

Western Carolina *WCPT* Physical Therapy

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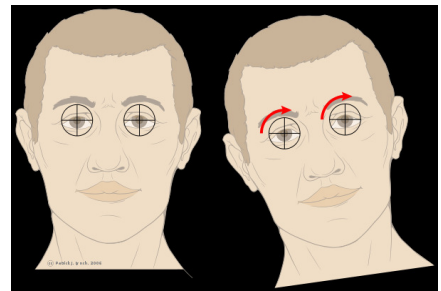
VOR and VSR

By Liz Hager, PT, DPT

Vestibular Ocular Reflex (VOR): is a reflex that coordinates eye and head movement in order to keep an object in focus. The VOR is one of the fastest reflexes in the human body. Head movement must be compensated for almost immediately to have clear vision. This means when your head moves one direction, your eyes must move in an equal and opposite direction at virtually the same speed as the head movement to keep a target in focus. In other words, when the head rotates 20 degrees to right, the eyes must move 20 degrees to the left at the same time and almost the same speed to maintain clear vision.

For Example:

When you are walking your head is not staying perfectly still but rather is rotating and moving up and down. Yet objects, such as pictures on the wall, don't rotate or jump up and down, they remain still. This is because your vestibular system is working to trigger your eyes to move in the opposite direction of your head to keep objects in focus.



Your VOR works best at high frequencies; a frequency greater than 1 Hz, which is equivalent to turning your head to the right and the left in one second or up and down in one second. If your head is moving slower than 1 Hz, then your visual system will take over the responsibilities.

Vestibular Spinal Reflex (VSR): is a reflex body movement that maintains your posture and stabilizes your body; this reflex keeps you upright. It is actually made up of several reflexes and refers to reactions that happen below the neck.



For example:

If you tip your head to the right, the spinal cord will induce extensor effects on your muscles on the right side of your body and flexor effects on the muscles on the left side of your body (similar to one side pushing and the other side pulling) so that you don't lose your balance. OR...If someone bumps into you on the right and you start falling to the left, you need all your muscles on both sides of your body to activate (a push from one side and a pull from the other) so that you don't fall down.

Your therapist will assess for deficiencies in these areas and instruct you in specific exercises in order to improve these responses.



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