

Dizziness and balance problems



Brain & Spine
Foundation

A guide for patients and carers

The Brain and Spine Foundation provides support and information on all aspects of neurological conditions. Our publications are designed as guides for people affected by brain and spine conditions - patients, their families and carers. We aim to reduce uncertainty and anxiety by providing clear, concise, accurate and helpful information, and by answering the common questions that people ask. Any medical information is evidence-based and accounts for current best practice guidelines and standards of care.

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Introduction

This booklet provides information on dizziness and balance problems: the symptoms of dizziness, how the balance system works, the tests you might need, the conditions that can cause dizziness and balance problems, and the treatments that might help. Sources of further support and information are listed in the Useful Contacts section. References are available on request.

Common questions

What is dizziness?

“Dizziness” is a general term to explain the feeling we have when there is something wrong with our sense of balance. Many people who experience dizziness find it difficult to explain exactly how it makes them feel. For example, some people who feel dizzy, light-headed, giddy or off-balance describe the feeling as if they, or their surroundings, are spinning around. Doctors use the term vertigo (see below) to describe this spinning, revolving form of dizziness. Other people describe the feeling as if they were walking on a mattress or walking on a soft surface like cotton wool. Some people describe it as similar to being tipsy or drunk. Others describe feeling “wobbly”, as if they were on a merry-go-round or on a boat on choppy water.

What is Vertigo?

Vertigo is a specific type of dizziness. It is the medical term for the form of dizziness that involves a person having a strong sense that they, or their surroundings, are moving when they are standing still. The sense of movement has a spinning, swaying or revolving nature to it. Less commonly, people might feel as if they are being pushed forward or as if they are falling. Vertigo is not a fear of heights. However, some people might experience the symptoms of vertigo when looking down from a great height. Other symptoms that may come alongside vertigo are feeling sick or being sick, dizziness and loss of balance.

Is dizziness a disease?

No. Dizziness and vertigo are not diseases in themselves. They are symptoms of a distinct condition or cause. There are many different conditions that can cause dizziness. In the same way, a cough is a symptom of many different possible conditions or causes. It might not always be possible to diagnose a specific cause of dizziness.

Is dizziness the sign of something serious?

Usually not. Dizziness and balance problems are quite common and something that many people will experience, especially as they get older. Fortunately, dizziness is rarely the symptom of a serious or life-threatening condition.

What is the most common cause of dizziness?

Most cases of dizziness and vertigo are caused by problems with the balance systems located in the inner ear (the labyrinth; see page 6). The widely-held belief that our sense of balance comes from the inner ear is largely true.

Who should I see if I am worried about dizziness?

You should see your GP in the first instance. He or she can refer you to hospital specialists, if necessary.

What can I do to ease dizziness in the short term?

Dizziness can often be short-lived, and can ease on its own accord. For short term dizziness, these self-care tips may help:

- Move slowly - when standing up from lying down, or from a seated position, take the movement gradually.

- Keep hydrated - drinking plenty of water can help prevent and relieve dizziness.
- Avoid caffeine and tobacco – these stimulants can make the dizziness worse.
- When out and about, avoid crowded spaces with lots of people moving about.
- Feelings of unsteadiness can often be resolved by looking at a fixed object in your near environment.

When to contact your doctor or the emergency services (red flag symptoms)

You should call your doctor or the emergency services if your dizziness is accompanied by any of the following:

- A new, different or severe headache
- Falling or trouble walking
- Fainting or collapsing
- Vertigo
- Chest pain
- Hearing loss
- Behavioural changes
- Facial numbness, slurred speech or double vision

If you have dizziness or balance problems after a recent head trauma, you are also advised to contact your doctor or the emergency services.

The balance system

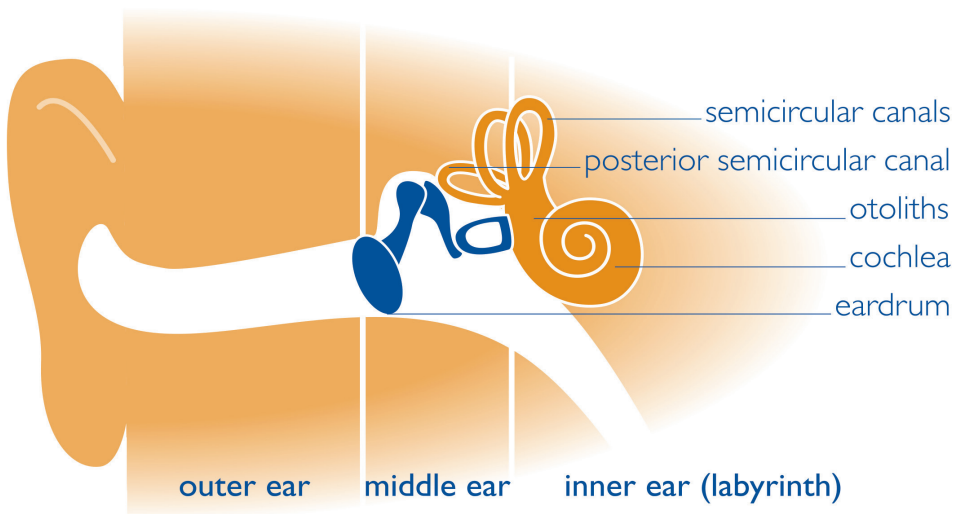
How does our balance system work?

The ear has three main parts: the external or outer ear (the visible part on the outside), the middle ear (the main function of which is to transmit sound from the outer to the inner ear), and the inner ear (the labyrinth). The balance system is a complex system of nerves, small tubes called semicircular canals, and fluid inside the labyrinth. It includes parts of the brain and other components.

The labyrinth

The labyrinth is located deep inside some of the hardest bones in the skull. It is divided into the cochlea (the organ responsible for hearing) and the vestibular organs (responsible for balance). Because of the close link between the hearing and balance systems, your GP will ask you about your hearing when investigating your dizziness and balance problems.

