the art of **living well** with **low vision**

a resource guide

Humanware™

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SEE THINGS DIFFERENTLY

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INTRODUCTION.

Too often, people with poor vision accept a greater loss of independence than is necessary. Often, simple assistive devices or minor modifications to daily life can reduce the effects of vision loss, and improve a person's quality of life.

This handbook is intended as a resource to provide readers with an overview of some of the more common low vision conditions, and some helpful hints on how people with poor vision can maintain a high level of independence. At HumanWare we are committed to designing and manufacturing innovative solutions that will help blind and visually impaired people lead more independent lives.

Our products combine high performance and user-friendly features with outstanding reliability and service life. If we can help you with further information about any aspect of low vision, please feel free to call us.

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CHAPTER ONE.

Understanding Vision Loss

Research indicates that people in their 50s have about a two per cent chance of getting AMD. This risk increases to nearly 30 per cent in those over age 75.*

What is low vision?

Low vision means having a level of vision where you need more than just glasses or contact lenses to see well enough to read or do everyday tasks. Your central or peripheral vision, or both, may be reduced. Your vision may not be able to be corrected with surgery, but you can still see something... and with the help of vision aids you can still be independent.

What causes low vision?

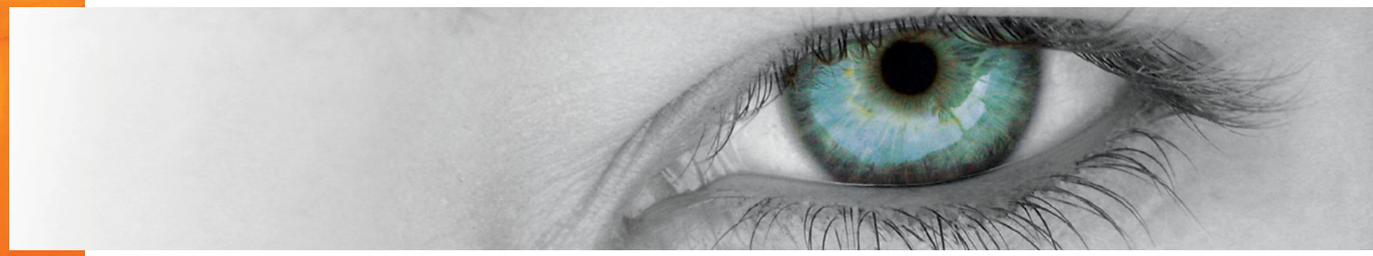
A person may have low vision as the result of an injury to the eye or one of a number of eye related conditions such as macular degeneration, glaucoma, and diabetic retinopathy. Some people are also born with low vision.

What are the symptoms?

The symptoms of low vision depend on the cause of vision loss and where the problem is in the eye. Symptoms can include:

- **Blank spots, dark spots or wavy lines in the center of your vision**
- **Blurred, hazy, cloudy or double vision**
- **Loss of side (peripheral) vision**

*Age-Related Macular Degeneration: Principles and Practice. L. Hyman. 1992. Raven Press.



Eye conditions

Each eye condition presents different degrees of vision loss. Here are illustrations of some of the most common:

Age-Related Macular Degeneration (AMD)

Cataracts

Glaucoma

Diabetic Retinopathy

Photo caption:
A view through the eyes of a person with **Age-Related Macular Degeneration**

Age-Related Macular Degeneration (AMD)

Age-Related Macular Degeneration (AMD) affects 25 to 30 million people worldwide.

The macula is located in the center of the retina, at the back of the eye. It processes the images our brain translates into central vision. The size of a pea, the macula helps us see sharp details, such as a freckle on a nose.

As our eyes get older, the membrane separating the macula from retinal blood vessels can weaken, depriving the macula of nourishment. When the macula degenerates, so too does central vision.

AMD can seriously affect one's central vision in just a few months or over the course of several years. In severe cases, scar tissue from leaky blood vessels can cause irreversible blind spots. **Note that AMD will never cause total blindness since peripheral vision remains unaffected.**

People with AMD may see the color of someone's shirt, but not their face.

They might spot a small coin on the floor as they walk through a room but cannot read the clock on the wall.

Even when looking straight at you, a person with AMD will likely be able to see the color of your hair or if you're wearing a shirt with a collar but will not recognize your face. AMD also makes variations in color hard to distinguish; for example, someone with AMD may "see" a raspberry-colored sweater as a soft pink instead. While no two individuals with AMD experience exactly the same degree of vision loss, brighter light and sharp contrast in color can make objects more visible to anyone with the condition. Ways to improve lighting and color contrast to help the person's peripheral vision are explained later in this handbook.

