



On the Level

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Quarterly Newsletter of the Vestibular Disorders Association

Vision Challenges with Vestibular Disorders

By Lisa Haven, PhD, and Melissa Rodenbeek, MA, Vestibular Disorders Association, Portland, Oregon

A common complaint for people with vestibular disorders is that they have difficulty with their vision. They have problems focusing on an object or perceive that objects are moving from side to side or revolving around them (*vertigo*). They may see their visual field jiggle or bounce (*oscillopsia*) or have double vision (*diplopia*). When they hold their heads still, the problems disappear. The optometrist, who conducts eye exams while a patient's head is securely braced against a head rest, is often unaware that a vestibular problem exists. When the optometrist then explains the normal results of the exam, such patients may become disgruntled or frustrated because the test results don't reflect the symptoms that they experience in the course of daily life.

Why do vestibular disorders affect vision?

The vestibular system sends motor control signals via the nervous system to the muscles of the eyes with an automatic function called the *vestibulo-ocular reflex* (VOR). The VOR is a

crucial part of maintaining balance and clear vision, controlling eye positions so that when the head moves, gaze remains stable. Another way of explaining this is to compare the vision system to photography. The camera (the eyes) must be held steady by the photographer (the VOR) in order to produce clear pictures. However, if the photographer is unable to hold the camera steady, the resulting pictures will be blurry or perhaps have double exposures, even though the camera itself is in perfect working order. A malfunctioning vestibular system changes the once skilled photographer into an unskilled one. People with a chronic vestibular disorder must learn to adapt to this newly unpredictable visual world—a challenge that only increases in complexity if they also require glasses or other visual correction.

How does the vestibulo-ocular reflex work?

When the head is motionless, the number of impulses transmitted from the vestibular organs on the right side is equal to the number of impulses from the left side. When the head turns toward the right, the number of impulses transmitted through the nervous system from the right ear increases and the number from the left

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ear decreases. The difference in impulses sent from each side controls eye movements to stabilize the gaze during active head motions. There is a predictable ratio between the amount of head movement and the amount of eye movement required for a stable gaze. When the head rotates at a certain angle and speed, the eyes rotate at the same speed (*phase*) but in the opposite direction (*gain*). The sensory information provided by both ears is normally symmetrical. Signals coming from the left ear correspond with the information provided by the right ear. Thus, if the vestibular organs in one or both ears are not working properly, the brain receives conflicting signals about movement, resulting in the sensation of vertigo.

Impacts of a disrupted vestibulo-ocular reflex


A disrupted or impaired VOR can result in abnormal *nystagmus*, an excessive to-and-fro movement of the eyes, and *oscillopsia*, where objects appear to bounce because they do not remain fixed on the same point on the retina. A person with a vestibular disorder may also experience photosensitivity (discomfort with bright light) and other vision problems such as: intense discomfort with flickering lights, particularly fluorescent, sodium, or mercury vapor lights; moving objects; rows of similar objects, such as in grocery store aisles or lines of text on a page; or busy, high contrast patterns, such as

polka dots or sunlight filtering through mini-blinds. Environments with a combination of fluorescent lighting and busy patterns or moving objects are especially problematic which is why shopping in large stores may be very difficult. Even environments with subdued décor can be fatiguing if frequent head movements are required, such as when a person converses with others at work or at a social gathering.

Reading text on a printed page presents a special challenge for people with an impaired VOR. The bouncing and shifting words and letters require more effort to process (see Figure 1), which is why children with an undiagnosed vestibular disorder are sometimes mistakenly thought to be dyslexic.

Reading text on a computer monitor can be even more problematic because of a heightened sensitivity to screen flickering or scrolling pages of text. Many people with an impaired VOR resort to manually bracing their head to reduce reading problems, such as by cupping their chin in their hand, in an effort to prevent tiny movements—even those as small as are produced by a pulse.

People with vestibular disorders face particular challenges with peripheral vision, which works to integrate visual information with vestibular functions and is vital for maintaining a sense of balance and orientation. A damaged VOR may



Try to read this may appear like this: Try to read this

Figure 1. For people with oscillopsia, tracking printed words on a page can require a great deal of effort because of the distortion produced by even small head movements.