The structure of the ear



The vestibular (balance) systems inform your brain about the movements and position of your head. There are three sets of tubes (semicircular canals) in each vestibular system and these detect when you move your head. There are also two structures called the “otoliths” which inform your brain when your head is moving in a straight line and indicate the position of your head in respect of the pull of gravity.

Dizziness or vertigo occurs when the right and left balance systems do not work together in symmetry and your brain thinks your head is moving when it is not. This is why many forms of dizziness are triggered or made worse by moving your head.

The labyrinth: the inner ear, containing the organs responsible for hearing and balance.

Vision and other parts of the balance system

Maintaining balance is a complex function and, although the ear is a very important component in the balance system, other factors play a role. To have a good sense of balance we need to be able to see where we are and be aware of the position of certain key parts of our body in relation to other parts of the body, and in relation to the world around us. For example, your brain needs to know how your feet and legs are positioned in relation to your chest and shoulders. This information is conveyed to your brain by movement and position detectors located in your muscles, tendons and joints, particularly in the neck, ankles, legs and hips. Good binocular vision is the most important system in maintaining balance.

The balance system

A crucial aspect of a good balance system is that your brain can control your balance by using the most reliable information it receives for any given moment or situation. For instance, in the dark, when the information conveyed by your eyes is reduced or unreliable, your brain will use more information from your legs and feet and your inner ear. Alternatively, if you are walking in daylight on a sandy beach, the information coming from your legs and feet will be less reliable and your brain will rely more on your vision and vestibular systems.

We almost never have to rely solely on the information provided by the balance organs of the ear. Many people retain a good sense of balance despite inner ear problems due to the complementary support provided by the eyes, and movement and position detectors in our joints and muscles. This is why even people who have lost the function of both inner ears do not entirely lose their sense of balance.

The main parts of the balance system:

- Vestibular systems in the inner ear
- Vision (our eyes)
- Movement and position detectors in our joints and muscles

Other symptoms

What other symptoms might I have?

If your dizziness is caused by inner ear problems you might also experience problems with your hearing. This is because the balance and hearing systems are close together in the inner ear. If you do have hearing problems, they are likely to be either tinnitus (a ringing or buzzing noise in one or both ears) or varying degrees of hearing loss.



Some people experience clumsiness or unsteadiness because of physical problems like numbness or weakness in their legs. Other possible symptoms are double vision, numbness in your face, and problems with your speech. These might be signs that there are problems with the nerves in your face or head. These symptoms should be investigated by your doctor.

If you have had repetitive ear infections with discharge from your ear, your dizziness could be due to the balance systems in your inner ear being affected by a previous or current infection.

Tests and investigations

What questions might my doctor ask?

As well as asking you about your symptoms, your doctor will ask you about the circumstances of your dizziness to find out how long it lasts, whether it started spontaneously, whether it appears to be related to the movement or position of your head, whether it came out of the blue, or whether it first started after you had a bad cold or influenza (the 'flu).

You should try to answer your doctor's questions as accurately as possible.

Your GP might treat you with medication before referring you to a specialist.

What tests might I have?

GPs refer people with dizziness and balance problems to many different hospital specialists. You might be referred to see a neurologist (a doctor who specialises in the diagnosis and treatment of people with brain and spine conditions) or an otologist (a doctor who specialises in the diagnosis and treatment of people with problems relating to the ear). The otologist might be an audiovestibular specialist or an ear, nose and throat specialist (an ENT surgeon). Some GPs refer people directly to physiotherapists.

In some specialised hospital departments, or dizziness clinics, you might see more than one of these specialists. The tests you have will vary slightly according to your particular symptoms and the type of specialist you see.

CT or MRI scan

You might have a scan of your ear or ears, or a scan of your brain. It is most likely to be a CT (Computerised Tomography) scan or an MRI (Magnetic Resonance Imaging) scan.

The scan is to check for any cysts, abnormal growths, inflammation, or problems with the blood supply to your brain that might be causing your dizziness. (You might be interested in reading our fact sheet with information on 'brain scans' for further details.)



Hearing tests

You might have your hearing tested. This could involve you having a series of different hearing tests. Some of them might involve you saying when you can hear certain tones and others involve you having your hearing system assessed directly by electrical wires. The wires are connected to small pads that are gently attached to your head.

Special balance tests

The Hallpike test (positional test)

The Hallpike or positional test is the key test that most people with dizziness and balance problems will have. It is a clinical test carried out by the specialist during your examination.

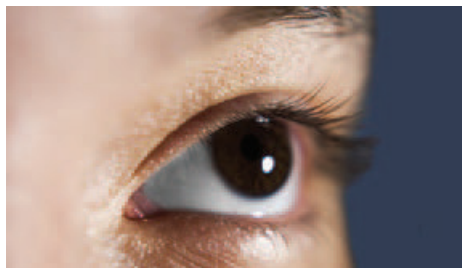
The Hallpike test will establish whether your dizziness is triggered or made worse by particular movements of your head. Sitting on a couch or bed, you will be asked to lie down very quickly with your head turned to one side, then the other.

Tests and investigations

The manoeuvre can bring on certain forms of dizziness but they will be temporary and should not last more than a minute. The procedure will not make your dizziness problem worse.

It is crucial that you keep your eyes open during the test because the doctor will establish from your eye movements during and immediately after the test what form of dizziness you have. Certain conditions like benign paroxysmal positional vertigo (BPPV; see page 18) can only be diagnosed by performing the Hallpike test and effective treatment can only be prescribed after an accurate diagnosis.

Electronystagmography (ENG)



Electronystagmography (ENG) is one of the more common balance tests and records your eye movements. It can be carried out using video goggles or with electrical wires connected to small pads that are gently attached to the skin surrounding your eyes.

