Visibility

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News and Research from Envision Vision Rehabilitation Center

Envision Conference 2010: Excellence in Advocacy

Sept. 22-25, 2010
Westin Riverwalk
San Antonio, TX

Excellence in Advocacy Keynote Announced

The focus of Envision Conference 2010 will be ***"Excellence in Advocacy."*** Recognizing the important role that all of our attendees play in advocating for those who are blind or low vision, we know you will not want to miss the ***"Excellence in Advocacy"***

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ENVISION CONFERENCE 2010

Improvements in Lighting and Visual Aids for Low Vision Patients

Robin B. Mumford, BSc FPRI

Defining the Problem

As people age, changes to their vision occur. At best is a loss of accommodation that affects everyone to a greater or lesser extent. There is also some loss of acuity as the eye becomes less sensitive to light. In the best cases, acuity can still be retained at the 20/20 level by precise optometric spectacles, even when people are in their seventies.

Unfortunately, a significant number of the elderly develop dry macular degeneration, a process where diseased parts of the macula develop a progressive loss of sensitivity to light. This is described as geographic atrophy and is a more useful description of the condi-

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ENVISION Vision Rehabilitation

tion. It affects everyone uniquely as the decayed portions of the eye (scotomas) occur in different areas of the macula in different people and the level of decay may vary.

This means that portions of the eye accustomed to a particular activity are denied the function and have to learn the skill with a different and unaccustomed part of the brain. It is not uncommon with these people that although their visual acuity may have only decayed to 20/70, their performance on timed tests decays to levels one sees with 2nd graders.

The atrophy may be different in the two eyes with the result that the normal cooperation between the eyes becomes disrupted as one particular eye, and not necessarily the dominant one, assumes the major load.

Some practiced readers have developed a habit of reading at a fixed distance and have trouble changing to a different distance. This denies some readers the benefit of prescription spectacles with higher magnification which requires reading at a shorter distance.

Some Helpful Solutions

The preferred type of assistance needed by persons with geographic macular degeneration includes an eye exam to first eliminate any astigmatism. Then, attention should be directed to the provision of appropriate lighting.

The eye can accommodate light levels from about 2 foot candles such as in moonlight to 20 foot candles in a typical home, to 50 foot candles in offices and schools, to over 10,000 foot candles in direct sunlight. Individuals are exposed to orders of magnitude different light levels every day without being necessarily conscious of the range. Some individuals do notice that their visual acuity is good outdoors and degrades noticeably indoors with a lower level of light. As the level of light increases, problems of glare emerge.

The task for the therapist is to provide a maximum level of light without adding any glare. While everyone is different with regard to their reaction to different lights, a significant number can tolerate high levels of light (700 foot candles) providing the blue content of the light is less than 15 percent, while others have a preference for light containing less than 10 percent blue light. It seems to be important to maintain a good color rendition at the lower blue contents. For a fuller discussion of this subject, see E Kitchel, What Teachers of Low Vision Students Need to Know about Lighting.[2]

By contrast, the "natural sunlight" types of light have levels of blue content above 35 percent and can be tolerated by many, although not all. The therapist should be aware of these factors and reach the best recommendations.

Once the lighting is adjusted to provide optimal performance by the individual, it is time to determine if magnification of printed text would help with reading tasks. The stronger the magnification, the more the aids require the reading to be viewed by one eye or the other. As patients are required to become monocular, some may not tolerate it and may refuse to use the recommended device. Nevertheless, for patients who can use them, the recently developed LED sources of light offer longer battery life for these handheld magnifiers.

The one thing that confers real assistance is electronic magnification, either fixed or portable (closed circuit television – CCTV). The fixed machines are similar to a desktop computer and supply great assistance in magnifying the print up to 25 times. Thus, a 10 point newspaper article can be transformed by such a machine to produce an image 1.25 inches high when magnified ten times, corresponding to 20/1000 acuity at 16 inches. Surprisingly, people can interact with such devices and suffer no unusual fatigue. There have been instances when individuals have resumed function formerly denied after use of such machines. Somehow, they regain formerly dormant skills after using electronic magnification.[3]

Recent developments include the portable scanner which can be connected to a portable TV, providing magnification equivalents of 5.3x on a 14" television, 6.5x on a 17" television, 8x on a 21" television, 10.3x on a 27" television, and 12.2x on a 32" television.[4] This is very useful for people who want to attend outside lectures, etc., or wish to have a device which can be used at different locations in the home. Generally, these devices can cover a newspaper column in width, but have to be moved by hand to read a book, for instance. Other portable miniature devices are specially targeted to allow the user to read prescription details on pill bottles or read bills. This is a rapidly evolving area of development, all of which help in the maintenance of individual living such as reading bills and writing checks.

The recent introduction of the Kindle™ and similar electronic machines, with their variable text size, represents an important step forward. Their present audience is predominantly the younger generation, but that will change.[5]

Distribution Factors

One problem with task lights is that they can produce an area of relatively intense light, but the light level rapidly falls off as you move away from the

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High glare free task lighting shown by a desk lamp with 5 diopter magnifying element

source. Some individuals prefer a more evenly lit environment only available from indirect lighting. Typically, this is limited to 100 foot candles and available from High Intensity Discharge (HID) sources. These are available on a custom basis. They produce an even lighting from 150 to 400 watt fixtures, notably with torchere up-lighters or fixtures placed on top of cabinets to light the ceiling.[6]

Such technology is expensive, but used in areas where there are unique benefits. Examples of this are enabling individuals to see what they are eating and dispersing the gloomy view, somewhat like Seasonal Affected Disorder Syndrome (SADS), as a result of macular degeneration. The effect sought, is the type of light in a spring morning. The combination of an indirect lighting like sodium lighting provides energizing background lighting. Using this with an electronic magnifier has proved optimum viewing for some.

