



ORIENTATION AND MOBILITY

AUTHOR (S)

Hasan Minto: Brien Holden Vision Institute, Pakistan

Padhmavathi Bashyarangan: LV Prasad Eye Institute, India

PEER REVIEWER (S)

Jill Keefe: Centre for Eye Research Australia (CERA), Melbourne, Australia

Pirindhavellie Govender: University of KwaZulu Natal (UKZN) Durban, South Africa

INTRODUCTION

This chapter includes a review of:

- What is mobility and orientation
- Orientation and mobility instruction
- Pre-cane skills
- Sighted guide technique
- Using a cane
- Using other senses for orientation
- Dos and don'ts of orientation and mobility

INTRODUCTION

Some people who have severe visual impairment are afraid to go outdoors by themselves. They sit at home because they do not know how to travel alone and must rely upon help from their family and friends. They have to wait for someone to take them to the bathroom or even to visit a neighbour's house. With training, however, these people can learn to move safely around their environment. This allows them more freedom and makes them less dependent on family and friends. Children can learn to walk to school and adults can learn to walk to their workplace or to the garden. When persons with visual impairment can travel safely in familiar surroundings they can become more active in family and community activities.



MOBILITY AND ORIENTATION

Mobility training is a term used for the combination of two skills namely: mobility and orientation. Mobility is the capacity or facility of movement, while orientation is the ability to use ones remaining senses to understand ones location in the environment at any given time.

Orientation and mobility may be defined as the teaching of the concepts, skills and techniques necessary for a person with a visual impairment to travel safely, efficiently, and gracefully through any environment and under all-environmental conditions and situations.

Orientation and mobility is that part of a rehabilitation or education program that teaches an individual who is blind or has low vision how to travel safely and independently. The goal of any orientation and mobility program is for the individual to achieve the maximum safety and independence in mobility that is possible according to their needs and capabilities

THE IMPORTANCE OF ORIENTATION AND MOBILITY

ENHANCES INDEPENDENCE	As being able to travel freely is very important for the sense of independence, orientation and mobility training is an important prerequisite for the integration of a visually impaired person into the community and working life. It enables him/her to become more independent; it allows him/her more freedom and makes him/her less dependent on family and friends.
SHARPENS REMAINING SENSES	It sharpens their remaining senses through sensory training. It develops his/her coordination of movement and improves his/her posture. This in turn results in better acceptance of the individual in the community and by the peer group.
SAFETY OF THE INDIVIDUAL	It enhances the safety of the individual.
SELF-IMAGE	It is essential for correcting gait and postural defects. It is not just an overcoming of practical difficulties, but it is also a step towards developing and maintaining ones own self-image.
LEADS TO COMPREHENSIVE REHABILITATION	It is a step towards comprehensive rehabilitation, self-confidence and liberation from the solitary. It also helps in changing public attitudes towards blindness.
MOBILITY AND SPORTS	<p>There is close inter-action between mobility and sports. Training in orientation and mobility is a prerequisite for promoting sports among the visually impaired. At the same time, participation in sports enhances understanding of the environment, enables a person to overcome fear of movement in the unknown space and improves concentration, which in turn results into better mobility.</p> <p>Successful mobility training brings many advantages to the trainee. His self-confidence increases and he gets a real satisfaction from being able to move independently. His coordination, reaction and agility are developed. A well-balanced and efficient traveller is more able to obtain work and hold his job successfully.</p>
MOBILITY AIDS	<p>There are four mobility techniques currently available to people who are blind or have low vision.</p> <ul style="list-style-type: none"> • The use of sighted guide • The use of a cane • The use of a guide dog • The use of an electronic aid



ORIENTATION AND MOBILITY INSTRUCTION

The components of Orientation and Mobility instruction may include:

- Sensory training – development of the senses of hearing, touch, etc.
- Development of good spatial and environmental concepts – building an understanding of the layout of the environment in which the individual travels
- Confidence building
- Assessment and training of an individual's functional travel vision (if any)
- Instruction in self-protection techniques
- Instruction in the use of sighted guide technique
- Instruction in the use of a white cane for independent travel
- Familiarization to specific areas or routes in the individual's environment
- Instruction in the use of available public transportation