An ENG test is performed because the balance systems in the inner ear control the movement of our eyes very precisely and a problem with the balance centres in the ear or brain can cause abnormalities in our eye movement.

Caloric test

The caloric test involves you having a small amount of cool or warm water trickled into your ears to modify the temperature of the balance organs in your inner ear. A small amount of pressurised air might be used instead of water. This test temporarily creates a small difference

between the balance systems in the left and right sides of your head respectively. It can make you feel dizzy for a few minutes but will help diagnose problems with the balance mechanism in the ear.

Tympanometry

For this test, a soft tip is placed in your ear canal. You will hear a low tone for a short while, and feel a slight pressure. The movement of your eardrum is monitored and plotted on a chart. This will show the audiologist if you have any congestion behind your eardrum.

The roll test

This test consists of turning your head from side to side quickly, whilst laid down. Once you have turned your head, your eyes will be looked at by the audiologists. This test is used for suspected Benign Paroxysmal Positional Vertigo (BPPV).

Vestibular evoked myogenic potential (VEMP)

This is a test of the saccule, a part of the balance organ, which is responsible for detecting 'up and down' movements of the head. You will be asked to lie down, and have earphones placed in your ears, where you will then hear loud sound for about 45 seconds. During this time, you will be asked to raise your head from the bed and hold it there. If this is too difficult, you may be able to do the test sitting up instead, whilst turning your head to one side.

Causes of dizziness

What conditions and diseases can cause dizziness?

Many different conditions can cause dizziness or sensations of being off-balance, for example, certain heart conditions, or blood disorders like anaemia. However, if you have been referred to a neurologist or an otologist, general conditions like these will usually have already been ruled out.

Dizziness is also the unwanted side effect of many different medications. You should discuss any concerns you have about medication with your GP or pharmacist.

Travelling by road, rail, air or sea can cause motion or travel sickness. The common symptoms are dizziness, nausea (feeling sick) and vomiting (being sick).

Stress or anxiety

Being stressed, anxious, tense or irritable can also provoke dizziness or a sense of imbalance. This can lead to a vicious circle effect as feeling dizzy in itself can lead to feeling stressed, anxious or depressed.

Meditation has been known to help with anxiety and stress, as well as talking to a psychologist or having CBT therapy. Prioritising your own relaxation time can also relieve signs of stress. Things such as exercising, taking a walk in nature, having a relaxing bath, or listening to a calming piece of music, may help to relax you. Some people also find aromatherapy helps them relax – lavender is a popular fragrance, although this might make you sleepy. It is important to note that different people find different activities relaxing, so do what best suits you.

Low blood sugar level (hypoglycaemia)

Low blood sugar (glucose) levels can lead to dizziness – this is because your body doesn't have the energy it needs to function properly. This is most common in people with diabetes. If someone with diabetes misses a meal, exerts themselves too much, or takes too much insulin, this may lead to low blood sugar.

Symptoms of low blood sugar are feeling hungry, trembling or feeling 'shaky', and sweating. In severe cases you may lose consciousness. To treat low blood sugar levels, you should eat or drink something sugary, for example some sweets or a glass of fruit juice.

Dehydration or heat exhaustion

When your body does not have as much fluid as it needs, this disturbs the balance of salts and sugars, which then affects the way it functions. Symptoms of dehydration are feeling thirsty, lightheaded (dizzy), passing dark coloured strong-smelling urine, and passing urine less frequently than normal.

If you are dehydrated, you should drink plenty of fluids, but try to avoid caffeine or fizzy drinks. Sipping small amounts regularly may be best if you are suffering from a stomach upset at the same time.

Heat exhaustion occurs when there is low blood pressure and blood volume. This can occur after being exposed to heat for a long time. Symptoms include nausea, feeling faint and sweating heavily.

If someone is suffering from heat exhaustion they should be taken to a cool place with any unnecessary clothing removed, and provided water to drink. They should feel better within approximately 30 minutes.

Postural hypotension (low blood pressure)

People with low blood pressure can be affected with dizziness after changing positions, such as standing up. This is more common in older people.

Low blood pressure occurs when the blood pressure in your arteries is unusually low. If your blood pressure drops too low, not enough blood can reach your brain and this may lead to dizziness or light-headedness, or fainting.

Some symptoms of low blood pressure are dizziness, loss of balance, fainting, blurred vision, a rapid or irregular heartbeat, confusion, nausea, and general weakness.

Low blood pressure only needs to be treated if it is showing symptoms. Very few people are given medication to treat low blood pressure. Instead, life style changes can relieve symptoms. These include; standing up slowly, avoiding standing for long periods, wearing support stockings, limiting intake of alcohol, avoiding caffeine in the evening and eating smaller, more regular meals as opposed to large meals.

Vestibular neuritis (labyrinthitis)

Vestibular neuritis is a viral infection of the inner ear (it is sometimes called labyrinthitis or viral labyrinthitis). Some specialists think that the problem is specifically with the nerve cells or neurons in the inner ear. Infections of the ear are usually viral and less commonly bacterial. Symptoms include a sudden onset of dizziness with a spinning sensation (vertigo), accompanied by nausea (feeling sick) and general unsteadiness. You may also experience problems with vision, hearing and

concentration. These symptoms often develop a few days or weeks after a bad cold or influenza (the 'flu).

The initial dizziness caused by vestibular neuritis can be intense and very distressing. For the small number of people who experience prolonged or recurrent symptoms, the dizziness is not usually as intense but might be enough of a nuisance to affect their everyday lives.

Depression, panic attacks, anxiety and derealisation (where your sense of reality seems 'unreal' or distorted) are also relatively common side effects of the disorder. If you are struggling with these issues, then your GP may refer you for counselling. CBT is known to help, as well as relaxation techniques and meditation. For further information, see our 'Useful Contacts' section on page 40.

