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Musculoskeletal

Functional improvements after vestibular rehabilitation

...which patients benefit most?

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Gaze-stability is the term used to describe the eyes maintaining a stable position in space. Throughout normal activities of daily movement, such as walking and running, the head is often rotating side to side with a high rate of velocity.

It is through the stability of the ocular mobility and the vestibular system, together called the vestibular-ocular reflex (VOR), that the body is able to stabilise what the eyes are looking at, and the body's response needed to maintain balance.

The aim of this study was to investigate whether vestibular rehabilitation improved functional outcomes in patients with vestibular hypofunction.

Nineteen patients who had undergone unilateral vestibular deafferentation surgery (UVD) which left their VOR impaired were included in this study. The following patient reported outcome measures were used to record dizziness and confidence with daily activities: the Dizziness Handicap Inventory, the Activity Specific Balance Confidence Scale.

Dynamic Visual Acuity Tests (DVA) were conducted for gaze-stability with and without head movement. The Dynamic Gait Index was used to assess functional gait and balance with head movement. Accessory outcome measures included the Timed Up and Go and Gait Speed and Endurance tests. Physiological measures specific to the vestibular system were were the Video Head Impulse Test (vHIT) and the Vestibular Evoked Myogenic Potential Test.

In the exercise group, participants each underwent vestibular physiotherapy (VPT) for six weeks following their surgical procedures, including 5 weeks of gaze stability exercises as well as static and dynamic postural exercises, including a home exercise programme. Each group completed two active gaze stability exercises a day, two static balance exercises, and two dynamic balance exercises. Each exercise was performed for 3 repetitions of 1.5 minutes of duration every day.

Physiological tests (i.e., the vHIT and VEMPT) were inconsistently showing improvements in overall VOR function following VPT. However, there was a significant improvement in subjective reporting and performance testing following VPT, indicating a greater reported confidence by participants with daily activities and balance following VPT. This study supports the use of physiotherapy interventions, even in those with permanent VOR impairment, to improve balance, gaze-stability and overall function.

Expert opinion

The authors of this article utilised many of the commonly used clinical outcome measures for vestibular rehabilitation.

While this article did highlight that further objective testing may not yield a significant change following physiotherapy input, the significant improvement in the patient's confidence with activity and functional balance supports the benefit and continued use of vestibular therapy.