

Visual Snow Syndrome (Criteria)

- Visual snow (i.e. dynamic, continuous, tiny dots in their entire visual field) for three months, and
- At least two of the following four categories of additional symptoms (which are explained and illustrated on the symptoms page):
 - Palinopsia (afterimages or trailing),
 - Enhanced entoptic phenomena (floaters, blue-field entoptic phenomena, self-light of the eye or spontaneous photopsia)
 - Photophobia (light sensitivity), and
 - Nyctalopia (impaired night vision).

Additionally, their symptoms must not be:

- Consistent with a typical migraine visual aura (i.e. a migraine that produces visual symptoms), or
- Attributable to another disorder (i.e. the patient's eye exams produce normal results, and they have not taken any psychotropic drugs).

The hallmark symptom of Visual Snow Syndrome (VS) is 'visual snow'. Patients with VS describe their vision as being 'pixelated' with many dots flickering throughout their entire vision. Visual snow looks similar to the static or snow seen on a badly-tuned television. The dots seen may be transparent, black, white or even coloured. The intensity of the visual snow varies patient to patient. For some people the snow can be very debilitating, making it very difficult to perform simple tasks such as reading. The static often affects vision in all lighting conditions, including when the eyes are closed.

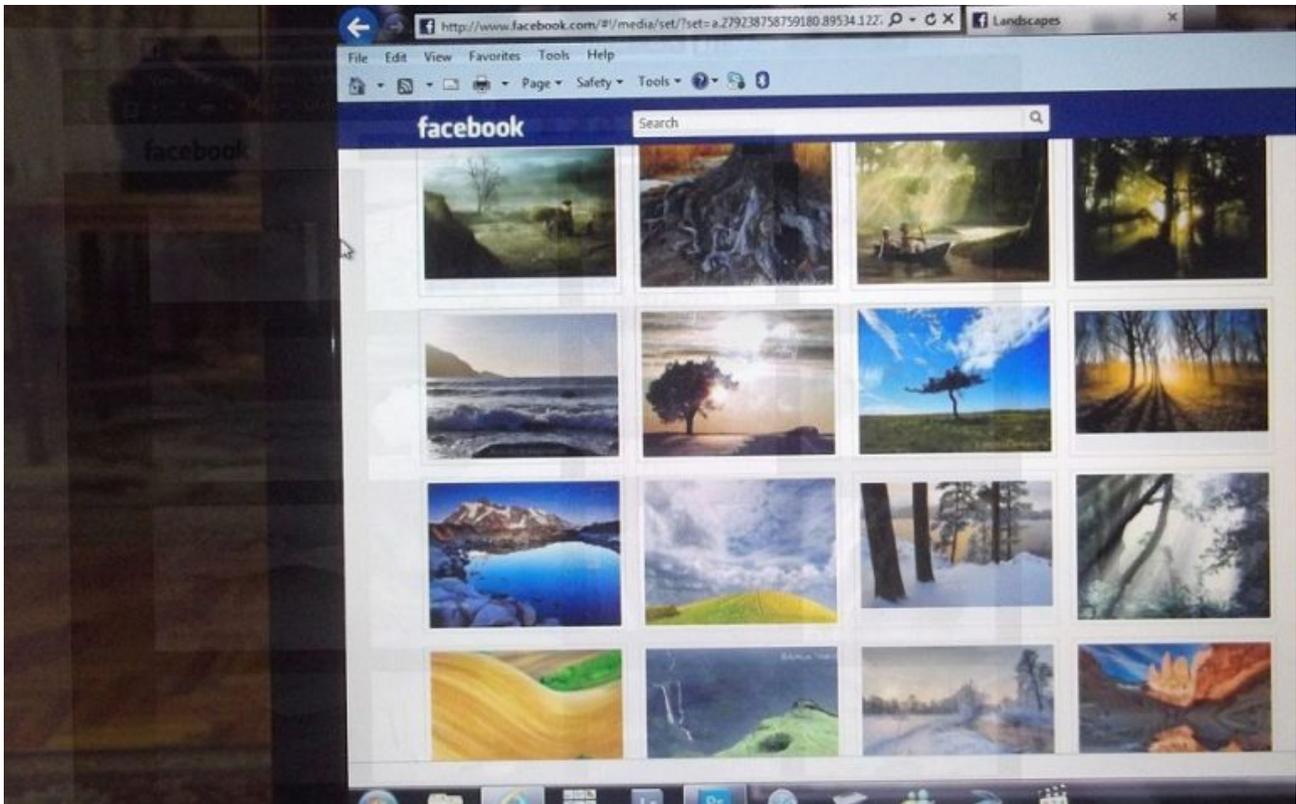
Palinopsia refers to either excessive 'after-images' or 'trailing'. Patients may experience both or just one of these forms of palinopsia.