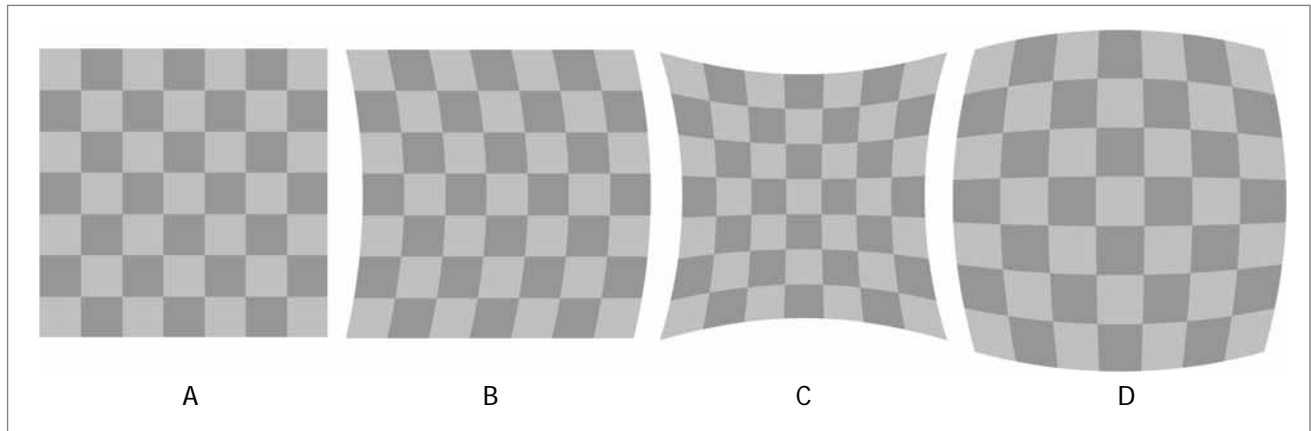


Figure 2. Projection of a flat object (A) onto a curved surface causes straight lines to appear curved (B). As the power (curvature) of a lens increases, so does the degree of visual aberration. Glasses that correct farsightedness cause a pincushion-type distortion (C) and glasses that correct nearsightedness cause a barrel-type distortion (D).

result in peripheral visual flickers that may be mistakenly perceived as movement, such as the illusion of a bird flying quickly past. In addition, nystagmus is more pronounced when a person looks to the far right or left, so actions such as looking over the shoulder while backing up a car can be especially uncomfortable.

Peripheral vision distortions are especially problematic for a person who wears glasses and has adapted to a vestibular disorder by minimizing head movements and relying instead on moving the eyes. Although eyeglasses produce clear and consistent vision straight ahead, lens aberrations such as visual field curvature and distortion reduce vision clarity when a person looks through the side of a lens (Figure 2). Thus, if a person with glasses moves the eyes rather than the head to scan, objects viewed to the side will appear to distort and move. Certain shapes of windshields in cars or vans may cause similar peripheral distortion at their edges.

Ironically, a person with a vestibular disorder may experience a phenomenon called *visual dependence*, where the brain suppresses vestibular input and becomes extremely reliant on vision to maintain balance. However, because

of the impaired VOR, disorientation and symptoms of panic can occur in situations where movement of objects near the person may be mistaken for self-movement. These symptoms may also occur when a person's visual field is overwhelmed (e.g., in a room wallpapered with busy patterns) or lacks a point of fixation (e.g., in intense darkness, wide open spaces, or as experienced with snow blindness).

Evaluation

The diagnosis of a vestibular disorder relies on a combination of careful inspection of the history of the problem, physical examination, and tests. Because vision is so closely linked to the vestibular system, many of these diagnostic tests involve evaluation of the gain, phase, and symmetry of eye movements that occur with vestibular stimulation.

For example, electronystagmography (ENG) tests measure nystagmus that occurs when the head is positioned in certain ways while a person tracks a moving object, or when the ear on one side is stimulated with warm or cold water or air (the caloric test). During these tests, eye movements are recorded using small electrodes placed

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on the skin around the eyes or with an infrared video camera mounted on goggles (known as videonystagmography or VNG). Rotation testing employs the same electrodes or goggles to measure the relationship between the speed of head movement and eye movements while the head is rotated.

It is important to note that these and other tests employed to evaluate vision and vestibular disorders must be administered and interpreted by trained specialists. Factors such as age,¹ medications,^{2(p. 51)} or systemic processes such as depression,³ migraine,⁴ or sleep deprivation^{5,6} can modify the VOR. Such factors must be incorporated into the testing process and interpretation of the results by physicians such as otolaryngologists/ENTs, otologists, neurotologists, otoneurologists, and ophthalmologists.