There are two forms of AMD: the dry form, which is the most common, and the wet form, which is less common but causes more severe and sudden sight loss. With dry AMD, varying degrees of sight loss are caused by deposits of drusen (age spots) that form in the macula. Wet AMD results from abnormal blood vessels forming and leaking into the macula.

The cause and cure for AMD are unknown. However, treatments are available in a small percentage of cases. Possible risk factors for the condition include smoking, genetics, hypertension, sun exposure, far-sightedness, light skin or eye color, and poor diet.

Photo caption:
A view through the eyes of a person with **Cataracts**

Cataracts

A cataract is a clouding of the normally clear and transparent lens of the eye.

When a cataract develops, the lens becomes as cloudy as a frosted window, and light cannot be properly focused on the retina, resulting in an unclear image. Often, only a small part of the lens is affected and, if sight is not greatly impaired, there is no need to remove the cataract. If a large portion of the lens becomes cloudy, sight may be partially or completely lost until the cataract is removed.

Depending on the size and location of the cloudy areas in the lens, a person may or may not be aware that a cataract is developing. If the cataract is located on the outer edge of the lens, no change in vision may be noticed, but if it is located near the center of the lens, it usually interferes with clear sight.

As cataracts develop, so may hazy, fuzzy, and blurred vision. Double vision may also occur. The eyes may be more sensitive to light and glare, making night driving difficult. There may also be a need to frequently change eyeglass prescriptions.

Photo caption:
A view through the eyes of a person with **Glaucoma**

Glaucoma

Glaucoma causes the gradual loss of peripheral, or side, vision. Although linked to older age, glaucoma may develop at any age — even infancy.

The cause of glaucoma is unknown, but a number of risk factors have been identified. These include age, heredity, myopia (near-sightedness), increased intraocular pressure (IOP), and systemic disease such as diabetes and hypertension. Vision loss from glaucoma may be caused by increased IOP and other influences on the optic nerve, located at the back of the eye. The diminishing nerve function causes loss of peripheral vision painlessly and without notice.

It is important to be aware of the possibility of glaucoma, particularly if you have any of the risk factors. Some drugs, such as cortisone (steroid) drops, can cause glaucoma. As well, some visual disturbances that cannot be corrected by glasses may be a sign of glaucoma. This is also true for AMD and diabetic retinopathy.

Photo caption:
A view through the eyes of a person with **Diabetic Retinopathy**

Diabetic Retinopathy

The main cause of visual impairment in people with diabetes is diabetic retinopathy, a condition in which changes occur in the tiny blood vessels that nourish the retina (the light-sensitive tissue that lines the back of the eye and changes the light into nerve messages transmitted to the brain).

In the early stages of diabetic retinopathy, small blood vessels weaken and leak fluid or tiny amounts of blood, which distort the retina. At this stage, the person may have normal vision or may experience blurred or changing vision. Although 25 per cent of people with diabetes have some degree of retinopathy, most cases do not progress to more severe problems.

In a more advanced stage, blood vessels in the retina are blocked or closed completely, and areas of the retina die. Proliferative diabetic retinopathy affects about five per cent of people with diabetes and occurs when new, abnormal blood vessels grow to replace the old ones. These new vessels are fragile and often rupture and bleed into the eye, blocking vision. Scar tissue forms, shrinks, and tears the retina, causing bleeding or detachment from the back of the eye. This can result in severe visual loss or blindness. Fortunately, this occurs only in a small minority of people with diabetes.

The chances of having some form of diabetic retinopathy increase the longer a person has had diabetes. Diabetic retinopathy is present in 90 per cent of those who have had diabetes for more than 20 years.

Getting the diagnosis

Each person will respond differently upon learning they have a serious eye condition. Shock, disbelief, depression, and anger are common reactions — these feelings can last for days, weeks, months, or even years. It can be frustrating for caregivers and family members if a person who is visually impaired or blind has a very negative attitude; however, it is important to remember that a supportive and caring environment is key to successful rehabilitation.

Try not to be overprotective. Sometimes, caregivers, family, and friends can show their concern and support just by “being there.” Friendly visits and organized outings can be of great benefit. Humor is also an effective way to cope with the challenges presented to people who are visually impaired. Though laughter is often the best medicine, don’t use it just to mask a hurtful experience.

