**Orientation and Mobility Training: The Way to Go**

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**WHAT IS O & M?**

Movement is a building block for learning. As a child explores his world and has physical contact with it, learning takes place. Children with visual impairments typically need encouragement to explore their surroundings. To them the world may be a startling and unpredictable place, or it may not be very motivating.

Orientation and mobility training (O & M) helps a blind or visually impaired child know where he is in space and where he wants to go (orientation). It also helps him be able to carry out a plan to get there (mobility). Orientation and mobility skills should begin to be developed in infancy starting with basic body awareness and movement, and continuing on into adulthood as the individual learns skills that allow him to navigate his world efficiently, effectively, and safely.

Orientation and mobility training actually began after World War II when techniques were developed to help veterans who had been blinded. In the 1960s universities started training programs for Orientation and Mobility Specialists who worked with adults and school-aged children. In the 1980s the O & M field recognized the benefit of providing services to preschool-aged children. Today, orientation and mobility specialists have developed strategies and approaches for serving increasingly younger populations so that O & M training may begin in infancy.

**WHAT SKILLS ARE TAUGHT THROUGH O & M?**

When planning an O & M program for children the focus of training may include such things as:

* sensory awareness: gaining information about the world through hearing, smell, touch and proprioception
* spatial concepts: realizing that objects exist even if not heard or felt, and understanding the
* relationships which exist between objects in the environment
* searching skills: locating items or places efficiently
* independent movement: which includes crawling, rolling, walking, etc.
* sighted guide: using another person to aid in travel
* protective techniques: specific skills which provide added protection in unfamiliar areas
* cane skills: use of various cane techniques to clear one's path or to locate objects along the way

Although Orientation & Mobility Specialists are primarily responsible for O & M training, their work may not always be done directly with the child. When the child is very young, for example, the O&M may provide consultation to the vision teacher, occupational therapist, physical therapist, early intervention specialist, and the family. It is important that an O & M Specialist be a part of the team because it is the O & M who must build upon these early concepts to meet long-range goals. In Texas, the vision teacher makes the referral to the O & M Specialist for an O & M assessment.

Even visually impaired children who have motor impairments need training in orientation and mobility. Though their O & M goal may not be independent travel, they may need O&M to participate more fully in events in their environment. For example, understanding that your wheelchair is in front of you can help you find it to assist with the transfer to the chair. Knowing that your switch is on the right side of your lap-tray may allow you to play your CD player whenever you choose, instead of having to wait for someone to come help you. Even if you are not yet walking, it would probably be good to know that you could listen for the sounds mom is making in the kitchen to help you find your way to her.

Children who are deafblind also need orientation and mobility training. Because their other distance sense (hearing) is affected, orienting to their environment and traveling safely becomes even more important. Orientation and mobility specialists have specific knowledge which is critical to the child with deafblindness.

Orientation and mobility is important for every visually impaired child. It does not matter how young or old he is, how physically active or inactive, how much vision he has, or how smart a child he is, there are probably skills that he needs to develop or refine in the area of orientation and mobility.

**LOOKING AT O & M SKILLS**

**Sensory awareness**

When a child can not access his world efficiently through his vision, he must learn to use his other senses more effectively. Systematic instruction is needed to develop the other senses for use in travel and finding things in the environment. He must understand that some of the sounds and smells and textures he experiences can be used as permanent markers (landmarks) to let him know where he is in the world. Other pieces of information may be there sometimes and not at other times (clues) such as the sound of the water fountain. Developing sensory awareness is critical for the child with visual impairments or blindness.

Sounds, when not paired with clear visual information, can be very confusing. Try sitting in a busy mall or park for a period of time with your eyes closed. You will probably hear sounds you can't identify and be tempted to open your eyes, to try to pair a sound to its source. You might assume that sounds which get louder and louder are coming towards you because of your visual knowledge of the world. A child with a visual impairment may not make the same assumption. The ringing noise he hears may not mean "telephone" or that the honking sound may not mean "car." He needs help in learning to use his hearing to interpret the world around him. If his hearing is impaired even to a small degree that task will become much more difficult. Close your eyes and plug your ears while you stand on a busy street corner. Can you tell which way the traffic is flowing or when it will be safe to cross the street? Are you startled or distracted by other noises you hear? Children need to learn to localize sounds and use sound clues for orientation, straight line travel, and safety.