Treatment

The first approach to resolving vision problems resulting from a vestibular disorder is to treat the vestibular disorder. Depending on the specific vestibular disorder diagnosis, treatment may involve surgery, physical therapy, medication, or other strategies. When a chronic vestibular disorder does not resolve with treatment, specialized vestibular rehabilitation exercises may still be useful in helping with the related impacts on vision. Vestibular rehabilitation is an exercise-based program that includes coordinating eye and head movements, stimulating the symptoms of dizziness in order to desensitize the vestibular system, improving balance and walking ability, and improving fitness.

Optometric therapies may also be part of treatment—especially if an underlying focusing,

ocular alignment, visual acuity, or visual processing problem is suspected in addition to the VOR problem caused by the vestibular disorder. Such optometric rehabilitation treatment may involve the use of corrective lenses, including prisms and spectacles, phototherapy (light therapy), and therapy to help sharpen vision skills or develop the eye muscles involved in focusing, such as exercises that have a person cover one eye while reading.

Glasses and contact lenses

With glasses, the type of vision correction alters the size of the visual world, growing larger for farsighted people and shrinking for nearsighted people. This change forces the brain to recalculate the ratio between head and eye movement, which is a fairly simple adjustment to make with lenses that have only one optical power. If a person needs correction for both distance and reading, using bifocals, trifocals, or progressive lenses will create extra work for a brain already overtaxed by negotiating a vestibular disorder because multiple levels of magnification in the same lens require the brain to calculate and adjust to multiple eye-head movement ratios. Such a person may want to consider having two pairs of single-vision glasses—one for each task. Regardless, even with a single power lens, adjustment will be more difficult if the glasses are not fit properly such that they tend to slide down the nose and cause the distance between the eye and the lens to vary.

A person with a vestibular disorder who wears glasses may also consider switching to lenses with a small lens diameter to reduce visual aberrations, thus helping to reduce vertigo and dizziness. Another possibly helpful alternative is switching from glasses to contact lenses.

Unlike glasses, where the distance between the eye and the lens can vary, contacts are worn directly on the cornea of the eye, allowing objects to appear without distortion and in the correct size and position. In some cases, contact lenses may also help dampen the nystagmus associated with a vestibular disorder. However, a disadvantage of contact lenses is that they can increase a person's sensitivity to light.

Coping strategies

To facilitate the adaptation process, a person can adopt certain strategies to improve tolerating problematic environments: When outside, wearing high quality sunglasses can help a person tolerate glare from sunshine. To minimize visual distractions in their peripheral vision, some people find it helpful to use glacier glasses (sunglasses with side visors). Other adaptations may include fixing attention on a large object a short distance away while walking toward it, using a cane to increase touch cues, and ensuring that home or office lighting is consistent from room to room and doesn't use unshielded bulbs and fluorescent lights. If fluorescent lighting is unavoidable at work, using a small incandescent desk light may help disguise some of the fluorescent light's flickering. Home décor can be modified to eliminate patterns wherever possible. This might include replacing wallpaper that has a busy pattern, substituting light-filtering curtains for mini-blinds, and replacing or removing highly patterned carpets, which can trick the eye into believing that there is a depression or elevation in the floor where none exists.

Although it may be tempting for people with VOR disturbances to cope by staying at home and avoiding visual stimulation, this can undermine the ability to adapt in the long term.

Additional resources

Some helpful documents available from VEDA:

- The Human Balance System: A Complex Coordination of Central and Peripheral Systems (Pub. S-7)
- Vestibular Rehabilitation: An Effective, Evidence-Based Treatment (Pub. F-7)
- Computer Monitors and Digital Televisions (Pub. F-30)
- Vestibular Injury: Compensation, Decompensation, and Failure to Compensate (Pub. F-26)

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5. Fransson PA, Patel M, Magnusson M, Berg S, Almladh P, Gomez S. Effects of 24-hour and 36-hour sleep deprivation on smooth pursuit and saccadic eye movements. *J Vestibular Res.* 2008;18:209–222.
6. Quarck G, Ventre J, Etard O, Denise P. Total sleep deprivation can increase vestibulo-ocular responses. *J Sleep Res.* 2006;15(4):369–375.