Adjustment to any form of vision loss can be a gradual and often emotional process. To help with that process, we suggest the following:

- **Obtain as much information as you can about the condition, and share this information with family and friends, and others who can help.**
- **Find and talk with support groups.**
- **Encourage family and friends to visit and be supportive.**
- **Allow time to grieve for the lost vision – this is a very human and natural emotion.**

CHAPTER TWO.

Adjusting to Vision Loss

If you are a caregiver, encourage open and honest communication, and assure the person receiving care that they are not a nuisance. Living with age-related macular degeneration (AMD), glaucoma, cataracts, or any eye condition does not mean that cooking, exercising, socializing, and enjoying a good book become impossible. A few simple adjustments in and around the house will help ensure everyday activities are still within reach.

Lighting Both inside and out, brighter and strategically placed lighting will make a world of difference to a person living with vision loss. As we age, we require much more light than younger people. People with vision loss, especially seniors, find that they need even more light than their sighted peers. Extra lamps throughout the home provide increased lighting and will help someone with vision loss make the most of his remaining vision. A brighter home is also safer.

Sensor lights are a relatively inexpensive way to make sure the home's exterior entrance is always lit. Install lighting inside closets, cupboards, in staircases, or even in the shower (be sure to use a waterproof light). Most important, however, is the addition of bright task lighting throughout the house. Task lighting can be aimed directly at what needs to be illuminated, whether you are writing, sewing, reading or performing some other activity. Small clip-on lights are suitable, as are bendable gooseneck lamps. Buy a tiny flashlight or penlight to be carried at all times. It will come in handy more often than you may imagine, especially in dim restaurants or when unlocking the front door at night.

Reduce glare whenever possible. Window accessories such as sheers or shades will help keep glare out of rooms. Wear a hat with a visor for visits to stores that use glaring fluorescent lighting. An eye-care professional can help select a pair of tinted anti-glare sunglasses for outdoors that will eliminate glare from the sides and top, which is far better than the protection regular sunglasses provide.

Doing things differently

In the kitchen Counter tops can be painted to contrast with dishes, cookware, and other items. Any paint or hardware store can tell you which products would be appropriate for painting a counter top.

Here are some other tips on how to make the kitchen easier to use and safer for someone with vision loss:

Kitchen checklist:

- Paint or replace electrical outlet covers in a color that contrasts with the wall.
- Instead of painting, outline counter edges and electrical outlets with wide tape of a contrasting color.
- If the stove surface is a light color, consider replacing stainless steel pots and pans with dark-colored ones.
- Use light-colored dishes on a dark tablecloth, or vice versa.
- Mark frequently used settings on the oven or other dials with a thick swipe of bright nail polish.
- Relabel jars and canned goods using a thick black marker and card, which can be reused.
- Remove small throw rugs from the kitchen — they are not easily seen and may be a tripping hazard.
- Keep cupboard doors and drawers closed at all times, and make sure that everything is always put away in its proper place.
- Use the "clock method" to identify where certain foods are located on a plate. For example, "The rice is at three o'clock, and the beans at seven o'clock."




In the bathroom Rehabilitation specialists are excellent, as they can recommend many techniques that will help people with vision loss maintain privacy and independence in the bathroom.

Here are some tips to make the bathroom as safe as possible:

- Use illuminated and magnifying mirrors.
- Use colored toothpaste so it shows more on the white bristles of a toothbrush.
- Use towels that contrast in color with the bathroom décor.
- Use a rubber-backed mat in the tub.
- Float a brightly colored sponge while running the bath water. The sponge will indicate how high the water has risen.
- Throw out old medication.
- Label current medication with a thick black letter on each bottle; keep a large print list in the medicine cabinet explaining what is what, e.g.,"A: blood pressure pills. Take one each morning."
- Pick up the bath mat after each use and fold it over the edge of the tub to prevent tripping.

Out and about Now that you've made some changes in the home, take a look at how to make things easier outdoors. Careful planning and good organization will help, whether you are on your own, or accompanied on an outing.

Proper training from someone qualified in independent travel skills will help the person with low vision feel more confident about venturing outside the home. Some people find a white cane to be very helpful, not just for getting around, but also for identifying to others that they have a visual impairment that may not otherwise be obvious. There are different varieties of white canes to suit the needs of different users, including collapsible travel canes, white support canes, and long travel canes. While some people are not comfortable using a white cane, most realize that the advantages outweigh the disadvantages, and use the white cane as a mobility tool and identifier.