Summary

The days are over when the visually impaired were blithely advised that "nothing can be done." Incrementally, one task at a time, handicaps such as reading have yielded to advances in lighting and magnification.

150 Watt Sodium Lit Torchere

Robin Mumford, BSc FPRI, has pioneered the use of High Intensity Discharge (HID) lighting systems for the visually impaired. Robin is the author of six US and Canadian patents covering the use of special lighting for the amelioration of visual stress and dyslexia. He has also developed test methods to quantitatively determine the result of different forms of illumination. Robin can be reached at ***mumford.robin@gmail.com.***

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Disclaimer

Robin Mumford acts as a distributor of special lighting systems and visual aids, as well as testing methods and other products designed to accelerate progress in reading.

Diabetes and Vision Loss – *A Case Study*

GUEST COLUMN

Yolanda Cate, MS, OTR/L, CDE

Diabetes is a chronic disease that affects 23.6 million people in the United States, 8 percent of the total population. The Centers for Disease Control and Prevention (CDC) estimates that the total prevalence of diabetes increased 13.5 percent from 2005 to 2007. Only 24 percent of diabetes is undiagnosed, down from 30 percent in 2005 and 50 percent 10 years ago. Although diabetes is a manageable disease, it is ranked by the CDC as the seventh leading cause of death in the United States. Diabetes is also identified as the leading cause of vision impairment and blindness in the industrialized world in people between the ages of 25 and 74. Largely because of the aging population, the prevalence of vision loss caused by diabetic retinopathy will increase markedly by the year 2020. The number of new cases of vision loss annually ranges from 12,000 to 24,000.[1-2] The wide range in the number of new cases is the result of a lack of consistency in defining the terms vision loss and blindness.

Visual impairment can present a barrier to a person's ability to carry out necessary diabetes self-care tasks and to the process of diabetes self-management education (DSME), both of which are essential to decrease the occurrence of medical complications and to prevent the progression of existing complications of diabetes.[3-6] Effective self-care management requires persons with diabetes to understand and use multiple technologies for glucose monitoring and medication administration as well as complex treatment strategies and problem-solving skills. [4-5, 7-11] An integrated, multidisciplinary approach that incorporates an individualized plan for diabetes self-management supported by diabetes education is required to restore and/or maintain independence in diabetes self-management.

Case Study

Richard is a 39-year-old unemployed male with a seven-year history of type 2 diabetes and proliferative diabetic retinopathy. He was referred to home health for wound care management, counseling, diabetes self management education and occupational therapy for evaluation and treatment to increase his independence

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"Diabetes is also identified as the leading cause of vision impairment and blindness in the industrialized world in people between the ages of 25 and 74."

in activities of daily living (ADL). His medical chart indicated that he was diagnosed with type 2 diabetes mellitus during a hospital stay after developing an infected toe and undergoing wound care management. Immediately after being diagnosed with diabetes during his hospital stay, Richard was provided with the following services by a nurse practitioner, registered dietitian and CDE to manage his diabetes: one hour of nutritional counseling which included written nutritional guidelines and one hour of diabetes education which included training in the use of a blood glucose monitor to test blood glucose, information on his new medication to control blood glucose (oral hypoglycemic pill), and physical activity guidelines. Co-morbid conditions include hypertension, end stage renal disease, sensory neuropathy, and depression.

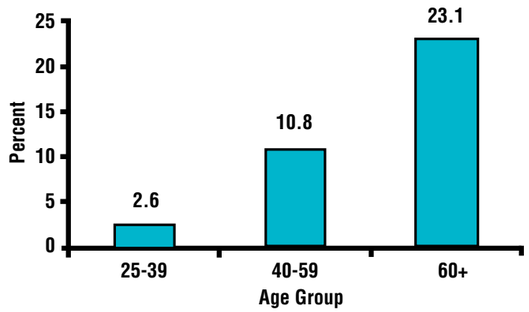
The referring physician provided the following information: visual acuity OU 20/400, decreased contrast sensitivity, decreased color identification, and decreased visual field in the dominant right eye.

During the home health evaluation for occupational therapy, Richard expressed concern about his decline in vision over the last year, which decreased his independence in daily activities; his lack of understanding of how to eat well to control his blood glucose levels and to manage his dialysis treatments; and his fear of managing his daily medication because of his poor vision. He was prescribed insulin one year prior to the home health evaluation due to poor glucose control. He reported self-monitoring blood glucose levels only on days when he could see the digital numbers on his glucose monitor's display. At the time of the evaluation, he relied on his roommate to assist with medication management (organizing his oral medication and injecting his insulin) and home management, including completing laundry, cleaning and grocery shopping. Meals were prepared by Richard using only the microwave, due to difficulty seeing the settings on his appliances. His roommate read Richard's mail and wrote notes for Richard as needed to complete activities of daily living.

