



Global Vision Care

“*Eyeglasses are one of the simplest, most cost-effective health interventions to improve life.*”
—DR. ROHIT VARMA, MD, MPH

A major global survey found progress and gaps in access to glasses worldwide:

84% of people 50+ who need glasses have them—in wealthier countries.

ONLY 28% have access in sub-Saharan Africa.

65.8% of adults 50+ received effective vision correction in 2023.

UP FROM 59.8% in 2010 and **55.6%** in 2000

40% INCREASE World Health Organization goal for 2030

Why this matters

80-90% of global blindness is preventable or treatable.

GENETICS & THE HISTORY OF EYE COLOR

Where do blue eyes come from?

- Blue eyes don’t contain blue pigment.
- They have less melanin in the iris.
- Light scattering makes eyes appear blue—similar to the sky.

An ancient genetic change

- Most blue-eyed people share a variation from 6,000–10,000 years ago.
- Likely emerged in populations near the Black Sea region.
- Influences the HERC2 gene, which regulates melanin.

How rare are blue eyes?

- 8–10% of people worldwide
- Over 80% in parts of Northern and Eastern Europe

Did blue eyes come from one ancestor?

- Many blue-eyed people inherited the same ancient change.
- Eye color involves multiple genes.
- The full picture is more complex.

Eye color is complex

- At least 16 genes influence eye color
- OCA2 and HERC2 are major contributors
- Genes work together to determine color
- Siblings may have different eye colors



Our mission is clear: to eliminate preventable blindness and bring sight—and dignity—to every community.”

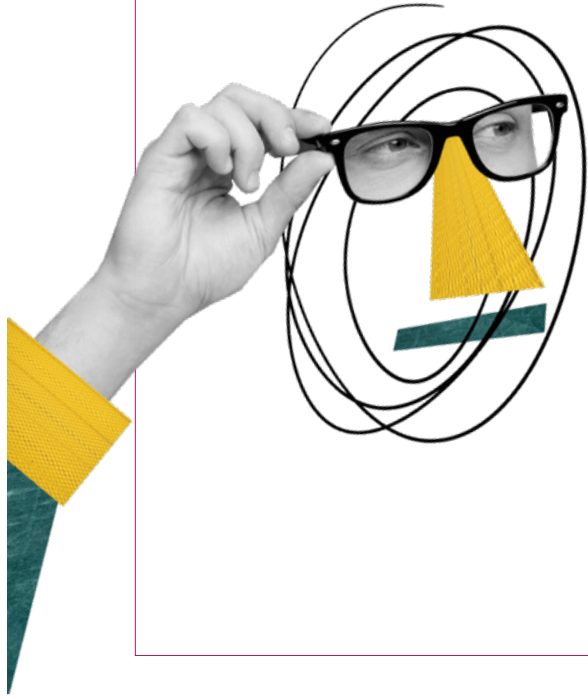
—DR. ROHIT VARMA, MD, MPH

GIVING

Creating New Tomorrows

At least 80–90% of global blindness is preventable or treatable. Yet every day, people lose sight—and independence—because they cannot access care.

At SCEI, we believe no one should lose vision from a condition we already know how to prevent or treat.



Your support changes lives

- You help train the next generation of ophthalmic technicians.
- You accelerate research that reaches underserved communities.
- You open doors for people who might otherwise live in darkness.

Why your gift matters

When you give to SCEI, you are giving someone:

- the chance to read again
- the confidence to walk without fear
- the ability to work, learn, and reconnect with family, and
- the dignity that comes with clear sight.

How to give

- Visit sceyes.org/donors
- Or scan the QR code

Thank you for making brighter futures possible.



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For more information about SCEI and our services, contact us at sceyes.org | 1.833.270.EYES

PERCEPTION

SOUTHERN CALIFORNIA EYE INSTITUTE // WINTER 2025

POPULATION STUDIES

Hidden Health Crisis

A major U.S. study of Chinese Americans published in the *American Journal of Ophthalmology* found that primary angle closure glaucoma is just as common here as in mainland China.