The sighted-guide technique If you are acting as a sighted guide, walk half a step ahead of the person under your care. Let the person lightly grasp your arm just above the elbow. Approach curbs, stairs, and doorways squarely — never at an angle, and let the person know when to step up or down. Come to a full stop before stairs; if necessary, switch sides so the person can use the handrail. The person will find the first step by sliding his foot forward until he feels the stair, and you will proceed up or down together. Always remain half a step ahead of the person you are guiding and announce when you've come to the last step.

As with any activity, confidence and skill come with time. Chapter Three discusses a number of low-vision aids that can be used to identify street signs and addresses. Some people who are visually impaired will be more open to the idea of independent travel than others. Remember that each one of us is different in many respects.

HERE ARE SOME MORE WAYS TO MANAGE POTENTIALLY FRUSTRATING SITUATIONS OUTSIDE THE HOME.

Independent Travel Checklist:

- Use large-print cheques and writing guides to make signing easier.
- Identify coins by touch and fold paper money or separate it in the wallet by denomination.
- Take a moment to let the eyes adjust when switching from a bright environment to a dimly lit one.
- Carry a magnifier and/or penlight to read labels, price tags, elevator buttons, or directions.
- Use a mini tape recorder to make a shopping list, instead of struggling with a handwritten list.
- Tell the bus driver in advance which stop you require, and sit at the front of the bus.

New lifestyles and hobbies Meeting people and joining social groups can be challenging for someone with low vision. Making eye contact is usually the first thing people do. But for people with vision loss, this is not always possible. Many people with vision loss avoid social interaction for this reason. Arrange for a friend or peer to help make the initial introductions. Explain to these new acquaintances that their smiles and waves can't be seen. Encourage others to identify themselves when they speak - for example, "Hi, Lesley. It's Sandra. How are you doing?"

Driving is one activity that people with severe vision loss find extremely hard to give up. However, activities such as reading or playing a musical instrument can continue with a little patience and adjustment. For instance, large-print books or a video magnifier may help with reading. Sheet music can be enlarged using a photocopier.

FAMILY MEMBERS, FRIENDS, AND CAREGIVERS CAN PLAY A LEAD ROLE IN IDENTIFYING NEW HOBBIES THAT REQUIRE LESS VISION. TALKING BOOKS, FOR EXAMPLE, ARE AN EXCELLENT SUBSTITUTE WHEN READING BECOMES TOO DIFFICULT. AUDIO AND LARGEPRINT BOOKS ARE AVAILABLE FROM MANY SOURCES SUCH AS LIBRARIES AND BOOKSTORES.

Large-print crossword puzzles and playing cards are available for those who enjoy these activities as part of their daily routine. Sports enthusiasts can also rethink the way they normally exercise; take a walk with a friend instead of alone, or use the schoolyard track for longer distance exercise. Stationary bikes and other seated equipment in most gyms and fitness clubs are also an excellent way of staying active.

Changing one's lifestyle is difficult and requires flexibility and patience. A lifetime of pleasures and pastimes is hard to let go of; however, clinging to old hobbies can sometimes lead to frustration and, ultimately, less enjoyment. Be creative. The impact of vision loss may be a chance to make some very exciting and rewarding life changes.

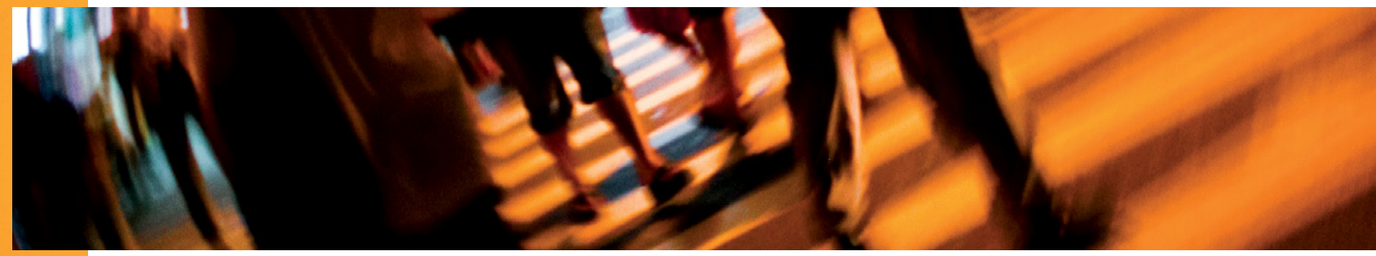
CHAPTER THREE.
Low Vision Aids

Using one's remaining vision will not cause further deterioration of an eye condition; it will train the brain to interpret images more easily.