Intervention

Richard's home health goals in order of priority to him were reading and writing to complete activities of daily living and managing diabetes self-care independently. The occupational therapy practitioner completed ADL and diabetes self-management evaluations and also reviewed the last 30 days of Richard's blood glucose test results which showed an average blood glucose level of 250 mg/dl (A1C of 9 percent). During the evaluation, Richard demonstrated difficulty using his digital display glucose meter when his vision was at its worst, thus a talking glucose meter was recommended. A written prescription was obtained from his nephrologists and ophthalmologist as required by his medical insurance for coverage. Richard was trained to use the adapted glucose meter and on the administration of insulin and other medications using adaptive aids. He was instructed how to use large print and tactual labels in conjunction with his prescribed optical devices (a hand-held illuminated magnifier and a single unit video magnifier loaned to Richard to explore usability) to identify medications. After discussing and trying several adapted devices to draw insulin accurately, he was trained to use a syringe pre-set gauge to draw the prescribed insulin dose. Due to lack of prescription medication coverage, an insulin pen was recommended, but not obtained until additional financial resources/drug coverage were established.

Estimated prevalence of diagnosed and undiagnosed diabetes in people aged 20 years or older, by age group, United States, 2007



Source: 2003-2006 National Health and Nutrition Examination Survey estimates of total prevalence (both diagnosed and undiagnosed) were projected to year 2007.

After three half-hour sessions, Richard demonstrated the ability to draw insulin independently using a traditional insulin syringe and vial with 100 percent accuracy. He used a pill organizer and optical aids to manage all oral medications safely and accurately. He was educated on the importance of establishing a regular pattern of eating meals and monitoring his blood glucose and blood pressure levels, particularly during dialysis days (three times per week). The occupational therapist and the home health nurse assisted Richard in developing a diabetes workstation to organize his diabetes supplies and adaptive equipment and to help him more easily locate what he needed to complete blood glucose and blood pressure monitoring. Richard was instructed on how to record the blood glucose and blood pressure test results in a large print notebook using optical aids as needed, and how to use the memory feature on his adapted glucose meter. He was encouraged to develop habits such as disposing insulin pen needles and lancets in the sharps container, maintaining the diabetes workstation free of clutter, and purchasing enough supplies for blood glucose monitoring and medications to last one full month. Richard's symptoms of depression alleviated as his level of independence increased. The referring physician was provided with written summaries of the adaptive devices recommended and Richard's level of independence to facilitate reinforcement of the use of adaptive devices.

Meal planning and preparation intervention included instruction in strategies to buy healthy foods low in sodium and other recommendations for persons undergoing dialysis, and to identify and measure portions to ensure he eats the correct amount of carbohydrates in the meals he prepares. He was also taught how to use the video magnifier and a handheld magnifier to read a carbohydrate counting book and the nutritional information on food labels, and to record food intake using a large print food log book and optical aids. Richard's appliances were modified with raised tactile markings so he could set them accurately. He was taught how to use large print and a bold marker as well as optical aids to write an accessible grocery list. The diabetes educator noted that Richard did not understand the basic concepts of carbohydrate counting and after introducing the basic concepts, referred him to the registered dietitian on the diabetes care team for formal medical nutrition therapy (MNT).

Precautions regarding skin and foot care were reviewed because of Richard's sensory neuropathy and history of infections. The home health team

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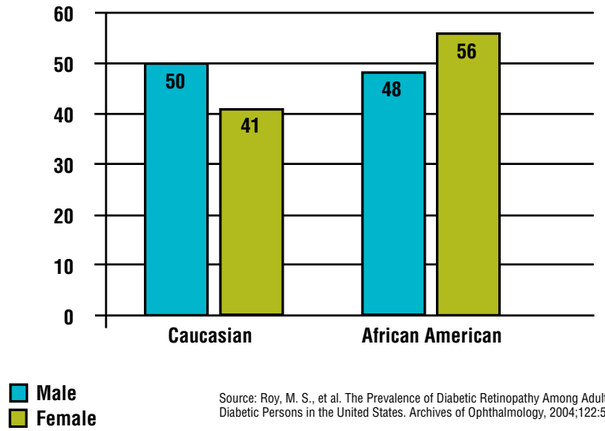
Estimated prevalence of Vision Threatening Diabetic Retinopathy in Persons With Type 1 Diabetes Mellitus in United States by Race and Gender



Source: Roy, M. S., et al. The Prevalence of Diabetic Retinopathy Among Adult Type 1 Diabetic Persons in the United States. Archives of Ophthalmology, 2004;122:546-551.

reinforced and encouraged Richard to establish a pattern of tactually inspecting his feet daily for sores, applying lotion and wearing hard soled shoes at all times. He was referred to a podiatrist who took his insurance plan (Medicare/Medicaid) for nail care and a new prescription for shoes.

Concepts of using high contrast, decreased pattern, and increased task lighting to increase the visibility of environments and tasks were reviewed and incorporated into Richard's home and diabetes self-management area. To increase independence in management of diabetes complications, a talking blood pressure meter was recommended.

Richard was referred to the state's division of blind services for vocational rehabilitation immediately after the OT evaluation was completed and for access of additional community support and equipment that he could not afford to buy (a hand-held illuminated magnifier, a single unit video magnifier talking food scale, liquid level indicator, low vision timer, talking watch, pill organizer, talking blood pressure meter, and sunglasses to decrease glare). Orientation and mobility services were recommended to assist Richard with walking to and from the grocery store and park to increase his physical activity, as well as to teach him how to use the public transportation system in his community safely.