Afterimages

Afterimages describe the phenomena of when an imprint of an object continues to be seen in your vision even though you are no longer looking at the object. There are two types of afterimages – positive and negative – and it is useful to differentiate between the two. Positive afterimages last for a short duration, are coloured the same as the original image and their intensity is unrelated to the length of exposure to the original image. A classic example of a positive afterimage is when you accidentally look at the sun, look away and then see a small blob/imprint. Negative ones have inverted colours (e.g. a red object creates a

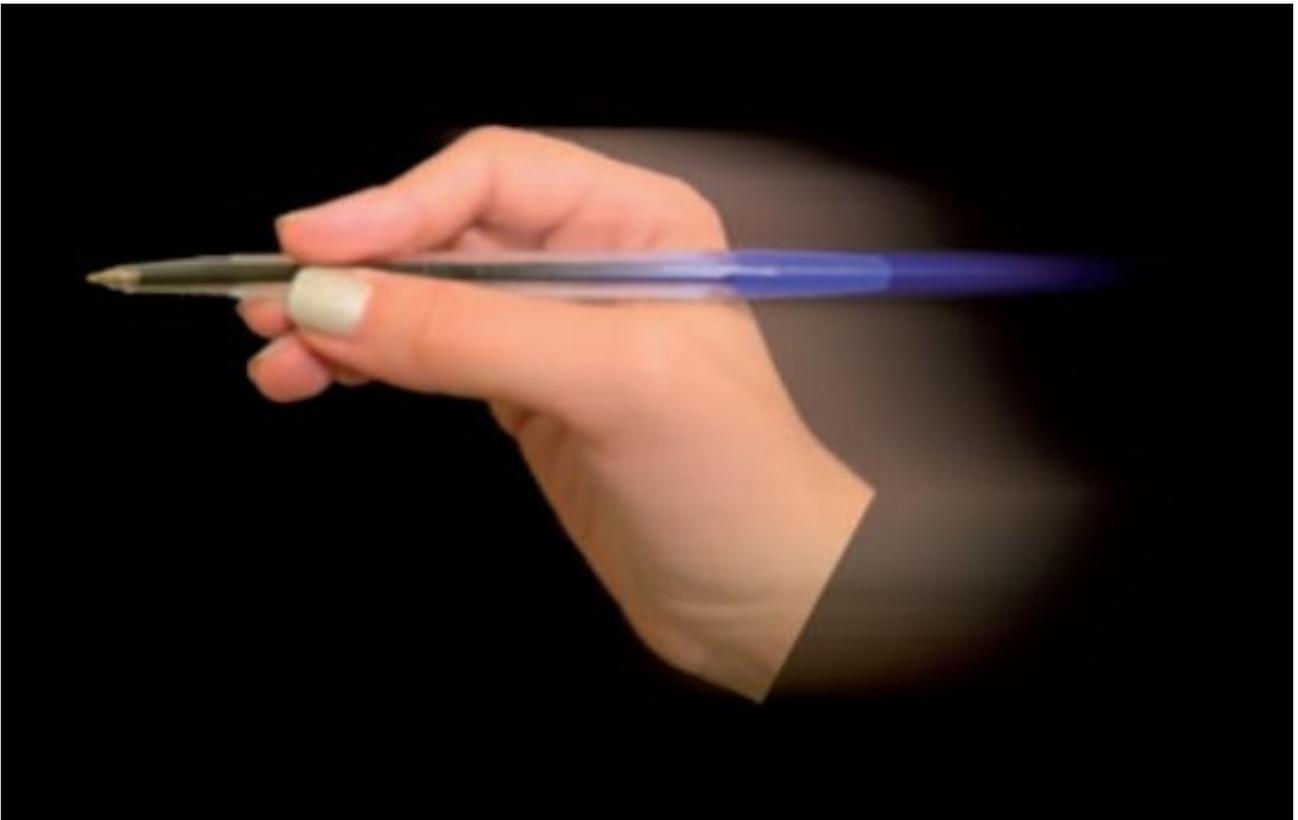
blue afterimage), last longer and their duration/intensity is related to the length of exposure.

Healthy patients experience both types: positive ones if looking at particularly bright objects (e.g. the sun, as described above), and negative ones if exposure is prolonged (due to cone cells becoming tired). Those with palinopsia experience this to a greater degree – the stimulus does not have to be as intense or prolonged to elicit an afterimage. For instance, a VS patients may look at a black chair briefly and look away, and still see a vague imprint of the chair in their vision even though it was black, not bright. Additionally, afterimages that healthy people experience are often stronger and last longer in the eyes of a VS patient. The image below illustrates what a patient may experience if they were to look at a computer screen and then look just to the left of it.