People with vestibular neuritis often prefer to stay in bed because any movement makes the dizziness worse. You may find working difficult due a persistent feeling of 'haziness' or disorientation. The symptoms might last for just a few days but, in some cases, can persist for several weeks. Some people remain a little unsteady afterwards but most make a full recovery. Only a minority of people with vestibular neuritis will experience persistent, troublesome dizziness or suffer recurrences of the condition. Recurrences might be spontaneous or associated with further colds or bouts of influenza. Vestibular neuritis does not cause hearing problems. If the symptoms do not resolve completely and are still troublesome then you may be referred to an expert physiotherapist for vestibular rehabilitation.

Causes of dizziness

The main treatment for vestibular neuritis, in its initial stage, is anti-vertigo drugs. These are the same type of drugs as those used to treat motion or travel sickness.

Less common is ‘Suppurative Labyrinthitis’. This is caused by bacterial organisms infecting the labyrinth. The infection originates either in the middle ear or in the cerebrospinal fluid, as a result of bacterial meningitis.

Benign paroxysmal positional vertigo (BPPV)

People with Benign Paroxysmal Positional Vertigo (BPPV) experience intense bouts of dizziness with a revolving or spinning sensation. The dizziness is very short-lived, usually only lasting a minute or less, and is brought on by particular head movements. For example, movements like turning over in bed, or looking up to place a book on a shelf.

Most people with this form of dizziness know exactly what sort of movements trigger their symptoms and can try to avoid them.

Specialists have established that the cause of BPPV is the build-up of certain particles, or crystals, within one of the tubes in the balance system called the posterior semicircular canal (see diagram, page 6).

BPPV can be diagnosed by the Hallpike test (see page 11). Due to the intricate connections between the balance system of the inner ear and the eye muscles, at its worst, BPPV causes a specific nystagmus (jerking movements of the eye) unique to the condition.

Recent developments in treatments have focused on clearing out the particles trapped in the posterior semicircular canal. These treatments include the Canalith repositioning procedures (CRP; see page 31), or particle repositioning procedures. These effective, non-invasive

treatments can be performed in your doctor's or physiotherapist's room and do not require the use of any specialised instruments. They are usually performed by a specialist rather than your GP who might not be familiar with them. After successful treatment with these procedures, it is quite common to suffer dizziness for up to three months afterwards.

Migrainous vertigo

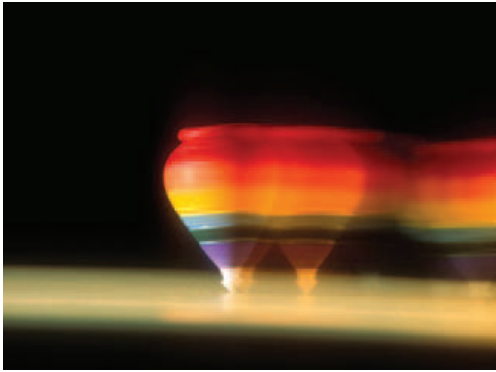
People diagnosed with migrainous vertigo (or migraine-associated vertigo) experience vertigo as a symptom of migraine. Vertigo might be the main or only symptom of their migraine.

The most common symptoms of migraine are an intense headache, nausea (feeling sick) and vomiting (being sick). You may also have visual problems, speech problems, stiffness in your neck, and an increased sensitivity to light or noise.

Avoiding trigger factors can be an effective way of preventing migraines. These include stress, tiredness and loss of sleep, certain food and drink (for example, chocolate, cheese or alcohol), hormonal changes, weather changes (barometric-pressure variations) and smoking or smoky environments. Certain medications may also trigger migrainous vertigo. There are various medications used to treat migraines, including general pain-relief drugs like aspirin and paracetamol, anti-inflammatory drugs like ibuprofen, anti-sickness medication, and special migraine pain-relief medication only available on prescription. Your GP or pharmacist will advise you of the options.

Sometimes, migraine preventative medications are prescribed which are taken daily for a period of time to try and prevent the attacks. These can include low dose anti-depressant medication, beta blockers and anti-epileptic medication. Your GP can advise you of these. Always talk to your GP before starting any medication.

Ménière's disease



People with Ménière's disease experience repeated attacks of intense dizziness with a spinning sensation. Each attack typically lasts for two to three hours, but can last up to 24 hours and often involves the affected person vomiting (being sick). This disease most commonly affects those aged

20-60 and is thought to be slightly more common in women than men.

It is common to experience noticeable changes in your hearing either before or during the vertigo attacks, including tinnitus and a loss of hearing. You may also experience sensitivity to sound or distorted sound. Commonly, you may also feel a tenderness or pressure in one of your ears immediately before or during the attacks. In the initial stages of the condition, you might maintain good balance and not experience any dizziness between attacks, but you are likely to experience varying degrees of hearing loss. This hearing loss usually fluctuates at first and improves after each dizziness attack. However, there is a tendency for hearing loss to get worse over time and it can become permanent. Less frequently, you may have symptoms in both ears.

It is important to note that the symptoms and severity of this condition can vary greatly for each person. For example, some people may experience hearing loss with regular attacks of vertigo, whereas others may experience slight vertigo with severe tinnitus.

Usually, there is no warning sign that a dizziness attack is going to happen. People are often anxious about having an attack in public places because they are concerned that on-lookers will think they are drunk. The symptoms of an attack (being sick and losing balance) can be mistaken for drunkenness.

Specialists have not established the specific cause of Ménière's disease but each attack results from a build-up of pressure in the inner ear (a condition called endolymphatic hydrops). A family history of Ménière's disease may increase your risk of developing the condition, as well as a chemical imbalance in the fluid in your inner ear.

Current treatments can help control symptoms, but cannot not cure the condition. The main treatment for this condition is a strict low-salt diet and diuretic medication ("water tablets") the combination of which helps to get rid of excess salt and fluid in the body and reduces the risk of a build-up of salt, fluid and pressure in the ear. This treatment can help reduce the frequency and intensity of each vertigo attack but, unfortunately, will not necessarily slow down the progression of the deafness. Balance training may also be used as a treatment, as well as relaxation techniques. In more severe cases, surgery may be required.

