

Negative Afterimage

What to do:

Stare at the dots located at the center of the woman's face below for about 30 seconds to a minute. Then turn your eyes immediately to the center x of the white image on the right. Now, blink quickly several times.

Why does this happen:

What you are experiencing is known as a negative afterimage. This happens when the photoreceptors, primarily the cone cells, in your eyes become overstimulated and fatigued causing them to lose sensitivity. In normal everyday life, you don't notice this because tiny movements of your eyes keep the cone cells located at the back of your eyes from becoming overstimulated. If, however, you look at a large image, the tiny movements in your eyes aren't enough to reduce overstimulation letting you see the negative afterimage.

As you shift your eyes to the white side of the image, the overstimulated cells continue to send out only a weak signal, so the affected colors remain muted. However, the surrounding photoreceptors are still fresh and so they send out strong signals that are the same as if we were looking at the opposite colors. The brain then interprets these signals as the opposite colors, essentially creating a full-color image from a negative photo.

Afterimages are constantly with us. When we view a bright flash of light, briefly look at the sun, or are blinded by the headlights of an approaching car at night, we see both positive and negative afterimages.

Vision scientists study why photoreceptors get fatigued and how they recover. These studies help us to understand a lot about how people see and tell us things such as what happens with prolonged exposure to screens or reading materials on TVs and computers.

Find out more at www.arvo.org/illusions



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