Trailing

Trailing is closely linked to afterimages, and it is where you see a moving object's motion after it passes your eyes. For example, the image below shows a hand moving from right to left; some people with Visual Snow Syndrome would see a 'trail' or some kind of 'smearing' behind the hand.



In some cases, the trailing becomes so severe that the individual becomes unable to perceive motion properly – a condition known as Akinetopsia. Motion does not seem fluid and instead seems choppy. It is often described as seeing motion as a cinema reel, one frame at a time.



Entoptic phenomena are visual phenomena that arise from the structure of the eye itself. Healthy subjects experience entoptic phenomena, but Visual Snow Syndrome sufferers experience them to an excessive extent. There are four key entoptic phenomena: floaters, blue-field entoptic phenomenon, self-light of the eye and spontaneous photopsia. Sufferers only have to experience one of these excessively to satisfy this aspect of the VS diagnostic criteria.

Floaters

These are the grey, black and clear cobwebs, clouds, spots and strands that appear in the vision. As we age the vitreous (i.e. jelly-like substance) inside our eyes shrinks, which causes floaters to form that then cast a shadow on the retina. Floaters are usually harmless, though it can be a symptom of retinal detachment, a sight-threatening condition. In healthy people, floaters are not usually visible unless looking at the sky, and is often not distracting. In contrast, Visual Snow Syndrome sufferers typically see more floaters and in more lighting conditions (such as indoors), making them potentially very intrusive.



Blue-field entoptic phenomenon (BFEP or 'Scheerer's phenomenon')

This phenomenon is where you can see small white blood cells (called 'leucocytes') traveling on a wiggly path within your eyes. Whilst healthy subjects would only see a handful of these when looking at the blue sky, VS patients may see many more of these leucocytes, even when not looking at a blue sky (such as indoors on a white or cream-coloured wall).



Self-light of the eye (a.k.a. 'closed-eye hallucinations')

Visual Snow Syndrome patients may experience coloured (usually violet or orange) 'swirls, clouds or waves' when their eyes are closed. They are particularly noticeable in the first ten minutes or so of exposure to darkness (e.g. when going to bed). It is unclear exactly what part of the eye causes this and to what extent healthy people experience it, but it is definitely a distinct symptom of VS.



Spontaneous photopsia

VS patients experience bright flashes or blobs of light in their vision. These occur randomly and come in different shapes and sizes.



Photophobia is generally where patients avoid light because it is too bright or painful. Some Visual Snow Syndrome sufferers experience photophobia to such an extent that going outside on a remotely sunny day is far too difficult, meaning that they are often housebound. Due to photophobia, those with VS typically wear sunglasses even when it is not that sunny.

Nyctalopia (Night-Blindness)

For many Visual Snow Syndrome sufferers, it is difficult or impossible to see in relatively low light, typically due to the visual snow, palinopsia, halos, loss of contrast sensitivity (see below), or a combination of the four. Activities such as driving at night or even navigating around a dark room at night can be difficult.



Halos are bright circles that surround a source of light, such as an oncoming car's headlights. They typically occur when surroundings are dim or dark. Halos are often experienced by patients who have glaucoma, a condition caused by high pressure within the eye ('intraocular pressure'), but Visual Snow Syndrome patients tend to have normal intraocular pressure.



Starbursts are rays that extend from a light source. It is most prevalent at night when it's dark. The size, length, shape and density of the starbursts varies patient to patient.

Glare refers to difficulty seeing in the presence of bright light, such as direct or reflected sunlight. Light seems to overflow outside its normal boundaries around light sources and obscures vision. Glare can even occur indoors. For instance, a Visual Snow Syndrome patient may experience glare from a window, and if a person is stood between the suffer and the window, they would not be able to see the person properly.



Ghosting is a symptom which causes patients to see a partial or 'ghost image' above, below and/or around the object that they are looking at, especially a light source. The size and transparency of ghost images differ between patients. The ghosting is most obvious when there is a greater contrast between the object being observed and its surrounding background, such as black text on a white background, or a street light at night. As you can imagine, ghosting can sometimes make reading quite difficult. It should be noted that ghosting is different to typical 'double vision' which is caused by both eyes not working properly together, as the ghost images can be seen in each individual eye. Some people see only one ghost image ('monocular diplopia'), whereas others see multiple images ('monocular polyopia').

