PRIMARY EYE CARE CENTRE

Summer 2018 Newsletter

All about colour..

What is colour blindness / colour vision deficiency?

Colour blindness is not a form of blindness but a deficiency in the way we see colour. With this vision problem, you have difficulty distinguishing certain colours, such as blue and yellow or red and green. Colour blindness (or, more accurately, colour vision deficiency) is an inherited condition that affects males more frequently than females.

What causes colour blindness?

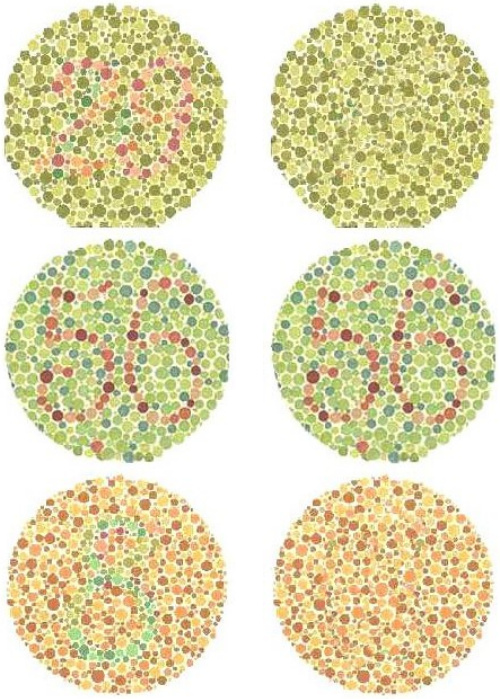
Colour blindness occurs when light-sensitive cells in the *retina* fail to respond appropriately to variations in wavelengths of light that enable people to see an array of colours. Photoreceptors in the *retina* are called rods and cones. Rods are more plentiful (there are approximately 100 million rods in the human *retina*) and they are more sensitive to light, but rods are incapable of perceiving colour.

The 6 to 7 million cones in the human *retina* are responsible for colour vision, and these photoreceptors are concentrated in the central zone of the retina called the *macula*. The center of the *macula* is called the *fovea*, and this tiny area contains the highest concentration of cones in the *retina* and is responsible for our most acute colour vision.

Inherited forms of colour blindness often are related to deficiencies in certain types of cones or outright absence of these cones.

What are the symptoms and signs for colour blindness?

Having trouble seeing colours and the brightness of colours in the usual way. Inability to tell the difference between shades of the same or similar colours. This happens most with red and green, or blue and yellow. Contrary to popular belief, it is rare for a colour blind person to see only in shades of gray. Most people who are considered "colour blind" can see colours, but certain colours appear washed out and are easily confused with other colours, depending on the type of colour vision deficiency they have.



Ishihara colour blindness

What people with regular vision see

What red –green colour blind people see

Colour blindness / colour vision deficiency tests

The most widely used screening test for colour blindness is the Ishihara Colour Vision Test. The test is named after Japanese *ophthalmologist* Shinobu Ishihara , who devised the procedure and first published a description of it in 1917.

The Ishihara Colour Vision Test consists of a booklet, each page containing a circular pattern (or "plate") comprising many dots of various colours, brightness and sizes. People being tested generally view the Ishihara plates in normal room lighting while wearing their normal prescription glasses. Because the Ishihara test requires the person being screened to recognize and identify numbers, the test may be less reliable when testing the colour vision of very young children.

NuEyes - Smart glasses for low vision

NuEyes Pro removable visual ODG smart glasses, is the first ever lightweight, wireless, head worn device that is voice activated for the visually impaired. Whether you have *macular degeneration, glaucoma, diabetic retinopathy, retinitis pigmentosa*, or other visual conditions NuEyes will be able to help you with your vision.

NuEyes Pro is a very simple product to use and can be either operated with a wireless controller included with the product or using simple voice commands. A video camera on the front of the glasses magnifies what you are looking at and displays it on the inside of the glasses. When using the NuEyes glasses for reading, in addition to enlarging the text, you can change the color and contrast or simply have the smart glasses read the text to you automatically just by looking at it.

What is low vision

A loss of sight that cannot be corrected by eyeglasses, contact lenses, or surgery. This means you have some sight left and not completely blind. You may also experiencing tunnel vision and blind spots, due to significant visual field loss. If your vision is between 20/40 and 20/200 with prescriptions lenses, it is considered partially sighted. If your vision is 20/200 or less with prescription lenses or field of vision is less than 20 degrees wide it is considered legally blind.

Different types of low vision

Hazy Vision-A film or glare covering the entire filed of vision

Night Blindness-Poor vision in low lighting, such as outside a night

Blurred vison-Items close and far away are out of focus

Signs and symptoms of low vision

- Not being able to identify faces of loved ones or friends
- Having trouble seeing up close while performing tasks as reading, cooking and crafting
- Finding it difficult to read street, bus and store signs

Causes of Low Vision

- The most *common* causes of low vision are age-related eye diseases, injuries, and hereditary
- **Macular degeneration**: The leading cause of vision loss, central vision becomes blurred or moderately obscured
- **Glaucoma:** Loss of peripheral vision
- **Cataracts:** Sensitivity to light and glare with difficulty seeing at night
- **Diabetic retinopathy:** Blurred, double, and distorted vision
- **Retinitis pigmentosa:** Peripheral vision is obscured and trouble seeing in the dark
- **Stroke:** Vision loss depends on part of brain affected by the stroke
- **Albinism:** Lack of pigment in the eye causing the eyes to develop abnormally

NuEyes at the office

On April 30, 2018 NuEyes came to our office and we had a few of our patients and the Doctors partake in how the new smart glasses will assist with low vision.

Patients listening attentively on how to use the smart glasses demonstrated by *Rakshesh Patel*