Anti-vertigo drugs might help some people if they are taken as soon as the first symptoms of Ménière's disease develop. Some anti-vertigo drugs can be effective in reducing the intensity of vertigo attacks.

Labyrinthine sedatives are useful if they are taken as soon as the first symptoms of Ménière's disease develop. Several versions of these drugs can be absorbed from inside the mouth or as suppositories. They are very useful during the acute phase but have no role in the long term management and do not prevent the recurrent attacks.

Some labyrinthine vasodilators such as Serc (betahistidine) taken over a prolonged period help reduce the frequency of the attacks in many patients, but they have no benefit during the acute phase.

Some also find that the condition affects their mental health and can lead to feelings of anxiety and depression. Your GP can offer advice if you are struggling in this area. There are also a number of support groups available. For information on support for this condition, as well as mental health related conditions, please see our 'Useful Contacts' section on page 40.

Vascular vertigo

The term vascular is used to describe conditions related to the blood vessels and caused by a reduced supply of blood reaching a particular part of the body. In the case of dizziness, the areas receiving a reduced blood supply are the labyrinth (inner ear) and the lowermost part of the brain containing the balance centres. The labyrinth's and the brain's balance centres are supplied by the same blood vessels, so vascular dizziness can be caused by a combination of peripheral (inner ear) or central (brain) dysfunction. The symptoms can include hearing loss, visual problems (double vision, blurred vision or problems with peripheral vision), and numbness in the face or limbs.

If you suffer from vascular vertigo, it is common to have other symptoms besides dizziness. Dizziness on its own rarely has a vascular cause. Vascular causes are more likely in older people. Their symptoms are usually an indication of general vascular disease and relate to risk factors like high blood pressure, smoking, high cholesterol, diabetes, or a family history of vascular disease (high blood pressure, heart attacks, and strokes). For these people, treatment is aimed at reducing the vascular

risks and most doctors will prescribe a small dose of aspirin a day to thin the blood as long as there are no reasons for someone to avoid taking it (for example, other medication, indigestion or other stomach problems).

Post-traumatic vertigo

Post-traumatic vertigo is diagnosed if you have dizziness after trauma (injury) to the head. Dizziness can occur after only minor head injuries. The actual cause of the dizziness can be a combination of inner ear or brain disorders.

Of course, after an accident involving a head injury, you may also have injuries to other parts of your body (for example, broken limbs). And, as a result of a head injury you may have health concerns more serious than dizziness problems.

Dizziness and balance problems might not become apparent until you were well enough to be up and about again. This might be some time after the accident.

Visual vertigo

Some people find that certain visual surroundings can trigger dizziness, or make existing dizziness and balance problems worse. For example, you may feel disorientated and dizzy in supermarkets when surrounded by tall stacked shelves, or in crowded train stations when surrounded by people. Or you may find that the sight of fast-moving or spinning objects can cause dizziness or make your dizziness worse. You might experience dizziness in a car when you see fast-moving scenery out of the window, or when you see fast-paced action on a TV or cinema screen.

You might also experience dizziness when you are adjusting to new prescription glasses or contact lenses.

Causes of dizziness

Visual vertigo can also occur if you are experiencing problems like reduced or blurred vision. You should speak with your GP, optician or specialist if you experience problems with your vision.

Peripheral vestibular disorders



In many cases, doctors are not able to diagnose an underlying condition or disease, they are only able to diagnose that the cause of someone's dizziness is related to the inner ear rather than the brain (a peripheral vestibular disorder).

Strictly speaking, vestibular neuritis, BPPV and Ménière's disease are all peripheral vestibular diseases, but some people experience dizziness caused by a condition that cannot be categorised into any of these well-defined groups.

For some people, abnormalities might show up in the specialised balance tests but, for others, even these special tests might not show anything. People might experience ever-present minor symptoms, or recurrent episodes of vertigo triggered by certain factors like head movements, tiredness, stress, menstrual periods, or viral infections.

You should not worry if your doctor is unable to diagnose a specific cause of your dizziness and balance problems. The majority of people in this situation experience improvements and recoveries over the long-term. Recovery can be helped by rehabilitation procedures (see page 26).

Central neurological disorders

A minority of people with dizziness and balance problems have a neurological condition. The part of the brain that organises balance is the lowermost part and includes the brain stem and the cerebellum. This part of the brain is also responsible for movement, posture and speech, so these might also be affected. It is unlikely that dizziness will be the only symptom you experience if you have a neurological condition.

Strokes, demyelinating diseases of the nervous system (for example, multiple sclerosis), inflammation, or tumours can cause dizziness and balance problems. Other less common causes are bony deformities at the back of the head and the top of the spine.

These neurological causes can be identified by brain scans and a neurological examination. Your specialist will advise you.

Possible treatments

Many causes of dizziness, like vestibular neuritis, BPPV, post-traumatic and non-specific peripheral vestibular disorders, tend to recover on their own. However, if you have been referred to a specialist it is likely that your dizziness is not clearing up of its own accord and you will need some form of treatment.

There are various possible treatments for dizziness and balance problems. Your specialist will assess which treatment might be suitable for you.

Vestibular rehabilitation

The key treatment for almost all of the conditions that can cause dizziness is vestibular rehabilitation.

The aim of vestibular rehabilitation is to help the development of vestibular compensation.

Vestibular compensation is a process that allows the brain to regain balance control and minimise dizziness symptoms when there is damage to, or an imbalance between, the right and left vestibular organs in the inner ear. Essentially, the brain copes with the disorientating signals coming from the inner ears by learning to rely more on the alternative signals coming from the eyes, ankles, legs and neck to maintain balance. Vestibular compensation can be successfully achieved even when the damage to the inner ear is permanent.