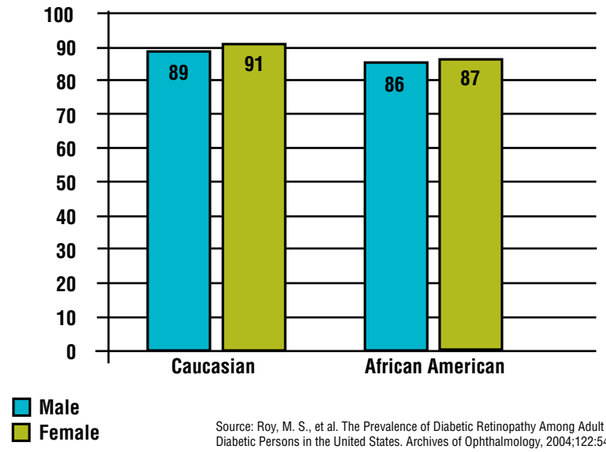
Outcome

At discharge, Richard, the home health team, his referring physicians and the case manager from the state's division of blind services were all aware of the resources available for persons with diabetes and vision loss. Richard was able to monitor blood glucose, blood pressure and manage his medications independently. He demonstrated the ability to plan and prepare simple healthy meals safely and independently on his budget. He was able to record his weight, nutritional content of daily meals, medication, physical activity levels and blood glucose/pressure levels.

He was referred to a support group at the Lighthouse for the Blind in his community. Richard viewed his newly developed support system as vital to help him maintain his health and independence, and as a way to remain productive in the community while learning to cope with his conditions. His average blood glucose levels improved to 150 mg/dl (A1C of 7 percent) six months post-discharge, indicating improved control of his blood glucose levels.

Estimated prevalence of Diabetic Retinopathy in Persons with Type 1 Diabetes Mellitus in United States by Race and Gender

(numbers reflect percentage of population impacted)



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GUEST COLUMN

Donald C. Fletcher, MD

Case Report: Challenging Assumptions about the Aging Process

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A 101-year-old woman was referred to me for low vision rehabilitation. She charged into my office on her own steam without aid of a cane or walker. Following a fair distance behind was her husband who strained to keep up. As part of the basic introductions she introduced her dear husband. She quite unabashedly indicated that he was her fourth husband. Having been widowed three times she said, "I wore out the first three so I thought I would try a younger fellow this time. He is 86, 15 years younger than me!"

Her descriptions of the implications of vision loss were also amusing. She said, "When you are over 100, you slow down a little bit. I am not running races any longer, you know. I have more time for reading now than I use to, but darn it, I don't have the vision for it now. You have to give me something to make reading easier."

She had been receiving anti-VEGF injections for exudative maculopathy and had experienced a moderate decrease in vision in both eyes. Visual acuity was 20/70 in each eye and there was also a decrease in contrast sensitivity. Central visual field testing showed no dense or significant relative scotomas under binocular testing conditions. Reading performance testing with her standard bifocals showed good speed and accuracy to print as small as 2.0M units (twice the size of newsprint). With print smaller than 2.0M, she slowed and the limits of her resolution were 0.8M.

"As an ophthalmologist specializing in vision rehabilitation of the visually impaired, I have found the Kindle™ DX to be of tremendous value to my patients."

After my evaluation and training with an occupational therapist, she decided that the best technique for her to read was with a Kindle™ DX and her standard bifocals. As an ophthalmologist specializing in vision rehabilitation of the visually impaired, I have found the Kindle™ DX to be of tremendous value to my patients *(See side bar and reference 1)*. Using extra over-the-shoulder lighting and the Kindle's largest font (approximately 2.5 M) gave good access to her newspaper or books on this device.

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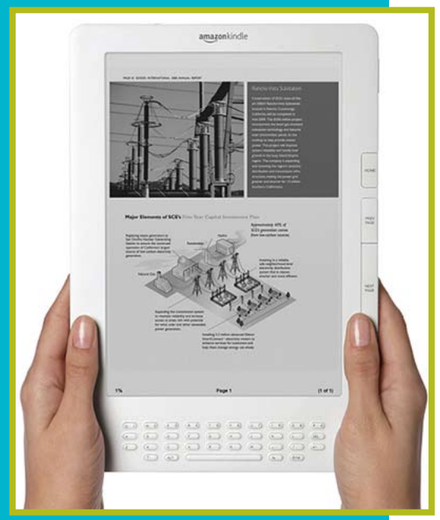
Kindle™ DX

The Kindle™ DX is an electronic book reader manufactured and sold by Amazon.com, Inc. It can be used to buy and read books, newspapers, magazines or blogs unless the book's rights holder made the feature unavailable. It has a text-to-speech feature (Read to Me) that will read your purchases and personal documents. Native PDF support allows you to carry and read personal and professional documents. The Kindle™ DX is lightweight and has 18-point font that can be underlined. The benefit of the new DX version is the large screen. The device gives someone with low vision easy access to large print materials.



While the Kindle™ has enabled many vision impaired readers to enjoy books more easily than before, it has also garnered considerable criticism from advocates of assistive technology and literacy for the blind. The major problem being that the navigating menu was not audible, making it impossible for severely vision impaired and blind users to use independently. Amazon.com recently announced it is currently working on an audible menu system so blind and vision impaired readers can easily navigate to books. In addition, Amazon.com reported an upgrade to a new super size font, increasing the number of font sizes from six to seven. This seventh font size will be twice the height and width of the current largest font. These new features are scheduled for release by the summer of 2010.[1]

The Kindle™ DX may be a viable low vision reading option.

Comprehensive low vision rehabilitation with occupational therapy training improved her compensatory skills resulting in increased reading speed and accuracy.