Products for people with low vision When conventional eyeglasses can no longer help and surgery or medical treatment is not appropriate, or very prolonged, then it's time to consider low vision aids. These come in an array of strengths and designs. They range from simple handheld lenses to electronic devices. Different products are needed for different visual tasks.

The low vision aid you might need is dependent on many factors, the type of vision loss you have, the degree of loss, your light and glare needs, and your ability to handle and operate the aid. There are many other factors. The best place to obtain a low vision aid is from a low vision products specialist. Low vision aids make images appear larger, clearer, and easier to see. Magnifiers are among the most useful low vision aids and come in pocketsize, standmounted, handheld, and illuminated models.

Many people with low vision find that they need a few different magnifiers — one for fine detail tasks, one for watching television, and one for reading street signs (like a telescopic device that makes distant objects appear closer). Magnification technology is constantly being updated, and new products continually appear on the market.



Adjusting to low vision aids It takes time and practice to master the use of any new piece of equipment, so be patient. Make sure that the low vision aid is being used properly to maximize its effectiveness. Investigate other higher technology products that are available, such as home computers. If a computer is available, use e-mail instead of handwritten letters to keep in touch with friends and family. The font size on a computer screen can be enlarged to make the print easier to read. More people are online than ever before and use the Internet to search for recipes, maps, and other information that can be enlarged on the screen. Video Magnifiers can be very useful for people with low vision. The video magnifier is a low vision aid that magnifies and enlarges objects, actions and text onto a display screen. These products are intuitive and are designed for use at home, school and the office.

SmartView Synergy SI

The **SmartView Synergy SI** delivers superior image quality with true, vivid colors. Its powerful camera reproduces 300% more pixels than conventional CCTVs to provide a visual experience that is three times clearer. It has a magnification range from 3x to 75x. The SmartView Synergy SI allows the user to quickly switch from full-color image to text in 16 enhanced contrast modes to enhance reading. Its high-brightness, distortion-free 22" LCD monitor easily adjusts up and down, left and right, and forward and back.

Portable video magnifiers are also available. The **Smartview Versa**, for example is a handheld, battery operated video magnifier. Small enough to fit in the palm of the user's hand, and truly portable, the SmartView Versa's robust design ensures the product goes wherever the user goes. With its large, simple to use buttons and its large color LCD display, the SmartView Versa is very easy to use. Images can be magnified up to 15X and high contrast viewing modes make it easier to read text. The autofocus lets you hold the Versa at the optimal distance from the object and your eyes.

SmartView Versa

The SmartView Versa goes to the store with you to read prices and ingredients, to restaurants to view menus and works around the house to view magazines, photos and pill bottles.

With its integrated camera and monitor and its three different viewing modes (desktop, self-view and distance) the

SmartView 360

SmartView 360º desktop magnifier magnifies images to help you clearly see in every direction. It's easy to position the camera to see across a room, enlarge any text or act as a magnifying mirror. Ideal for a variety of environments such as school, home or work, the SmartView 360's compact design takes up less desk space than 2 sheets of paper. When moved from one position to another, the camera parameters are automatically saved to memory for quick recall. View text in a book with the black and white enhanced contrast or simply twist the camera for a full-color image of a blackboard or presentation screen.

When distance viewing is required HumanWare offers the **SmartView Graduate**.

SmartView Graduate

This versatile video magnifier uses the display of a laptop computer to magnify things across the room or on the desktop. Images can be magnified and saved on your computer for later use.

In addition to handheld and desktop video magnifiers, HumanWare also produces the **Victor Reader** product line of Digital Talking Books for users who are visually impaired and print disabled. This product line includes the widest choice of talking book players available in the industry.

Victor Reader

Digital talking books allow users to browse through a diverse range of reading material including best-sellers, novels and magazines as well as journals and cook books. They offer basic navigation features allowing users to easily browse through the table of contents, and to skip from section to section or from page to page as they choose. All digital talking book players are compact and portable, and designed to go anywhere the user goes.

For the latest information on HumanWare products please visit our website at **www.humanware.com** or contact your local HumanWare office to arrange for a free product demonstration.

For more info on our products, please contact the HumanWare Office nearest you.

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