

PERSISTENT POSTURAL- PERCEPTUAL DIZZINESS (PPPD)

Your guide to understanding and coping with PPPD.

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ABOUT PPPD

Persistent Postural Perceptual Dizziness (PPPD) is a vestibular disorder that includes sensations of rocking, unsteadiness, and/or dizziness with vertigo lasting 3 months or more. Symptoms include non-vertiginous dizziness and unsteadiness that is increased by a person's own motion, exposure to environments with a complex or moving stimuli (e.g., stores, crowds), and performance of tasks that required precise visual focus (e.g., reading, using a computer). PPPD is NOT a psychiatric disorder, but rather a neuro-otologic condition with behavioral elements.

Persistent Postural-Perceptual Dizziness

Based on an article written by Dr. Jeffrey P. Staab, with edits by Brandy Hollins, AuD incorporating updates from the Bárány Society and ICD-11 in 2017.

HISTORY

In 1986, German neurologists Thomas Brandt and Marianne Dieterich first described a condition that they called phobic postural vertigo (PPV). Symptoms included postural dizziness without vertigo and fluctuating unsteadiness provoked by environmental or social stimuli (e.g. crowds), which could not be explained by some other neuro-otologic disorder. Triggers included a pre-existing vestibular disorder, medical illness or psychological stress.

Behavioral criteria of PPV included the presence of an obsessive-compulsive personality, mild depression, and anxiety. Studies on PPV showed that it was NOT a psychiatric disorder, but rather a neuro-otologic condition with behavioral elements.

In the early 2000s, the American team of Jeffrey Staab, Michael Ruckenstein, & their colleagues performed studies to update the concept of PPV and described the clinical syndrome of chronic subjective dizziness (CSD). The symptoms of CSD included non-vertiginous dizziness and unsteadiness that was increased by a person's own motion, exposure to environments with a complex or moving stimuli (e.g., stores, crowds), and performance of tasks that required precise visual focus (e.g., reading, using a computer).

Other vestibular experts described space-motion discomfort and visual vertigo, symptoms that overlapped to some extent with PPV and CSD.

In 2010, scientists from around the world began a process of identifying the most important features of these syndromes. In early 2014, they reached a consensus on the key symptoms and defined a diagnosis of Persistent Postural-Perceptual Dizziness (PPPD).

The World Health Organization has included PPPD in its draft list of



diagnoses to be added the next edition of the International Classification of Diseases (ICD-11) in 2017.

In 2017, the World Health Organization officially recognized PPPD, classifying it under the code AB32.0 in the 11th edition of the International Classification of Diseases (ICD-11) within the section of Diseases of the Inner Ear. This classification aligns with the diagnostic criteria for PPPD as outlined in a 2017 consensus document by Staab and researchers for the Committee for the Classification of Vestibular Disorders of the Bárány Society.

SYMPTOMS

- The primary symptoms of PPPD are persistent sensations of rocking or swaying unsteadiness and/or dizziness without vertigo lasting 3 months or more.
- Symptoms are typically experienced on most days, often intensifying as the day progresses, though severity can fluctuate. They occur more frequently than not, being present for at least 15 days in a 30-day period, with many patients experiencing daily occurrences.
- Symptoms are present on more days than not (at least 15 of every 30 days); most patients have daily symptoms.
- Symptoms are typically worse with:
 - Upright posture (standing or sitting upright)
 - Movement of the head or body, whether self-generated or caused by external forces (e.g. being in a moving vehicle)
 - Exposure to visually complex or motion-rich environments (e.g. busy patterns on floors or walls, graphics or images displayed on large screens)
- PPPD typically starts shortly after an event that causes acute vertigo, unsteadiness, dizziness, or disruption of balance such as:
 - A peripheral or central vestibular disorder (e.g., BPPV, vestibular neuritis, Meniere's disease, stroke)
 - Vestibular migraine
 - Panic attacks with dizziness
 - Mild traumatic brain injury (concussion or whiplash)
 - Dysautonomia (disease of the autonomic nervous system)
- Other medical problems, such as dysrhythmias and adverse drug reactions that manifest with acute bouts of vertigo, unsteadiness or dizziness are less common triggers of PPPD.



TRIGGERS AND SYMPTOMS

PPPD rarely starts slowly and gradually without a triggering event, although it is not always possible to sort out the cause. In such scenarios, it is recommended that the patient maintain a log of their symptoms (roughly over a period of 6 to 12 months) and undergo regular examinations to enable a conclusive diagnosis.

Anxiety or mild depression may be present as comorbidities. However, they are not symptoms of PPPD, as they were with PPV. Previous studies suggest that a history of anxiety disorders may be a risk factor for developing PPPD.

PPPD may coexist with other vestibular disorders, which can confuse the diagnosis since patients may exhibit other symptoms, including vertigo.

Patients with PPPD may have a history of vertigo, suggesting a previous vestibular dysfunction. Patients typically exhibit chronic symptoms due to accumulated exposure to motion stimuli, making them more susceptible to recurrence of symptoms.

Patients with PPPD avoid situations that may exacerbate symptoms because they don't want to feel worse physically. Some patients also avoid these situations because they are afraid that something terrible might happen. Thus PPPD is a *physiological* disorder that can have *psychological* consequences.

PPPD TYPICALLY STARTS SHORTLY AFTER A VESTIBULAR ILLNESS OR INJURY.

ANXIETY OR MILD DEPRESSION MAY BE PRESENT AS COMORBIDITIES, BUT ARE NOT SYMPTOMS OF PPPD.

DIAGNOSIS

Physical exams, laboratory tests, and neuroimaging are NOT used to diagnose PPPD itself, but to identify potentially comorbid conditions, which can lead to a suspected diagnosis of CSD. Physical examination and laboratory testing are often normal or may show a current or previous vestibular problem that does not fully explain the patient's symptoms.

The Bárány Society established diagnostic criteria for Persistent Postural-Perceptual Dizziness. All criteria must be fulfilled in order to meet the diagnosis. (See table on page 5). ²



BÁRÁNY SOCIETY CRITERIA FOR PPPD

All five criteria (A-E) must be fulfilled in order to meet the diagnosis.

A	One or more symptoms of dizziness, unsteadiness, or non-spinning vertigo are present on most days for 3 months or more.	Symptoms last for prolonged periods of time (hours) but may wax and wane in severity.
		Symptoms need not be present continuously throughout the entire day.
B	Persistent symptoms occur without specific provocation, but are exacerbated by three factors:	Upright posture.
		Active or passive motion without regard to direction or position.
		Exposure to moving visual stimuli or complex visual patterns.
C	The disorder is precipitated by conditions that cause vertigo, unsteadiness, dizziness, or problems with balance including acute, episodic, or chronic vestibular syndromes, other neurologic or medical illnesses, or psychological distress.	When the precipitant is an acute or episodic condition, symptoms settle into the pattern of criterion A as the precipitant resolves, but they may occur intermittently at first, and then consolidate into a persistent course.
		When the precipitant is a chronic syndrome, symptoms may develop slowly at first and worsen gradually.
D	Symptoms cause significant distress or functional impairment.	
E	Symptoms are not really accounted for by another disease or disorder.	

BEHAVIORAL FACTORS

Behavioral assessment of PPPD patients may be normal and/or show low levels of anxiety and depression. Other psychiatric disorders may also present.

Behavioral factors contribute to PPPD in three ways:

1. Individuals with anxious, introverted temperaments or a pre-existing anxiety disorder may be predisposed to PPPD after a precipitating event;
2. Individuals who exhibit a high level of anxiety while they are experiencing vestibular symptoms may be more likely to develop PPPD;
3. A primary predictor of PPPD is when a patient who first experiences



an acute vestibular episode displays high levels of anxiety and caution, coupled with expectations for a negative outcome. This heightened anxiety is like a self-fulfilling prophesy, in that the result is generally a poor rate of recovery.

High anxiety intensifies postural instability and reactivity to motion stimuli during acute vestibular trauma and slows recovery by preventing the patient from developing adaptive strategies.

Anxiety and depression can increase the likelihood of developing PPPD.

- 60% of patients with PPPD had clinically significant anxiety;
- 45% of patients had clinically significant depression;
- 25% of patients had neither.

TREATMENT

By 2014, no large scale, randomized, controlled trials of therapeutic interventions for CSD had been conducted, but several smaller studies have been completed around the world.

Medication

In clinical trials for the use of SSRIs (selective serotonin reuptake inhibitors) and SNRIs (serotonin norepinephrine reuptake inhibitors) on patients with CSD:

- Primary symptoms were reduced by at least half in 60%-70% of patients to entered the trials and 80% of patients who completed at least 8-12 weeks of treatment;
- Dropout rates due to medication intolerance averaged 20% (adverse effects included nausea, sleep disturbance, and sexual dysfunction).

Patients who do not respond to one SSRI have a good chance of responding to another one. Increased dizziness was rarely observed, and comorbid anxiety and depression were improved. Treatment must be maintained for at least one year or more to minimize relapse.

Benzodiazepines and other vestibular suppressants are NOT effective as a primary treatment for PPPD.

Vestibular Balance Rehabilitation Therapy (VBRT)

Vestibular/balance rehabilitation therapy works to desensitize or habituate

TREATMENTS
Medication
Vestibular Rehabilitation Therapy (VRT)
Counseling/ Cognitive Behavioral Therapy (CBT)



patients to motion stimuli.

In 2014, the first small study on the efficacy of VBRT specifically for PPPD patients was completed. Its results support previous clinical experience and suggest the following:

- VBRT reduces the severity of vestibular symptoms by 60%-80%, resulting in increased mobility and enhanced daily functioning;
- VBRT may be effective in reducing anxiety and depression in PPPD patients;
- Patients should continue VBRT for 3-6 months to receive maximum benefit from the treatments.

Counseling

Psychotherapy is not a very successful treatment for fully established, longstanding PPPD, but it may be able to reduce the chances of developing PPPD if used early. Older trials showed that cognitive behavioral therapy (CBT) had a moderate effect for reducing dizziness in patients with PPPD, but, unfortunately the benefits did not last after therapy was finished. More recent trials showed that just three CBT sessions resulted in significantly reduced dizziness and dizziness-related avoidance symptoms when treatment was started within 8 weeks of the triggering event (i.e., as PPPD symptoms were starting, but before they were fully established). Under those circumstances, the benefits seemed to last.

In 2020, a small study on a multimodal, interdisciplinary therapy program showed improvement in symptoms in patients with PPPD as well as other chronic vestibular disorders. This study emphasizes the effectiveness of combined therapeutic approaches, with treatment including a combination of CBT, VRT, and medication. However, there is a lack of large-scale, randomized controlled trials in this area. ⁴

MECHANISMS

Research studies are beginning to uncover physiologic processes associated with PPPD. Investigations have provided hints about alterations in postural control, visual perception of space, and processing of vestibular and visual stimuli in the brain. More details should be forthcoming over the next few years.

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Pharmacologic Treatment

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INTRODUCTION

Vertigo and dizziness are among the most common complaints, having a lifetime prevalence of about 30%¹. They are symptoms of a variety of disorders that involve the peripheral (otologic vertigo) and/or the central vestibular (brain-induced vertigo) systems. These produce asymmetric input into the central vestibular apparatus or asymmetrical central processing. If this process is acute, vertigo, nausea and vomiting may result. If it is more chronic, dizziness and/or disequilibrium may be the manifest symptoms.

Depending on their etiology, treatment options of vestibular disorders may be summarized as (Table 1, Page 35):

- Pharmacological treatments;
- Liberatory and repositioning maneuver for BPPV treatment (specific maneuvers according to the location(s) of the otoconial debris; Epley and Semont maneuvers are common examples for repositioning debris located in the posterior semicircular canal);
- Vestibular rehabilitation (e.g. exercises for eye and head stabilization, proprioceptive training or habituation exercises);
- Psychotherapeutic measures (particularly important in psychogenic vertigo);
- Surgical treatments - in less frequent lesions such as semicircular canal dehiscence, where there is a lack of bone covering one or more semicircular canals and ear tumors (e.g. vestibular schwannoma); some drugs (namely gentamicin and dexamethasone) may also be applied transtympanically as a simple procedure under topical anesthesia.



With this paper we aim to introduce the reader to the complexity of decision-making when treating vestibular disorders, as well as to analyze the most used pharmacologic strategies for the most common etiologies of vertigo and dizziness.

PREREQUISITES FOR PHARMACOLOGICAL TREATMENT

While vestibular diagnosis has tremendously evolved with the development of new instruments - vHIT (video Head Impulse Test) and VEMP (vestibular evoked myogenic potentials), just to mention a few examples - the treatment of vestibular pathology has undergone many changes not so much by the discovery of new medications, but rather by the use of medications originally used for non-vestibular pathologies. Many of these drugs are still used in off-label manners (i.e., are used in a way not specified in the FDA's approved label). This is because only a few medications have proven, in controlled trials, to be effective. As in all cases and particularly with these drugs, patients should therefore be informed before starting treatment of the balance between risks and benefits.

The prerequisites for successful pharmacological treatment of vertigo and dizziness are the "4 D's" 2: correct diagnosis, correct drug, appropriate dosage and sufficient duration (Table 2, Page 36).

CLARIFYING SYMPTOMS

The first step for successful treatment, establishing a diagnosis, is especially important because vertigo and dizziness are not diseases - they are symptoms: just as headaches, nausea or fever relate to specific pathologic conditions, so do vertigo and dizziness.

Recording a patient's clinical history

should search for the clarification of these symptoms:

- Is there vertigo or dizziness? With vertigo the patient will have a sensation of false or distorted self-motion.
- Are the patient's symptoms spontaneous or triggered (e.g., by head movement or position changes)?
- How long has the patient had symptoms, and how often do they occur? When did symptoms first begin?
- Are there accompanying symptoms, namely ear symptoms or neurological symptoms?

Clinical examination is also mandatory for diagnosis and should be carried out in every patient. Eye movement evaluation is one of the major windows in this respect because particular eye movements are evoked by particular vestibular conditions. A precise and brief neurological and otological examination should also be conducted.