Decreased vision in older adults is extremely common and carries a wide range of functional and emotional implications. Primary care physicians play an important part in helping patients realize that low vision, or even total vision loss, does not mean an end to most of life's activities. Your role also includes providing emotional support and making referrals to a vision rehabilitation clinic and support group when appropriate.[2]

This patient reminded me of the importance of not making assumptions about the aging process. She clearly demonstrated that life need not end at 79 or 89 or 99. Don't assume that the magnifier you prescribe for a 90-year-old will only have to last six months! It is very easy to assume that anyone older than me is technophobic! Not so. Our geriatric patients can be quite with the times and benefit from technological advances.

So, as long as you are alive, you might as well keep living!

Acknowledgement: *I have no commercial interest in the Kindle™ DX or any competing devices. Decisions regarding adaptive reading devices and other assistive technologies should be made by the person considering the device after careful discussion with their low vision practitioner.*

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Donald C. Fletcher, MD, is a clinician and researcher with over 20 years experience in the field of retinal diseases and low vision rehabilitation. He is a medical doctor and ophthalmologist who has completed fellowship training in both retinal diseases and in low vision rehabilitation. Dr. Fletcher works and advocates developing a new multi-disciplinary approach to rehabilitation of the visually impaired within the healthcare system. He currently holds positions at Smith-Kettlewell Eye Research Institute and California Pacific Medical Center Department of Ophthalmology in San Francisco, CA; Helen Keller Foundation for Research and Education in Birmingham, AL; University of Kansas Department of Ophthalmology in Kansas City, KS and has a private practice in Wichita, KS and serves as the Medical Director for the Envision Vision Rehabilitation Center in Wichita, KS. Dr. Fletcher can be reached at **drfletcher@feltcherlowvision.com**.

Perceptual Filling-In and Metamorphopsia: Historical Milestones

The phenomenon of perceptual filling-in (PFI) has fascinated researchers for several hundred years and has been investigated in many different areas of research. In the context of visual perception, it describes the ability of the sensory system to create the perception of a stimulus that is partially absent or not completely available to the cortex. In visual psychophysics, this phenomenon has predominantly been investigated at the optic nerve head, as well as with the use of artificially induced scotomas. In addition, clinical approaches have included the examination of patients with cortical or retinal lesions. In all these lines of investigation, it is generally observed that the missing component of an image is filled in by information available to the surrounding retinal areas, resulting in a continuous percept. In the clinical domain, this effect has interesting implications, as patients with retinal scotomas may be unaware of their visual deficit for which they may compensate cortically through PFI.[1-5]

Perceptual Filling-In – The Early Years

The investigation of PFI had its beginnings during the 17th Century with the discovery of the fact that the human visual system naturally has a scotoma at the location where the optic nerve exits the eye.[6] Mariotte's anatomical studies of the eye resulted in his realization that the optic nerve, which until then was believed to be the center of vision, did not fall on the optical axis. To test its functional abilities, he placed a black piece of paper against a white wall and observed that, upon monocular eccentric viewing, the black paper simply disappeared when it fell on the retinal area corresponding to the optic nerve. Most astoundingly, he did not perceive a shadow or darkening of the background, but simply a continuous white wall. This effect of filling-in was replicated by Troxler[7] in 1803 with various colors, resulting in the same observation – that the blind spot is filled in with the color of the background. Additional investigations regarding the blind spot in 1726 by Bernoulli described its oval shape.[8] In addition, the first "mechanism" for PFI was proposed by Sir David Brewster[9] in 1832, who credited the "Divine Artificer" with replacing the black spot with the same color as the background.

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"...it is generally observed that the missing component of an image is filled in by information available to the surrounding retinal areas, resulting in a continuous percept."

While psychophysical studies were focused on investigating PFI at the optic nerve head, ophthalmologists concentrated on the functional effects of scotomas caused by retinal injury or disease. Even though Galen was already aware of solar eclipse blindness and appreciated that the initial vision loss can be unperceived,[10] one of the first descriptions of such a blind spot in the central retina came from Thomas Reid in 1764, who described the effect of staring at the sun (solar retinopathy) while observing planetary movement for an extended amount of time.[11] What is remarkable about his description is that the scotoma did not result in a blind spot, but rather caused him to see distortions, now clinically known as metamorphopsia. To describe these distortions, he chose the example of viewing sheet music, whereby the lines on the paper appeared distorted when viewed in and around the area of the injury. These observations have since been needlessly replicated by other researchers, at the expense of their own retinas.[12-14] The first clinical description of metamorphopsia was published by Förster in 1862[15] who used a Cartesian grid to depict the effect of distortions. Shortly thereafter, in 1869, Knapp[16] described the distorting effect of a central scotoma on the perception of parallel lines.

Blind Spot

Your blind spot is the area in the retina where nerve fibers join the optic nerve. This area does not contain the light-sensitive rods and cones cells, and is therefore blind. To find the blind spot in your eye, close your right eye and stare at the cross below. Slowly move towards the image, staring at the cross. About 8 inches away, the dot will vanish. The image is now falling on the blind spot on your retina.

These reports led to the first inclusion of metamorphopsia in an ophthalmic textbook by Berry in 1889.[17] The author presented two separate displays of parallel lines and their distortion into a narrowed (micropsia) as well as an expanded (macropsia) pattern. This textbook also acknowledged the existence of absolute versus relative scotomas, depending on lighting levels. Images of these clinical reports have been published and described in more detail.[18] During the 20th century, the described discoveries formed the basis for substantial advancements in our understanding of PFI, the mechanisms that underlie this phenomenon and our attempts to quantify the resulting visual distortions.