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Conferences and Training Opportunities

Conferences and meetings in 2009 **XIX World Conference of Oto-Rhino-Laryngology**

June 1–5; São Paulo, Brazil; www.ifossaopaulo2009.com.br/register.php

Annual Conference and Exposition of the American Physical Therapy Association (APTA)

June 10–13; Baltimore, MD; www.apta.org/AM/Template.cfm

113th American Academy of Otolaryngology—Head and Neck Surgery Annual Meeting

Oct. 4–7; San Diego, CA; www.entnet.org/conferencesandevents/

Advanced training for professionals in 2009

Vestibular Rehabilitation

Jeff Walter, PT, DPT, NCS

May 29–30; White Plains, NY

June 13–14; Astoria, NY

July 17–18; Portland, OR

www.educationresourcesinc.com

Vestibular and Balance Rehabilitation for the Dizzy and Unbalanced Patient

Wendy Wood, DPT

June 6–7; Jacksonville, FL

June 27–28; Las Vegas, NV

www.healthclick.com

Vestibular Rehabilitation Therapy: Practical Management of Patient with Dizziness and Balance Dysfunction

Jeff Walter, PT, DPT, NCS

June 6–7; Orlando, FL

Aug. 8–9; Atlanta, GA

www.ptotseminar.com

Vestibular, Oculomotor and Balance Rehabilitation: Pathophysiology, Evaluation, Treatment, and Program Development

Gaye Cronin, OTD, OTR

June 19–20; Austin, TX

Aug. 22–23; Kissimmee, FL

www.motivationsceu.com

Vestibular Function Testing—Interpretation and Application to Rehabilitation

Susan Herdman, PT, PhD

July 9–12; Atlanta, GA

www.neurology.emory.edu/Education/EducationDizziness.htm

Vestibular Rehab: Emphasizing Treatment Interventions

Gaye Cronin, OTD, OTR

July 31–Aug. 1; Kansas City, MO

www.educationresourcesinc.com

Advances in Vestibular Rehabilitation—A Competency-Based Course

Susan Herdman, PT, PhD

Aug. 13–15; Atlanta, GA

www.neurology.emory.edu/Education/EducationDizziness.htm

Spinning Beyond Basics—An Advanced Vestibular Rehabilitation Course

Janene Holmberg, PT, NCS

Aug. 22–23; Portland, OR

www.healthclick.com

Educators:

If you would like your course or conference listed in *On the Level* and/or on our Web site (www.vestibular.org/professionals/conferencetraining.php), please send details, including contact information, to copyeditor@vestibular.org.

VEDA Community Wisdom

I generally don't tell people I have a balance disorder. At age 52, I've had bilateral vestibular loss for about 10 years. After going through 12 sessions of balance physical therapy for several months after the onset, I've been able to function nearly completely normally. If, however, I learn that a friend is suffering with new balance or dizziness problems, I will share my experience with them, so as to give them comfort and hope for improvement. I describe my particular symptoms as two-fold: (1) Since my vestibular system hardly functions at all in either ear, I rely on the two other mechanisms of balance, which are my sight and whatever signals my feet and legs give me, (2) I have "jiggly vision"; everything always looks to me like a

movie taken with a handheld video camera, à la *The Blair Witch Project*. I explain that my sight is perfectly fine. I find that most people aren't aware that their vestibular system works in concert with their eyes to keep them focused on an object even as their body is moving around. —Anonymous, Florida

VEDA Community Wisdom is a column for VEDA members to ask and answer questions about the day-to-day challenges they face. Each newsletter includes responses to a question posted in a previous issue.

VEDA asked:

How do you explain your vestibular disorder to others?

What strategy have you used, and how does this strategy change depending on whom you're talking to (for instance, talking to an employer versus talking to a friend)?

Explaining my vestibular disorder has been difficult for me, as I do not understand it all myself. I came down with labyrinthitis in 2007 and ended up in a hospital for four days. Severe vertigo, dizziness, fatigue, and being off-balance lasted for months. I needed to sleep every day several hours in addition to regular sleep at night. I tell friends and relatives very little, just very pertinent information, such as "I am always off balance, but it gets worse with weather changes or if I am tired or fatigued." I try to explain that my brain is involved with this problem. Understanding it is complicated. I have to tell friends that I need to leave, or lay down a few hours when I get tired out. Most people are ok with this. When they ask me about it I tell them it is with me daily and I am ok, just have to

be careful and aware of where I am all the time. I have tinnitus all the time too from this. Most people know about that. —L. G., Wisconsin

Having worked as a TV cameraman and videographer for over 35 years I became very familiar with balance problems when I was diagnosed with vestibulopathy 5 years ago. I would start talking with someone and all of a sudden I would have to catch myself from falling. My career ended when videotaping my last wedding ceremony. I was standing on a ladder overlooking the dance floor when the sensation of falling started. I slowly came down the ladder and finished the job on floor level. I haven't been able

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to work ever since. I'd never heard of the word "vestibular" but quickly educated myself.