**TABLE 1:
VERTIGO AND DIZZINESS TREATMENT OPTIONS**

Pharmacological
Liberatory and reposition maneuvers
Vestibular rehabilitation
Psychotherapeutic measures
Surgical treatments

Treatment is dictated by the patient’s diagnosis. The use of medication for the treatment of vestibular disorders may be directed to treat the etiology, control the symptoms, accelerate central compensation or diminish the psychological comorbidity that often accompanies the syndrome (Table 3, Page 36).

There are six major groups of drugs that can be used for to treat vertigo and dizziness (Table 4, Page 37): antiemetics; anti-inflammatories, anti-Ménière’s, anti-migrainous; antidepressants and anticonvulsants.

PHYSIOLOGY

Vertigo is the illusion of rotational motion. Most vertigo with definable cause is otologic, caused by dysfunction of the labyrinth in the inner ear. Normal persons continuously process three types of sensory input: visual, vestibular (inner ear) and somatosensory (sense for position and movement of body parts) to estimate the orientation and motion of the head and body. Physiologic and pathologic vertigo is caused by asymmetric input into the central vestibular apparatus or asymmetrical central processing. Many pathways and neurotransmitters are involved in causing the vertigo and autonomic complaints. This explains why so many classes of drugs are used in the management of this disorder. Occasionally in some oculomotor disturbances accompanied by nystagmus (rhythmic and involuntary eye movement) the patient can feel oscillopsia: the illusion that the world is jumping or swinging back and forth. There are some medications to diminish this disabling symptom and improve the visual support (e.g. clonazepam for certain cerebellar induced nystagmus).

In addition to the symptom of vertigo, motion sickness (the malaise and nausea which may follow real or illusory sensations of motion) should also



**TABLE 2:
PREREQUISITES FOR
PHARMACOLOGICAL
TREATMENT**

Correct diagnosis
Correct drug
Appropriate Dosage
Sufficient duration

**TABLE 3:
MEDICATION TARGETS IN
VERTIGO AND DIZZINESS**

Treat the etiology
Control the symptoms
Accelerate central compensation
Diminish the psychological comorbidity

be considered. Vertigo and motion sickness are not synonymous. For example, reading in a moving car may, in susceptible persons, induce nausea and autonomic symptoms but not the false sensation of self-motion.

VERTIGO AND DIZZINESS PHARMACOLOGICAL APPROACH

Clinically, treatment options for patients with vertigo include symptomatic, specific and prophylactic approaches. Symptomatic treatment involves controlling the acute symptoms and autonomic complaints (e.g., vertigo and vomiting). Specific treatment involves targeting the underlying cause of the vertigo (e.g., ear infection). Prophylactic treatment aims to reduce the recurrence of specific vertiginous conditions, as in Ménière’s disease, migrainous vertigo or vestibular paroxysmia.

SYMPTOMATIC CONTROL: VESTIBULAR SUPPRESSANTS AND ANTIEMETICS

Symptomatic control involves managing the acute symptoms and autonomic complaints (e.g., vertigo and vomiting). There is a connection between the part of the brain involved in vomiting and the vestibular system. If the vestibular system is strongly stimulated, either by real motion or by vertigo, the vomit center becomes active and nausea and vomiting occurs. Nausea and vomiting can be even more stressful than vertigo itself, therefore being one of the main targets for pharmacological treatment. Other associated symptoms named “autonomic symptoms” are pallor, swelling, salivation, diarrhea and abdominal distention.



**TABLE 4.
DRUG GROUPS IN VERTIGO AND
DIZZINESS TREATMENT**

Anti-inflammatory
Anti-migrainous
Anticonvulsants
Anti-Ménière's
Antidepressants
Antimetics

VESTIBULAR SUPPRESSANTS

Vestibular suppressants are drugs that reduce the intensity of vertigo and nystagmus evoked by a vestibular imbalance. These also reduce the associated motion sensitivity and motion sickness. Conventional vestibular suppressants consist of three major drug groups: anticholinergics, antihistamines and benzodiazepines.

BENZODIAZEPINES

Diazepam (Valium®), clonazepam, lorazepam and alprazolam are benzodiazepines commonly prescribed for their effect as anxiolytics and antidepressants. These drugs also act as vestibular suppressants and can, in small dosages, be extremely useful for the management of acute vertigo³. They are also useful in controlling motion sickness⁴ and can also minimize anxiety and panic associated with vertigo. Habituation, impaired memory, increased risk of falling and vestibular compensation are potential side effects. Their use as vestibular suppressants should therefore be limited in time. Nevertheless, they should not be stopped suddenly because of potential withdrawal syndrome.

ANTIHISTAMINES

Antihistamines include meclizine (Antivert®), dimenhydrinate, diphenhydramine (Benadryl®) and promethazine. These drugs can prevent



motion sickness and reduce the severity of symptoms even if taken after the onset of symptoms⁵. Dry mouth and blurry vision are side effects that result from their anticholinergic action.

ANTICHOLINERGICS

Anticholinergics are vestibular suppressants that inhibit firing in vestibular nucleus neurons⁶ as well as reduce the velocity of vestibular nystagmus in humans. The most effective single anticholinergic drug for the prophylaxis and treatment of motion sickness is scopolamine. All anticholinergics conventionally used in the management of vertigo or motion sickness have prominent side effects, often including dry mouth, dilated pupils and sedation.



ANTIEMETICS

Antiemetics are drugs that are commonly used to control vomiting and nausea. The choice for vertiginous patients depends upon the route of administration and the side effect profile. Injectables are mostly used in the emergency room or inpatient settings. Dexamethasone (Decadron®) and ondansetron (Zofran®) are powerful and well-established inpatient-setting antiemetics. While not FDA approved, droperidol (Droleptan®) is widely used outside the U.S. The oral agents are only used for mild nausea, with sublingual administration preferable for outpatients. When an oral agent is appropriate, meclizine or dimenhidrinat (Dramamine®), antihistamines commonly used also as vestibular suppressants, are generally the first to be used because they rarely cause adverse effects any more severe than drowsiness. Phenothiazines, such as prochlorperazine (Compazine) and promethazine (Phenameth®, Phenergan®), are also effective antiemetics but side effects include sedation and the possibility of extrapyramidal symptoms (dystonia and Parkinsonism). Drugs that speed gastric emptying, such as metoclopramide (Reglan®) and Domperidone may also be helpful in managing vomiting⁷.

TREATMENT OF INDIVIDUAL SELECTED CONDITIONS

VESTIBULAR NEURITIS

Vestibular neuritis is the most common cause for acute vestibular syndrome (acute vertigo with acute nystagmus). Although it is believed to be caused by the reactivation of a virus (Herpes simplex virus: type 1) in the vestibular



nerve (vestibular neuritis), it does not benefit from antiviral treatment but rather from methylprednisolone (Medrol®), a corticosteroid. In fact, this drug alone has proven to significantly improve the recovery of peripheral vestibular function in patients with vestibular neuritis⁸.

Symptomatic treatment should also be provided in the first days (symptomatic control: vestibular suppressants and antiemetics). In the emergency room Dexamethasone, also a corticoid, may be particularly useful for both its anti-emetic and anti-inflammatory properties. Treatment with vestibular suppressors should be discontinued once the acute symptoms are controlled; chronic treatment with these drugs is discouraged to prevent the inadequate compensation. Vestibular rehabilitation has shown to be most effective strategy in reaching complete clinical recovery⁹.

VESTIBULAR MIGRAINE

This long-ignored condition is currently recognized as one of the most common causes for vertigo and dizziness. A number of criteria have to be addressed, but simplistically both migraine and vertigo or dizziness must be related in time in order to diagnose this condition. The treatment includes trigger avoidance, pharmacotherapy and vestibular rehabilitation. For acute attacks only symptomatic control is eventually effective (symptomatic control: vestibular suppressants and antiemetics) as migraine abortive agents such as



triptans have reached inconclusive results. Prophylactic treatment protocols are based on the ones from migraine headache, and include beta-blockers such as propranolol or metoprolol; calcium-channel blockers such as verapamil, antidepressants such as amitriptyline, fluoxetine, or venlafaxine¹⁰; anticonvulsants such as valproate or topiramate, and carbonic anhydrase inhibitors such as acetazolamide.

MÉNIÈRE'S DISEASE

Ménière's disease is the second most common cause of vertigo of otologic origin and is classically attributed to dilation and periodic rupture of the endolymphatic compartment of the inner ear. The pathognomonic symptoms include episodic vertigo, ipsilateral fluctuating hearing loss,



aural fullness and tinnitus¹¹. The treatment should therefore address these symptoms, i.e. stop vertigo attacks, abolish tinnitus and reverse or preserve the hearing loss. Clinically the pharmacological treatment is addressed at the acute episode management, prevention of new attacks and the treatment of audio-vestibular dysfunction. There is no consensus on prophylaxis of Ménière's syndrome, with major differences between the U.S. and Europe regarding whether betahistine offers therapeutic benefits.

The treatment during the attack is symptomatic and similar to other etiologies of spontaneous vertigo, with vestibular suppressors and antiemetics being the most appropriated strategies. Irrespective of the prophylactic treatment used, remission may eventually occur in 60% to 80% of cases¹²⁻¹³. At start, patients should follow dietary salt restriction (1-2 gram salt diet) and adequate hydration (35 ml/kg of liquids). Patients should also avoid caffeine and stop smoking. If the patient does not achieve a good control of symptoms by following this regimen, a mild diuretic, such as Dyazide® or Maxide® (hydrochlorothiazide-triamterene), may reduce the frequency of attacks¹⁴. It should be noted that diuretics may cause significant hyponatremia and low blood pressure, especially in the elderly and in those who are already on salt-restricted diets.



This treatment with betahistine regimen is widespread worldwide, with a survey in England reporting that 94% of ENT surgeons prescribe betahistine to their Ménière's patients¹⁴. The underlying mode of action is believed to be through increased inner-ear blood flow, with local vasodilation and increased permeability, thereby relieving pressure from the inner ear. A long-term high-dose treatment with betahistine (at least 48 mg three times daily), has shown a significant effect on the frequency of the attacks¹⁵. Some patients also respond well to corticoids. Studies on transtympanic steroids have shown evidence of good preservation of hearing and tinnitus control with substantial decrease in the number of vertigo spells¹⁶. Before considering nonconservative measures, using transtympanic steroids could be a good approach in patients refractory to betahistine, those with bilateral Ménière's and those with relatively good hearing in the affected ear.

Patients with Ménière's disease may become disabled by recurrent vertigo; in this situation surgical treatment to inactivate all or part of the labyrinth could correctly be indicated.

In recent years, Ménière's treatment has been revolutionized by the use of transtympanic "low-dose gentamicin." In 1997, Driscoll reported that a single dose of gentamicin through the eardrum eliminated recurrent vertigo in 84% of his patients¹⁷. This procedure has made it possible to control vertigo after other drug treatments have failed.



There is not much evidence that treatment of chronic audio-vestibular dysfunction prevents further progression of hearing loss. Hearing aids and vestibular rehabilitation could be indicated.

VESTIBULAR PAROXYSMIA - NEUROVASCULAR CROSS-COMPRESSION

Vestibular paroxysmia is believed to be caused by the neurovascular compression of the cochleovestibular nerve, as it occurs with other neurovascular compression syndromes (e.g. trigeminal neuralgia). The irregular and unpredictable spells are the most disabling aspect of this condition, making some daily activities, like driving, extremely dangerous. In theory, given its pathophysiology, surgical treatment could be considered. Still, due to the substantial surgical risks involved, this approach is reserved for particular cases where pharmacological treatment is not effective or tolerated. Treatment with carbamazepine (Tegretol®) or oxcarbamazepine (Trileptal®), both anticonvulsants primarily used in the treatment of epilepsy, is usually not only effective in small dosages, but is also diagnostic. Vestibular depressants are not effective.

CONCLUSIONS

Together with physical therapy and lifestyle changes, the pharmacological approach is one of the three pillars for vestibular disorder treatment. The use of medication in each case comes from a proper assessment of symptoms, severity of disease and side effects. Vestibular suppressants should only be used in acute cases to alleviate the stressful symptoms because prolonged use may generate a chronic vestibular imbalance. Preventive medications generally do not cure the underlying disease but may decrease or abolish the number of attacks of vertigo and dizziness. Most of the drugs used for vertigo treatment act specifically on certain receptors or ion channels, but there are several neurotransmitters and pathways involved in causing the vertigo and autonomic complaints. The knowledge of some of these pathways and drug mechanisms has enabled recent advances in the treatment of specific vestibular disorders, such as vestibular migraine, vestibular paroxysmia or some central nystagmus. Still, the main focus should be kept on establishing a correct diagnosis, then developing an effective treatment regime, for patients suffering from vertigo and dizziness.

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Vestibular Rehabilitation Therapy (VRT)

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Evidence has shown that vestibular rehabilitation can be effective in improving symptoms related to many vestibular - inner ear - disorders.^{1,2} People with vestibular disorders often experience problems with vertigo, dizziness, visual disturbance, and/or imbalance. These are the problems that rehabilitation aims to address. Other problems can also arise that are secondary to the vestibular disorder like nausea and/or vomiting, reduced ability to focus or concentrate, and fatigue.

Symptoms due to vestibular disorders can diminish quality of life and can impact all aspects of life from economic to social participation as well as can contribute to emotional problems, like anxiety and depression. Additionally, one of the consequences of having a vestibular disorder is that the symptoms frequently cause people to adopt a sedentary lifestyle in order to avoid bringing on, or worsening, dizziness and imbalance that occurs with movement. As a result, decreased muscle strength and flexibility, increased joint stiffness, and reduced stamina can occur from this lifestyle. Treatment strategies used in rehabilitation can also be beneficial for these secondary problems.

WHAT IS VESTIBULAR REHABILITATION?

Vestibular rehabilitation (VR) is a specialized form of therapy intended to alleviate both the primary and secondary problems due to vestibular disorders. It is an exercise-based program primarily designed to reduce vertigo and dizziness, reduce gaze instability, and/or reduce imbalance and fall risk as well as address any secondary impairments that are a consequence of the vestibular disorder.