The phenomenon of perceptual filling-in has interesting implications for patients with retinal scotomas like age-related macular degeneration. A retinal disease causing progressive loss of macular vision, macular degeneration in the advanced stage causes a central scotoma in the visual field, whereby patients need to rely on the use of their peripheral vision to achieve visual tasks. While some alterations in visual perception like visual acuity and contrast sensitivity are well-known, the occurrence of other phenomenon like PFI may be underestimated. Further investigation of PFI may provide useful insight into patients' visual difficulties experienced with activities of daily living, leading to corresponding vision rehabilitation interventions.

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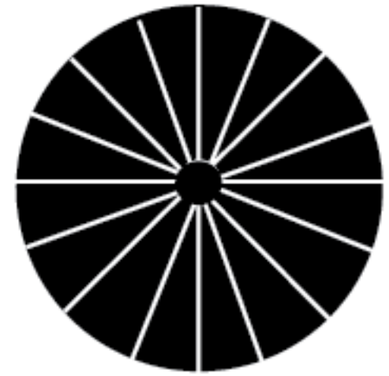
Filling-In

Filling-in phenomena are responsible for the completion of missing information across the physiological blind spot, and across natural and artificial scotomas. Close your right eye and fixate on the cross as before. What happens when the center of the wheel is in your blind spot? Compare this to what happens when you cover the center of the disk with your thumb.



Dr. Wittich recently completed his doctoral studies at McGill University in the area of cortical plasticity and visual impairment. Specifically, he is interested in the perceptual effects of adventitious vision loss in the elderly. His interaction with patients that are unaware of all or part of their impairment has created his interest in perceptual filling-in. Presently, he is coordinating the research efforts at the Montreal Association for the Blind – Mackay Rehabilitation Center, while preparing for a post-doctoral position at the University of Montreal in dual sensory impairment.



"To see a beautiful venue like this and a conference that focuses so much on collaboration of care – it's an exciting conference!" Paul H. Davis, MD

Envision Conference 2010: Excellence in Advocacy *cont. from page 1*

Symposium. The "Excellence in Advocacy" Symposium is a panel presentation with representatives from nationally recognized governmental and non-governmental organizations. The panelists share common core principals, but serve unique missions in preventing blindness, educating the public and health care providers, promoting best practices in vision care, and advocating on behalf of people who are blind or low vision. The Envision Conference is pleased to announce that this year's panel includes representatives from the National Eye Institute's (NEI) National Eye Health Education Program (NEHEP), Foundation Fighting Blindness and Prevent Blindness America.

Register Early!

Online registration for Envision Conference 2010 is open. Register by July 9 to receive the early bird rate of $425. Regular registration received after July 9 will be $525.

Exhibitors will receive the advance price rate of $800 per booth if paid by July 16. Exhibitor registration received after July 16 will be $900. In addition, several sponsorship and advertising opportunities are still available.

For more information and to register, visit the Envision Conference website at **www.envisionconference.org**.

Make the Envision Conference and San Antonio River Walk Your Destination this September

Located in the heart of Texas, San Antonio has been called *"The Cultural Gateway to the American Southwest."* As the oldest city in the state, founded in 1781 as a Spanish settlement, San Antonio's atmosphere is unlike that of any other city in Texas.

The biggest challenge facing many visitors to the San Antonio River Walk is finding time to take in the many activities. The River Walk is lined with a number of fine restaurants, nightclubs, hotels and shops and is also within walking distance of the Alamo. We encourage you to take some time on the River Walk with us this September!

Call for Article Submissions

The continued growth of low vision rehabilitation, research and quality of care depends on contributions from professionals in the field. We are encouraging you to consider submitting an article for inclusion in future publications of Visibility.

With the delivery of low vision care requiring a multi-disciplinary team, chances are you have valuable field experiences, research proposals and clinical applications to share. Whether you are a vision scientist, an OD in private practice, an OT in a rehab hospital, an O&M at a private agency for the vision impaired, a TVI from a school district or a retina specialist MD, we want to hear the challenges you've faced and solutions that have worked for you.

Submission Deadlines

VISIBILITY GUIDE FOR AUTHORS

Envision is currently accepting the following article submissions for publication consideration:

CASE STUDY

Total Word Count: 1,000 words

Content and Theme

- **Presenting problem:** General description of presenting patient etiology or acquired pathology. Origin of patient referral. How is this significant? Is it common or rare?
- **Case study:** Present a patient case study *(HIPAA compliant, de-identified patient information)* that shows how the presenting problem was approached with low vision rehabilitation interventions, follow-up and/or referrals.
- In substitution of "patient," the case study may refer to "student" and "educational interventions" in addition to rehabilitation interventions for case studies encompassing the field of education for persons with vision impairment or blindness.

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ENVISION Vision Rehabilitation
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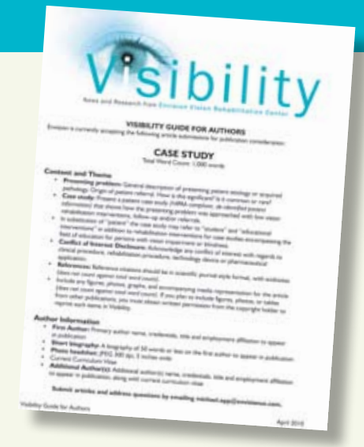

Articles are generally limited to 1,000 words. Check the Guide for Authors online at **www.envisionus.com/visibility** for more details. Submit articles and questions by emailing **michael.epp@envisionus.com.**

Call for Article Submissions continued from page 17

- **Conflict of interest disclosure:** Acknowledge any conflict of interest with regards to clinical procedure, rehabilitation procedure, technology device or pharmaceutical application.
- **References:** Reference citations should be in scientific journal-style format, with endnotes *(does not count against total word count)*.
- Include any figures, photos, graphs, and accompanying media representation for the article *(does not count against total word count)*. If you plan to include figures, photos, or tables from other publications, you must obtain written permission from the copy right holder to reprint such items in *Visibility*.