Key findings

- Many cases were missed despite better access to care.
- Highlights the need for early screening and tailored care
- Continues the insights from the Chinese American Eye Study (CHES)
- Breakthrough population research led by Dr. Rohit Varma

What is angle closure glaucoma

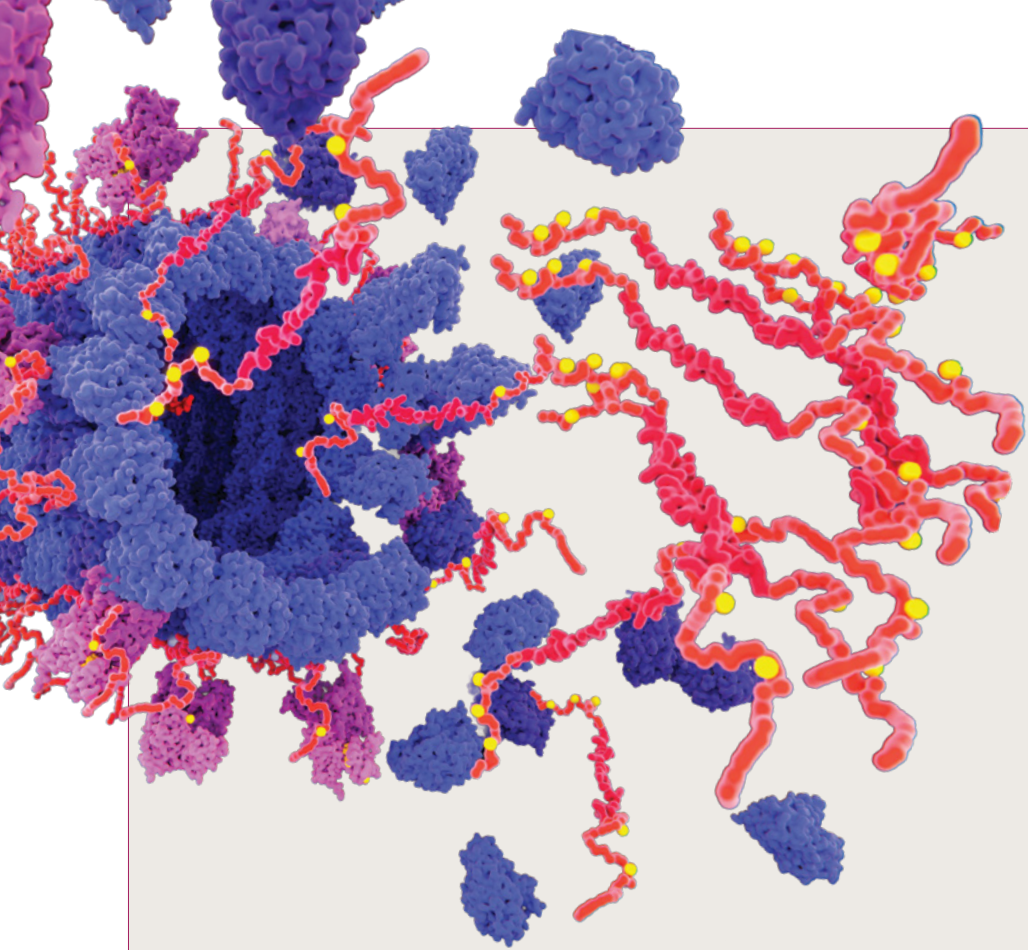
- Second most-common form of glaucoma
- The iris blocks fluid from draining.
- Pressure rises quickly inside the eye.
- Can lead to vision loss and blindness
- More common in people of East Asian ancestry

WELCOME

Medical science requires commitment, resources and a passion for the end result—helping people live healthier, happier lives. In this edition of Perception, we share new discoveries, important population insights, and advances shaping the future of vision care.

Rohit Varma, MD, MPH
Founding Director
Southern California Eye Institute





◀ *Tau protein, which serves various functions in the brain, is found primarily in neurons, called the messenger cells. In Alzheimer's disease, tau protein goes haywire and begins sticking together in tangles that ultimately cause cognitive decline.*

Early-Detection Blood Test for Alzheimer's

A new blood test may detect early signs of Alzheimer's 15–20 years before symptoms appear.

How the test works

- Measures a protein called p-tau217
- Levels rise as tau proteins in the brain begin to change.

Why p-tau217 matters

- Signals early biological changes in memory pathways
- May guide earlier interventions

Benefits

- Identifies risk during preclinical stages
- Could help delay cognitive decline

Availability

- Not yet recommended for everyone
- May become part of comprehensive cognitive assessments

Expert perspective

“The p-tau217 biomarker is one of the most exciting advances in neurology in decades.” –ERIC TOPOL, MD

THE EYES TELL ALL

Your eyes may reveal early signs of changes in brain health.