For most people who have a vestibular disorder, the deficit is permanent because the amount of restoration of vestibular function is very small. However, after vestibular system damage, symptoms can reduce and function can improve because of compensation. This occurs because the brain learns to use other senses (vision and somatosensory - body sense) to substitute for the deficient vestibular system. For many, compensation occurs naturally over time, but for patients whose symptoms do not reduce and who continue to have difficulty returning to daily activities, VR can assist in recovery by promoting compensation. ³

The goal of VR is to use a problem-oriented approach to promote compensation. This is achieved by customizing exercises to address the specific problem(s) of each individual. Therefore, before an exercise program can be designed, a comprehensive clinical examination is needed to identify problems related to the vestibular disorder. Depending on the vestibular-related problem(s) identified, three principal methods of exercise can be prescribed:

- 1) Habituation,
- 2) Gaze Stabilization, and/or
- 3) Balance Training. ⁴



Habituation exercise is used to treat symptoms of dizziness that is produced because of self-motion³ and/or produced because of visual stimuli. ^{5,6} Habituation exercise is indicated for patients who report increased dizziness when they move around, especially when they make quick head movements, or when they change positions like when they bend over or look up to reach above their heads. Also, habituation exercise is appropriate for patients who report increased dizziness in visually stimulating environments, like shopping malls and grocery stores, when watching action movies or T.V., and/or when walking over patterned carpets and shiny floors. The goal of habituation exercise is to reduce the dizziness through repeated exposure to specific movements or visual stimuli that provokes patients' dizziness. These exercises are designed to mildly, or at the most, moderately provoke the patients' symptoms of dizziness. Over time, with good compliance and perseverance, the dizziness intensity can reduce due to the brain learning to ignore the abnormal signal.

Gaze Stabilization exercises are used to improve control of eye movements so vision can be clear during head movement. These exercises



are appropriate for patients who report problems seeing clearly because their visual world appears to bounce or jump around, such as when reading or when trying to identify objects in the environment, especially when moving about. There are two types of eye and head exercises used to promote gaze stability. The choice of which exercise(s) to use depends on the type of vestibular disorder and extent of the disorder.

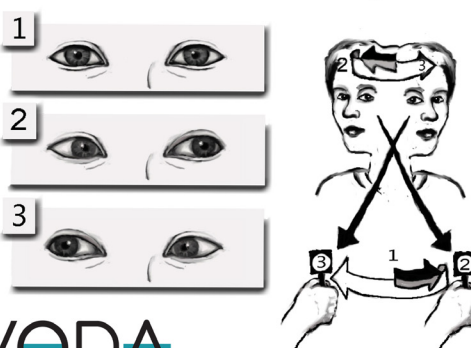
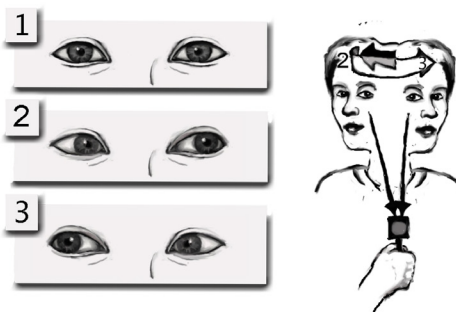
One example (see image on the right):

Balance Training exercises

are used to improve steadiness so that daily activities for self-care, work, and leisure can be performed successfully. Exercises used to improve balance should be designed to address each patient's specific underlying balance problem(s).⁷ Also, to promote changes in balance, the exercises need to be moderately challenging, but safe enough so patients do not fall while doing them.

Additionally, balance exercises should be designed to reduce environmental barriers and fall risk. For example, the exercises should help improve patients' ability to walk outside on uneven ground or walk in the dark.

For patients with **Benign Paroxysmal Positional Vertigo (BPPV)**, the exercise methods described above are not appropriate to resolve this type of vestibular disorder. Through assessment, the type of BPPV is identified, and depending on the type, different repositioning maneuvers can be performed to help resolve the spinning that occurs due to position changes.^{8,9}



VEDA

WHAT SHOULD PATIENTS EXPECT FROM VESTIBULAR REHABILITATION?

VR is usually performed on an outpatient basis, although in some cases, the treatment can be initiated in the hospital. Patients are seen by a licensed physical or occupational therapist with advanced post-graduate training.

VR begins with a comprehensive clinical assessment that should include collecting a detailed history of the symptoms and how these symptoms affect daily activities. The therapist will document the type and intensity of symptoms as well as discuss the precipitating circumstances. Additionally, information about medications, hearing or



vision problems, other medical issues, history of falls, previous and current activity level, and the living situation will be gathered. The assessment also includes administering different tests to more objectively evaluate the problems. The therapist will screen the visual and vestibular systems with various tests that observe how well eye movements, body movements and balance are being controlled by these systems. The examination may also include tests of: sensation (which includes gathering information about pain), muscle strength, extremity and spine range of motion, coordination and posture.

A customized exercise plan is developed from the findings of the clinical assessment, results from laboratory testing and imaging studies that may have been done, and input from patients about their goals for rehabilitation. An important part of the VR is to establish an exercise program that can be performed regularly at home. Compliance with the home exercise program is essential to help achieve rehab and patients' goals.

Along with prescribing and progressing exercise, patient and caregiver education is an integral part of VR. Education is important for patients because it takes away much of the mystery of what they are experiencing, which can help reduce any anxiousness that may occur because of the vestibular disorder.

ARE VESTIBULAR REHABILITATION EXERCISES DIFFICULT TO DO?

The exercises are not difficult to learn, but that doesn't mean they are easy to do!

The exercises can sometimes be

tedious; however committing to doing them is key to helping you achieve success. Setting up a regular schedule so that you incorporate them into your day is very important.

Exercises may, at first, make your symptoms seem worse. But with time and consistent work, your symptoms should steadily improve, and then, you will find that you are able to participate more in the activities of your daily life.

FACTORS THAT CAN IMPACT RECOVERY

When patients participate in VR, different factors can impact the potential for recovery. For example, the type of vestibular disorder affects recovery. Patients that have a stable vestibular disorder, such as vestibular neuritis or labyrinthitis, have the best opportunity to have a satisfactory resolution of symptoms. When patients have a progressive vestibular disorder, like with multiple sclerosis, or a fluctuating condition, like with Migraine and Meniere's, which causes spontaneous attacks of dizziness or vertigo,



compensation can be difficult to achieve, and therefore, success with VR is more difficult. There are also differences in response to VR depending on whether you have one or both inner ears involved, or whether the problem lies within the vestibular parts of the brain as opposed to the ear(s).

Symptomatic relapses can occasionally occur because the brain de-compensates. This can be due to different emotional and/or physical stressors, like personal or job-related pressures, periods of inactivity, a bad cold or flu, extreme fatigue or chronic lack of sleep, changes in medication, or sometimes surgery. ³ Although it is important for patients to consult with their physician to make sure nothing new has occurred, returning to the exercises that promoted the initial compensation can help promote recovery again. Additionally, recovery after de-compensation usually occurs more quickly as compared to the initial compensation.

OTHER FACTORS THAT CAN POTENTIALLY LIMIT RECOVERY
Sedentary lifestyle
Pain
Presence of Other Medical Conditions
Certain Medications or Multiple Medications
Emotional Concerns
Decompensation

WHERE CAN I FIND A VESTIBULAR REHABILITATION SPECIALIST?

The Vestibular Disorders Association (VeDA) provides a directory of health professionals who are specially trained to assess and treat vestibular disorders. This online directory offers users the ability to search for providers according to specialty and geographical location. To locate this online directory, visit vestibular.org/healthcare-directory.

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Visual Preference, Vestibular Deficiency

By Jeffrey Kramer, MD

Visual Preference and Vestibular Deficiency was written for the spring 2004 issue of On the Level, VeDA's newsletter to feature Dr. Kramer's "clinical observations" from his practice.

Over the past two decades, my neurology practice has become more than 20 percent neurovestibular in nature. That is, two or three of every 10 new patients that I see have complaints of dizziness and/or balance dysfunction.

The easy part is diagnosing and treating the more common disorders, such as benign positional vertigo (BPPV), acute labyrinthitis, and multi-physiologic dysequilibrium. Patients with mal de débarquement do present some challenge; but none of these disorders can compare to the complaint of "Doctor, I am not really dizzy, but I feel very off, disoriented, and my depth perception is terrible." These are patients who have what I call a visual-preference vestibular deficiency.

Such patients were and are commonly seen by physicians and therapists specializing in dizziness and balance disorders. Yet I know that when I went to medical school and again throughout my residency, these patients were more often seen in psychiatric clinics. Either no one understood this vestibular disorder or no one would claim to understand it well enough to teach the pathophysiology of these complaints.

WHAT IS VISUAL PREFERENCE?

After 20 years of seeing patients with the most severe form (agoraphobia) to the more benign form (functional but fatigued), I believe that visual preference is one of the most common vestibular disorders—and one that is also relatively easy to explain.

Usually, the initial event is a unilateral vestibular insult (viral, toxic, BPPV, etc.) that goes untreated. If given a medication to suppress vestibular irritability,



TYPICAL COMMENTS FROM PATIENTS WITH VISUAL PREFERENCE

My last doctor sent me to a psychiatrist.

Medicine only makes me feel worse.

I cannot be in a crowd of people nor in wide-open spaces; both situations make me feel disoriented and panicky.

I often take a cart in a grocery store even when I'm shopping for only one item.

I've become so frustrated I would rather just stay home.

nearly 50 percent of patients improve within about two weeks after the initial event. The patient becomes asymptomatic. However, in the other 50 percent, the severe vertigo subsides but the brain compensates inadequately. That is, the patient's brain will initially compensate for the vestibular dysfunction by becoming more reliant on vision, but then not revert to a normal state of compensation. The brain no longer wants to "deal with the conflict"; thus, vestibular input is suppressed and the patient becomes extremely reliant on vision to maintain balance.

We have proven this numerous times in our clinic by using dynamic posturography. This computerized equipment helps us document the patient's visual-preference vestibular deficiency. Anything that floods the patient's vision (grocery-store aisles with fluorescent lights, walking into a crowd of people at the mall, not being able to focus on anything in a wide-open space) will lead to disorientation, symptoms of panic, and severe discomfort.

After trying to tell several physicians about these symptoms (which often makes the physicians uncomfortable), many patients either give up and go to a psychiatrist or, even worse, withdraw to the point of agoraphobia. Often, patients who come to our clinic with visual preference have previously seen at least five physicians. It is not easy to explain this vestibular disorder to patients or their referring physicians.

After several years of developing different strategies, from physical therapy with 20-diopter glasses in order to retrain the brain to trust the inner ears again, to the more revolutionary methods of virtual reality, I am comfortable diagnosing and treating patients who present with symptoms



of visual preference. Working in conjunction with a physical therapist who is able to “think outside the box” has made me even more comfortable and a better clinician. Over the past 20 years, Jim Buskirk, PT, SCS, Director of Balance Centers of America, has assisted me in developing some of these strategies.

People who have been told that they will just have to live with their symptoms, or see a psychiatrist, or be placed on medication, should look for a specialist in vestibular and balance disorders, and never give up without a full explanation of their symptoms. Patients with visual-preference vestibular deficiency can be treated with vestibular rehabilitation and can frequently become much more functional.

UPDATE

The above article was written in 2004, based on my experience over the preceding 20 years. I had entered neurologic practice in 1981.

As I reevaluate the content of this article and assess my experience over the subsequent 20 years, the substance of this article remains clinically relevant today.

Certainly, more scientific and objective articles have been published. The ICD 10 codes have changed.

Terms such as chronic subjective dizziness and, more recently, persistent postural perceptual dizziness (PPPD) are more often used. The subjective symptoms remain fairly consistent and correlate with the basic pathophysiology. If I had to write this over again today much of this would remain the same. I would add my use of SSRIs for these patients to have been significantly beneficial in those that can tolerate. Treating patients with this disorder is a process and informing patients of the mechanism of their symptoms and associated education regarding resources for their treatment remains essential.

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Depersonalization and Derealization (DPDR)

Research summary by Sonia Vovan, PT, BHSc, MScPT

Summary of 2023 paper "How vestibular dysfunction transforms into symptoms of depersonalization and derealization?" by Zohar Elyoseph, Dario Geisinger, Roy Zaltzman, Carlos R Gordon, Matti Mintz

WHAT IS DPDR?

Depersonalization and Derealization (DPDR) is a psychiatric disorder characterized by a sense of unreality and detachment from one's surroundings, body, emotions, and self. The physical processes vary

and include problems with sensory function that alter one's perception of reality. Vestibular (inner ear) sensory dysfunction contributes to DPDR symptoms, as it interferes with a person's perception of their posture and surroundings, and movement of themselves in relation to their surroundings.

The inner ear contains two divisions: 1) the peripheral vestibular system, which consists of the hearing and vestibular organs in the ear, and 2) the central vestibular system, which consists of the brain and brainstem, and is involved in processing and integrating information from the peripheral vestibular system. Peripheral vestibular dysfunction may bring about DPDR disorder. However, there is a lack of information on DPDR symptoms in disorders that include central (nervous system) vestibular dysfunction. This paper investigates whether DPDR may develop due to central vestibular hypofunction, such as in Machado Joseph Disease (MJD), and how vestibular dysfunction may develop into DPDR disorder.



The paper creates a concept of the “Three-Stage Model of DPDR”:

THREE-STAGE MODEL OF DPDR	
1	In the 1st stage, patients develop peripheral vestibulopathy.
2	<p>In the 2nd stage, vestibulopathy leads to spatial disorientation and panic anxiety:</p> <ul style="list-style-type: none"> • Spatial disorientation results from changes to the hippocampus and temporal-parietal junction of the cortex, which provides information about self-motion, self-location, and self-relation to objects in space. • Panic anxiety may be related to an abnormal autonomic state and reactivity in response to vestibular dysfunction.
3	<p>In the 3rd stage, DPDR symptoms develop in response to the combined effect of spatial disorientation and panic anxiety:</p> <ul style="list-style-type: none"> • Panic anxiety increases the attention to abnormal spatial perception and bodily sensations, interpreted as symptoms of DPDR.