When people see me using a cane and ask me, "What is wrong?", I tell them it is a damaged vestibular system. They look at me with puzzlement and I explain my problem in a very simple manner like this: My eyes are TV cameras that work fine. My ears are microphones that work fine. However, the signals from the cameras (eyes) and microphones (ears) are getting interference, and the transmission line from my inner ears to the brain (vestibular nerve) has interference. Balance signals coming from the inner ears are throwing me off. When I walk, I feel as though I am not on nice level ground but rather on a trampoline, so I walk very slowly. If I turn my head abruptly to the left or right or am near loud sounds, I will lose my balance. So, I must explain why I cannot hear loud music or do things in a normal pace because they would all contribute to this "interference" and cause me to lose my balance. —*Sheldon S., Florida*

I had been having occasional vertigo spells and a strange feeling in my head for three years before I found a doctor who put me in touch with VEDA. I had not known how to explain my symptoms to myself, let alone to other people. When I received the pamphlet from VEDA which had a basic explanation of vestibular disorders, I carried it with me and handed it to people who asked about my health. Thank you, VEDA. —*Alice Hampton, Shelbyville, IL*

I have Ménière's and bilateral vestibular hypofunction. I did a 15-week long behavioral modification course where I wrote up explanation sheets and rehearsed verbal explanations. In the end I decided I was spending too much time worrying about what others would think and that

when the need to explain arises I would have an explanation that was suitable for me in that time and place.

My losses are pretty substantial from a medical standpoint but I remain very active (ride a trike, hike, cross-country ski). I tend to "crash" on occasion with fatigue that sometimes leads to increased anxiety and panic attacks and very mild depression. Despite this my advice to everyone who has a vestibular disorder is to push yourself as far as you can for as long as you can. Don't waste your time figuring out what to tell others...get out and live life as fully as possible; when you crash and must explain to others you will know what to say at that moment. —*Tom Roy, Missoula, Montana*

Question for next issue—

VEDA asks:

How do you "push" yourself to do as much as possible without crossing the line into that state of mind-numbing, spinning, and incapacitating fatigue?

Send your answer to this question and/or another question you'd like to see answered in a later issue to copyeditor@vestibular.org or to VEDA, PO Box 13305, Portland, OR 97213. Please include your name, general location (city, state, country), and whether you'd prefer to submit anonymously. Space limitations may restrict the number of submissions printed. We reserve the right to edit for brevity and clarity.

News Briefs

VOR and difficulty concentrating

People with vestibular disorders often struggle with concentrating and other basic cognitive skills, and studies have shown a general association between cognitive processing and balance ability. Aging is also known to affect vestibular processing, leading to confusion and distraction that can cause imbalance in older people. Researchers from the University of Pittsburgh (Pennsylvania) examined the connection between the visual-ocular reflex (VOR) and concentration. The VOR stabilizes visual images during head movements. Typically, when the head rotates at a certain angle and speed, the eyes rotate at the same speed (phase) but in the opposite direction

(gain). The researchers measured the VOR responses of subjects age 21 to 84 years during rotational tests at different speeds and while performing five different cognitive tasks characterized by varying sensory and motor components. Phase increases and gain decreases occurred in all age groups at certain speeds and cognitive tasks, especially during auditory tasks. Based on these results, the researchers observed that “cognitive task-dependent interference between central auditory processing and vestibular processing primarily [occurs] at the sensory rather than at the motor level.”

—Ward BK, Redfern MS, Jennings JR, Furman JM. *J Vestibular Res* 2008;18:187–195

Please don't ask me to take off my shoes

People with balance problems are routinely advised to wear slip-resistant shoes with low heels. Is this type of footwear better than going without shoes? Researchers sampled 100 women (aged 61 to 95 years, mean age 82) who attended an outpatient geriatric hospital in Dublin, Ireland to determine if their balance ability was affected by the type of shoe they wore and if going without shoes improved their balance. Most of the women required a balance aid and had experienced a fall during the previous year. The Berg Balance Scale was used to evaluate the women's balance with and without their shoes, which varied in style: walking shoes (42%), sandals (17%), court shoe (12%), moccasins (11%), slippers (6%), and other footwear (12%). The shoes were assessed

by style, heel height, slip-resistance, heel counter stiffness, longitudinal sole rigidity, sole flexion point, tread pattern, and sole hardness.

