

TRY BEFORE YOU BUY

Vision simulator lets patients test-drive multifocal IOLs.

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Have you ever had buyer's remorse? Experienced that sinking feeling in the pit of your stomach when you realize that whatever you purchased did not quite live up to your expectations? (You'd be lying if you said no.) Unfortunately, for potentially millions of people around the world who are dissatisfied with their visual results after cataract surgery, the solution is not as easy as returning to the store for a refund.

Now, however, a device giving patients the power to test-drive simulations of IOLs before cataract surgery could help to decrease the number of patients who are unhappy with their vision postoperatively. The wearable Simultaneous Vision Simulator (SimVis; 2Eyes Vision) creates the experience of several types of multifocal correction, allowing patients to establish their preferences and tolerances for multifocality. It also allows clinicians to test critical parameters in multifocal corrections, including amount of near addition, energy ratios for near and far, and pupillary distribution for near and far.

The device, developed by researchers at the Visual Optics and Biophotonics Lab, Instituto de Optica at the Consejo Superior de Investigaciones Cientificas, in Madrid, Spain, is now being commercialized. A prototype of the SimVis yielded easily reproducible results in a small group of patients (n=9) who used the device to test monofocal, bifocal, and trifocal corrections with different far, intermediate, and near power distributions.¹ After more than 7 years of research and development, the SimVis is expected to be available in 2017.

HOW IT WORKS

In order to simulate multifocal IOLs, the SimVis creates and superimposes different focuses on the patient's retina by quickly changing the shape of its optoelectronic adjustable lens. Additionally, the length of time that the adjustable lens is left in a particular focus can be used to vary the lens power.

When the device is worn by the patient (Figure 1), visual performance and perceived image quality with each multifocal

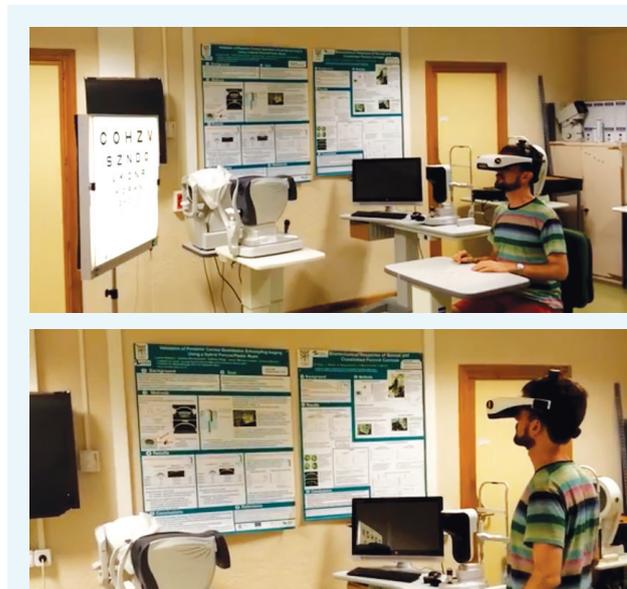


Figure 1. Visual performance and perceived image quality with simulated multifocal IOLs can be tested with the SimVis.

pattern can be tested, and the image quality and contrast sensitivity of a variety of multifocal IOLs can be replicated. The patient can thereby experience adjustments in the amounts of far and near correction and also in the pupillary distribution for far and near.

ADVANTAGES

While wearing the device, patients can undertake simple daily tasks such as looking at a poster of a landscape and working on a laptop, a smartphone, and a portable electronic device. They can also try to read high-contrast text and eye charts placed at different distances in order to test-drive particular IOL types.

According to the company, clinical use of the SimVis can provide an evidence-based means to assess the subjective needs and preferences of patients before they undergo cataract surgery. Additionally, the availability of a device that helps patients determine how various multifocal IOLs could affect their vision might simplify the decision-making process for patients, reduce explanation time for the eye care provider, and increase the possibility that the best lens for each patient is selected. ■



AT A GLANCE

- The Simultaneous Vision Simulator creates the experience of several types of multifocal correction.
- The SimVis can provide an evidence-based means to assess the subjective needs and preferences of patients before they undergo cataract surgery.

1. The Optical Society. Simulator gives patients glimpse of future vision ahead of intraocular lens implant. *Surgical Products Magazine*. August 22, 2016. www.surgicalproductsmag.com/article/2016/08/simulator-gives-patients-glimpse-future-vision-ahead-intraocular-lens-implant. Accessed November 11, 2016.