THE VESTIBULAR SYSTEM AND DPDR

The vestibular system consists of two main components: the semi-circular canals and the otolith organs. The semi-circular canals are a series of tubes that sense rotational movement. The otolith organs consist of sacs that sense gravity and change in linear (backwards and forwards) motion. Patients with chronic (ongoing) peripheral vestibulopathy demonstrated reduced function of all six semi-circular canals (SCCs) of the inner ear, as well as spatial disorientation, anxiety, and other DPDR symptoms. Spatial disorientation and anxiety together can lead vestibulopathy to develop into DPDR symptoms. On the other hand, although patients with MJD demonstrated impaired function of all 6 SCCs and spatial disorientation, they showed normal otolith function and no anxiety or DPDR symptoms. These findings indicate that spatial disorientation and anxiety are prerequisites (required) for developing DPDR symptoms. Therefore, in the absence of panic anxiety, MJD central vestibulopathy is not necessarily converted into DPDR symptoms.

Studies of DPDR in vestibular patients have typically focused on SCCs functioning. This study tested both the SSCs and otoliths to evaluate their relative contribution to the beginning of DPDR symptoms, and their findings suggest that otolith dysfunction can generate DPDR symptoms. Otolith dysfunction creates spatial disorientation and anxiety by unsettling the



activity of the hippocampus and TPJ. As the otoliths are the primary direct sensors of gravitational forces (gravity) and contribute to a person's perception of being upright, dysfunction distorts this perception, causing anxiety and contributing to DPDR symptoms.

CONCLUSION

In conclusion, peripheral (inner ear), but not central (nervous system), vestibulopathy leads to DPDR symptoms. Specifically, otolith dysfunction, either with or without SSCs dysfunction, promotes DPDR symptoms. Finally, this paper proposes a three-step model for the development of DPDR in peripheral vestibulopathy:

Patients develop peripheral vestibulopathy.
Vestibulopathy leads to spatial disorientation and panic anxiety;
DPDR symptoms develop in response to the combined effect of spatial disorientation and panic anxiety.

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Visually Induced Dizziness

By Morgan Kriz, DPT and Kathleen Stross, DPT, MS, PhD, CHC

Do you dread going to the grocery store because it makes you feel bad? The maze of tall shelves, the bright lights, patterns on the floor, the overwhelming selection of items, bending down or turning your head to scan for the items you need can take a lot of energy to navigate. If you can relate, you are not alone and there is nothing “wrong” with you.

Visually induced dizziness is an umbrella term for a group of symptoms that result from some vestibular disorders. It can also be referred to as visual vertigo, space and motion discomfort, supermarket syndrome or visual vestibular mismatch.

Chronic (long lasting) symptoms of dizziness or unsteadiness can be made worse by:

- Large areas of complex patterns or movement
- Such as supermarket shelves
- Moving traffic
- Movies on a big screen

WHY DOES IT HAPPEN?

There are several theories about why visually induced dizziness happens. Most researchers believe that it is caused by a mismatch or conflict between the different parts of the brain’s balance system, similar to motion sickness. Others believe that it happens when a vestibular problem causes the brain to rely too much on visual signals for balance (visual dependency).

The brain’s balance system combines information from many sources, including:

The vestibular system (the semicircular canals and otoliths in the inner ear), which senses when your head tilts, turns or changes speed



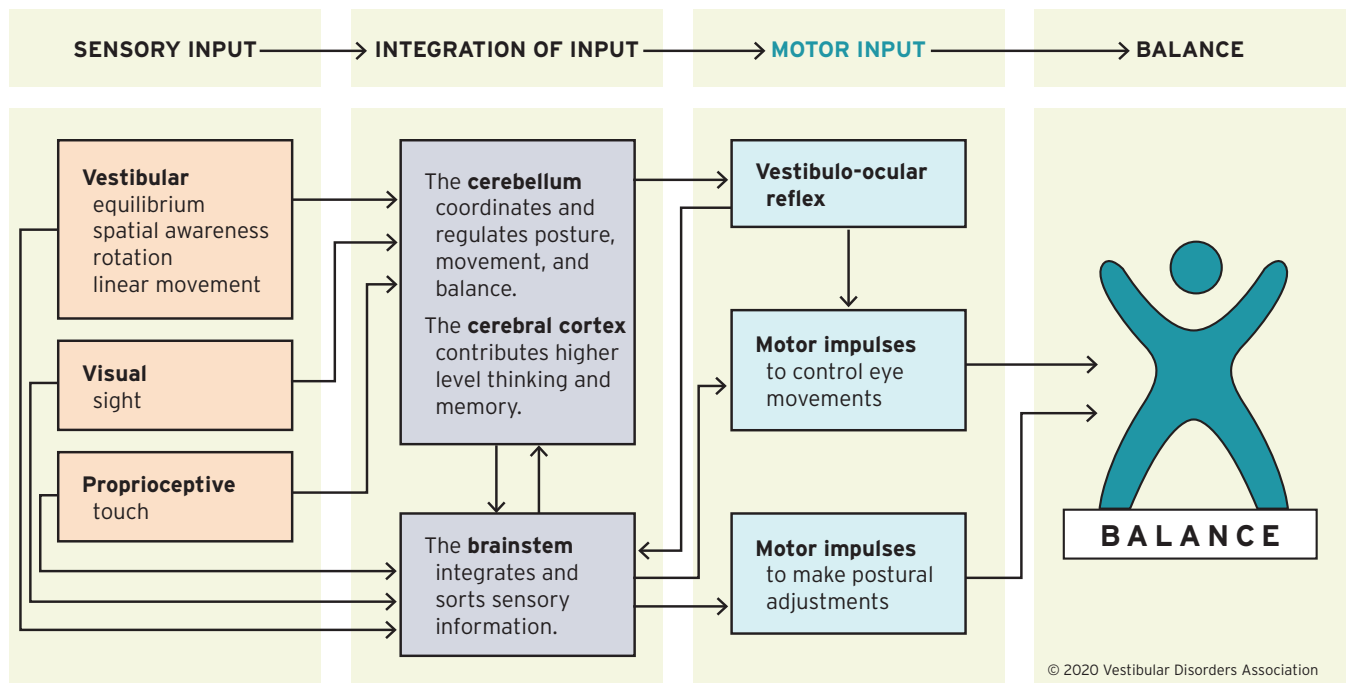


FIGURE 1. Balance is achieved and maintained by a complex set of sensorimotor control systems.

The visual system, which lets you see
 The proprioceptive system, which sends signals about position, pressure, movement and vibration from the legs and feet and the rest of the body

At any moment, your brain is evaluating all these different signals and deciding which ones are more important and reliable at that moment. For example, if you are watching a movie, the visual system says there is motion, but the vestibular and proprioceptive systems say that your head is not moving and your body is sitting in a chair. Normally, your brain takes all these signals and correctly assesses the situation: you can see movement, but your body is not moving.

With visually induced dizziness, the brain relies too much on information from the visual system and not enough on the vestibular and proprioceptive systems.

This is sometimes called “visual dependency.” When there is a conflict between the visual system and the other systems, the brain is more likely to believe the visual system and decide that you are moving when you are not. The conflict between signals can produce feelings of dizziness or unsteadiness.

Some studies have found subtle differences in how areas of the brain are connected in people with visually induced dizziness. This may mean that some people are more prone to visual dependency and more likely to develop visually induced dizziness after a vestibular problem.



SYMPTOMS

When someone has an episode of visually induced dizziness, they may have some or all of the following:

- Dizziness
- Unsteadiness
- Light-headedness
- Disorientation
- Nausea
- Vomiting
- Sweating
- Salivation (mouth watering)
- Tiredness
- Turning pale

Some people say it feels like seasickness or being drunk.

Visually induced dizziness usually does not include feelings of rotation or spinning (vertigo). It is also not the same thing as oscillopsia, where what you see appears to wobble or jump around.

People with visually induced dizziness may feel anxious about doing things that could trigger their symptoms. People may tend to avoid situations and disconnect themselves from community settings.

HOW CONDITIONS THAT CAUSE VISUALLY INDUCED DIZZINESS ARE DIAGNOSED

VeDA can help you learn about your condition so that you can be an advocate for your own healthcare.

Our provider directory (<https://vestibular.org/healthcare-directory/>) will help you find qualified vestibular specialists who can diagnose you quickly and provide effective treatment.

TREATMENT AND MANAGEMENT OF VISUALLY INDUCED DIZZINESS

Treatment for visually induced dizziness partly depends on what is causing it. If it is caused by an underlying condition, such as migraine with dizziness or Ménière's disease, treating that condition may help with some of your symptoms.

You will also need specific help with visually induced dizziness, such as vestibular rehabilitation and home-based program. The goal of these treatments is to “retrain” your balance system and reduce visual dependency.

Medication may help with visually induced dizziness, but more research is needed.

DEALING WITH AVOIDANCE AND ANXIETY

It is important to keep doing your normal activities. Try not to avoid things



that make you dizzy. You need to get used to them again.

However, do not push too hard. This can make your symptoms worse. Vestibular rehabilitation can help by giving you controlled exposure to things that trigger dizziness. Developing coping and grounding strategies can be extremely beneficial and build one's resilience to provoking situations. If you have anxiety about your symptoms, talk to your doctor about ways to manage it. For people with visually induced dizziness that is part of PPPD (Persistent Postural-Perceptual Dizziness), cognitive-behavioural therapy (CBT) to help manage anxiety, cope with symptoms, and gain confidence can be an important part of treatment.

VESTIBULAR REHABILITATION

Vestibular Rehabilitation is a type of exercise-based therapy. Its goal is to help your brain relearn how to balance and how to respond to signals from the visual and vestibular systems. A vestibular therapist can help you set treatment goals and design an appropriate program.

Vestibular rehabilitation for visually induced dizziness may include:

Habituation, a type of rehabilitation that involves getting the brain used to signals that trigger dizziness. This is done through repeated, controlled exposure to signals such as complex patterns, busy environments and head movements. You may do exercises indoors and outdoors. You may go on short trips to places that trigger symptoms, such as grocery stores or shopping malls.

exercises.

Balance exercises with the eyes closed, both standing still and moving, to help reduce visual dependency.

Remember that vestibular rehabilitation and coping with chronic conditions takes time and effort from both an experienced provider and the person dealing with the condition. To find a qualified vestibular rehabilitation specialists near you, please refer to our provider listing at <https://vestibular.org/healthcare-directory/>.

Check out our personalized Grocery Shopping List on the next page to make you more successful going to the grocery store.

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Grocery Shopping List



Fruits & Veggies	Meat/Poultry	Dairy/Soy	Snacks
Frozen Food	Non-perishable	Pasta/Rice/Bread	Baking
Drinks	Household items	Sauces & Spices	Health & Rx

NOTES:

Remember to breathe, relax & feel. Good job brain!

Counseling for Chronic Illness

By Tod Fiste, LPC

Dealing with a chronic illness or medical condition goes far beyond the physiological and medical challenges it poses. Chronic illness can strain your view of yourself, your relationships, your place in society, and your plans for the future.

Psychotherapy (also known as ‘counseling’ or just ‘therapy’) is a valuable resource when you are struggling with these challenges. Unfortunately, many people don’t really know what therapy is or how it can help them, and there are some common misconceptions that make therapy sound intimidating or even threatening.

My goal here is to help the reader become more informed in a general way about some of the different ways that therapy can be helpful. These categories are my own; while I believe they are useful, they do not map exactly to terms you may read or hear in therapist’s self-descriptions. In fact, for the purpose of this article I will try to stay away from specific labels; in a future article I will try to link these to specific terminology that you might see.

Rather, consider this a broad way of thinking about the different types of goals or outcomes you could seek from therapy. **They are not mutually exclusive**, and any given therapist may be more or less expert at helping in one or more of these ways.

RESOURCING

This is the process of identifying resources that would be of help to you (AKA “assessment”), finding or helping you find specific places to go for those resources, and possibly assisting or coaching you as you access



those resources. “Resources” could be counselors, agencies, programs, clinics, hospitals, support groups, doctors, or any number of other sources of assistance.

This is a role traditionally played by social workers. Indeed, social workers at government or private agencies may be able to provide this kind of assistance to you. In private practice, a Licensed Clinical Social Worker (LCSW) might be a good choice. Be aware, however, that not all LCSWs necessarily focus on this kind of work; by the same token, many private practice therapists who are not LCSWs are quite skilled at providing this kind of assistance. Some medical doctors may also be able to provide help of this kind.

A counselor providing this kind of assistance may have specific expertise, such as helping people with chronic illness. Even if they do not have such expertise, a skilled provider should have the knowledge and contacts necessary to research your needs and corresponding resources more quickly, completely, and effectively than you could yourself.

PSYCHO-EDUCATION

This is the process of helping you understand aspects of individual psychology, emotions, relationships, neurobiology, and any of a number of other areas that could be of help in making sense of your experience and making the changes you want.

Psycho-education is usually not enough by itself to create significant change. If it were, reading a good self-help

book would be as effective as therapy. For some people, however, intellectual understanding of what is happening for them is a very important part of the process of change, healing, and growth. It could normalize your experience, help you to stop judging yourself as being morally deficient, and give you insight into how to deal with it more effectively. It can promote a sense of safety and control, and therefore provide or increase motivation.

SKILL BUILDING

Most of us learned some very important life skills, like dealing with our emotions or communicating effectively in relationship, by a very haphazard process of observing those around us. For many of us this has resulted in some significant holes in our psychological, emotional, and relational skill sets. Sometimes we learned poor skills that we need to un-learn so we can discover healthier ways to do things.

Therapy can be a kind of life extension course for these skills. This is actually a primary goal of some kinds of therapy, such as couples counseling or relational therapy groups. A good therapist can teach you these important



life skills and coach you in practicing them and becoming proficient at employing them.

SYMPTOM RELIEF

The goal here is generally to alleviate painful or disruptive symptoms that a client identifies as causing distress or problems in his or her life. Symptoms can be simple or complex, and symptom treatment can be correspondingly easy or difficult, and quick or longer term. A symptom like “panic attacks whenever you get into a car since being in a bad accident” is relatively easy to identify and treat; a symptom like “a lifelong pattern of apparently random outbursts of rage” is likely to be considerably less straightforward.

Simply identifying a client’s symptoms accurately can in itself be a significant task. For example, if you have experienced low-level anxiety for most of your life you may not even notice it as anything out of the ordinary, but it may be related to an apparently sudden bout of depression or panic attacks.

There are many approaches to providing symptom relief. None of them are perfect, and most come with both pros and cons. We would all like to think that every symptom has a clear and consistent treatment to resolve it, but this is probably even less true for psychological symptoms than for medical ones. People have different personalities, unconscious patterns, beliefs, etc., and therefore what works very well for one person may be a poor fit for another.

