CRAIG HOSPITAL | NEUROREHABILITATION & RESEARCH HOSPITAL

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Sensory and Perception After BI

The five senses are sight, sound, taste, smell, and touch. We also have "special senses" that help us keep our balance, tell us how our body orients itself in relation to the environment, and tell us where one part of our body is in relationship to the rest. Perception is how the brain interprets the sensory information that is constantly being sent to the brain. Perception is complicated and can be affected in many different ways by a brain injury (BI). For example, perception can be affected if an eye, ear or another sensory system is injured. It can also be affected when an injured brain incorrectly interprets the information it receives.

The Occupational Therapist (OT) will do a perceptual evaluation to determine if perception has been affected and will develop treatment plans for improvement. A few signs or examples of perceptual problems include:

- Under-reaching or over-reaching when trying to grasp an object
- Trouble recalling things that he or she has seen, felt, or heard
- Difficulty putting objects together
- Trouble organizing clothes or getting dressed
- Impaired writing and drawing ability
- Difficulty identifying common objects

What You Can Do

- If you notice any of the above signs, tell your OT. Try to remember specific examples and situations.
- Ask the OT for suggestions or recommendations for activities that may be helpful.

Rev. 1/2026
Publication # 901

Vision

Difficulty seeing can occur for several reasons; the eyes may be damaged by the injury, the brain may lose control of eye muscle movements, or the brain may interpret visual messages differently. The OT can help sort out vision problems. After doing an evaluation, a referral will be made to an additional vision specialist if needed. Vision changes may include:

- **Blurred Vision:** Blurred vision can occur up close or at a distance due to the injury.
- **Double Vision (diplopia):** Diplopia occurs when the eyes do not move together, causing seeing two of everything. This makes it hard to know where objects are, and can lead to bumping into furniture or dropping or spilling things. Closing one eye can be helpful. Sometimes wearing special glasses can prevent double vision.
- **Drooping Eyelid (ptosis):** A drooping eyelid will block vision and can cause dizziness. It can make it hard to judge distances, or how fast something is moving. It can also make it hard to pour liquids.
- **Loss of Vision:** Loss of vision can be caused by damage to a part of the brain or nervous system that carries messages from the eyes. This loss may be complete or partial. Sometimes part of the visual field may be missing. For example, vision may be impaired in the left half of each eye. When this happens, the person may fail to see things to the left, but may be able to see in all other directions. This is called a visual field cut.
- **Visual inattention or neglect:** Damage to the part of the brain that processes information can lead to a neglect or inattention. When this happens, it's difficult to pay as much attention to the right or left side (for example, may forget to bathe one side of their body).

What You Can Do

- Practice any special eye exercises that are given.
- If special glasses have been recommended, be sure to use them. Follow the schedule and instructions given.
- Remove clutter from the room and off the floor. Keep space clear and orderly. Keep items in the same location.
- Avoid re-arranging furniture or rooms.

Hearing Changes

Hearing can change for several reasons after a brain injury: there can be damage to the ears, to nerves that carry information from the ears to the brain, or the brain itself. Examples of problems with hearing, perception, or interpretation of sounds may include:

- Difficulty hearing sounds of different volumes or tones
- Ringing in one or both ears
- Complete loss of hearing in one or both ears
- Difficulty interpreting voice inflections and what they mean

What You Can Do

- If you notice changes in hearing, report them to the Rehab Team.
- Change the environment to make it easier to focus on sounds. Turning off the TV or the radio during a conversation can help. If there are several people in the room, be sure that only one speaks at a time.
- Look at the person when you speak to them.

Changes in Smell and Taste

The sense of smell is closely linked to taste. Smell and taste disturbances are common after a brain injury and can be caused by damage to the brain, nerves, mouth, tongue, or nose. The presence of a tracheostomy tube can lessen the ability to smell until the tube is removed. Signs or symptoms of smell and taste disturbance include:

- Loss of sense of smell or taste
- Misinterpreting familiar smells
- Loss of appetite

What You Can Do

- Offer foods that are appealing and familiar.
- Remember that foods or drinks that were enjoyable before may now be unappealing.
- Try to find foods or liquids that seem appealing. Make sure that they are allowed in the person's special diet. Check with the Dietician, RN or SLP.

Publication # 901

Vestibular Disturbances

The vestibular system controls balance. Poor balance, dizziness, nausea, and vertigo (a sensation of spinning) are all problems that can result from vestibular impairment. Signs of vestibular changes include:

- Dizziness with movement
- “Jumping” or twitching of the eyes
- Nausea if the head is turned or moved quickly
- Balance problems which can increase the risk of falling

What You Can Do

- If you see any of the above symptoms, tell the rehab team. Be as specific as possible when reporting what movements or activities brought on the symptoms.
- Have close supervision when walking or moving. Be aware that the risk of falling is high.
- Remember to “go slow” especially in an unfamiliar place, in low light, or when practicing a new activity.
- Be aware of the possibility of motion sickness when traveling in a vehicle.

Publication # 901