Pulsating Vision

Patients sometimes experience their vision pulsating in-sync with their heartbeat. It is most noticeable when exercising and the heart is racing.

Flickering vision (,heatwaves')

Visual Snow Syndrome patients often experience their vision flickering, particularly in their peripheral vision. It is difficult to describe, but it is similar to the heatwaves you usually see above a car on a really hot day. It is like having strange ripples travel through your vision. For most sufferers, it is most noticeable in bright lighting conditions, particularly in the first ten minutes or so of exposure.

Loss of contrast sensitivity

Contrast sensitivity is the ability to see objects that may not be outlined clearly or that do not stand out from their background. Loss of contrast sensitivity can make vision appear darker, washed out and somewhat foggy, similar to a faded photo. This symptom is particularly obvious at night and can make it difficult, if not impossible, to see.

Pattern glare/visual stress

Visual Snow Syndrome patients can be sensitive to geometric patterns, especially those which are striped and contain a high contrast of colours (for example, black and white). The pattern then seems to shimmer, shake and/or vibrate, making it difficult to look at and in some cases even causing pain. Pattern glare can be particularly problematic when

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see the look dog and not is you come up to my for cat play
not up play my is dog you come look for see and to the cat
to not cat for look is my and up come play you see the dog
my play see to for you is the look up cat not dog come and
you look see and play to the is cat not come for my up dog
come see the play look up is cat not my and dog for you to
come not to play look the and dog see is cat up you for my
up come look for the not dog cat you to see is and my play
and is for dog come see the cat up look you play my not to
look to for my come play the dog see you not cat up and is
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the cat up dog and is play come you see for not to look my
dog you cat to and play for not come up the see look my is
is you dog for not cat my look come and up to play see the
look up come and is my cat not dog you see for to play the
play come see cat not look dog is my up the for to and you
my you is look the dog play see not come and to cat for up
you for the and not see my play come is look dog cat to up
dog to you and play cat up is my not come for the look see

reading black text on a white background, as the lines of text act as a kind of pattern leading to the perceived shaking of words/letters. Consequently, reading can sometimes cause headaches, migraines and/or fatigue.

Non-visual symptoms

Tinnitus is often described as 'ringing in the ears', though several other types of noises can be heard, such as buzzing, humming, grinding, hissing and whistling. Tinnitus is often more noticeable when in silence; this can make it difficult to sleep at night. Whilst not a core symptom, a **study in 2014** found that 62% of Visual Snow Syndrome sufferers have tinnitus, a significant finding compared to the 7.9% of the general population who also suffer from it. Therefore, **recent research** has suggested including tinnitus in VS' diagnostic criteria.

Depersonalisation causes you to feel detached from yourself. You observe yourself and your feelings and thoughts as if they belong to someone else, like you were watching your own life like a movie. Depersonalisation may have various effects, such as causing out-of-body experiences and rendering you unable to recognise yourself in a mirror.

Derealisation causes you to feel disconnected from the world around you. Patients may see other people and the environment around them as dreamlike and unreal. Objects appear to change in shape, size or colour. Typical symptoms include feeling like a normal environment is unfamiliar or that people you know are strangers.

Some patients complain of brain fog, which is a symptom that affects the mind. **Brain fog** causes confusion, forgetfulness, and a lack of focus and mental clarity. It unsurprisingly can negatively impact a person's performance at school or work.

Psychiatric Symptoms

Many Visual Snow Syndrome sufferers are diagnosed with psychiatric illnesses such as anxiety and depression. It is likely that VS, given the negative impact that it can have on someone's life, causes these symptoms rather than vice-versa.

Vertigo is the feeling that you or everything around you is spinning or moving. Vertigo goes beyond simple dizziness and often causes balancing issues. **Nausea** (i.e. feeling sick) may also accompany the vertigo, but is also reported by patients as being another standalone symptom. Both symptoms are not mentioned in official research.

Tremor refers to the uncontrollable shaking or trembling of part of the body, such as the hands, arms or leg. A slight tremor is common – for example, it's impossible to hold your arms out in front of you without them shaking slightly. Additionally, it can have various non-VS causes, such as stress, caffeine intake or extreme temperatures. However, one [recent research article](#) found that 22% of VS patients experience fine tremor. Whilst the study is limited as only 32 patients were studied, it's quite a substantial finding given the high incidence rate.

Muscle twitching refers to the involuntary contraction and relaxing of muscles. Generally speaking, twitching is actually quite common, and is rarely indicative of a serious problem. It is often the result of stress, anxiety, tiredness and/or caffeine/alcohol intake or the side effect of a medicine. However, VS patients seem to experience it more than the average person, though this is yet to be acknowledged in official research.