

Physical Therapy and the VOR

Author: Rene D. Crumley, PT, DPT, NCS

Fact Sheet

Produced by



A Special Interest
Group of



Contact us:

ANPT

5841 Cedar Lake Rd S.
Ste 204

Minneapolis, MN 55416

Phone: 952.646.2038

Fax: 952.545.6073

info@neuropt.org

www.neuropt.org

a component of



How does physical therapy help people with “inner ear” problems?

To keep our vision clear and our balance and walking steady, the brain gets information from three systems: our eyes, our position sensors in our legs and neck, and our inner ear balance systems. The ear systems and the eyes work together through the *vestibular-ocular reflex*, or the *VOR*, which is a very fast reflex that keeps our vision clear with head movement. This reflex can become damaged with an injury to the balance part of the inner ear. Through a process called *VOR* adaptation, we can make changes to the way our ears and eyes work together to compensate for injury.

How does VOR Adaptation work?

The physical therapist will provide you with exercises to help the reflex regain its function. You will be taught to focus on a target while moving your head side to side up and down. These exercises will cause a very slight blur which will retrain the brain to reset the way the eyes move with the head.

What else do I need to know about VOR Adaptation?

At first the exercises may make your dizziness worse. This is normal and part of the healing process. The repair shop of the brain, the cerebellum, needs to practice different movements to help you see clearly when you walk or turn your head. Your physical therapist will progress you through these “gaze stability exercises” at each appointment so that you will be able to perform your normal activities without visual blurring or dizziness.

References:

Herdman SJ, Clendaniel RA. Vestibular Rehabilitation, 4th Edition. Philadelphia. FA Davis Company, 2014.

Han BI, Song HS, Kim JS. Vestibular Rehabilitation Therapy: Review of Indications, Mechanisms, and Key Exercises. J Clin Neurol. 2011 Dec; 7(4): 184-196.