NEWS HEALTH & MEDICINE

A bizarre video of eyeballs confirms our pupils shrink with age

Smaller pupil size makes it harder to see

Tracking study participants' eyes, specifically their pupil size hints at how age changes our sight.
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By Abdullahi Tsanni

18 HOURS AGO

Time takes its toll on the eyes.

Now a funky, Hitchcockian video of 64 eyeballs, all rolling and blinking in different directions, is providing a novel visual of one way in which eyes age.

A video display of 64 eyeballs, captured using eye trackers, helped researchers compare the size of younger and older study participants' pupils under differing light conditions, confirming aging affects our eyes.

Lab studies have previously shown that the eye's pupil size shrinks as people get older, making the pupil less responsive to light. A new study that rigged volunteers up with eye-trackers and GoPro videos and sent them traipsing around a university campus has confirmed what happens in the lab happens in real life, too.

in *Royal Society Open Science*. "We see a big age effect," says Manuel Spitschan, a neuroscientist at Max Planck Institute for Biological Cybernetics in Tubingen, Germany.

The change helps explain why it can be increasingly harder for people to see in dim light as they age. Light travels through the dark pupil in the center of the eye to the retina, a layer of cells in the back of the eyes that converts the light into images. The pupil's size can vary from 2 to 8 millimeters in diameter depending on light conditions, getting smaller in bright light and larger in dim light. "With a small pupil, less light enters the eye," Spitschan says.

In the lab, researchers can isolate specific aspects of light, such as intensity or wavelength, as they measure the pupil's response. But it's important to understand this natural physiological phenomenon in the real world, too, Spitschan says. That's why the team rigged 83 volunteers, ages 18 to 87, with futuristic-looking headgear that captured data on light wavelengths and eye movements as study participants spent time walking outdoors, inside under artificial light and working at a computer.

The video compilation of 64 participants' eyes lets you really "appreciate that there are significant individual differences in pupil size between individuals," Spitschan says.

This type of work could one day contribute to the development of tailored, more efficient visual and lighting solutions for older people, the team says.

CITATIONS

M. Spitschan *et al*. Regulation of pupil size in natural vision across the human lifespan. *Royal Society Open Science*. Vol. 11, June 19, 2024. doi.org/10.1098/rsos.191613.