The results showed that shoe characteristics did not appear to change balance ability, but that balance with personal shoes was significantly better than without shoes for most categories of balance tested. Wearing shoes had the most positive affect on balance in women with the poorest balance ability. The study authors recommend that older individuals at risk of falls do not go barefoot when walking, and wear their own shoes whenever possible. They also suggest that further studies are needed to determine the best footwear choice for people with balance challenges.

—Horgan NF, Crehan F, Bartlett E et al. *Age Ageing* 2009;38:62–67

Sleep deprivation and eye movement

Researchers in Sweden examined the effects of 24 and 36 hours of sleep deprivation on oculo-motor performance in 18 people. They recorded smooth pursuit responses (eye movements when tracking a moving object) and saccadic responses (velocity, accuracy, and latency of rapid eye

movements from one target to another). They found that smooth pursuit gain and accuracy, as well as saccadic velocity, deteriorated with sleep deprivation—a particular concern for people with vestibular disorders, for whom eye movements are already compromised. In

addition, subjective reports of sleepiness correlated with saccade performance—performance improved when a person was more aware of being sleepy. This finding supports the importance of vestibular health professionals being aware of the affects of sleep deprivation

on patients during testing and assessment. As the authors note, many people report routinely sleeping fewer than eight hours per night—and even if they don't feel sleepy, their visual acuity may still be compromised.

—Fransson PA, Patel M, Magnusson M et al.
J Vestibular Res 2008;18:209–222

Benign
recurrent
vertigo and
migraine

Researchers at the University of California studied the association between benign recurrent vertigo (BRV) and migraine. Of 208 patients with BRV interviewed at a neurotology clinic, 180 (87%) had migraine according to the International Classification of Headache Disorders, with 112 having classic migraine (migraine with aura) and 68 having common migraine (migraine without aura). Most of the 13% subjects without migraine experienced vertigo without also having photophobia or auditory symptoms. Migrainous vertigo was confirmed in 126 subjects (70% of the migraineurs, or 61% of all BRV subjects)

because they experienced some or all vertigo attacks along with headache, aura, photophobia, or auditory symptoms. “Probable migrainous vertigo” was a designation given to 54 subjects (30% of the migraineurs, or 26% of all BRV subjects) whose vertigo never occurred at the same time as their migraine symptoms. The researchers observed that although BRV is highly associated with migraine, many patients with BRV and migraine never have migraine symptoms during their vertigo attacks.

—Cha Y-H, Lee H, Santell LS & Baloh RW. *Cephalalgia*
[published online ahead of print January 16, 2009]

Thank You

Contributions and pledges: We thank the following individuals and organizations for their generous donations and pledges to VEDA received January 24 through April 20, 2009. Donations received after that date will be listed in the next newsletter.

Friends (\$500 to \$999)

Paul Brandenburg

Advocates (\$250 to \$499)

Claire Haddad CFA
Victoria LeFevre

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Anonymous (1), Kevin Belli with AARP, Brigitte Cook PT and Foothills Physical Therapy, Steven Fadem *in honor of Mrs. Leroy Fadem*, George Gavalas MD, MAud/Notol and Audiology-Neurotology Department., Athens Medical Center (Greece), Doris Wong Graf, Julie Grove MPT, Sue Hickey, Susan Paul, Cynthia Soule, Neil Sperling MD and New York Otolaryngology Group, Victoria Tabor, Lynne Zank, Fred Ziegler

Supporters (\$50 to \$99)

Anonymous (2), Michele Aldrich BScPT, MCPA and Planet Ice Physiotherapy (British Columbia), Brenda Birdsell OTR/L, Alice Hampton, Diane Lebovitz, Kay Long, Kathleen Ossman, Jim Probst, Michael Robb MD *in honor of Terry D. Fife MD*

Contributors (\$10 to \$49)

Anonymous (3), Anonymous *in memory of Susan Kline*, Mary Ann Acara, Joan Barth PhD, Robert Black, Jami Boettcher, Mary Ann Coyne, Arlene Davis, Ignatius Ghattas, Lisa Haven PhD, Lt. Col. Donna Heinz, Leon Hirsch *in honor of VEDA's printed information*, Paul Knickelbein, Barbara McArn, Maryann McElwain, Elmida Miller, Karil Miller *in honor of Jane English*, Susan Mulford, Christopher Murphy, Pamela Proulx PT, Delight Stevens, Carol Straiton Wamsley PT, Joanne Zorcikowski ■

Ballot

Elect Directors: Vote for individual candidates by marking the “Yes” box after a candidate’s name.
You may vote for any or all or none of the candidates.