GUEST COLUMN

Visual Rehabilitation Following Stroke

Bhavani R. Iyer, OD, FAAO

Cerebral Vascular Accident (CVA) or stroke affects individuals in different ways, ranging from pure visual side effects (homonymous hemianopia) to hemiparesis, aphasia, cognitive impairment, memory loss and even death, in some unfortunate cases. As of 2005, it is estimated that there are 6.5 million people with stroke in the United States, with 795,000 added each year.[1] It affects women more than men and is 2/3 more common after the age 65. With 1/3 of the stroke sufferers being under 65, the impact on the working population is significant.

Stroke is the third leading cause of death in the United States, with 87% being ischemic, 10% being cerebral hemorrhages and the rest subarachnoid hemorrhages. The co-morbidities associated with a stroke depend upon the area of the brain that was affected and the duration before which treatment was provided.

With the recent advances in emergency response systems and treatment protocols, more patients are surviving strokes than ever before. It is reported that nearly a quarter of these individuals have a visual field loss that impacts their normal day to day functions.

The most common functional complaints include difficulty reading (having to re-read words, difficulty getting back to the beginning of the next line and comprehending what is read), walking, driving, bumping into things, people and doorways. The loss in independence combined with loss of job and fear of bumping into people creates social isolation and depression. Visual rehabilitation can restore some of these functions, thereby improving the individual's overall quality of life. The following case is a good example of how visual rehabilitation played a pivotal role in changing this individual's life.

TW was a cheerful 42-year-old white female who used to work for a consulting company who came to see us on 9/17/09. She was referred to the Center for Visual Rehabilitation which is associated with the Cizk Eye Clinic, University of Texas Department of Ophthalmology and Visual Science following a request for an ophthalmology evaluation by the University of Texas stroke team.

She used to travel with her family and enjoyed reading with her 7-year-old son until she suffered a hemorrhagic stroke to her left

continued on next page

Director, Center for Visual Rehabilitation
Clinical Assistant Professor
Richard S. Ruiz, MD,
Department of Ophthalmology and Visual Science,
The University of Texas Medical School,
at Houston, Texas

Fellowship, American Academy of Optometry, Low Vision Section, Rockville Maryland

"As of 2005, it is estimated that there are 6.5 million people with stroke in the United States, with 795,000 added each year."[1]

Author Information

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- **Short biography:** A biography of 50 words or less on the first author to appear in publication
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RESEARCH HIGHLIGHTS

Total Word Count: 1,000 words

Content and Theme

- **Research review:** Review of past and/or current vision research and its potential for low vision rehabilitation clinical applications.
-OR-
- **Research abstract:** An early concept, short / research abstract that encompasses the exploratory stages of vision research and its potential for low vision rehabilitation clinical interventions, technology applications or surgical, pharmaceutical or gene therapy interventions. Include a hypothesis, purpose or objective, research methods, results/expected results, discussion, conclusion and future directions of research and acknowledgment.
- **Human subjects research**: (IRB) compliant, HIPAA compliant de-identified patient information
- If animals are used in the protocol or the study, the manuscript should describe in the acknowledgment section the animal care protocol that was followed, name the institution that sponsored the study, and identify relevant IRB approval. Biomedical research involving animals must conform to generally accepted principles of animal maintenance and care, such as those of the Association for Research in Vision and Ophthalmology (ARVO).
- **Conflict of interest disclosure:** Acknowledge any conflict of interest with regards to clinical procedure, rehabilitation procedure, technology device or pharmaceutical application.


RESEARCH Highlights

Michael D. Crossland, PhD, MCOptom, FAAO

Implantable Telescopes: The future of low vision rehabilitation?

Telescopes are a mainstay of low vision rehabilitation. If low vision practitioners did not prescribe telescopes, thousands of people would be unable to watch sports, visit the theater, navigate airports, or enjoy art galleries.

While undoubtedly useful, hand-held telescopes have considerable limitations: they are often heavy and cumbersome to use, and they have a limited field of view. Spectacle-mounted telescopes can be less cumbersome, but can only be used for spotting or tracking tasks and require considerable training to be used effectively. Both hand-held and spectacle-mounted telescopes draw attention to the user and neither can be used when walking due to induced problems with balance and coordination.

In contrast, if a telescope can be implanted within the eye, it cannot be seen by others, can be used all of the time, and leaves both hands free to use. Because the position of an implanted telescope is so close to the nodal point of the eye, it will not have the same disruptive effect on the vestibular-ocular reflex as a hand-held or spectacle-mounted telescope. Although these systems have been described for several years, there has been a recent surge in research publications for two intraocular telescope systems: the implantable miniature telescope (IMT) and the IOL-Vip.[1,2]

The IMT (VisionCare, Saratoga, CA) is a Galilean telescope which, when implanted, has a magnification of either 2.2x or 3.0x. The IOL-Vip (LenSpecial, Milan, Italy) is also a Galilean telescope but has a lower effective power of 1.3x.[3]

Both systems are implanted following cataract surgery. The IMT replaces the crystalline lens with a sealed unit containing both lenses of the telescope. In contrast, the IOL-Vip consists of two lenses, a negative lens placed within the capsular bag and a positive lens which sits in the anterior chamber, just anterior to the iris. A further difference to conventional cataract surgery is that a peripheral iridotomy is performed at the same time as the lens implantation, due to a rise in intraocular pressure in some of the earliest subjects who had the procedure performed.[4,5]

To date, the biggest study to evaluate the IMT describes one-year follow-up data for 217 people, and two-year data for 174 people. The major study of the IOL-Vip describes 40 eyes of 35 patients.[3,4,5]

"If low vision practitioners did not prescribe telescopes, thousands of people would be unable to watch sports, visit the theater, navigate airports, or enjoy art galleries."