MEDICATION VS TALK THERAPY	
Medication	<p>Pros</p> <ul style="list-style-type: none">• Fast-acting <p>Cons</p> <ul style="list-style-type: none">• Potential negative side effects• Ineffective if not taken consistently• Efficacy may change over time.
Talk Therapy	<p>Pros</p> <ul style="list-style-type: none">• No drug side effects <p>Cons</p> <ul style="list-style-type: none">• Potentially uncomfortable for some people.• Takes time to see improvements.• Efficacy depends on implementation of the therapist’s recommendations.



For example, a common choice regarding symptom relief in certain situations is medication or talk therapy. Medication is widely perceived to be faster-acting than talk therapy, with disadvantages such as side effects, the need to remember to take the medication consistently, and a tendency for meds' efficacy to change over time for many people. Talk therapy eliminates drug side effects, but some people may find it uncomfortable in other ways, and symptom relief can take longer and be more dependent on the client's ability to follow the therapist's suggestions. (I use this as an example; in actual practice, a combination of medication and talk therapy can be most effective, as is often true with depression.)

Focusing on symptoms can be both a strength and weakness in therapy. One strength is that identifying a clear, specific problem to resolve helps the therapy stay focused and makes it easier to assess how successful the therapy is and when the therapy is done. A weakness is that it requires a definitive specificity that many clients are not able to provide, especially at the beginning of therapy. Also, some life situations that bring people to therapy are not easy to reduce to symptoms and diagnoses, and attempting to do so can create other problems.

SUPPORT

This is primarily emotional support: the proverbial shoulder to cry on, a place where it is safe to express whatever you need to. It is a role that for some people is provided by friends, family, clergy, or their community.

Unfortunately, many people in today's society have limited support networks or do not want to "burden" those close to them. Some people can not safely share some of their experience with those who might be expected to be supportive. Sometimes it is difficult to find people who will just listen, rather than try to fix or change you.



This is a legitimate use for therapy. Everyone goes through rough patches in their life at times: the loss of a loved one, a professional setback, a difficult transition from one phase of life to the next, etc. Sometimes temporary emotional support is all that is needed, or part of what is needed.

A good therapist has a large capacity for being compassionate and empathetic. You can unburden yourself to a counselor without having to worry about offending a loved one, being judged, or having someone else find out what you said.



THErapy AND CHRONIC ILLNESS

Having a chronic illness would pose a challenge to even the most psychologically healthy individuals. We all use conscious and unconscious coping strategies, and none of those strategies is perfect. Chronic illness sometimes produces a “perfect storm” that exposes and magnifies every weakness in those strategies. On the other hand, for some people their medical condition presents a less earthshaking but still challenging set of logistical and practical obstacles to deal with. As I hope the above list shows, there are a number of different ways that therapy can be helpful throughout a wide range of degrees of distress.

If you suffer from a vestibular disorder or other kind of chronic illness, the last thing you want to hear is that it is “all in your head.” However, it is true that stress, anxiety, depression, and a number

of other mental health challenges can sometimes exacerbate and even precipitate some medical conditions. Also, medical conditions, especially chronic ones, can certainly cause or create “mental health” problems. So there are very good reasons to think that counseling could be helpful and appropriate for people dealing with chronic illness - reasons that have nothing to do with hypochondria or craziness.

Some people are understandably put off by the language of the mental health field that is currently common, particularly the label “mental illness.” Please be aware that you do not need to be “mentally ill” to benefit from therapy, and that plenty of therapists will work with you without pathologizing you. It is true that some therapists work from the “medical model” - where the steps are assessment of the symptoms, diagnosing the illness, and treating it - but this is not a prerequisite for good therapy.

LIFE WORK

Sometimes the task at hand is in the form of major healing or growth that is more like a caterpillar turning into a butterfly than a broken bone healing. The written Chinese character that means “crisis” also means “opportunity”, because in every crisis is an opportunity for something new to emerge.

As with many significant life events, chronic illness can present a risk of becoming hopeless and self-hating as well as possessing a great potential for transformative psychological healing and growth. This is the domain of life work, where people transform deeply held unconscious beliefs and patterns, expand their awareness of possibility in their lives, and find ways to create more satisfaction and fulfillment in their relationships with themselves and others.



This is the work you want to do when you are asking big questions, such as: “Who am I?” “What is my purpose in life?” “Why am I never satisfied?” “What am I wanting from intimate relationship?” There can be a spiritual aspect of such work, although this is not essential.

The most powerful life work will often move fluidly between bigger spiritual or philosophical explorations and specific personal challenges and wounds. Some therapists do this better than others; if this is your goal, it is worth the effort to find someone adept at this kind of work.

ABOUT THE AUTHOR

Tod Fiste is a Licensed Professional Counselor with a private practice in Portland, Oregon. You can view more publications by Tod Fiste at yourselfinbalance.com.

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Emotional Aspects of Vestibular Disorders

By Dr. Rachel Bilgrei, PsyD,
with contributions from Joanna Wolfson, PhD

Vestibular disorders affect individuals physically AND psychologically. And while it is important to understand your physical symptoms, it is equally important to understand your psychological symptoms as they can often trigger and/or exacerbate your physical symptoms.

The mind/body connection is complex. Emotional factors - the way we think, feel, and behave - can have a significant effect, for better or worse, on our physical health and our capacity to recover from illness or health setbacks. Emotions can trigger genuine physiological arousal. In the context of a vestibular disorder, a vicious cycle may develop whereby physical symptoms initially triggered by your condition result in anxiety and/or other emotional responses and further increase feelings of dizziness, vertigo, or other vestibular symptoms.

COMMON EXPERIENCES

In my work treating individuals with vestibular disorders, I have identified frequently occurring experiences and issues that can set off emotional disturbance. It starts with the diagnostic process. The lengthy, convoluted journey of visiting numerous specialists offering various opinions can be frustrating, to say the least. What's worse, some of you might have been told your symptoms are being caused by anxiety and depression and that the symptoms are "in your head." At the other end of the spectrum, some of you may have been sent to specialists to rule out frightening-sounding conditions (e.g., a stroke or other neurological condition). Even in the setting of reassurance about results, this testing experience is traumatic.

The sudden onset of symptoms, the unpredictability, and variability that



often occur with a vestibular disorder are terrifying, unsettling and turn your world upside down... literally and figuratively. Another common experience I've often heard people describe is what I refer to as the invisibility of your illness. Vestibular disorders are, well, invisible... and thus more likely to be misunderstood. Most of the time people with vestibular disorders don't look sick or unwell. Unlike a broken limb, a runny nose, a cough, or a positive blood test or scan, the damage/injury can't be seen, furthering this lack of understanding. However, invisible does not mean imaginary. This invisibility can lead to another common concern: a fear of being dismissed or misperceived as lazy.

"IT'S ALL IN YOUR HEAD." THIS CAN MAKE YOU FEEL MISUNDERSTOOD, FRUSTRATED AND ALONE.

Other common concerns include worrying you may be perceived as drunk due to balance issues and sensitivity to light, sounds and geometric patterns.

ANXIETY

Anxiety, fear, and panic are probably the most common emotional responses people have when diagnosed with a vestibular disorder. Anxiety often manifests in response to feeling ungrounded and insecure about being steady on your feet. A fear of falling due to imbalance, dizziness or lightheadedness is commonly reported. Panic attacks are also commonly reported. A panic attack is "an abrupt surge of intense fear or intense discomfort that reaches a peak within minutes and during which time [symptoms such as palpitations, sweating, trembling, shortness of breath, nausea, feeling dizzy] occur" (DSM-V, 2013). Individuals with vestibular conditions often experience hypervigilance to their bodies, which can easily put them in "fight or flight" mode if a situation feels slightly threatening. Even if not full-blown panic, "fight or flight" involves breath holding, muscle tension, and dizziness, which can perpetuate the anxiety-dizziness cycle.

In the context of a vestibular condition, a panic attack only serves to exacerbate physical symptoms, as well as trigger fears of losing control. It is no wonder that given the predominance of physiological symptoms, a panic attack or even a less intensive "fight or flight" state can be mistaken for a medical condition, such as a heart or asthma attack, and precipitate dizzy spells.

In response to anxiety, fear and panic, individuals with vestibular conditions may experience increased social isolation, withdrawing from social interaction and avoiding activities that normally bring them pleasure and satisfaction. It is important to note that it is very often fear and anxiety, not the actual physical symptoms that interfere with functioning.

SADNESS & DEPRESSION

Having a vestibular disorder often results in a change in lifestyle. Changes to your activity level (at home and at work), your independence, your



abilities, your stamina, and your relationships are experienced as losses. Loss, grief, and the process of mourning are just some of the feelings and experiences that these changes arouse. Social isolation can lead to feelings of loneliness. Feeling misunderstood by family members, friends, even physicians fosters a sense of helplessness and hopelessness. Guilt is commonly expressed in response to not being able to perform your usual duties and responsibilities. In addition, you may experience sleep and appetite disturbance and lethargy. These are the many forms and manifestations that sadness and depression can take in response to a vestibular condition.



RELATIONSHIPS

“I get dizzy too” or “You just need to be less anxious.” Are these responses you’ve heard from family members, friends, even physicians when you explain your vestibular symptoms? It wouldn’t be surprising if you have heard them ... and felt misunderstood, frustrated and alone. Add to these feelings the need to rely more on others, to be more dependent on family members and friends for help with tasks you could easily do on your own previously and what you’ve got is a new challenge of managing interpersonal stress that didn’t exist before your vestibular condition. This tension in relationships often leads to increased arguments, social withdrawal, and loss of closeness and connection with even the most important people in your life at a time when these connections are vital.

YOUR SENSE OF SELF

I was once running an educational group for people suffering from vestibular disorders and we were discussing the emotional impact of their respective conditions. One person described looking at herself in the mirror and not recognizing the reflection staring back at her. Nothing about her physical appearance had changed, but she felt like such a different person that she was basically unrecognizable to herself.

This anecdote painfully demonstrates the kind of change to your sense of self that can occur to those living with a vestibular disorder. The discrepancy between how you know yourself now and how you knew yourself before erodes self-esteem and self-worth. Unable to perform your usual responsibilities, changes in your role in relationships, and difficulty performing your job can



really call into question your identity and how you know yourself. This is probably the most profound change expressed by individuals with vestibular conditions.

COPING STRATEGIES

Thankfully, there are ways to overcome these difficulties and improve your mood, functioning, and quality of life. An important first step is awareness. Understanding your own emotional responses to the stress of having a vestibular disorder is an imperative first step in the process of recovery, both psychologically and physically. This can lead to an informative and inspiring exploration into the dynamics of your individual stress triggers and their origins. Keeping a daily journal that tracks activities, suspected and known symptom triggers, degree and frequency of symptoms, and strategies employed to combat each symptom can be a helpful tool in increasing awareness and self-monitoring of difficulties. In addition, learning stress management techniques can be quite effective in minimizing the emotional aspects of vestibular disorders. A variety of relaxation techniques, such as diaphragmatic breathing, progressive muscle relaxation and visualization/imagery can combat negative feelings and help to feel more in control. Other cognitive techniques include challenging or stopping unhelpful thought processes and the use of positive self-statements. And while it may be difficult and unfamiliar, asking others for help can eliminate some unnecessary stress and strain while also allowing others to get a sense of what you're going through.

COPING STRATEGIES

- Educate yourself and your family
- Increase awareness and self-monitoring of difficulties
- Identify symptoms of stress
- Identify triggers of stress
- Learn stress management techniques
- Ask for help
- Improve communication skills
- Have a sense of humor!
- Learn the value of acceptance
- Join a support group
- Individual psychotherapy



TREATMENT

Participation in psychotherapy provides support, validation, normalization, and coping skills in an individualized setting. Heightened emotions, especially negative ones, can interfere with and hinder your physical recovery by exacerbating your physical symptoms. Working with a therapist to better manage your emotions will maximize your physical recovery. A therapist can also work with you on identifying, learning, and applying the various stress management techniques mentioned above into your day-to-day life. Using these techniques consistently can help to restore a sense of control.

Working with a therapist also provides an opportunity to address the interpersonal

tension that often coexists with a vestibular disorder through developing improved communication skills. Treatment can and often does involve family members and close friends to facilitate their education of your disorder, as well as to work on improving communication. In addition, being in treatment can facilitate acceptance of this new aspect of your identity, helping you to create a more integrated sense of self. Participation in a support group can also really help to minimize feeling misunderstood and alone while providing validation.

It is not easy to share these kinds of complications. It takes strength and courage. But the benefits are well worth it.

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Meditation and Mindfulness

By Lisa Farrell, PT, PhD, AT, C

BUSTING THROUGH MISCONCEPTIONS AND BUILDING OPPORTUNITY FOR SUCCESS

When meditation comes up in conversation people often say, “Oh, I tried that, and afterward, I felt so calm and relaxed.” If this has been your experience, that’s wonderful! Feeling calm and relaxed can be one of the many benefits that occur from practicing meditation.

However, people also say, “I can’t meditate. It’s too hard for me.” If this has been your experience, you are not alone. You might have the expectation that your mind should be quiet and your body relaxed during meditation. When it isn’t, you feel like you’re doing it wrong or it isn’t working.

Other common reasons people give for not meditating include:

- “I can’t sit still long enough to do it.”
- “I don’t have time to meditate.”
- “It’s not for me because it is too weird.”

Even though social media has been a game changer for providing easy access to guided meditation, these resources can be off-putting if they don’t provide clear guidance. Lack of proper instruction and clear explanation are frequently obstacles for a successful meditation practice.

Meditation is a mind-body practice with a wide variety of techniques from both ancient and modern times. Some of the current popular forms of meditation are Mindfulness Meditation, Transcendental Meditation™, Vipassana (or Insight) Meditation, Metta (or Loving Kindness) Meditation, as well as movement-based meditations like Yoga, Tai Chi, and Qi Gong. What



unites the various schools of meditation is the intention to build attention and awareness by observing and experiencing the present moment.

This article focuses on Mindfulness Meditation and covers its definition, importance, and best practices. Also, some insights and suggestions for using this type of meditation are provided for those dealing with the consequences of vestibular dysfunction.

