

Growing firm bringing color to the colorblind

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Fifth-grader Vineeth Prabhuvenkatesh has always had trouble differentiating colors. He is among the 8 percent of males who have some sort of color vision deficiency, which is most often marked by an inability to differentiate particular colors, according to the National Institutes of Health.

Vineeth recently got help from EnChroma, a growing Berkeley-based company that has developed sunglasses to help people with color vision deficiencies.

For Vineeth, the biggest shock when he put on the glasses several months ago was seeing how much greenery is outdoors.

"It was so overwhelming," he said. "I kept asking, 'What color is that?'"

Color vision deficiency is based on defects in the three kinds of cones in the eye that respond to blue, green and red light. For people who are colorblind, there is often an overlap in the way the eye responds to light. EnChroma's glasses help people separate that light and differentiate colors.

The glasses are based on about 10 years of research and development by EnChroma founders Andy Schmeder and Don McPherson. The idea for the product came from another set of glasses that McPherson, a [glass](#) scientist, developed for surgeons to protect their eyes from laser tools. When a colorblind friend said the glasses helped him see color, McPherson began to explore the idea of glasses to help colorblind

people, and he brought on Schmeder as the research developed.

EnChroma has three types of glasses that range from ultra-dark sunglasses to light lenses designed for computer or movie screens. Its glasses, which start at around \$260 for children's frames and \$350 for adults, are available on EnChroma's website (EnChroma.com), or at 30 optometry offices around the world.

Schmeder said that so far, EnChroma's rollout of its products to optometry centers has been slow and deliberate as the company figures out how to manage the supply and demand. His goal, however, is to team up with many more optometrists worldwide to deliver EnChroma products.

Among the latest retailers to partner with EnChroma is the Optometric Center and Eyewear Galleria in San Ramon. The optometrist there, Dr. Michael Duong, said the practice is focused on new technology in optometry and was eager to partner with EnChroma to offer its color vision glasses.

Before EnChroma, Duong said, he had few options to assist his colorblind patients. Some contact lenses help colorblind people separate colors, but they don't do much to help convey the accurate color of objects, as EnChroma does, Duong explained.

"This changes patients' lives as far as being able to help them see accurately in color," Duong said.

While many cases of color vision deficiency are relatively mild - a matter of mixing up certain colors or seeing very dull versions of the colors - it can have a big impact on people's lives, he said. It can affect the way people see traffic lights when driving, and for creative people in artistic professions, especially, colorblindness can have a big effect on

their ability to do their job. It also prevents people from entering a slew of professions, notably as pilots or in the military. "Color isn't just a property of objects - it has meaning for how we connect with others and make sense of the world," Schmeder said at a recent EnChroma presentation for the public.

EnChroma's path to growth isn't without challenges. As one attendee at the presentation pointed out, the fact that people would have to buy three sets of sunglasses to get different tints - as opposed to transitional glasses that change darkness as the environment changes - could be a tough sell. And the glasses aren't guaranteed to work with every user, although they're suited to about 80 percent of the people who use them so far, Schmeder said.

Still, for many people, the glasses provide a welcome change and an ability to see color in ways they never have.

Logan Alpiche, 14, said he was accustomed to his mild [color vision](#) deficiency, having never known anything different, and was surprised when he first put on the glasses.

"Everything looks more vibrant," he said. His mother, Kerri Alpiche, is an employee at the Optometric Center and an eyewear gallery and helped to get EnChroma to partner with the center.

Kerri Alpiche told of Logan's initial experience with the glasses, noting that when he first put the glasses on, the first thing he said was, "Mom, your lipstick is so bright."

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