The key way to assist the development of vestibular compensation is by doing vestibular rehabilitation exercises. These exercises involve movements of the eyes, the head, the upper body, and then the whole body under different visual situations (for example, with the eyes open or closed, or looking at steady objects or a moving ball), on different surfaces and in different environments. A key factor is that the brain must sense the presence of dizziness or imbalance to begin the process of vestibular compensation. If, for example, you are regularly taking anti-vertigo drugs or lying still in bed, you might not experience dizziness. When the brain does not sense any dizziness or imbalance it does not realise something is wrong and consequently will not begin the process of vestibular compensation. For this reason, it might be that the physiotherapist or other specialist overseeing your rehabilitation asks you to reduce and eventually stop taking your anti-vertigo medication. This will be done in consultation with your GP.

As you progress in your rehabilitation programme to the more difficult vestibular exercises, you might experience dizziness when you perform them. This should not be seen as a setback or a reason to stop. It just means that an imbalance between your left and right vestibular systems still exists and the exercises you are doing will help your brain detect the imbalance so it can gradually begin to put it right. However, you should not go to the extreme of trying to induce dizziness by moving or exercising to the extent that you are sick or become exhausted.

Please note that you should not attempt any of these exercises without first seeing a specialist or physiotherapist for a comprehensive assessment, advice and guidance. Your GP can refer you.

Some of these exercises will not be suitable for everyone, and some are only suitable for certain conditions.

Cawthorne-Cooksey Exercises

The aims of the Cawthorne-Cooksey exercises include relaxing the neck and shoulder muscles, training the eyes to move independently of the head, practising good balance in everyday situations, practising the head movements that cause dizziness (to help the development of vestibular compensation), improving general co-ordination, and encouraging natural unprompted movement.

You should be assessed for an individual exercise programme to ensure you are doing the appropriate exercises. You could ask if it is possible for a friend or relative to accompany you at the assessment. It can be helpful if someone else learns the exercises and helps you with them.

You will be given guidance on how many repetitions of each exercise to do and when to progress to the next set of exercises. As a general rule, you should build up gradually from one set of exercises to the next. You might find that your dizziness problems get worse for a few days after you start the exercises, but you should persevere with them.

In order to pace your exercises so you do not move onto exercises that are too difficult before you are ready, you may also like to utilise a 'number rating scale'. For example, '0' through to '5', for severity of your symptoms – '0' being no symptoms and '5' being severe symptoms. You would then only move on to the next exercise once your current exercise evokes a '0' on the scale, for three days in a row.

Please be aware that it may take a few days for you to get used to the exercises. It may be advised not to undertake exercises that you would rate a '3-5' on the scale.

Make sure that you are in a safe environment before you start any of the exercises to reduce the risk of injury. It is also important to note that you may experience dizziness whilst doing these exercises and this is completely normal.

The exercises might include the following:

1. In bed or sitting:

- A. Eye movements (move eyes slowly at first, then quickly)
 - Up and down
 - From side to side
- B. Head movements (move head slowly at first, then quickly; with eyes open, then closed)
 - Bending forwards and backwards
 - Turning from side to side

2. Sitting:

- A. Eye and head movements, as in 1
- B. Shrug and circle shoulders
- C. Bend forward and pick up objects from the ground
- D. Bend side to side and pick up objects from the ground

3. Standing:

- A. Eye, head and shoulder movements, as in 1 and 2
- B. Change from a sitting to a standing position with eyes open, then closed (please note this is **not** advised for the elderly with postural hypertension)
- C. Throw a ball from hand to hand above eye level
- D. Throw a ball from hand to hand under the knees
- E. Change from a sitting to a standing position, turning around in between

4. Moving about:

- A. Walk across the room with eyes open
- B. Walk up and down a slope with eyes open
- C. Walk up and down steps with eyes open
- D. Throw and catch a ball
- E. Any game involving stooping, stretching and aiming (for example, bowling or bowls)

Gaze stabilization exercises

The aim of gaze stabilization exercises are to improve vision and the ability to focus on a stationary object while the head is moving. Your therapist should assess you and say which exercises are suitable for you.

1. Look straight ahead and focus on a letter (for example, an E) held at eye level in front of you.
2. Move your head from side to side, staying focussed on the target letter. Build up the speed of your head movement. It is crucial that the letter stays in focus. If you get too dizzy, slow down.
3. Try to continue for up to one minute (the brain needs this time in order to adapt). Build up gradually to repeat three to five times a day.

You can also do this exercise with an up and down (nodding) movement.

Progressions with this exercise can include placing the target letter on a busy background and changing the position of your feet. You should start the exercise whilst seated and then move on to standing with an altered feet position. The 'number rating scale' method may be useful for this exercise.

Canalith (or otolith) repositioning procedures (CRP)

The aim of Canalith repositioning procedures (CRP) is to treat people with Benign Paroxysmal Positional Vertigo (BPPV) by moving particles or otoliths trapped in the posterior semicircular canals in the inner ear (labyrinth) causing dizziness.

CRP involves a series of head and upper body movements performed by a trained specialist health professional.

The two main CRP treatments are the Epley manoeuvre and the Semont (Semont-Liberatory) manoeuvre. It is important that these manoeuvres are only performed by a trained specialist to prevent the risk of neck and back injuries.

Many cases of BPPV have their origin in the articular receptors of the cervical spine. Such cases do not respond well to CRP and are better managed by the Brandt-Daroff exercises which activate the cervical-vestibular connections and promote compensation.

Brandt-Daroff exercises

Brandt-Daroff exercises are a treatment for BPPV that can be performed at home without the supervision of a specialist. These exercises are habituation exercises and not a CRP as the exercises do not reposition the particles, but disperse them and help you to habituate to the vertigo symptoms with repeated head movements.