Though we may not be aware of it, we know much of the world through touch. However, if the things you touch or that touch you feel funny, or hurt, you may become resistant to using touch to examine things in your environment. Touch alone may not be helpful in identifying an object if you can't touch the whole object at one time. Is the furry thing a cat or a rabbit? If you aren't touching the ears or the teeth or the tail you might not know. Developing the tactual sense will help the child in ways that range from finding a toy he dropped on the floor to feeling the difference between the curb and the street with his cane.

Normally I don't pay much attention to smells unless they are extremely pleasant or offensive, but I might use that kind of information to help me know exactly where I am in certain environments. Smells can also serve as landmarks and clues for environmental awareness. For example, the smells that can be found in my kitchen differ greatly from the smells in my bedroom. I can also smell food being cooked near mealtime in my kitchen, but after a meal I am more likely to smell the soap used in the dishwasher. If I am looking for a clue to my location, I need to know that both of those smells might mean I'm in the kitchen. The gym at school, unlike my kitchen at home, might always smell about the same. If I have no sight, this smell, especially combined with other clues and landmarks, might help me know that I am in the gym.

It is important for children with visual impairments to participate in activities that enable them to fully use their other senses. Learning to interpret the information they tune in to is equally important. Parents and educational staff, with support from the O & M, can do a lot to help children develop their other senses.

**Spatial concepts**

"Go down the street three blocks and turn right at the corner. I live in the upstairs apartment of the large, red brick building on the left." Pretty clear directions right? What if you don't know "blocks" and "corner" or "upstairs" and "left"? Doesn't "down" mean under? How large is "large?" When vision is impaired these concepts are much more difficult to understand and need to be taught. How do you teach the concept of "corner" without vision? Do you touch corners or draw corners? If you can touch a corner or draw a corner, where do I find the corner to touch when I am walking along the street?

Orientation and mobility specialists work to develop distance, size and directional concepts in children with visual impairments. Mom and Dad, and Mrs. Henry the art teacher, may work on these concepts too, but having the support of an O & M would likely make their job much easier.

Our joints and muscles give us feedback about where our body parts are positioned. This is our proprioceptive sense. Proprioceptors located in the muscles and joints tell us if we are slumping or standing up straight, if our fingers are curled or extended, etc. Our vision system and our proprioceptive system work closely together. When vision is impacted, so is our proprioceptive sense. Children with visual impairments generally need help to learn where their bodies are in space, and in relation to things in the environment. The physical therapist and occupational therapist, along with the O & M, can work directly with the child. They may also be able to suggest specific activities for the family, to help their visually impaired child develop the proprioceptive sense.

**Independent movement**

Most children with visual impairments are capable of learning routes in familiar environments. They learn to use landmarks and clues to help them know where they are along a particular route. They learn specific adaptations to aid them in their movement. These might include understanding that tactual markers on doorways identify the gym or the restroom, using an adaptive mobility device or a cane to identify obstacles and drop-offs, or locating a street sign using a monocular. A primary goal of orientation and mobility training is to help each child with visual impairments achieve independent movement to as great a degree as possible.

Some children may be preparing to get a dog guide, or learning how to access public transportation to get across town to a job. For children with additional disabilities, independent movement might focus on traveling independently in a wheelchair, or learning how to help get yourself into a van using a lift. It might mean helping the child learn to control the speed of movement on his walker as he goes down a ramp.

Independent movement is tied to growth in other areas, such as communication and socialization. For example, though a child may not be able to tell you he's hungry, if he can take you to the kitchen you will probably understand that he wants something to eat or drink. Peers are more likely to invite your daughter to go to the mall if she can keep up with the group by using sighted guide technique or traveling with a cane. Going where we want when we want gives us control and allows us to make choices.