MCOptom, FAAO

Specialist Optometrist, Moorfields Eye Hospital, London, UK

Research Fellow, UCL Institute of Ophthalmology, London, UK

- **References:** Reference citations should be in scientific journal-style format, with endnotes (does not count against total word count).
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GENERAL ARTICLE

Total Word Count: 1,000 words


Visibility

Vol. 4 Issue 1, 2010

News and Research from Envision Vision Rehabilitation Center

Envision Conference 2010: Excellence in Advocacy

Sept. 22-25, 2010
Westin Riverwalk
San Antonio, TX

Excellence in Advocacy Keynote Announced

Envision announces Kara Gignon, OD as this year's **"Excellence in Advocacy"** keynote speaker. Dr. Gignon currently serves as the Director of Low Vision Optometry at the Eastern Blind Rehabilitation Center, VA Connecticut Healthcare System where she has fourteen years of

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The Link between Cardiovascular Health and Healthy Vision

A decline in cardiovascular health leading to heart disease is the number one killer of men and women in the United States. Additionally, cardiovascular disease is a major complication and the leading cause of premature death among people with diabetes. About 75 percent of people with diabetes die from heart disease or stroke. Diabetes is the leading cause of blindness in the U.S. Eye care providers should understand the importance of cardiovascular health, especially the ocular implications.[1-2]

The eye is unique because blood vessels can actually be directly visualized. This means that the eye can be the first manifestation of cardiovascular disease or other systemic diseases. Cardiovascular disease affects the major arteries in systemic circulation, clogging and stopping the flow of blood. Retinal vascular disease can be an outcome of generalized atherosclerosis, which is a thickening, hardening, and loss of elasticity of the arterial walls, resulting in impaired blood circulation. Atherosclerosis develops with aging, hypertension and diabetes, all originating from the cardiovascular

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ENVISION CONFERENCE 2010

5 Guest Columns 14 Research Highlights 19 EVRC Update

ENVISION Vision Rehabilitation

Content and Theme

- General articles relating to the field of vision rehabilitation representing best practices, or thought pieces on health and vision loss, prevention and service delivery, advocacy, education, or collaboration that have been developed with historical or content analysis and review of current literature.
- **Conflict of interest disclosure:** Acknowledge any conflict of interest with regards to clinical procedure, rehabilitation procedure, technology device or pharmaceutical application.
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Submit articles and questions by emailing michael.epp@envisionus.com.

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To submit an article or case study to be considered for publication in Visibility, please contact Michael Epp, Director of Outreach & Continuing Education, (316) 440-1515 or michael.epp@envisionus.com.

Envision Launches Low Vision Grand Rounds

Envision Vision Rehabilitation Center will be hosting Low Vision Grand Rounds beginning in July 2010. Low Vision Grand Rounds are a part of our education series offered to medical professionals concerned with the care of the low vision patient. Low Vision Grand Rounds will emphasize the multi-disciplinary process of low vision rehabilitation at the Envision Vision Rehabilitation Center, including referrals, low vision examinations, low vision rehabilitation and additional patient resources. Presentations will discuss the clinical case of one or more patients. Low Vision Grand Rounds occurs on the second Thursday of each quarter beginning at 6:30 pm. Hors d'oeuvres and wine will be served. See the calendar below for schedule and topics.

Envision Low Vision Grand Rounds Calendar

July 8, 2010 – Early Intervention and Pediatric Vision Rehabilitation

October 14, 2010 – The Global, Interdisciplinary Team Approach for the Diabetic Patient

January 13, 2011 – Driving and the Low Vision Patient

April 14, 2011 – Vision Rehabilitation for Neurological Vision Loss

Envision Continuing Education Calendar

July 17, 2010 – Low Vision Rehabilitation Symposium for Ophthalmic Techs. Wichita, KS. JCAHPO CE

September 22-25, 2010 – Envision Conference, San Antonio, TX. Multiple CE Accreditations

October 21-22, 2010 – KAER Conference, Wichita, KS. ACVREP CE

November 6, 2010 – The Role of Occupational Therapy: Diabetes Management and Low Vision Rehabilitation. Wichita, KS. AOTA CE

February 19, 2011 – Vision Rehabilitation for Low Vision Patients. Wichita, KS. AOTA, ACVREP CE

Contact Michael Epp, **michael.epp@envisionus.com**, for more information.

About Envision Vision Rehabilitation

The Envision Vision Rehabilitation Center provides comprehensive, multi-disciplinary low vision rehabilitation and services for people with vision loss. The center's goal is to help patients maximize their independence and realize their best functional vision. The center achieves this by offering a comprehensive low vision rehabilitation program unique to the needs of each patient. Envision provides low vision rehabilitation services regardless of ability to pay. Call to find out about the availability of financial assistance.

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