1. Sit on the edge of the bed and turn your head 45 degrees to one side.
2. Quickly lie down on your opposite side (that is, to the left if you turned your head to the right, and vice versa) so that the back of your head behind your ear touches the bed.

Possible treatments

3. Hold this position for about 30 seconds, or until the dizziness symptoms stop.
4. Return to the sitting position.

Repeat on the on the other side, alternating until you have completed six repetitions on each side.

Medication

There are various anti-vertigo drugs available that can make you feel better during the initial or severe phases of dizziness. These are the same type of drugs as those used to treat motion or travel sickness. These drugs are usually prescribed for 3-14



days, depending on which condition they are treating. Some anti-vertigo drugs should only be taken for the first few days of an attack of dizziness. This is because long-term improvement depends on vestibular compensation (see page 26), not tablets. It might be that you are prescribed tranquilizers to reduce anxiety. Again, it is usually best to use these only for the first few days of an attack of dizziness as the possible benefits are often outweighed by the risks of addiction and interference with the development of vestibular compensation. Always discuss with your GP which medication is best for you.

If you have been diagnosed with dizziness and balance problems caused by migraine, your GP or specialist might advise you to take certain medication to treat the symptoms of migraine (see migrainous vertigo, page 19).

The first step in treating most cases of vertigo is to control and relieve the symptoms. This is achieved by taking anti-vertigo drugs for symptomatic relief. These drugs are known as labyrinthine sedatives and include many of over-the-counter drugs prescribed for travel sickness.

They need to be taken in the dose sufficient to relieve the symptoms and in the initial period these high doses may cause general sedation. Consequently, the patient needs to rest and should not drive either a car or machinery. Many patients benefit from bed rest during this period and some prefer a darkened room.

As soon as the acute phase has passed it is very important to reduce and eventually stop these labyrinthine sedatives as soon as possible. This is because the specific sedative action of these drugs also inhibits the essential neurological compensation which the body needs to develop to restore normal balance. Many doctors will also stop labyrinthine sedatives prior to balance tests.

There is little evidence to support the continual long term use of labyrinthine sedatives, but all patients should have a small supply to use with any recurrent acute attacks. Many patients developing vertigo will also suffer from some reactionary depression. In such cases, specific anti-depressant drugs will often resolve the depression. CBT is also known to help with depression, as well as mindful meditation. Your GP will be able to point you in the direction of mental health services to assist you.

Other therapies

Dizziness and balance problems can cause stress, anxiety and worries. If you have experienced dizziness for a long period of time, you might be concerned that you will never recover or that, despite what your doctors are telling you, you might have a serious underlying health problem.

Your dizziness might create worries about going to work or attending social events. You might feel concerned about visiting friends and family, or looking after your children or grandchildren. Many people are anxious about experiencing an attack of dizziness in public and fear the embarrassment it could cause them during everyday activities like going to the shops, eating out at a restaurant, or going to the cinema. For some people, it might be that stress and anxiety themselves lead to dizziness and balance problems.

Some people feel anxious in stressful situations like crowded public places, or in enclosed or confined spaces. This anxiety can lead to panic attacks. Some people might experience hyperventilation (quicken and excessive breathing) during a panic attack. Hyperventilation can cause light-headedness and dizziness in people who might not otherwise experience it. For some people, feeling tense or stressed is enough to make them feel dizzy even if they do not experience panic attacks and hyperventilation.

You should speak with your GP for advice on coping with stress and anxiety. It might be that you are referred to a counselling service. Cognitive Behavioural Therapy (CBT) can be helpful for people experiencing stress, anxiety or depression. Your GP should be able to advise you on where to access this, and refer you to a psychologist.

Relaxation therapy or breathing exercises can also be helpful to reduce stress and anxiety and allow people to feel more in control of otherwise difficult situations. Many people find that meditation can also relieve stress. For information on accessing mental health and meditation services, see our 'Useful Contacts' section at the back of the booklet.

Surgery

Only a very small minority of people with dizziness and balance problems will need surgery to improve their symptoms. The type of operation will differ according to each individual situation and the particular surgery in which the ear, nose and throat (ENT) surgeon specialises.

Surgery will only be considered as an option for people who have not had noticeable improvements in their dizziness after long-term drug and rehabilitation treatments.

People with dizziness associated with ear discharge, long-standing middle ear infections, or ear drum perforations are the group most likely to be considered for surgery.

Some tips for everyday life

Keep active

You should not try to prevent episodes of dizziness by becoming inactive and avoiding doing the things that might cause them. It might be tempting to avoid moving around as normal to prevent feeling dizzy but this can lead to you not engaging in your usual everyday activities. You might even start avoiding being out and about to the extent that you withdraw from your usual social activities.

Unfortunately, this inactivity means that your brain is not exposed to the mismatching signals coming from the two balance systems in your inner ears and prevents the process of vestibular compensation (see page 26). Without the vestibular compensation process your dizziness will not go away. In turn, this can lead to depression, anxiety, increased inactivity, and more dizziness problems.

Try to participate fully and actively in your rehabilitation programme and have faith in the recovery process. You should do your vestibular rehabilitation exercises regularly and take part in physical activities and sports. Ball games requiring eye-head-body co-ordination are ideal. Exercises such as Tai Chi have been shown to improve balance. Initially, just going for walks might be enough physical exercise to help the process of vestibular compensation. (Cycling and swimming are probably less effective in helping vestibular compensation but are worth trying if they are your preferred form of exercise.)

Don't suffer in silence

Try not to keep how you are feeling to yourself. Don't suffer in silence. Talk to your friends and family. Sharing your concerns and talking things through with them can be really helpful.

Dizziness and balance problems are more common than people often think. You could well find that your friends and family have experienced dizziness themselves, or know someone who has. Most of them will have experienced a good recovery and talking to them can help you stay positive about your situation.

Keep a diary

Keeping a diary of your dizziness and balance problems can be a useful way to record when and where you experience dizziness and to track any changes in your condition.

