Diagnostic and treatment of otolith disorders

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Some years ago little was known about the symptoms, diagnostic methods and treatment of otolith disorders.

The postural control in otolith disorders is highly reduced during stance and gait tasks. This is especially true if the proprioceptive and/or visual inputs are reduced. Patients with otolith disorders use the trunk sway to ensure postural control during different senso-motoric conditions.

The diagnostic methods for the analysis of otolith function were much improved over the last decade. The gold standard for examining utricular function is the excentric rotation and for the saccular function the vestibular evoked myogenic potentials (VEMP).

For the application of VEMPs in clinical practice it is necessary to determine all parameters, which influence the latencies and amplitude of the potential. Thus normative values were calculated for VEMP - latencies and - amplitudes with respect to age, gender, stimulus design and tonic neck muscle activity. By using the equation developed in this work, a quantitative evaluation of saccular function was possible for the first time.

Since otolith disorders are difficult to treat a new therapeutic approach was developed to enhance the central vestibular compensation. This rehabilitation training reduced the trunk sway of the patients very effectively by applying a non-vestibular neurofeedback signal.