Auditory processing disorders following a sport-related concussion
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Introduction

A concussion is a complex pathophysiological process affecting the brain that can be caused by a direct blow to the head, or elsewhere on the body with an "impulsive" force transmitted to the head.1

Auditory processing deficits refer to a disruption in the processing of auditory information by the central nervous system.2

Focal and localized brain lesions to various structures of the auditory pathway disrupt auditory processing, whilst preserving peripheral auditory perception3,4

A single case study found that a mild traumatic brain injury caused deficits for certain aspects of central auditory processing, including dichotic hearing, duration pattern recognition, compressed speech and competing speech comprehension5

Method

Participants

• 16 university athletes
• men6
• 8 sustained a sport-related concussion
• No otologic problem

Peripheral auditory functioning

• Detection (250-8000Hz)
• Speech perception in silence

Central auditory processing

• Tone-Pattern Recognition
  • A. Frequency Pattern Sequence test7
  • B. the Duration Pattern Sequence test8

• Monaural separation/closure
  • C. Synthetic-Sentence Identification in Ipsilateral Competing Message (SSI-ICM)9

• Dichotic listening ability (binaural integration)
  • D. SSW10

Results

Peripheral auditory functioning

Normal functioning of the peripheral auditory system for all athletes

Central auditory processing

Normal functioning of central auditory processing for all non-concussed athletes

Conclusions

65% of the concussed athletes (5 out of 8) made significantly more errors than the non-concussed group in at least one of these tasks

Different pattern of deficit

• the assessment of auditory processing requires an extensive testing battery of auditory functions
• an auditory processing disorder can manifest itself through various profiles of deficits11

A systematic evaluation of auditory function might be considered following a sport-related concussion and other head injuries

Références