Take the diary to your medical appointments. The more information you are able to give your GP or specialist, the better able they are to help you.



Recovery

Around 20 years ago, there was not much that doctors could do to help people with dizziness and balance problems besides prescribing anti-vertigo drugs. These drugs are now known only to be useful in the initial phases of dizziness when people are often unable even to get out of bed.

Nowadays, nearly all people with dizziness and balance problems can make substantial and sustained recoveries. The key is making the effort to return gradually to physical activities as this helps the process of vestibular compensation.

Various treatments and vestibular rehabilitation programmes are now available and contribute further to the development of vestibular compensation and good recoveries. Most dizziness and balance problems are caused by relatively mild conditions affecting the balance system in the inner ear (labyrinth).

Most people with dizziness and balance problems can expect to make a good recovery.

Health professionals

Otologist: a doctor who specialises in the diagnosis and treatment of people with problems relating to the ear (hearing and balance problems).

Neuro-otologist: a doctor who specialises in the diagnosis and treatment of people with hearing and balance problems, and eye movement disorders.

Audiovestibular specialist: a doctor who specialises in the diagnosis and treatment of hearing and balance problems.

Ear, nose and throat (ENT) surgeon: a specialist doctor who performs operations on the ears, nose, throat, head and neck.

Neurologist: a doctor who specialises in the diagnosis and treatment of people with neurological conditions (conditions affecting the brain and spine).

Audiologist: a doctor who specialises in the diagnosis and treatment of hearing and balance problems.

Physiotherapist: a specialist health professional who assesses, plans and treats people with physical problems.

Radiologist: a specialist doctor who performs, reports and reads scans such as CT scans, MRI scans, and X-rays.

Counsellor: a person trained to give guidance on personal or psychological problems.

Useful contacts

Dizziness and balance problems:

Brain and Spine Helpline

Brain and Spine Foundation

3.36 Canterbury Court

Kennington Park 1-3

Brixton Road London SW9 6DE

0808 808 1000

www.brainandspine.org.uk

(Run by neuroscience nurses, providing support and information on all aspects of neurological conditions for patients, their families and carers, and health professionals.)

The British Society of Audiology - Balance Interest Group

The British Society of Audiology

80 Brighton Road

Reading

RG6 1PS

01189 660622

www.thebsa.org.uk

(Support and information on the balance system and balance problems.)

Association of Chartered Physiotherapists Interested in Vestibular Rehabilitation (ACPIVR)

The Chartered Society of Physiotherapy

14 Bedford Row

London

WC1R 4ED

020 7306 6666

www.csp.org.uk

(Physiotherapists specialising in vestibular rehabilitation. Contact through the Chartered Society of Physiotherapy.)

Ménière's disease:

The Ménière's Society

The Rookery

Surrey Hills Business Park

Wotton

Dorking

Surrey RH5 6QT

0845 120 2975

Minicom: 01306 876883

www.menieres.org.uk

(Support and information on Ménière's disease, vertigo, tinnitus and deafness.)

Migraine:

Migraine Action

4th Floor

27 East Street

Leicester LE1 6NB

08456 011 033

www.migraine.org.uk

(Support and information on migraine.)

The Migraine Trust

52-53 Russell Square London WC1B 4HP

020 7631 6970

www.migrainetrust.org

(Support and information on migraine.)

Hearing problems and tinnitus:

Action on Hearing Loss - Royal National Institute for Deaf People (RNID)

19-23 Featherstone Street

London EC1Y 8SL

Telephone: 020 7296 8000

RNID Tinnitus Helpline: 0808 808 6666

Textphone: 020 7296 8001

www.actiononhearingloss.org.uk

(Support and information for deaf and hard of hearing people.)

The British Tinnitus Association

Ground Floor

Unit 5 Acorn Business Park

Woodseats Close

Sheffield S8 0TB

Telephone: 0800 018 0527

Minicom: 0114 258 5694

www.tinnitus.org.uk

(Support and information on tinnitus.)

General health:

NHS Choices

www.nhs.uk

(Medical advice and information on health services.)

Mental health:

Mind

15-19 Broadway

Stratford

London E15 4BQ

0300 123 3393

www.mind.org.uk

(Support and information on mental health services)

Rethink

89 Albert Embankment

London. SE1 7TP

0300 5000 927

www.rethink.org

(Support and information on mental health services)

Meditation:

www.meditateinlondon.org.uk

Support groups

The Brain and Spine Foundation's online discussion forum offers the opportunity to post messages, exchange views, share experiences and ask questions: www.brainandspine.org.uk/forum

The following websites offer support and information on dizziness and balance problems from patient perspectives:

www.iamdizzy.com

www.labyrinthitis.org.uk

Further reading

The Brain and Spine Foundation produces further information on the following related subjects: vestibular rehabilitation exercises, migraine, and brain scans (CT scans and MRI scans). These are downloadable from our website: www.brainandspine.org.uk

References

Details of medical references used for this booklet are available at www.brainandspine.org.uk/references or on request from the Brain and Spine Helpline 0808 808 1000.

Editor: Emma Cowles

Thank you

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Carole Bennett

Brain and Spine Foundation

The Foundation provides support and information to those affected by the many conditions associated with the brain and spine. The charity relies heavily on voluntary donations and fundraising events to provide the services which have helped many thousands of people across the UK. You can help the future work of the Brain and Spine Foundation by

- Making a donation
- Organising or taking part in a fundraising event
- Offering your time as a volunteer
- Remembering the Brain and Spine Foundation in your will

Further details available from the address/telephone number below or from www.brainandspine.org.uk.

Brain and Spine Foundation

LG01 Lincoln House, 1-3 Brixton Road, Kennington Park,
London SW9 6DE

Telephone (switchboard) 020 7793 5900

Helpline: 0808 808 1000

www.brainandspine.org.uk

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