Beyond helping to calm the mind, regularly practicing meditation has many benefits, including:

MEDITATION BENEFITS
Encourages creativity and innovation
Fosters self-awareness
Cultivates compassion for oneself and others
Activates the healing response
Promotes emotional and physical well-being
Enhances the ability to focus

ESSENTIAL ELEMENTS

WHAT IS MINDFULNESS MEDITATION?

The practice of mindfulness has you simply pay attention to the present moment by placing your focus in a particular way... without judgment, with curiosity, and with a gentle awareness.

WHY IS IT IMPORTANT TO BE MINDFUL?

Most of the time, our attention is not where we want it to be. Our thoughts and emotions, hopes or worries for the future, and memories and regrets from the past can distract us. An inner voice tends to chatter away nonstop and can be likened to monkeys that jump around from tree to tree, often referred to as having a “monkey mind.” Modern living only makes the “monkey mind” worse as we try to keep up with all the input that comes from social



media and try to manage all of our responsibilities. Besides having difficulty living in the present moment, we tend to live life on autopilot by doing things unconsciously. Living with a monkey mind and on autopilot hijacks our attention from the present moment here and now. Most people live this way for most of their lives, and, therefore, they don't get the chance to fully experience or appreciate their lives. However, it is in this moment that we live our lives--not in the past, which is no longer happening, and not in the future, which has yet to come. Mindfulness meditation focuses our attention by settling the monkey mind and turning off our autopilot, allowing us the opportunity to reap the benefits life offers.

HOW IS MINDFULNESS MEDITATION PRACTICED?

Although this article is not a replacement for being properly instructed in mindfulness meditation, here are the basics to help you have a better understanding:

When to meditate: When you meditate does not matter. Choose a time that works best for you and practice every day, which reinforces and deepens your commitment to meditation. However, practicing right before bed is not recommended for everyone because meditation can sometimes energize you and affect your sleep.

The place to meditate: You can meditate wherever you feel comfortable. Ideally, choose a place that is convenient to access and quiet. Avoid potential distractions---turn off your cell phone, television, and any music. Also, let others know in advance that you will be meditating and don't want to be disturbed unless there is an emergency.

What you wear: Whatever clothes you feel comfortable in work well with meditation.

Your position: Mindfulness meditation can be practiced in a variety of positions. Sitting in a supportive chair that promotes good posture, placing your hands on your legs so your arms are supported and relaxed, and having your feet uncrossed and flat on the ground is most accessible. However, you could also choose to sit on a cushion on the floor with legs crossed. Also, some mindfulness techniques are practiced standing or while moving or walking. Your intention with your posture is to promote being awake and alert. Therefore, laying down is not the ideal posture for meditating because you can be tempted to fall asleep. Ultimately, you should choose the best position to practice meditation because its most important that you are comfortable.

What to do with your eyes: Ideally, mindfulness meditation is practiced with the eyelids closed. However, if you prefer to keep your eyelids open, you can look down toward the floor a few feet in front of you while you keep your gaze soft and unfocused.

WHAT ARE THE KEY PRINCIPLES OF MINDFULNESS MEDITATION?



It's OK for you to have thoughts while meditating. It is the nature of the mind to think. That's its job! Know that all thoughts and feelings are welcome when practicing meditation.

You do not try to force your mind to be quiet and stop thinking while meditating. Instead, you give it something to focus on so it has an anchor to keep your attention in the present moment. When you do this your mind will naturally settle.

Mindfulness meditation uses different objects to focus on. Since the breath is always with us in the present moment, it is often used as the focus of your attention. Also, your body only lives in the here and now, so it can also be used as the focus for your attention. You can pay attention to internal experiences within your body, such as feeling or imagining different body parts, or you can pay attention to experiences outside of your body, such as different senses like sound, sight, smell, taste, touch, and temperature.

Attention can be directed to focus on one object, like the breath, body, or something in the environment. This form of mindfulness meditation is known as "focused attention," and is used when you are first learning. However, focused attention is also often used by many experienced meditators.

Another method of paying attention is allowing your focus to be on anything that comes into your awareness in the present moment. It provides a broad view of whatever is happening in the moment. This form of mindfulness meditation is known as open awareness or open monitoring, and although it may seem simple to do, it is considered an advanced form of practice.



It is important to know that while meditating your mind will become distracted and it will wander. You will often get lost in stories that you tell yourself. It is natural to lose your focus. It happens to everyone. When it does, simply recognize it and bring your attention back to the focus of your meditation.

Remember, you have the chance to redirect your focus again, and again and again. Paying attention is not a one-time event. When you bring your attention back to the focus of your meditation, you are doing what mindfulness is all about: being present.

The attitude to take when you lose your focus is to remain open to whatever is present in the moment. Do this by allowing yourself to not have any expectations or judge the meditation experience by saying, “this should be happening” or “this shouldn’t be happening.” Instead, kindly and gently, without trying too hard, redirect your attention back to the focus of your meditation.

Additionally, keep an attitude of curiosity by allowing yourself to explore and have a genuine interest in the experience. Being curious will help reduce judgement and guard against boredom or the desire to have a different experience.

Lastly, with meditation, it only works if you practice it consistently and do not give up. If you feel restless or think of something else you would rather do, you can make the choice to stay with the practice until the time that is set in the beginning is completed. This will help nurture commitment for your practice.

With mindfulness, there is the formal meditation practice and the practice of incorporating mindfulness by being present with your daily activities. Your meditation practice will help you cultivate being mindful in life.

SUGGESTIONS FOR USING MINDFULNESS WHEN DEALING WITH VESTIBULAR DYSFUNCTION

Vestibular dysfunction causes physical symptoms (i.e., vertigo, dizziness, blurred vision with head movement, and/or imbalance) that can frequently be overwhelming. Feeling anxious or overwhelmed by physical sensations can worsen emotional symptoms, like fear, depression, frustration, and anger. When treating the physical consequences of vestibular dysfunction, the emotional consequences should be addressed, too. The best advice is to seek treatment from a psychologist. Additionally, formally practicing mindfulness meditation on a daily bases helps change your relationship to emotions, which can give you better perspective about the negative impact troubling emotions have.

Beyond psychological treatment and formal mindfulness practice for vestibular rehabilitation for symptoms related to vestibular dysfunction, physical exercise and mindfulness principles significantly help heal the body and mind. Some specific ways to incorporate mindfulness when dealing with the consequences of vestibular dysfunction include:



BODY SCANS (AKA GROUNDING)

This exercise helps train the brain to use information from the body for orientation (i.e., knowing where the body is in space), instead of using vision for this information. Vision can act as the dominant sense when there is vestibular dysfunction and vision shouldn't always be relied on because it can easily be fooled. For example, when you are sitting at a traffic light and the body is still, but you see movement in the environment from the passing traffic in the intersection. The brain has to figure out what sense to pay attention to. Your body sense tells the brain that the body is still, however the visual sense tells the brain the body is moving because it sees the passing cars. This mismatch of sensory information causes a conflict that has to be resolved. Training the brain to use the body sense can help resolve this conflict.

There are many ways to perform a body scan (AKA Grounding). Here are the instructions for one way:

While sitting comfortably in a supportive chair that has a back, rest your hands comfortably in your lap, and allow your eyelids to close.

However, if you prefer to keep your eyelids open, you can cap them by looking down toward the floor a few feet in front of you while you keep your gaze soft and unfocused.

With a gentle attention, slowly and steadily scan your body by starting at your feet.

Feel the pressure of your feet on the ground and your legs/buttocks on the seat.

Find different points on your feet that are touching the ground as well as on the back of your leg/buttocks that are touching the seat. Note and experience how the ground and seat are solid and unmoving and how stable your feet and legs are by being connected to the surfaces and how you are also solid and unmoving with this connection.

Feel how your trunk is touching the chair back and is providing support. Also, explore and experience what is happening from the pelvis, to the abdomen, up through chest, and along back from the tailbone to the base of the neck.

Move your attention from your trunk to your arms---focus your attention first with your fingers, then your hands, and move up to your forearms and then your upper arms and shoulders.

**GROUNDING TRAINS
THE BRAIN TO
USE INFORMATION
FROM THE BODY
FOR ORIENTATION,
INSTEAD OF USING
VISION FOR THIS
INFORMATION.**



Next note how your head is connected to your trunk and explore and experience your face and head.

Finish the scan by moving your attention back from your head, through your trunk, to your legs, and returning to your feet.

While doing this, know that you are supported and stable.

Allow your breathing to remain natural and relaxed throughout the body scan.

As you scan, simply be an observer, allowing yourself to experience whatever is present. If you notice that you become uncomfortable or distracted at any time, recognize it, allow yourself to gently and kindly let it go, then continue with the body scan. And, you can do this over and over again.

Also, if you find yourself trying too hard at any time, allow yourself to ease up and gently, with as little effort as possible, simply experience what is happening.

This can be practiced throughout the day, such as before or after an activity. Also, it is recommended to be practiced before and after different vestibular exercises and between sets of each exercise.

BODY SCANS (AKA GROUNDING) THAT INTEGRATE ACTIVE RELAXATION

This exercise counteracts the “fight or flight” response (AKA stress response) that occurs from experiencing both physical and emotional stress by cultivating the relaxation response.

Perform a body scan, like the one above, with the addition of actively tightening and relaxing different muscles in the body. As you scan from the feet, legs, abdomen, back, hands, arms, shoulders, and face, tighten the muscles and hold for a couple of seconds. Then, let go of the contraction. After you let go of the contraction, allow yourself to experience the feeling of relaxation that occurs from the letting go. Slowly and steadily move up the body, tightening and letting the contraction go, while you allow your breath to remain natural and relaxed.

This can be practiced throughout the day, especially when you notice that you are experiencing stress. However, even when you don’t experience stress, it can also be practiced to build resiliency against the stress response.

PRACTICE ABC’S

ABC’s is an acronym that was coined by the author and that stands for Attention, Breath, Change, and either Savor or Support. This exercise has you practice paying attention to uncomfortable emotions and physical discomforts that are experienced throughout the day and then has you take action without judgement, with kindness, and curiosity. This exercise can help you



change the relationship with how you are experiencing what is happening.

LEARN MORE ABOUT MEDITATION

To overcome the misconceptions of meditation and have the best opportunity for success, proper training is essential. Meditation classes can be found online or they may be offered in local communities. Before signing up to take classes, make sure the instructor is qualified and research the meditation technique that is being taught. When anxiety, depression and/or trauma are so overwhelming that mindfulness meditation does not seem to work for you, look for a psychologist who is a qualified mindfulness meditation instructor to work with you.

MORE RESOURCES

Here are a few books to further your education about meditation:

- The Headspace Guide to Meditation and Mindfulness: How Mindfulness Can Change Your Life in Ten Minutes a Day by Andy Puddicombe
- Mindfulness: An Eight-Week Plan for Finding Peace in a Frantic World by Mark Williams and Danny Penman with Forward by Jon Kabat-Zinn
- Wherever You Go, There You Are by Jon Kabat-Zinn (Father of 'Mindfulness-Based Stress Reduction' method)
- Loving-Kindness: The Revolutionary Art of Happiness by Sharon Salzberg
- Radical Compassion: Learning to Love Yourself and Your World with the Practice of RAIN by Tara Brach

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Managing Fatigue

By Yonit Arthur, AuD

People with vestibular disorders commonly report fatigue as one of their symptoms. Follow this step-by-step guide to learn how to manage your fatigue.

STEP 1: UNDERSTAND FATIGUE

Fatigue is a general term that describes a wide variety of symptoms, all having to do with feeling less energetic and alert than you'd like to be. For some people, fatigue may mean having less endurance for daily or new activities. For others, it may mean feeling generally unwell or low energy. It may also mean having symptoms like "brain fog" in which normal activities take more effort than they used to.

Why Are People with Vestibular Disorders Vulnerable to Fatigue?

To understand why vestibular disorders so often lead to symptoms of fatigue, it's helpful to understand how the vestibular system works. When no disorder is present, the eyes, ears and sense of touch (proprioception) collect a huge amount of information from the outside world. They send this information to the brain, which sifts through the information to pull out what's important. The brain puts all the important information together (integration) and sends signals to the body telling it how to respond.

Central Nervous System Is Working Harder

When a vestibular disorder occurs, one of the steps in that process is not working correctly. In some disorders affecting the sensory systems (such as Meniere's, BPPV and vestibular neuritis), the senses are sending incorrect or confusing information to the brain. Other disorders affect the central



nervous system itself (such as vestibular migraine and PPPD). In those instances, the senses are sending good information but the brain itself is not processing it correctly. In both cases, the brain is forced to do more work to sift through the information it's getting from the senses to filter out the noise. People with vestibular disorders have to concentrate harder and use more energy just to figure out where they are in space, leaving them with less energy to perform daily activities.

Chronic Stress

Another factor that can affect people's energy levels is the general state of their central nervous system (brain and spinal cord). When someone is suffering from repeated or prolonged episodes of stress, which is certainly the case for many people with vertigo, dizziness and balance issues, the body enters a state of chronic stress. Chemical changes within the central nervous system in response to chronic stress make the body less sensitive to hormones help you feel alert. This leads to feelings of fatigue and dullness.



Emotional Responses and Social Factors

Finally, vestibular disorders take an emotional toll on many people. Since vestibular disorders are often a chronic condition, sufferers often struggle with feelings of guilt or loss when they are not able to perform the same way they did before they started having symptoms. That can be compounded by the reaction of other people. Since vestibular disorders are “invisible,” people with vestibular disorders may perceive that others are judging them for their reduced energy levels or capacity for activities.

STEP 2: CREATE A FORWARD-THINKING MINDSET

Are you living in the past and stuck thinking about what you used to be able to do? You might feel trapped there, which can further drain your energy. Using cognitive-behavioral tools to help you focus on the present instead of the past can be very helpful in helping you manage your fatigue.

Use Empowering Words

One tool that is simple to use is to change the way you talk about your



fatigue- either internally or to others. When we make negative statements, we also reinforce our negative feelings and beliefs. Words that can make a difference in how you approach your fatigue are “yet,” and “when.” Tack “yet” on to statements that you make to yourself and others about your fatigue. For example, “I don’t have the energy to play with my kids/grandkids- yet.” Instead of, “I haven’t found a way to manage my fatigue and I never will,” practice saying, “I haven’t found a way to manage my fatigue yet.” And instead of saying things like, “If I ever have the energy to go dancing,” practice saying, “When I have the energy to go dancing.”

