Fall Colors for the Color Blind?

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Fall is here and the beautiful reds, golds, and oranges of autumn are wonderful to see! People in your life who are color blind might not be as impressed, however. The most common form of color blindness causes confusion between red and green which means a reduced appreciation for the turning leaves.

Color blindness affects 7% of males but very few females. It is a genetic glitch which passes from the father, to the unaffected (carrier) daughter, then potentially on to her sons. The severity of color blindness can vary from mild causing trouble matching socks to total black-and-white vision. Acquired color blindness can be the result of eye or brain disease such as retinitis pigmentosa, Alzheimer's, diabetes, and multiple sclerosis and should be investigated quickly. Some medications can cause changes in color perception, for example Plaquenil for rheumatoid arthritis and Viagra for erectile dysfunction.

The eye of a person born color blind is healthy but not all portions work well. The cells responsible for color perception are called cones and are located only in our central vision. These cones come in three types—red, green, and blue. When a certain cone does not function fully it is called an "anomaly" and when it fails to function at all is called an "anopia".

The most common form of color blindness is deuteranomaly or "green weak". Color intensity perception is normal but green in low light appears black. For those with the second most common form of color blindness, protanomaly, red looks pale green. The more extreme versions of color blindness, anopias, cause red, orange, and yellow to look the same, and violet, blue, and purple to appear identical.

For the color blind there are many daily frustrations: weather maps, graphs, traffic and warning lights, wiring, cooking, and fashion. Color blind men have a difficult time seeing subtle difference between a woman with blue or green eyes and red or blond hair. Even eating for color blind people is different—instead of being a feast for the eye they often see salads and vegetables as an unappealing brown hodgepodge.

However, many males are unaware of having challenges with color vision until they fail a color vision test. The vision test most used is the Ishihara test created in 1917. The test has pages with dots of specific red and green shades which to a normal eye and a color vision eye look different. For instance, a normal eye might see a "72" but a color deficient eye might see "54" or no number at all. Internet versions of this test are available but are not as sensitive.

Early testing helps parents and their sons to understand difficulties with detection and naming of certain colors. Some careers such as sailing, flying, surveying, trucking, and electrical can require accurate color perception for safety. Boys should be evaluated early so reasonable career counseling can take place. There is no current cure for color blindness. Wearing a red contact lens can make greens and reds easier to distinguish but is usually cosmetically unacceptable and does not create true color perception. Gene therapy has worked to eliminate color blindness in some monkeys.