

Amelia by XRHealth Clinical Case

**Virtual Reality in a Case of ADHD with
Serious Attentional Difficulties**



**Health care professional with expertise in VR:
Olga Fernández Jucal**

Patient

Male, 10 years old.

Education: Fifth Grade primary school

Reference diagnosis

Neurological diagnosis. Mixed-type attention-deficit/hyperactivity disorder - Pharmacological treatment (concerta).

Psychopedagogical diagnosis. Within normality (WISC-IV)

Evaluation

Psychological interview. security problems, impulsivity, self-control and management of emotions in addition to presenting a low self-esteem (CID, CECAD, CMAS, CPQ, projective test).

Test:

- RAVEN: Above average
- Specific tests of attention: Levels below average, both at sustained and concentration levels. High levels of impulsivity with mistakes.
- Literacy and dyslexia: Within normality, visomotor area below average (age 6 years).
- Viso Perceptive ability: Some degree of difficulty

It is concluded that the problem is mainly due to attention difficulties.

Objectives

Objectives to be achieved.

Improve the attention state of the patient.

Work on self-esteem and securities.

Improve school performance.

Methodology

Work with virtual reality, without headphones to interact with him.

- Incorporate relaxation techniques and generalize them to his daily life. Many of the motor techniques already learned in previous workshops.
- Work with a full and focused attention. Learning to direct attention or focus it with the use of Mindfulness and Amelia by XRHealth distraction.



ENTORNOS RELAJACIÓN

Respiración diafragmática
Relajación muscular



ENTORNOS MINDFULNESS

Atención plena
Dirigir la atención



DISTRACCIÓN

Atención focalizada

Development

Previous intervention (2016-2017): A significant improvement was observed at a psychological level and at pedagogical level; no significant improvement was observed in the attentional levels.

- **Group psychotherapy to improve social skills and self-esteem (1 session per week).**
- **Attention workshops**, work with PIAR-1 and 2 and activities of the notebook "Fixate and concentrate more" (2 sessions per week).

New intervention (2017-2018): Playful and motivating activities to improve attention and memory (2 sessions per week).

The 16 VR sessions were established as follows:

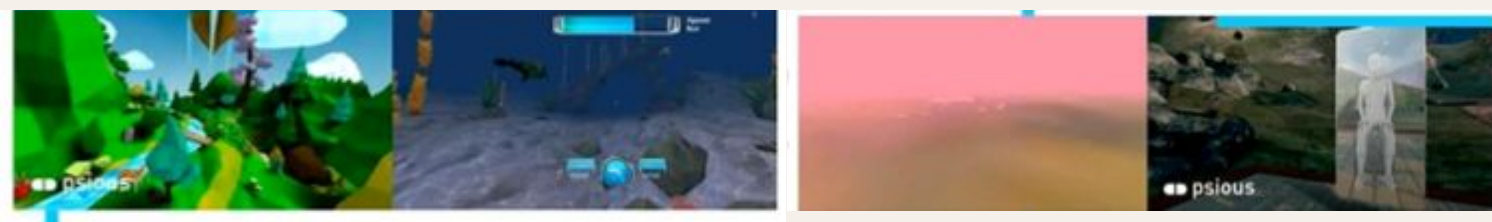
1. Contact with goggles.
2. Diaphragmatic breathing with the use of the "breathing under the sea" scenario with the pufferfish guide. In addition the same scenario was introduced without instructions, in this case it's asked to describe and observe the environment. Finally, the "distraction game" is introduced.
3. Diaphragmatic breathing with the "prairie" environment with the owl guide, in addition the tension-relaxation is practiced and a Jacobson relaxation exercise.
4. Diaphragmatic breathing with the seahorse guide. Introduction of Jacobson's muscle relaxation "under the sea" with music and bubble, and finally a "distraction game".



Development

The sessions were established as follows:

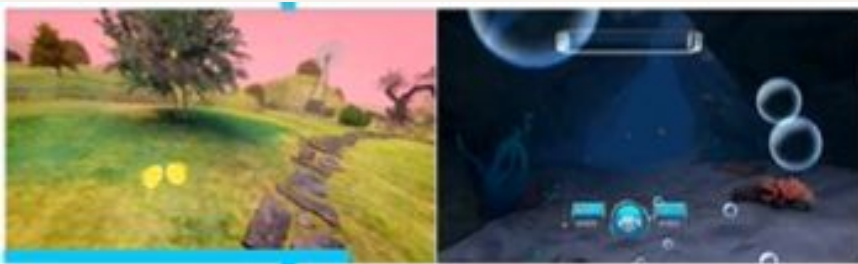
5. Mindfulness without audio on the "spring-summer" scene, it is requested to describe what he sees and to observe the environment in response to different questions.
6. Distraction exercises in the "spring-summer" environment of mindfulness.
7. Practice of diaphragmatic breathing "under the sea" and mindfulness with the "spring-summer" exercise.
8. Diaphragmatic breathing in the waterfall is also observed, focusing attention on sounds.
9. Mindfulness on "conscious walk" scene from pink fog to the lemon tree, explanation and practice of mindfulness "body scan".



Development

The sessions were established as follows:

10. Mindfulness repetition of conscious walk and distraction exercise (Manage to complete level 4).
 11. Mindfulness, synchronized landing breathing, attention to Jacobson's sounds and relaxation on "island beach."
 12. Mindfulness "Atlantic waves" and realization of distraction exercise .
 13. Mindfulness in "swimming with dolphins", practicing breathing and attention to both abdominal, thoracic and synchronized breathing as well as paying attention to the natural landscape.
 14. Mindfulness of "deep roots" and exercises of distraction (Level 4 reached).
- 15 and 16. Review of breathing and relaxation exercises in "the island", review of mindfulness exercises.



Results

The use of VR in this case has meant a before and after in the patient's state, both the healthcare professional and the patient's classmates and teachers report a significant improvement in his behavior. Likewise, the patient himself values the use of VR very positively since it allows him to see many different environments in which he has to perform different activities, practically and independently (in some cases the healthcare professional had to clarify some of the guidelines in the mindfulness scenarios).

The quantitative results found after therapy would be:

- Sustained Attention Capabilities BEFORE: Very low.
- Sustained Attention Capabilities AFTER: Medium-Low.
- School performance BEFORE: Passed.
- School performance AFTER: Good-Notable.

"I imagine the teachers as the fish I have to catch" - Patient explaining about behavior improvement in class.



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