**ELECTRONIC AIDS FOR ORIENTATION AND MOBILITY**

There are a variety of O&M devices that individuals with visual impairment use. Most are considered "low tech" because they are very simple devices, typically a cane or adaptive mobility device. These are the devices that most people with visual impairment will use for two good reasons: (1) they are relatively inexpensive to purchase and maintain, and (2) you typically must be able to use these basic devices (especially a cane) before you can learn to use other types of mobility devices or strategies such as ultrasonic technology or dog guides. Your O&M specialist can show you canes and adaptive mobility devices and will be able to dispense these "low tech" devices to your child. There are also other O&M devices, more "high tech" and less well known, that we thought you might like to learn about. These devices can only be issued by an O & M Specialist with ETA certification. The ETA certified O & M Specialist must also provide training in the use of these devices. Non-ETA certified O & M Specialists may not dispense or train individuals using these devices.

The **Sonic Pathfinder** is a head mounted ultrasonic mobility device designed for outdoor use in conjunction with either a long cane, dog guide or residual vision. The Sonic Pathfinder gives the user advance warning of objects which lie within the travel path. The distance and position of a detected object is signaled via the ear pieces using the eight tones of the musical scale. Price: $1695, plus $20 shipping & handling.

The**Sensory 6** detects objects that are farther away than a long cane, and the user hears tones that indicate the distance to the objects. As objects are approached, the tones become higher pitched. The Sensory 6 is not intended to be the only travel aid. It should probably be used in conjunction with another aid, such as a cane. Price: $975, plus $15 shipping & handling.

The**MOWAT Sensor** is a small hand-held device that uses high frequency sound to detect objects within a narrow beam. The entire sensor vibrates if an object is present. To avoid confusion, the sensor responds only to the closest object within the beam and the vibration rate increases as the user approaches the object. Price: $995, plus $20 shipping & handling.

The**Polaron**is a compact aid that utilizes ultrasonic technology to detect objects within four, eight, or sixteen feet. The Polaron may be used as a secondary aid to a standard long cane, or with a guide dog. When an obstacle is within range, the Polaron either vibrates or emits a sound. The Polaron is designed specifically for the blind, visually impaired and deafblind wheelchair user. Price: approximately $900.

The**Wheelchair Pathfinder**is a set of small rectangular boxes mounted to the front of the wheelchair. Lasers point downward while ultrasonic beams are transmitted in front and to the sides of the wheelchair. When the beam contacts an object, it bounces back to a receiver, triggering an audible warning signal or optional tactile signal. The Wheelchair Pathfinder has forward detection (an intermittent beeping sound), side detection (a continuous tone on the side where the object is) and step detection (a low pitch signal within 4 feet in front of a drop off). Price: approximately $4,500.

The**Laser Cane**operates with three lasers that emit invisible beams of light from the cane. The beams detect drop offs and obstacles at different heights and distances. In this way, the cane provides the user with advance warning of obstacles in his/her path through an audible and tactual alarm system. There are three distinctly different audible tones: high, middle, and low pitched. The vibrating unit, known as the tactile stimulator, signals the index finger when there is an obstruction straight ahead. Price: approximately $200.

For more information on these electronic devices contact: MSI Mobility Services Inc., 761 Peachtree St. Suite 3, Atlanta, GA 30308, phone (800) 876-2636.Similar devices may be available from other companies. TSBVI does not intend to recommend these products over any other.

**CONCLUSION**

Independent movement is critical for all children with visual impairments. Orientation and Mobility specialists are trained to provide instruction which will enable children with visual impairments to reach their highest level of independence. The services provided by an O & M may not always need to be delivered directly to be effective, but even infants or children with multiple disabilities need the special support of a trained Orientation & Mobility Specialist. Make sure your child's O & M needs are being addressed as a part of his/her school programming. You may want to meet with your school's Orientation and Mobility Specialist to discuss your concerns. If your school district does not have its own O & M, ask your child's vision teacher to help you connect with the O & M at the Regional Education Service Center or Special Education Co-op in your area. Orientation and mobility training...it's the way to go.