PRE-CANE SKILLS

Pre-cane skills lessons are listed as follows:

- Sighted guide
- Body protection
- Trailing
- Systematic search procedures
- Familiarization



1. SIGHTED GUIDE TECHNIQUE

Most people who are blind or have low vision travel at one time or another with the assistance of a sighted guide. Even someone who normally travels independently with a cane or dog guide may take the arm of a sighted companion on occasion. When walking with a sighted guide, a person who is blind or has low vision walks a half step behind and to the side of the guide, while holding the guide's arm just above the elbow. In this way the person being guided can feel and easily follow the guide's movements.

SALIENT FEATURES	<ul style="list-style-type: none">• It takes skill to travel with a sighted companion• Training has to be imparted to the visually impaired as well as the sighted person.• The sighted person should know how to guide a companion in various circumstances• All members of the family of the person who is blind or has low vision should know how to use the sighted guide techniques• A type of non-verbal communication exists between the person who is blind or has low vision and the guide. The latter does not have to tell the former every time regarding the change in direction and other walking situations <p>Sighted guide technique refers to a method by which a visually impaired person and a sighted person can walk together safely and comfortably. Specific techniques and movements are prescribed to allow the pair to negotiate a variety of travel situations safely, comfortably, and efficiently. Many people who have reduced vision can move independently for the majority of the time but may need assistance in dark or unfamiliar areas.</p> <p>Sighted guide technique requires a minimal amount of practice to master; however, it does require some time and effort. Once you are at ease with the technique you will be able to negotiate most areas without interrupting your conversation and without unnecessary verbal directions. The experienced follower will be able to teach a novice guide quickly and the experienced guide will be able to guide most visually impaired people with comfort.</p>
-------------------------	---



NOTE

Throughout these instructions the sighted person will be referred to as the **guide** and the visually impaired person will be referred to as the **follower**.



1. SIGHTED GUIDE TECHNIQUE (CONT.)



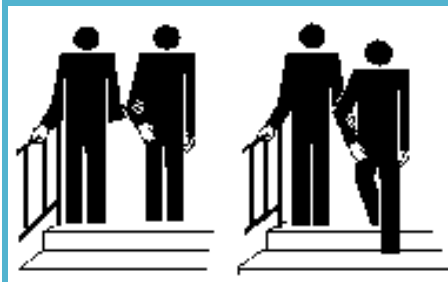
CONTACT AND GRASP	<p>GUIDE: Touch the follower's elbow, forearm, or hand with the back of your hand.</p> <p>FOLLOWER: Grasp the guide's arm above the elbow with your fingers on the inside of the arm near the guide's body and your thumb on the outside near you. Use a firm grasp but do not use excessive pressure.</p>	
ALTERNATIVE GRASPS	<p>When the follower is:</p> <p>A. Child: FOLLOWER: Grasp the guide's wrist.</p> <p>B. A person in need of some physical support: Guide: Bend your arm at the elbow.</p> <p>C. A person who is much taller than the guide: FOLLOWER: Rest your hand on the guide's shoulder.</p>	
THE STANCE	<p>GUIDE: Stand with your arm relaxed at your side or bent at the elbow.</p> <p>FOLLOWER: Your arm should be bent at the elbow, placing you one half step behind the guide. Keeping the elbow bent for long periods of time can be uncomfortable for the guide. Experienced guides and followers can often travel just as well with the guide's hand dropped to a vertical position.</p>	

**NOTE**

Walk at a pace that is comfortable for both people. The guide should not be "dragging or towing" the follower and the follower should not be pushing the guide.


