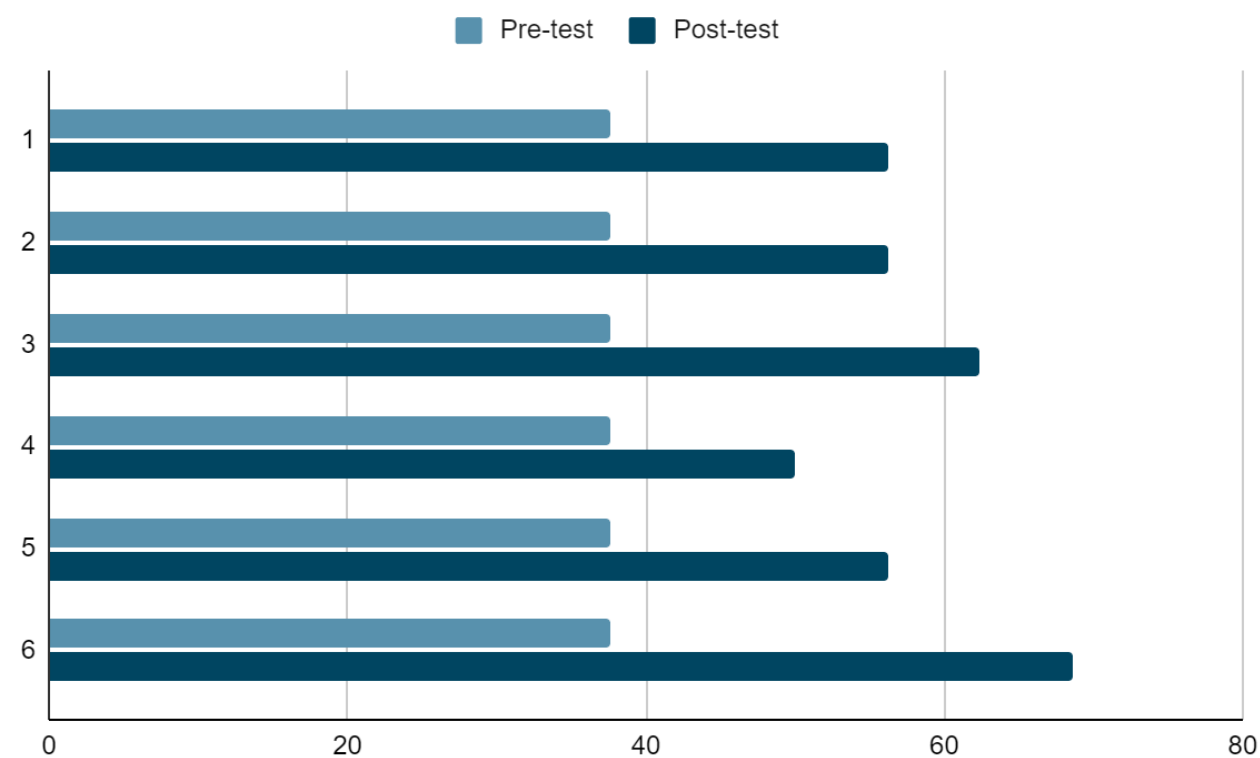
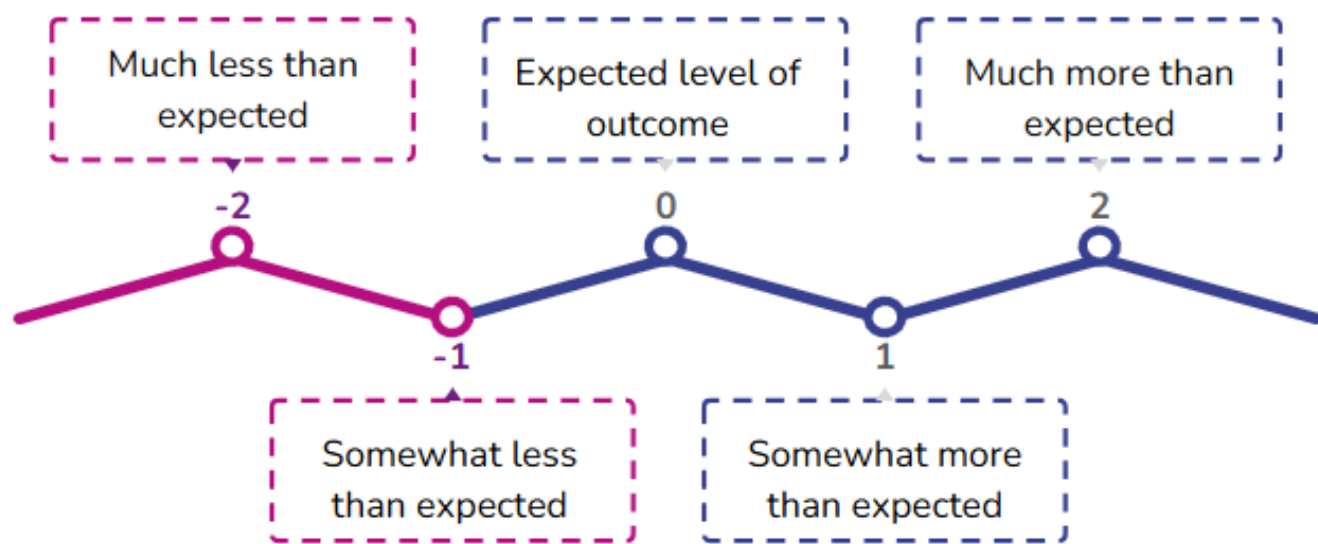
Sensory motor activity

Alert /calm activity



Results

Occupational Performance



Base line	Attainment	Change
33,3	59,7	26,5

Measure	W	Z	p
Pre test / Post test	0	-2.201	0.036





Key Findings and Contributions

Pioneering study exploring the relationship between play-based interventions and hormonal responses in children with ADHD

Play-based intervention promotes social participation, enhancing motivation, self-regulation, and peer interaction.

Play facilitates the development of skills for frustration tolerance, emotional regulation, time management, and behavioral organization.

No significant changes were observed in salivary cortisol synthesis, suggesting differential trajectories between occupational performance outcomes and physiological **biomarkers**.





Implications for Practice and Future Research

Conduct larger-scale studies to strengthen evidence on play-based interventions in children with ADHD

Incorporate cortisol modeling approaches to better understand physiological stress regulation patterns

Involve parents in the intervention process to support carryover across contexts.

Include peers as play partners to enhance social participation and ecological validity.

Integrate perceived stress assessments alongside biological measures.



Let's go to play



Correspondence: jessica.garcia@ecr.edu.co