

FAQs on 3D Eye Health Concerns



3D movies, TV shows, and games are some of the most popular forms of entertainment today. With more than 20 3D films distributed in 2010 and the release of the first handheld 3D device—Nintendo 3DS—selling more than 400,000 units in its first week, 3D shows no signs of slowing down in popularity!

With the influx of 3D entertainment available via movies, video games, and personal devices, there are still many misconceptions about how this technology works and if it will affect our vision.

To explain the truth behind 3D and eye related health concerns, Nathan Bonilla-Warford, a VSP® Vision Care doctor, offers his answers to several frequently asked questions.

Q: What is the basic concept behind 3D?

A: In order to see 3D, whether in the movies, on handheld devices, or on a personal computer, each eye sees a slightly different image. Our brain uses its “binocular vision system” to put together the small discrepancies in the angle and distance of each image, which creates the illusion of 3D. This mimics how we see in real life.

Q: What types of 3D technology are available now? How do they work?

A: The three types of 3D technology available are passive, active, and autostereoscopic.

- **Passive technology** creates a filter using color or polarization of light to separate images, creating the 3D effect. There are different passive technologies that process the projection, including anaglyph, linear polarization, and the most commonly used, circular polarization.
- **Active technology** refers to the active eyewear that synchronizes with the projection, using a shutter to separate images for the 3D effect.
- **Autostereoscopic technology** is a new type of 3D technology that doesn't require special glasses. It works with a filter placed on the screen to direct the angle of the light in two different directions so that each eye will receive two different images. Your brain can then process the 3D depth perception itself.

Q: Can watching 3D entertainment like games, movies, and TV cause any discomfort or long term damage for children or adults?

A: It's true that some people experience "vision sickness" symptoms like nausea, headaches, dizziness, and fatigue when watching 3D. However, optometrists agree that 3D technology will not cause long term damage to the visual system and is safe when used in moderation. Many optometrists believe 3D technology can act as a diagnostic tool for visual problems such as amblyopia (lazy eye) and strabismus (crossed eyes).

Q: What should you do if you're experiencing these symptoms or are unable to see in 3D?

A: As much as 30% of the population may feel sick from watching 3D, due to poor visual coordination or stereopsis. These symptoms may also signal more significant visual problems such as amblyopia (lazy eye) or strabismus (misaligned eyes). If a viewer experiences these symptoms, they should get a comprehensive eye exam to see if there's an underlying problem.

If you experience vision sickness while watching 3D content, simply remove your glasses to give your eyes a break. Also, consider using the 20-20-20 rule—every 20 minutes, look 20 feet away for at least 20 seconds—to give your eyes a break.

Q: What are the safest ways to enjoy 3D technology?

A: The single most important message is to consume 3D in moderation. To give your eyes a break, use the 20-20-20 rule - every 20 minutes, look 20 feet away for at least 20 seconds.



For more information on 3D eye health concerns, please visit vsp.com/3D.

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