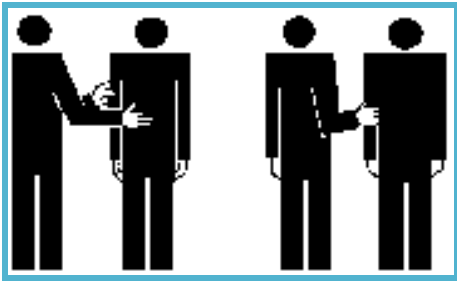
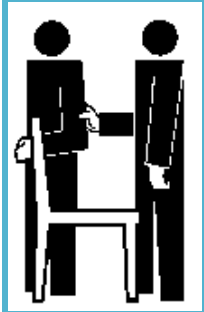



1. SIGHTED GUIDE TECHNIQUE (CONT.)

WALKING THROUGH A NARROW PASSAGE	<p>GUIDE: Continue facing forward, move your arm diagonally across your back.</p> <p>FOLLOWER: Straighten out your arm and move directly behind the guide thus following effectively in single file.</p>	
HOW TO HANDLE DOORS	<p>GUIDE: Tell the follower if the door needs to be pushed or pulled and whose side the hinges are on. Begin opening the door. Let the follower hold the door if indicated. A simple statement such as, "Your door," will alert the follower as to the need for an appropriate action.</p> <p>FOLLOWER: If the hinges are on your side, maintain your grasp while supporting the door for yourself. If the hinges are on the guide's side, place your free hand above your original grasp as if you are beginning to change sides. Brace the door with your (newly) freed hand. When you have passed through the door, reverse this process and assume your original grasp.</p>	
WALKING UP OR DOWN STAIRWAYS	<p>GUIDE: Stop just before the stairs. Tell the follower if the stairs go up or down. Allow the follower to use the handrail if possible. Move your arm forward, bringing the follower to the edge of the stairs. The follower will be beside you. Step onto the first step ahead of the follower. Stop at the end of the stairs. Tell the follower that you are at the end.</p> <p>FOLLOWER: Bring your toes to the edge of the stairs. Start a full step after the guide.</p> <p>With time and experience both the guide and the follower will become comfortable with a brief pause instead of full stops and with a minimum of verbal directions. A simple statement such as, "Stairs down or stairs up," will suffice.</p>	



1. SIGHTED GUIDE TECHNIQUE (CONT.)

TURNING AROUND OR PERFORMING AN ABOUT-FACE (to turn in a small space, or to avoid confusing the follower)	<p>GUIDE: Ask the follower to "about-face." Turn in to face the follower. Offer your other arm. Complete the turn once the follower has grasped your arm.</p> <p>FOLLOWER: Face the guide. Contact the guide's other arm. Release your original grasp. Assume the normal grasp on the new arm.</p>	
CHANGING SIDES (before stairs or to avoid an obstacle)	<p>GUIDE: Ask the follower to change sides. Bring your arm behind you.</p> <p>FOLLOWER: Grasp the guide's arm with your free hand above your other hand. Release your original grasp and slide that hand across the guide's back to the free arm. Bring your second hand across to the guide's other arm. Assume the normal grasp position.</p>	
SITTING	<p>GUIDE: Position the follower so their knees touch the chair and place their hand on the back of the chair. For some followers it may be helpful to describe the back and arms of the chair.</p> <p>FOLLOWER: Bend to the chair, sweep the seat with one hand, locate the arms and sit.</p>	
ENTERING CARS	<p>GUIDE: Guide the follower to the door handle, indicate front or back door, and indicate which way the car is facing.</p> <p>FOLLOWER: Locate the frame above the open door with one hand and the door handle with the other. Sweep the seat with your hand before sitting. BUCKLE UP!!</p>	



2. BODY PROTECTION

UPPER BODY PROTECTION	<p>PURPOSE: To protect the face and head against bumps with obstacles.</p> <p>EXECUTION: Raise upper arm with elbow slightly bent to bring the forearm across in front of the face, palm facing outward and fingers extended so that in line with the opposite shoulder.</p> <p>Keep the elbow bent about 120 degrees. If the arm is bent less than that, the elbow will be in front of the forearm and will hit objects before the forearm does.</p> <p>Can be used for protection from low tree branches, open doors, sharp wall curves, corners of walls, cupboards or other such obstacles which may be vertically placed in the path.</p>
LOWER BODY PROTECTION	<p>PURPOSE: To protect from obstacles at waist level.</p> <p>EXECUTION: Extend the hand downward and slightly forward diagonally across the body as low as possible. The palm is faced inwards and the fingers lightly curled inwards.</p> <p>Can be used to protect against or to locate: chairs, tables, cots, wash basins, kitchen platform, dressing table or other such low obstructions.</p>