Practice Self Compassion

Think of your kindest and most compassionate friend or family member. Imagine the most empathetic things that he or she would say to you when you’re not feeling well, and write them down. Then, at times when you’re feeling down about your fatigue, read those statements out loud to yourself. It might feel odd at first, but being compassionate to yourself is an evidence-based way of managing many different negative emotions and helping yourself change your mindset.

If you want to learn more about self compassion and learn how to do it, take a look at “The Self Compassion Workbook” by Kristin Neff.

Get Professional Help

Some people will benefit from professional guidance from a mental health professional in learning how to move forward. Research shows that a trained professional with experience in cognitive-behavioral therapy and chronic conditions may help you manage fatigue and other symptoms from your vestibular disorder.

STEP 3: KNOW YOURSELF, KNOW YOUR TRIGGERS

For many people with vestibular disorders, fatigue is an ever-present companion. For others, fatigue only occurs after a vertigo attack. To manage your fatigue successfully, you have to know yourself, what seems to trigger your fatigue, and your energy level patterns. That will enable you to make a plan of action. If you haven’t already, it’s a good idea to keep a diary for a few weeks. While you are journaling, keep track of what your energy levels look like day-to-day. Do your energy levels fluctuate (go up and down)? What can you identify about patterns in your fatigue?

Three Big Categories of Contributors to Fatigue

This list is to get you started thinking about what may be contributing to your experience of fatigue. Some of your triggers or contributors may fall into multiple categories- and that is ok. Once you have logged your fatigue, see if you can identify and make a list of the factors that most likely contribute to your fatigue. You might only have one, or you may have many. There is



no right or wrong list of triggers. But most people find that even if the biggest contributor is the most obvious (e.g. vestibular attacks), they are also affected to a lesser degree by other triggers (e.g. stress and feeling isolated).

1) Lifestyle & Biological Contributors

These are factors that relate to your body's daily physical functions. Examples include:

- Vestibular attacks such as migraines, Meniere's episodes or BPPV
- Inadequate or poor quality sleep
- Dehydration
- Food and/or drink
- Hormonal changes

2) Activity Contributors

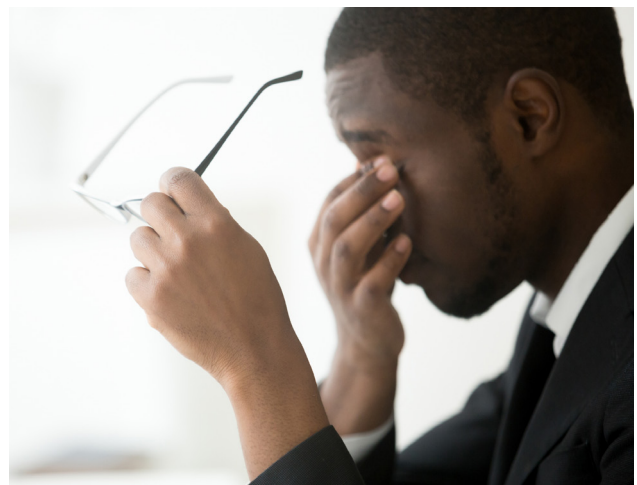
These are factors that relate to what you do throughout your day. Examples include:

- Positional changes, such looking up or down
- Movements, such as bending over, turning your head, lying down in bed or getting up quickly
- Visual, such as being in busy rooms with lots of people, looking at fans or windshield wipers, going to shopping malls, or being in a grocery store aisle
- Activities of daily life, such as working at a computer, taking care of kids or pets, washing dishes, gardening or vacuuming the floor

3) Social-Emotional Contributors

These are factors relating to your mood, level of social activity and level of social support from loved ones, friends, co-workers, bosses, and any other important people in your life. Examples include:

- Stress/anxiety
- Depression
- Feeling isolated or unsupported
- Having to socialize and talk to lots of people
- Having a doctor who tells you your symptoms are all in your head
- Not enjoying your job



STEP 4: IDENTIFY FATIGUE TRIGGERS YOU CAN MODIFY

Looking back at the list of contributors to your fatigue, identify the ones you can eliminate, control or plan around.

Controlling Biological Contributors

In many cases, triggers falling into this category are ones that you can modify with medical management or changes to your lifestyle. Triggering foods or drinks can be reduced or eliminated. Dehydration can be mitigated by drinking more fluids throughout the day. Sleep disturbances can be helped by ensuring you get sunlight in the morning, turning off bright lights and screens an hour or two before bed, and having a set sleep/wake schedule. Hormonal imbalances may be helped by exercise or may need medical management. Which of your biological triggers would you be able to control with simple lifestyle changes and/or with a physician's help?

Controlling Activity Contributors

Of course, you don't want to eliminate positions, movements or activities from your life! That said, if you have several triggers from this category, it's wise to create a strategy for dealing with them. If you know, for example, that several household chores trigger symptoms, you could spread them out throughout the week so you're not putting as much strain on yourself at once. A good vestibular therapist can also work on some of these triggers with you to help reduce your sensitivity to them (see Step 5).

MANAGING STRESS, ANXIETY AND DEPRESSION	
Mindfulness meditation: There are many free meditations available on YouTube, including this dizziness specific body scan: https://youtu.be/_Gz-vBIAn7c	
Self hypnosis: Reveri is a free self hypnosis app developed by Stanford professors and is available on the app store	
Grounding/anchoring: Here is an example from Mayo Clinic: https://www.youtube.com/watch?v=t5LO8JaRszg	
Deep breathing: Here is an exercise I often give dizzy patients here: https://youtu.be/AUoRvDUtC68	
Take a walk outside	
Spend time with a pet	
Do yoga or other exercise	
Talk to a friend	
Garden or just spend time outside	
Read a favorite book	
Listen to music	
Seek medical management if you are having difficulty coping	



Controlling Social/Emotional Contributors

For factors in this category, spend some time finding out your tolerance or capacity for various triggers. Some triggers may be very draining, and others less so, but when they happen at the same time, they might cause a lot of fatigue. For example, having a stressful day at work and having to go to a big social gathering might be more draining than just going to a social gathering. What factors affect how much fatigue you feel in response to your triggers?

In the tables below, you will find some lifestyle suggestions that may help you manage some of these factors.

SOCIALIZING
Be aware of what your other triggers are (visual, noise, etc.) and control those as much as possible
Stand in a wide stance- it is less work for your vestibular system to stand in this position
Find a quieter corner- loud noise/lots of activity are much more stimulating and can lead to faster onset of fatigue
Face the wall, not the crowd, when talking to friends- a bustling room full of activity is harder on your eyes and brain than still objects
Take recharge breaks- find a quiet place to breathe, sit or meditate once you feel symptoms to allow your body to recover
Many people with vestibular disorders find it easier to socialize in small groups and in quieter, less busy environments. For example, it might be easier to enjoy time with friends at a small restaurant versus at a large, busy one.

STEP 5: MANAGE MOVEMENT & VISUAL TRIGGERS

Fatigue and episodes of dizziness sometimes go hand-in-hand; other times, they may not seem related. However, for people with vestibular disorders, certain movements, positions and visual stimuli may be more likely to trigger fatigue. Even when you are not experiencing actual dizziness, vertigo or balance symptoms, your brain often has to work harder just to know where you are in space and keep you stable, as was discussed in Step 1. This is why it is so important to determine if you have movement or visual triggers, and to address them. For many people with vestibular disorders, vestibular rehabilitation therapy is very helpful in teaching your brain to adapt or get less sensitive to those triggers. This may help reduce the effort your brain has to put into stabilizing you, and make you less prone to having fatigue. This is

true even for people with vestibular disorders that cause episodes of severe vertigo, such as Meniere's Disease and vestibular migraine. Many people with such disorders find themselves more prone to fatigue even between episodes because their vestibular systems don't fully recalibrate between episodes. Vestibular rehabilitation therapy can help address such symptoms.

STEP 6: PLAN!

Now you've figured out what your fatigue triggers are, how they relate to each other and how they affect you. You also have some ideas about which ones you can manage, either by yourself or with others' help. The next step is to put everything you've learned into action by creating a weekly plan for managing your fatigue. Create a schedule for yourself in which you plan carefully around triggers. In general, you want to ensure you always have the recovery time you need between triggers. Some lifestyle modifications or stress reduction strategies, like talking a walk, exercising or talking to a friend, should also be scheduled in your plan. Once you've tried it out for a week or two, you can modify it based on what you found. Did you overdo it on one day and end up more fatigued? Did you find you had more capacity than you thought you did?

Another option is to create a "graded exposure" plan. The idea of graded exposure is to slowly increase your tolerance for certain activities systematically over time. In other words, you pick a goal activity and slowly increase the amount of time you spend doing it.

Here's how to do it:

1. Pick ONE goal activity- for example, walking outside daily for 30 minutes.
2. Pick a starting point by writing down how long you can do this activity with your present symptoms. If your symptoms come and go, average together how long you can do this activity on a good day vs. on a bad day.
3. Schedule your activity, even if it's just for a few minutes a day, and stick to your schedule. Over time, your brain and body will become accustomed to the activity.
4. After a week or two of successfully completing the activity, add 2 minutes.
5. Continue doing your activity, slowly adding on time week over week until you reach your goal.

STEP 7: COMMUNICATE WITH OTHERS

There is no way around it- we are social creatures (yes, even you introverts out there!). How others respond to your vestibular disorder and accompanying symptoms can have a profound effect on how well you cope with them. How many of you have been told that your fatigue is "all in your head" or that you need to just push through? These unhelpful (albeit well-meaning) approaches can often raise feelings of guilt, shame or even grief over your capacity for activity. As you now know, those can lead to even more symptoms. Therefore, it is very important that you advocate for yourself in order to receive the social support you need.



One impactful method is to educate those around you about vestibular disorders. You can point them to the Vestibular Disorders Association website, ask them to attend a support meeting with you, or perhaps even share articles that explain how your symptoms affect your life and why. Sometimes, people just don't have the facts, and sharing them might help them relate to you differently.

Another approach is to help others understand how they can be supportive. Oftentimes, those that care about you want to help- they just don't know how. Take a moment to think about someone in your life who did respond in a helpful way to a symptom you've had. If you haven't had anyone respond in a helpful way, you can think, again, of the kindest, most empathetic person you know. Make a list of the helpful responses you've had, or wish you'd had.

Here are a few ideas to get you started:

- Checking in during activities or situations that are difficult for you (“We’re in a noisy restaurant and I know that’s hard for you- how are you doing right now?”)
- Providing grounding through physical touch or kind words
- Taking breaks with you during triggering activities
- Having a signal to let a friend or loved one know when you need a break
- Offering to attend a yoga or other exercise class with you
- Attending a support group with you
- Choosing venues that are more “vestibular friendly” for activities

As you can see, these are much easier to put into action when you know which contributors are most affecting your fatigue! Once you've made your list, have conversations with the key people in your life who can put them into action.

STEP 8: OTHER STRATEGIES

While the gold standard treatments for vestibular disorders and fatigue remain medical treatments, physical therapy and cognitive-behavioral therapy, new research is exploring alternative treatments. Most of this research is in the realm of chronic fatigue and pain management rather than vestibular disorders, but at least some researchers theorize that they work through changing patterns of activation in the nervous system. If this is true, these complementary approaches may be worth exploring.

- Supplements such as magnesium, vitamin B12, vitamin D and NADH have been explored for use in chronic fatigue syndrome. Ask your physician if these or any other supplements may help with your fatigue.
- Mindfulness meditation, mindfulness-based stress reduction and self hypnosis all have evidence supporting their use for managing fatigue, chronic pain and stress.
- Some research suggests that acupuncture may reduce fatigue in patients with cancer and chronic fatigue syndrome. It has also been



shown to reduce pain in some patients with chronic pain.

- Massage and chiropractic care have evidence supporting their use for chronic pain.

CONCLUSION

The steps outlined in this article should help you develop your own fatigue management plan. It will take some work, but take confidence in knowing that you have many tools to help you. While fatigue is a common and distressing symptom that affects many people with vestibular disorders, you can learn to manage your fatigue and improve your quality of life.

Healthy Sleep Habits

By the Vestibular Disorders Association

Getting high-quality sleep, and enough of it, is a useful tool in your vestibular recovery toolbox. When you are well-rested, your body is better prepared to respond to conventional treatment efforts. Sleep deprivation can cause or exacerbate vestibular symptoms. This article gives you tips to help you establish healthy sleep habits.

TAKE SLEEP SERIOUSLY

Developing healthy sleep habits is an important part of overall health. The following tips can help you establish habits for better and more consistent sleep.

STANDARD SLEEP TIME

- Establish a regular bed and rise time every day, even on weekends.
- Allow enough time for sleep so that you wake up refreshed (For adults, 7 - 9 hours is recommended).
- Consider using a smart watch/app that helps to track your sleep, or a diary of your sleep habits.

AVOID

- Caffeinated substances after 2 pm (coffee, tea, soft drinks, chocolate, etc.).
- Alcohol within 3 hours of bedtime.
- Nicotine within a few hours of bedtime.
- A large meal close to bedtime.
- Exercise within a few hours of bedtime.
- Digital devices - Use blue light blockers/glasses for TV, smartphone, computers, or other light producing equipment and do not use electronic devices within one hour of bedtime because it will signal the brain's pineal gland to stop secreting melatonin, a hormone that induces sleep in response to darkness.



- Bed is for Sleeping or Intimate Activities Only
 - Do NOT read, watch TV, use the phone, etc. while in bed.

PREPARE FOR SLEEP ONE HOUR BEFORE BED

- Lower the amount of light around you
- Establish a regular routine. Do quiet activities like listening to music, reading with a yellow light, taking a warm shower/bath, etc. Also consider a cup of chamomile or kava tea, which can provide sedative or relaxation effects.
- Write down a list of your next day activities and leave the paper and your thoughts, planning, worries, etc. in a room outside of your bedroom.

TROUBLE GOING TO SLEEP OR STAYING ASLEEP?

