

## **Neuropsychology of Dyslexia and Rehabilitation Approaches: A Research Study Applied to School Aged Children with Reading Disorders in Greece**

**Authors :** Rozi Laskaraki, Argyris Karapetsas, Aikaterini Karapetsa

**Abstract :** This paper is focused on the efficacy of a rehabilitation program based on musical activities, implied to a group of school-aged dyslexic children. **Objective:** The purpose of this study was to investigate the efficacy of auditory training including musical exercises in children with developmental dyslexia (DD). **Participants and Methods:** 45 third-, and fourth-grade students with DD and a matched control group (n=45) were involved in this study. In the beginning, students participated in a clinical assessment, including both electrophysiological (i.e., event related potentials (ERPs) esp.P300 waveform) and neuropsychological tests, being conducted in Laboratory of Neuropsychology, at University of Thessaly, in Volos, Greece. Initial assessment's results confirmed statistically significant lower performance for children with DD, compared to that of the typical readers. After clinical assessment, a subgroup of children with dyslexia was submitted to a music auditory training program, conducted in 45-minute training sessions, once a week, for twenty weeks. The program included structured and digitized musical activities involving pitch, rhythm, melody and tempo perception and discrimination as well as auditory sequencing. After the intervention period, children underwent a new recording of ERPs. **Results:** The electrophysiological results revealed that children had similar P300 latency values to that of the controls, after the remediation program; thus children overcame their deficits. **Conclusion:** The outcomes of the current study suggest that ERPs is a valid clinical tool in neuropsychological assessment settings and dyslexia can be ameliorated through music auditory training.

**Keywords :** dyslexia, event related potentials, learning disabilities, music, rehabilitation

**Conference Title :** ICPS 2019 : International Conference on Psychological Sciences

**Conference Location :** Paris, France

**Conference Dates :** August 27-28, 2019