3. TRAILING

TRAILING	<p>PURPOSE:</p> <p>To enable the person who is blind or has low vision to walk parallel to a guiding surface or to locate a specific object.</p> <p>EXECUTION:</p> <p>Position parallel to and near the object to be trailed facing the desired line of travel. Extend the arm to the object, downward and forward at waist level with fingers curled inwards. Establish contact with the object with the back of the fingers, only light contact is maintained.</p> <p>While trailing, the arm and hand should not drop too close to the body as the person may not find time to stop when there is an obstruction. He/she should protect his/her head using his/her other arm.</p>
-----------------	--

4. SYSTEMATIC SEARCH PROCEDURES

SYSTEMATIC SEARCH APPROACHES	<p>PURPOSE:</p> <p>To enable to locate dropped articles.</p> <p>EXECUTION:</p> <p>Listen to the hitting sound of the article and estimate the direction of the sound and distance. Walk towards the articles, slightly under estimating its distance. Assume search position by squatting using upper body protection. Use either circular search pattern or column (airplane) search pattern.</p>
CIRCULAR SEARCH PATTERN	<p>Place the palm of the searching hand on the ground. The palm touching the ground is the beginning point. Now move the hand round and round the beginning point in an ever-increasing circle.</p>
COLUMN (AIRPLANE) SEARCH PATTERN	<p>Place the palm of the searching hand in front. Now move the hand outward, forward, inward and so on. One can use either one hand or both hands at a time.</p> <p>In the beginning, this procedure can be tried using articles on a table, then on a unobstructed floor area, and then in a room with other articles (furniture etc), and finally in a public place or pavement etc. The visually impaired person should develop a sense of direction as well as distance through sensory training and systematic practice.</p>



5. FAMILIARISATION

FAMILIARISATION	<p>The sighted person should walk the person with visual impairment through the area several times, using correct sighted guide techniques. While moving around, the sighted person should describe what is in the area to help the person with visual impairment to make a mental picture or map of the area. The next step would be for the person with visual impairment to walk through the area with the sighted person following behind. This time, the person with visual impairment should describe the area, asking questions to clarify his/her mental picture. Finally the person with visual impairment should travel through the area independently. The sighted person should follow behind only to make sure the person with visual impairment has no difficulties.</p> <p>Getting familiar with a new area may take a long time, depending on its complexity and the abilities of the person with visual impairment.</p>
------------------------	--



USING A CANE

WHITE CANE	<p>A primary travel aid, one used quite frequently by individuals who are blind (but not by people with low vision), is the long cane. Often this cane is described as a "white cane" because it is painted white or coated with reflective white tape.</p> <p>The long cane has a lightweight shaft, usually constructed from aluminum, graphite, carbon fiber or fiberglass, which is approximately one half inch in diameter with a rubber hand grip at one end and a nylon, plastic or metal tip at the other. Each cane is individually prescribed for a user's height, length of stride and comfort, by an orientation and mobility specialist.</p> <p>The basic technique for cane travel, the "touch technique," requires the cane user to move the tip of the cane in an arc across the front of his body, thus assuring a safe space for the next footstep.</p>
IMPORTANCE OF A CANE	<ul style="list-style-type: none"> • It is accepted as a symbol of a person who is blind • It is regarded as the proven mobility aid • It is inexpensive, handy and has adjustable length • The while cane techniques are simple and universal and can be applied even in a relatively unknown environment • It enables the VI person to seek a variety of jobs and expedites their economic rehabilitation • The collapsible white cane can be folded and put in a handbag while travelling in public transport or while at work • It gives a blind person a new lease of life, a new dimension of independence and enables him to become fully contributing members of society
TYPES OF CANES	<ul style="list-style-type: none"> • Long cane • Angular cane • Folding cane • Electronic cane
USES OF THE LONG CANE	<p>The long cane used by blind travellers is a tool with a variety of uses (listed below). This is a summary of the various uses demonstrated by a patient:</p> <ul style="list-style-type: none"> • It's a bumper; it contacts things that are in the direct path of travel. • It's also a probe; an extension of the sense of touch. • The long cane finds, verifies, and discriminates landmarks and thus aids in orientation • It helps establish the line of direction of travel (it can trail a straight edge or square off) • As the cane contacts things, it motivates children to explore • It detects drop offs • It's a measurement tool • The cane identifies the blind traveller to others • The cane freezes turning cars, and puts drivers on alert when it moves into a street before the blind traveller • A well used cane projects a positive, sophisticated image; it counters pre-conceived negative images of blindness • The cane is a vision substitution system; it replaces optical perceptual flow with tactual perceptual flow • The cane allows the blind traveller the pleasure of anxiety free walks



