Concussion And Its Impact On The Auditory System

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Objectives: Summary data of clients referred for audiological evaluation following concussion to the neuroaudiolgical clinic at Dalhousie University, School of Communication Sciences and Disorders, over an 18 month period will be reviewed to outline auditory impact of such clients.

Background: Canadian Concussion Guidelines suggest obtaining an audiogram for those sustaining a traumatic brain injury. While there is evidence that head trauma can have an impact on the peripheral hearing mechanisms, it generally requires significant head trauma to induce temporal bone fractures, resulting in either conductive or inner ear damage. In contrast, clients suffering mild concussions can experience significant auditory difficulties including difficulty hearing in the presence of background noise, localizing sounds, loss of enjoyment of music, balance and sound sensitivity issues (including tinnitus, hyperacusis). These conditions can interact with other sensory and cognitive deficits that can cause clients to isolate themselves resulting in job loss, social isolation and depression.

Methods: Client audiological data from the last 18 month period will be reviewed and summarized to analyze patterns and trends within behavioural and evoked potentials including auditory middle and late latency responses along with auditory P300.

Results: Results indicate that clients with auditory complaints after concussion display varied behavioural and evoked potential responses.

Conclusions: Audiology complaints resulting from concussion cannot be appreciated by pure tone audiogram only. Advanced testing in the form of behavioural and evoked potentials are recommended in order to help delineate a rehabilitation plan and monitor outcomes. Recommendations include changes to the Canadian Concussion Guidelines will be discussed.