VISUALLY INDUCED DIZZINESS

Key points

- Visually induced dizziness is a group of symptoms caused by a problem with the balance system.
- It is brought on by looking at complex patterns or movement.
- The symptoms can be distressing and upsetting.
- Treatment includes controlled exposure to things that trigger dizziness.
- Treatment takes time and persistence.
- It is important to keep active – doing nothing is not the road to recovery.

What is visually induced dizziness?

Visually induced dizziness is a group of symptoms that can be caused by vestibular disorders. It is defined as chronic (long-lasting) dizziness or unsteadiness that is caused or made worse by large areas of complex patterns or movement, such as supermarket shelves, moving traffic or movies on a big screen.

Visually induced dizziness is also called visual vertigo, space and motion discomfort, supermarket syndrome or visual vestibular mismatch.

Visually induced dizziness can be a symptom of several different vestibular disorders, including vestibular migraine and vestibular neuritis. It is a common symptom in persistent postural-perceptual dizziness (PPPD).

Visually induced dizziness can be very uncomfortable and can cause problems with a person's daily activities, work, social life and mental health.

Visually induced dizziness triggers and symptoms

Visually induced dizziness is usually triggered by one or more of the following situations:
- driving or riding in a car, bus or train
- being in a busy visual environment like a supermarket
- seeing movement over a large area, such as when watching a movie, playing a video game, or scrolling on a phone, tablet or computer, or when looking at clouds, leaves, water, crowds or traffic

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. 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.
What causes visually induced dizziness?

Visually induced dizziness usually develops as a result of a problem with the vestibular system, such as head injury, whiplash, Ménière’s disease or gentamicin therapy for Ménière’s, vestibular neuritis, vestibular migraine, acoustic neuroma or benign postural-positional vertigo (BPPV).

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
- 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 other systems. This is sometimes called “visual dependency.” This means that if 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.

Investigating the cause of visually induced dizziness

Visually induced dizziness can be caused by several different vestibular disorders. This means your doctor needs to figure out if you have a vestibular disorder or another problem that is causing your symptoms. You may need to see a specialist, such as a neurologist or an otolaryngologist (an ear, nose and throat or ENT doctor).

Your doctor will ask about your medical history, including any times you have been sick or injured. Your doctor will ask questions about your symptoms and what triggers them. Try to answer with as much detail as you can. This is important information that can help your doctor make a diagnosis.

Your doctor may ask you to fill out one or more questionnaires that ask about:
- things that trigger your symptoms or make them worse
- how your symptoms affect you

Your doctor will also do a thorough physical and neurological exam, including an ear exam. Tests may include asking you to watch the doctor’s nose while the doctor moves your head, or to watch your own thumbs while the doctor turns you in an office chair.

You will likely have some of the following diagnostic tests:
- hearing and vestibular function tests
- balance tests that measure what happens when you get less input from your visual or proprioceptive systems; for example, by asking you to stand on a soft surface or a moving platform with your eyes closed
- imaging (MRI scan)
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 vestibular migraine 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 optokinetic exercises. The goal of these treatments is to “retrain” your balance system and reduce visual dependency.

One study has found that a drug called acetazolamide may help with visually induced dizziness. But more research is needed before this is widely used.

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.

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, 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.
  - Optokinetic exercises, discussed in the next section
  - Balance exercises with the eyes closed, both standing still and moving, to help reduce visual dependency

Remember that vestibular rehabilitation takes time and effort. Your therapist will teach you the exercises you need to do, but you are the one who needs to do them on schedule.

Home-based optokinetic exercises

Your vestibular therapist may give you optokinetic exercises to do at home. These exercises use videos that are designed to make you feel dizzy. You should start slowly and gradually with simple videos. With practice, you will be able to build up to longer and more complex videos.

Some tips to keep in mind:

- Before you start watching any of the videos, make sure your symptoms are mild.
- Make the room as dark as possible so you can focus on the video.
- Try expanding the video to a full-screen view.
- Start by watching less busy videos for short periods—less than 30 seconds at a time.
- When you get the feeling that you want to look away, watch for three to five seconds longer.
- Wait for your symptoms to go back to where you started before you watch again.
- Each session should be at most 10 minutes long. Your symptoms should clear up within 20 minutes after you end the session.
- Follow the schedule set by your vestibular therapist, even if it does not seem challenging enough. Trying to do too much, too soon will not help.

Start with these two clips:

- Optokinetic R to L 5 min injected
- Optokinetic L to R 5 min injected
Once you are used to them, try the Modified Optokinetic video, which switches direction from left to right.
For an even greater challenge, check out a variety of optokinetic training playlists. These feature more complex patterns, as well as different scenarios including driving, walking in stores and walking outside.

Exercise
Doing exercises such as the tai chi “cloud hands” movement can help with visually induced dizziness. It follows the same principle as optokinetic exercises: it habituates your brain to the movement of your hands.

What to expect in the future
Cybersickness, a related problem caused by exposure to virtual reality (VR) environments, is becoming more common as VR is used more widely. As a result, more research is being done into the underlying causes of visually induced dizziness. As technology advances, we may learn more about how to prevent and treat the problem.

Sources
View sources used for this handout:
https://bit.ly/2Qm5mrj

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