

# Amelia by XRHealth Clinical Case

## Virtual Reality and ADHD

In children's population



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# Patient

## Luís, 9 years old adopted from Russia at the age of 3

During the pre-adoption period, he was probably institutionalized at a very early age, in an environment with lack of stimuli (lack of information about the biological parents and the environment in which he grew up). → **Early stages of development marked by a lack of secure attachment.**

The period of obligatory schooling begins 6 months after adoption → School mentions "**temper tantrums and bites**", among other maladaptive behaviours towards classmates as well as adults.

He arrives at therapy because with all previous tested treatments at certain point he stagnated and the healthcare professional didn't provide a solution to his impulsivity → He ends up adopting a **very negative self-concept of himself.**

## Reference diagnosis

From the very first moment of the adoption he presents great difficulties in all **areas of learning and development.** Significant deficit, especially in the areas of **language, self-esteem and self-control.**

After a multitude of tests, deafness was discarded to explain language difficulties.

Nocturnal fears and insomnia are also mentioned.

# Evaluation

## **Diagnosed with ADHD at age 6 by Mental Health Services**

Brain mapping and an interview with the family.

They are advised to undergo pharmacological treatment (concerta) but are not informed of the possibility of carrying out psychological treatment. One year after treating ADHD with concerta, the patient is withdrawn due to excitement and anxiety caused by the effects of the drug.

He is derived and evaluated according to the DSM-V criteria after drug withdrawal.

## **Evaluation of the session**

The evaluation is carried out with the patient and the family in order to know in which aspects the therapy is to be deepened.

During the evaluation, the levels of body concentration, attention and concentration abilities as well as self-regulation of impulses and respiratory rate are evaluated.

Self-records and the D2 test (from time to time) were used for the evaluation of the patient's progress.

# Objectives

## Objectives to be achieved

Increase the communicative capacity, by means of a speech therapist.

Adjust the patient's self-concept to reality.

Learn self-control strategies (control tantrums and bad behaviors).

Create the ability to face frustration and learn to reconstruct behaviour through mindfulness.

## Methodology

Speech therapy treatments to incorporate the communicative capacity, be able to communicate and interact with others.

Use of token economy to control temper tantrums and social interactions.

## Plan of action



# Development

Different areas were treated such as mindfulness, reconstruction of attentional processes and anticipation of action with the use of VR, to improve self-control and reduce impulsivity.

## The sessions were structured as follows:

1. Activities focused on attention (10-15min): Awareness of the present (“now and here”), breathing and yoga with the aim of making it easier for the child to be able to focus on therapy, instead of focusing on school topics (homework, exams, ...).
2. Psycho-pedagogical activities (20-30min): Improvement of attention, concentration and self-instructions. The activities were divided so that the patient would be able to perform them by himself.
3. Emotional work: Recognition of emotions, role playing, strategies for coping with frustration and emotional control. Specially in contexts of processes at school and with his peers.
4. Motivation: Use of scenes chosen by the patient as a reward.
5. Homework (once a month): Exercises for home or assessments with the family group.



### ☆ Body Scan

This environment can be used for practicing the mindfulness exercise Body Scan or for practicing the Induced Relaxation for the Jacobson Program. Duration: 5 minutes. Level: beginner-intermediate (adjustable via configuration settings).

Launch Environment ▶

Virtual Reality



### ☆ Conscious Walk

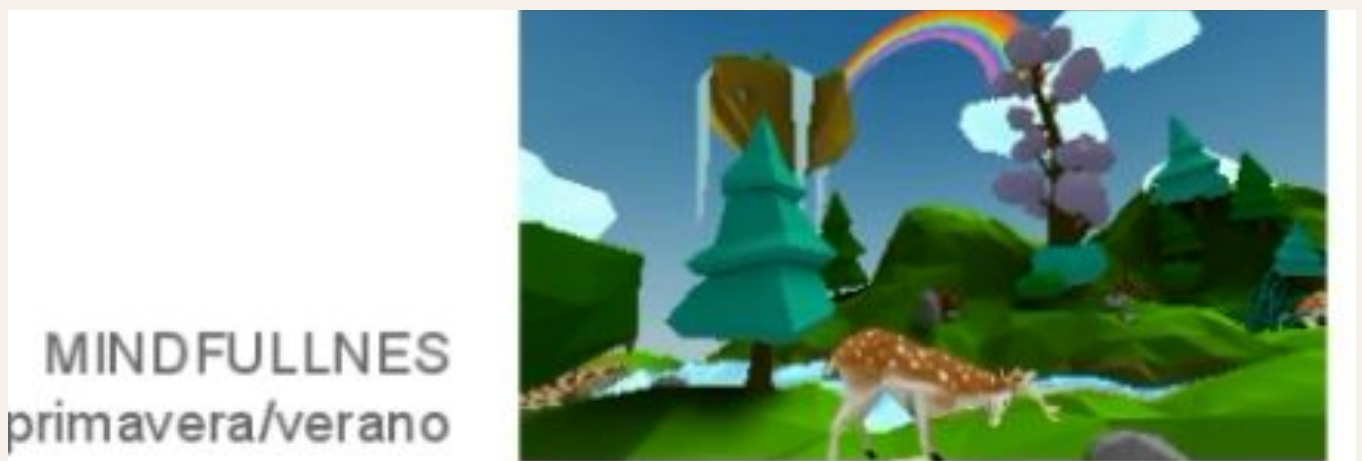
Stroll along a prairie while performing full-attention exercises. Duration: 15 minutes. Level: beginner.

Launch Environment ▶

Virtual Reality

# Results

- It's possible to observe significant changes throughout the therapy especially with the use of relaxation techniques before therapy, as they facilitate the therapeutic process compared to when the relaxation techniques are not performed.
- The use of VR is not only an attractive element for the child, but has also allowed to strengthen the child's self-regulation strategies, giving him a controlled space where he can experience and safely express what he feels, thinks or does according to the results obtained from other therapies he had performed. It also makes it possible to generalize the behaviours and extrapolate reassuring sensations in individuals who do not usually have access to these sensations.
- In addition, the use of VR allows it to be combined with the "pencil and paper" technique to train attention and concentration skills.
- The use of electrodermal response sensor is not recommended in cases of ADHD because it can be a distraction element.





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