Key findings

- Study led by Dr. Rohit Varma
- Changes in tiny retinal vessels linked to slower thinking and memory.
- Altered retinal blood flow may serve as an early warning system.
- Ranked among the top 10% most-viewed papers in *Alzheimer's & Dementia* in 2023

• **THE EYES AT WORK**

97
HOURS

Average weekly screen time for U.S. employees

68%

of employees report digital eye strain with symptoms like blurred vision, eye fatigue and dry, itchy eyes.

69%

of employees say these issues hamper their productivity and overall effectiveness at work.

20-20-20
RULE

Take eye breaks at work! Every **20** minutes, look at something **20** feet away for at least **20** seconds.

Sources: *Workplace Vision Health Report, Workplace Intelligence*

BREAKTHROUGH RESEARCH

Glaucoma: Promising Smart Implant

A new adjustable implant—the Calibreye System—is transforming care for moderate to severe glaucoma.

Early study results

- 92% of patients experienced lower eye pressure.
- 84% stopped using eye drops.
- Very few side effects reported

How it works

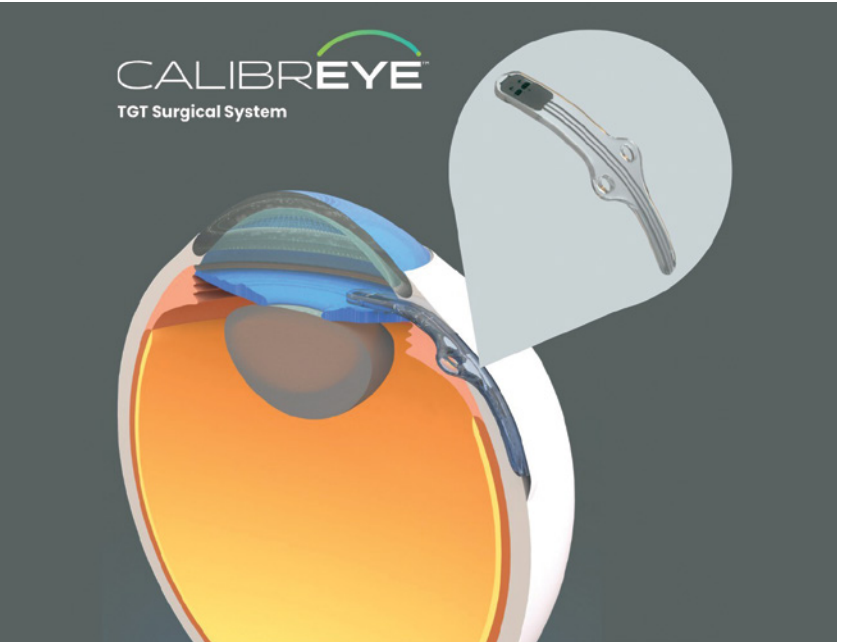
- A small implant is placed in a tunnel within the white of the eye.
- Pressure can be adjusted in the clinic with a gentle laser pulse.
- No additional surgery needed

Expert insight

“Traditional surgeries don’t allow us to easily adjust eye pressure afterward. This is a transformative advancement in care.” –DR. ROHIT VARMA

Research status

- Findings presented at ARVO25
- Ongoing clinical evaluation continues



▲ **The Future of Personalized Pressure Control**
In the Calibreye System, the implant is placed by creating a tunnel in the white outer layer of the eye and advancing the device into this tunnel. The system enables an ophthalmologist to manually control a patient's eye pressure, as needed.



Eye Safety & Fall Prevention

Eye injuries can happen during sports, home repairs or kitchen activities—and many are preventable.

Who is most vulnerable

- Older adults
- People with cataracts, glaucoma or macular degeneration

Simple ways to reduce risk

1. Wear safety glasses for home projects.
2. Use proper protective eyewear for your sport.
3. Keep living spaces well lit.
4. Remove tripping hazards such as rugs.

If an accident happens

- Seek care promptly.
- Early treatment can prevent lasting vision loss.

• **DIABETES CURE AHEAD?**

A small clinical trial offers promise for people with severe type 1 diabetes.

What researchers did

- Turned stem cells into insulin-producing cells
- Delivered them in a single infusion

Results after one year

- 10 of 12 patients stopped needing insulin.
- The remaining two significantly reduced insulin use.

Who may benefit

- People with type 1 diabetes
- Especially those with hypoglycemic unawareness

Important note

- Treatment is early stage.
- More research is needed to understand long-term results.

3D rendering of a human embryonic stem cell