Yes No **Claire Haddad, CFA**
(Cohasset, MA)

Yes No **Steven Johnson, PE**
(Lakewood, CO)

Deliver the completed ballot: Each member may submit one ballot. In order to be counted, ballots must be received in VEDA’s office by 4:30 p.m. on June 9, 2009. Mail ballots to VEDA: PO Box 13305, Portland, OR 97213. Or hand-deliver ballots to: 4035 NE Sandy Blvd., Ste. 207, Portland, OR



News about VEDA

Annual Meeting of Members

Notice is hereby given that the Annual Meeting of the members of the Vestibular Disorders Association (VEDA), an Oregon nonprofit corporation, will be held at 4035 NE Sandy Blvd., Ste. 207, Portland, OR, on June 10, 2009, at 4:30 p.m. Pacific Time. (Please call ahead for accessibility information: 800-837-8428.) The purposes of the meeting are as follows: 1. To elect (or reelect) directors to fill vacant positions on the Board of Directors for a term of three years. The nominees are Claire Haddad, CFA (Cohasset, MA); and

Steven Johnson, PE (Lakewood, CO). If elected, they will join five other directors, whose terms do not expire until June 2010. These positions are held by: Deanne Bonnar, PhD (Acton, MA); Al Bowman, DPT (Marinette, WI); Gaye Cronin, OTD, OTR (Atlanta, GA); Laurie Swan, PhD, DPT, PT (Tacoma, WA); and Bridgett Wallace, PT (Austin, TX). Members may vote by submitting the ballot above. 2. To transact any other business that may properly come before the Annual Meeting.

VEDA in *Ladies' Home Journal*

“Dizzy Signals,” an article appearing in the May 2009 issue of *Ladies' Home Journal*, mentions VEDA as a helpful resource for people struggling with dizziness and vertigo. Since the issue hit the newsstands, VEDA’s office has recorded a notable uptick in requests

for help and information—hardly surprising, given that the magazine enjoys a monthly circulation of over 4 million! With such a wide distribution, the magazine has provided an invaluable boost to VEDA’s continued efforts to advocate for and to support people with vestibular disorders.

VEDA welcomes new staff member

Melissa Rodenbeek, MA, recently joined VEDA’s team comprising board and staff members. As Copywriter and Project Manager, Melissa brings previous experience in writing and editing health-related print and online publications, as well as experience working with educational institutions and nonprofit organizations. She has a quick sense of humor

and a natural compassion for the personal struggles of our members. These qualities, combined with her communication, journalism, project management, and social media skills make her a valuable addition to VEDA’s staff. Melissa accepts newsletter content submissions by e-mail at: copyeditor@vestibular.org.



Vestibular Disorders Association
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Change service requested

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The Vestibular Disorders Association (VEDA) is a nonprofit organization founded in Portland, Oregon in 1983 and chartered as a national organization in 1987. VEDA's mission is to serve people with vestibular disorders by providing access to information, offering a support network, and elevating awareness of the challenges associated with these disorders.

On the Level is a quarterly publication of the Vestibular Disorders Association (VEDA), published in Portland, Oregon, U.S.A. and distributed to national and international members. Information in this newsletter is not intended as a substitute for professional health care. VEDA does not advocate any particular course of treatment and does not recommend any particular clinic or health care practitioner. The opinions expressed in articles in *On the Level* are those of the authors and not necessarily those of VEDA's staff, medical and scientific advisors, or Board of Directors. Letters of inquiry and unsolicited articles sent to *On the Level* must be accompanied by a self-addressed stamped envelope if the material is to be returned. The publisher reserves the right to accept, reject, or edit any material. Editor: Lisa Haven, PhD. Copyeditor: Melissa Rodenbeek, MA. No part of this publication may be reproduced without written permission. ©All rights reserved.

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