USING A CANE (CONT.)

USES OF THE LONG CANE (CONT.)	<ul style="list-style-type: none">• The cane helps the blind traveller relax when walking with an inexperienced sighted guide• The cane can help to relieve childhood fears and anxieties• The cane allows the blind traveller to move faster• When you go faster, you go straighter- the cane helps the blind traveller to avoid veering• When crossing a street, the cane takes the focus off the feet• The cane grounds a blind person in space• The cane is anti-mannerism device• The cane is an echo location device• The cane allows (and is a symbol of) independence
--------------------------------------	---

DOS AND DON'TS OF ORIENTATION AND MOBILITY

IF YOU SEE A PERSON WHO IS BLIND WHO SEEMS TO BE IN NEED OF ASSISTANCE	<ul style="list-style-type: none">• DO introduce yourself and ask the person if he needs assistance• DO provide assistance if it is requested• DO respect the wishes of the person who is blind• DON'T insist upon trying to help if your offer of assistance is declined
IF A PERSON WHO IS BLIND ASKS YOU FOR DIRECTIONS	<ul style="list-style-type: none">• DO use words such as "straight ahead," "turn left," "on your right."• DON'T point and say "go that way" or "it's over there."
IF YOU ARE ASKED TO GUIDE A PERSON WHO IS BLIND	<ul style="list-style-type: none">• DO allow the person you are guiding to hold your arm and follow as you walk• DO move your guiding arm behind your back when approaching a narrow space so the person you are guiding can step behind you and follow single-file• DO hesitate briefly at a curb or at the beginning of a flight of stairs• DO tell the person you are guiding whether the steps go up or down• DO allow the person you are guiding to find the handrail and locate the edge of the first step before proceeding• DON'T grab the person you are guiding by the hand, arm, or shoulder and try to steer him• DON'T grab the person's cane or the handle of a dog guide's harness



SELECTED READING/REFERENCES

- Punani B, Rawal N. (1996) **MANURAL - Community Based Rehabilitation**, Royal Danish Embassy, P 100 - 105
- Punani B, Rawal N. (2000) **Visual Impairment Hand Book**, Harish M. Panchal (BPA), P 77 - 136
- Williams JD (1999) **Paper presented at Community Based Rehabilitation - Sight Savers Project partners meeting**, Vizag, Andhra Pradesh
- Fernandez G, Koenig C, Mani MNG, Sian T (1999) **See with the Blind**, Christoffel Blindenmission
- Kirk J. Horton (1986) **Community Based Rehabilitation of the Rural Blind - A Training Guide for the Field Workers**, Helen Keller International
- Robert C. Jaekle, (1993) **Mobility Skills for Blind People**, Christoffel Blindenmission
- Sighted Guide Technique: www.oandm.org/sighted.htm
- Teaching orientation and mobility to blind children: www.wayfinding.net/refhome.htm
- Royal National Institute of Blind People – RNIB Low Vision Toolkit.
http://www.rnib.org.uk/aboutus/contactdetails/cymru/cymrumedia/Pages/low_vision_toolkit.aspx