- Consider trying controlled breathing, mindfulness meditation, progressive muscle relaxation, relaxing music, and guided imagery. An app such as Calm or Headspace can help.
- If you awake in the night and cannot go back to sleep within 20 minutes, get up and do a quiet activity (read or listen to something soothing, warm bath), using a softer light, then go back to bed when you get sleepy.
- If you have a problem sleeping through the night, stick to waking up at your usual time regardless of the amount of sleep you had the night before. Then, go to bed at your regular time.
- Consider over-the-counter sleep aids, supplements, or Melatonin. Consult your physician for suggestions.
- Need a new mattress? Determine how old your mattress is and whether a new mattress may be warranted. Also consider replacing your pillow.
- Use ear plugs, dark window shades, or eye covers as needed.
- With chronic insomnia, consider seeking counseling which includes cognitive behavioral therapy.
- Discuss with your physician if any of your current medications may be disrupting your sleep. Ensure that no other medical conditions are affecting your sleep, such as thyroid disorders, mood disorders, hormone imbalances, etc.

PREPARE THE ROOM

- Cooler (66-68 degrees Fahrenheit) is recommended.
- Dark (or, use mask) with no night lights (have a flashlight within reach to use if you get out of bed and to use if the power goes out). However,



some individuals who experience dizziness may consider the use of a night light to help with using vision to orient themselves if they are unsteady.

- Control noises that bother you with earplugs or sound screening device (fan, air conditioner, soft sounds like rain, etc.).
- If you get dizzy when lying flat on your back or with rolling, consider using pillows or a wedge to elevate your head or a large pillow against your side to avoid rolling to the symptomatic side.

HABITS TO HELP DURING THE DAY

- Try to avoid taking a nap. However, if you need to nap, limit it to no more than 20 minutes.
- Get regular physical activity. Yoga is a routine that can also help to reduce stress and anxiety. For more information on recommended exercise, see the physical activity guidelines for Americans on www.health.gov.
- Strive to get 30 minutes of natural light exposure each day (go outside or open windows/blinds in your home).

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References

PERSISTENT POSTURAL-PERCEPTUAL DIZZINESS (PPPD)

1. Staab JP. Chronic Subjective Dizziness. Continuum (Mineapp.Minn.). 2012 Oct; 18(5 Neuro-otology):1118-41.
2. Staab JP, Eckhardt-Henn A, Horii A, Jacob R, Strupp M, Brandt T, Bronstein A. Diagnostic criteria for persistent postural-perceptual dizziness (PPPD): Consensus document of the committee for the Classification of Vestibular Disorders of the Bárány Society. Journal of Vestibular Research. 2017 Jan 1;27(4):191-208.
3. World Health Organization, International Classification of Diseases, ICD-11 beta draft, <http://apps.who.int/classifications/icd11/browse/l-m/en#/http%3a%2f%2fid.who.int%2fclid%2fentity%2f2005792829>
4. Axer H, Finn S, Wassermann A, Guntinas Lichius O, Klingner CM, Witte OW. Multimodal treatment of persistent postural-perceptual dizziness. Brain and behavior. 2020 Dec;10(12):e01864.

PHARMACOLOGIC TREATMENT

1. Neuhauser HK. Epidemiology of vertigo. Curr Opin Neurol. 2007;20(1):40-46.
2. Strupp M, Thurtell MJ, Shaikh AG, et al. Pharmacotherapy of vestibular and ocular motor disorders, including nystagmus. J Neurol. 2011;258(7):1207-1222.
3. Hain TC, Yacovino D. Pharmacologic treatment of persons with dizziness. Neurol Clin. 2005;23(3):831-853, vii.
4. McClure JA, Lycett P, Baskerville JC. Diazepam as an anti-motion sickness drug. J Otolaryngol. 1982;11(4):253-259.
5. Takeda N, Morita M, Hasegawa S, Kubo T, Matsunaga T. Neurochemical mechanisms of motion sickness. Am J Otolaryngol. 1989;10(5):351-359.
6. Kirsten EB, Schoener EP. Action of anticholinergic and related agents on single vestibular neurones. Neuropharmacology. 1973;12(12):1167-1177.
7. Grontved A, Brask T, Kambskard J, Hentzer E. Ginger root against seasickness. A controlled trial on the open sea. Acta Otolaryngol. 1988;105(1-2):45-49.



8. Strupp M, Zingler VC, Arbusow V, et al. Methylprednisolone, valacyclovir, or the combination for vestibular neuritis. *N Engl J Med.* 2004;351(4):354-361.
9. Whitney SL, Rossi MM. Efficacy of vestibular rehabilitation. *Otolaryngol Clin North Am.* 2000;33(3):659-672.
10. Cherchi M, Hain TC. Migraine-associated vertigo. *Otolaryngol Clin North Am.* 2011;44(2):367-375, viii-ix.
11. Equilibrium CoHa. Committee on Hearing and Equilibrium guidelines for the diagnosis and evaluation of therapy in Ménière's disease. *Otolaryngol-HNS.* 1995;113:181-185.
12. Torok N. Old and new in Ménière disease. *Laryngoscope.* 1977;87(11):1870-1877.
13. Ruckenstein MJ, Rutka JA, Hawke M. The treatment of Ménière's disease: Torok revisited. *Laryngoscope.* 1991;101(2):211-218.
14. Smith WK, Sankar V, Pfliegerer AG. A national survey amongst UK otolaryngologists regarding the treatment of Ménière's disease. *J Laryngol Otol.* 2005;119(2):102-105.
15. Strupp M, Hupert D, Frenzel C, et al. Long-term prophylactic treatment of attacks of vertigo in Ménière's disease—comparison of a high with a low dosage of betahistine in an open trial. *Acta Otolaryngol.* 2008;128(5):520-524.
16. Herraiz C, Plaza G, Aparicio JM, et al. Transtympanic steroids for Ménière's disease. *Otol Neurotol.* 2010;31(1):162-167.
17. Driscoll CL, Kasperbauer JL, Facer GW, Harner SG, Beatty CW. Low-dose intratympanic gentamicin and the treatment of Ménière's disease: preliminary results. *Laryngoscope.* 1997;107(1):83-89

VESTIBULAR REHABILITATION THERAPY (VRT)

1. McDonnell MN, Hillier SL. Vestibular rehabilitation for unilateral peripheral vestibular dysfunction. *Cochrane Database of Systematic Reviews* 2015, Issue 1. Art. No.: CD005397. DOI: 10.1002/14651858.CD005397.pub4.
2. Herdman SJ. Vestibular rehabilitation. *Curr Opin Neurol;* 2013;26:96-101.
3. Shepard NT, Telian SA. Programmatic vestibular rehabilitation. *Otolaryngol Head Neck Surg;* 1995; 112(1):173-182.
4. Herdman SJ, Clendaniel RA. eds. *Vestibular Rehabilitation.* 4th ed. Philadelphia: F.A. Davis Co.; 2014.
5. Pavlou M, Lingeswaran A, Davies RA, Gresty MA, Bronstein AM. Simulator based rehabilitation in refractory dizziness. *J Neurol;* 2004;251:983-995.
6. Pavlou M, Quinn C, Murray K, Spyridakou C, Faldon M, Bronstein AM. The effect of repeated visual motion stimuli on visual dependence and postural control in normal



subjects. *Gait & Posture*. 2011; 33:113-118.

7. Horak FB. Postural orientation and equilibrium: what do we need to know about neural control of balance to prevent falls?
8. Bhattacharyya N, Baugh RF, Orvidas L, Barrs D, Bronston LJ, Cass S, Chalian AA, Desmond AL, Earll JM, Fife TD, Fuller DC, Judge JO, Mann NR, Rosenfeld RM, Schuring LT, Steiner RW, Whitney SL, Haidari J. Clinical practice guideline: Benign paroxysmal positional vertigo. *Otolaryngology-Head and Neck Surgery*; 2008; 139: S47-S81.
9. Fife TD, Iversen DJ, Lempert T, Furman JM, Baloh RW, Tusa RJ, Hain TC, Herdman S, Morrow MJ, Gronseth GS. Practice parameter: Therapies for benign paroxysmal positional vertigo (an evidence-based review). Report of the Quality Standards Subcommittee of the American Academy of Neurology. *Neurology*; 2008; 70(22): 2067-2074.
10. Vitkovic J, Winoto A, Rance G, Dowell R, Paine M. Vestibular rehabilitation outcomes in patients with and without vestibular migraine. *J Neurol*; 2013;260:3039-3048.
11. Whitney SL, Wrisley DM, Brown KE, Furman JM. Physical therapy for migraine-related vestibulopathy and vestibular dysfunction with history of migraine. *The Laryngoscope*; 2000;110:1528-1534.
12. Clendaniel RA, Tucci DL. Vestibular rehabilitation strategies in meniere's disease. *Otolaryngol Clin N Am*; 1997; 30(6):1145-1158.
13. Gotshall KR, Topp SG, Hoffer ME. Early vestibular physical therapy rehabilitation for meniere's disease. *Otolaryngol Clin N Am*; 2010;43(5):1113-1119.
14. Krebs DE, Gill-Body KM, Riley PO, Parker SW. Double-blind, placebo-controlled trial of rehabilitation for bilateral vestibular hypofunction: preliminary report. *Otolaryngol Head Neck Surg*; 1993;109:735-741.
15. Herdman SJ, Hall CD, Schubert MC, Das VE, Tusa RJ. Recovery of dynamic visual acuity in bilateral vestibular hypofunction. *Arch Otolaryngol Head Neck Surg*. 2007;133:383-389.
16. Stubbs B, Schofield P, Binnekade T, Patchay S, Sepehry A, Eggefont L. Pain is associated with recurrent falls in community dwelling older adults: evidence from a systematic review and meta-analysis. *Pain Med*; 2014;15:1115-1128.
17. Tinetti ME, Kumar C. The patient who falls—"it's always a trade off". *JAMA*; 2010;303(3):258-266.
18. Johannsson M, Akerlund D, Larsen HC, Andersson G. Randomized controlled trial of vestibular rehabilitation combined with cognitive-behavioral therapy for dizziness in older people. *Otolaryngol Head Neck Surg*; 2001;125:151-156.
19. Staab JP. Chronic Subjective Dizziness. *Continuum Lifelong Learning Neurol*;012;18(5):1118-1141.



DEPERSONALIZATION AND DEREALIZATION (DPDR)

1. Elyoseph, Z., Geisinger, D., Zaltzman, R., Gordon, C. R., & Mintz, M. (2023). How vestibular dysfunction transforms into symptoms of depersonalization and derealization? *Journal of the Neurological Sciences*, 444, 120530. <https://doi.org/10.1016/j.jns.2022.120530>

MANAGING FATIGUE

1. Babu, S., Schutt, C. A., & Bojrab, D. I. (2019). *Diagnosis and Treatment of Vestibular Disorders*. Springer.
2. Beh, S. C. (2020). *Victory Over Vestibular Migraine: The ACTION Plan for Healing & Getting Your Life Back*. Amazon Digital Services LLC - KDP Print US.
3. Brugnoli, M., Pesce, G., Pasin, E., Basile, M., Tamburin, S., & Polati, E. (2018). The role of clinical hypnosis and self-hypnosis to relief pain and anxiety in severe chronic diseases in palliative care: A 2-year longterm follow-up of treatment in a nonrandomized clinical trial. *Annals of Palliative Medicine*, 7, 1003-1003. <https://doi.org/10.21037/apm.2017.10.03>
4. Carlson, L. E., & Garland, S. N. (2005). Impact of mindfulness-based stress reduction (MBSR) on sleep, mood, stress and fatigue symptoms in cancer outpatients. *International Journal of Behavioral Medicine*, 12(4), 278-285. https://doi.org/10.1207/s15327558ijbm1204_9
5. Chen, P.-Y., Liu, Y.-M., & Chen, M.-L. (2017). The Effect of Hypnosis on Anxiety in Patients With Cancer: A Meta-Analysis. *Worldviews on Evidence-Based Nursing*, 14(3), 223-236. <https://doi.org/10.1111/wvn.12215>
6. Chronic fatigue syndrome | Complementary and Alternative Medicine | St. Luke's Hospital. (n.d.). Retrieved September 24, 2021, from <https://www.stlukes-stl.com/health-content/medicine/33/000035.htm>
7. Herdman, S. J., & Clendaniel, R. (2014). *Vestibular Rehabilitation*. F.A. Davis.
8. Kocalevent, R. D., Hinz, A., Brähler, E., & Klapp, B. F. (2011). Determinants of fatigue and stress. *BMC Research Notes*, 4, 238. <https://doi.org/10.1186/1756-0500-4-238>
9. Lehrhaupt, L., & Meibert, P. (2017). *Mindfulness-Based Stress Reduction: The MBSR Program for Enhancing Health and Vitality*. New World Library.
10. Neff, K., & Germer, C. (2018). *The Mindful Self-Compassion Workbook: A Proven Way to Accept Yourself, Build Inner Strength, and Thrive*. Guilford Publications.
11. Vickers, A. J., & Linde, K. (2014). Acupuncture for Chronic Pain. *JAMA*, 311(9), 955-956. <https://doi.org/10.1001/jama.2013.285478>
12. Wyller, V. B., Eriksen, H. R., & Malterud, K. (2009). Can sustained arousal explain the Chronic Fatigue Syndrome? *Behavioral and Brain Functions*, 5(1), 10. <https://doi.org/10.1186/1744-9081-5-10>



13. Zhang, Q., Gong, J., Dong, H., Xu, S., Wang, W., & Huang, G. (2019). Acupuncture for chronic fatigue syndrome: A systematic review and meta-analysis. *Acupuncture in Medicine*, 37(4), 211-222. <https://doi.org/10.1136/acupmed-2017-011582>
14. Zhang, Y., Lin, L., Li, H., Hu, Y., & Tian, L. (2018). Effects of acupuncture on cancer-related fatigue: A meta-analysis. *Supportive Care in Cancer*, 26(2), 415-425. <https://doi.org/10.1007/s00520-017-3955-6>

HEALTHY SLEEP HABITS

1. Katzenberger B, Brosch F, Besnard S, Grill E. Chronic Vestibular Hypofunction Is Associated with Impaired Sleep: Results from the DizzyReg Patient Registry. *Journal of Clinical Medicine*. 2023; 12(18):5903. <https://doi.org/10.3390/jcm12185903>

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