

## Relevance of Auditory Processing in School Performance

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### Introduction

Central Auditory Processing Disorder (CAP) is a hearing disorder in which the individual has difficulties in perceiving, discriminating, memorizing, recognizing or understanding information presented auditorily [1].

Generally, the individual who suffers from CAPD has difficulties in understanding speech and executing oral instructions, resulting in difficulties in learning and/or performing tasks [2].

The assessment of Central Auditory Processing and its disorders focuses on school-age children and their impact on learning, language, listening and communication skills. However, this pathology affects children, adults and the elderly population.

The prevalence rates of CAP disorders reported in the literature are very variable and inconsistent, both in children and adults, in general, it is estimated that it is an uncommon pathology in children and young adults, but more common in adults with history of traumatic brain injury. A relevant fact is the prevalence of this pathology in children with learning difficulties, which is around 50%.

The British Society of Audiology categorizes PPAC disorders into three main groups: Developmental CAP Disorder (Primary), Acquired CAP Disorder, and Secondary CAP Disorder [3].

### Signs and symptoms

The patient behaves as if they have a hearing impairment, however the hearing sensitivity study shows normal values, difficulties in understanding in noise and/or in low redundancy listening situations.

### CAP assessment objectives

Identify the presence/absence of alterations in the central auditory nervous system and diagnose CAPD and Describe the nature and severity of the disturbance, for the further development of individual intervention programs [4].

### Basic audiological assessment

Threshold pure tone audiogram, tympanogram with ipsi and contralateral acoustic reflexes, otoacoustic emissions and vocal audiogram.

### Auditory processing assessment

The creation of the auditory processing assessment battery for the Portuguese language European version (BAPA-PE) [5] provided a very useful tool in the assessment of these patients and fill an existing gap for our language (Assessment tests that include speech stimuli have to be developed for each language - for example European Portuguese is different from Brazilian Portuguese).

### PPAC intervention principles [4]:

- **Bottom-up intervention:** Auditory and multimodal training to reorganize the SANC and environmental modifications (i.e. approaches that increase signal clarity and/or improve the auditory environment, including systems FM, improvement of room acoustics, etc.)
- **Top-down intervention:** Training of central resources (linguistic, cognitive and metacognitive strategies), educational intervention (modifications in terms of instructions and learning strategies) and modifications in terms of work, leisure and housing, allowing compensatory methods to minimize functional deficits in terms of hearing performance.

## Conclusion

This new assessment tool in Audiology will allow a better understanding of the performance of these individuals, allowing the development of multidisciplinary intervention programs that will surely improve the performance of these patients and therefore improve their social, professional and academic performance.

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