



VA research on VISION LOSS

VA research projects in the area of vision loss and vision restoration cover the entire spectrum of Veterans' needs.

ABOUT VISION LOSS

- VA's [Office of Blind Rehabilitation Services](#) estimates there are approximately 130,000 Veterans in the United States who are legally blind, and more than a million who have low vision that causes a loss of ability to perform necessary daily activities.
- In older Veterans, major causes of vision loss include age-related macular degeneration, glaucoma, cataracts, stroke, and diabetic retinopathy. Among Veterans who have served in Iraq and Afghanistan, blast-related brain injuries can be followed by vision problems such as blurred vision, double vision, sensitivity to light, and difficulty reading. VA estimates that as many as 64 percent of service members with traumatic brain injuries also have a vision problem.
- Throughout the nation, VA operates 13 [Blind Rehabilitation Centers](#) (BRCs). These are residential inpatient training programs that help Veterans adjust to their blindness. BRCs offer a variety of courses designed to help blinded Veterans achieve a realistic level of independence.
- The Vision Impairment Services in Outpatient Rehabilitation (VISOR) program provides short-term (about two weeks) blind and vision rehabilitation. There are nine VISOR program locations at VA facilities throughout the United States.

- The [Visual Impairment Center to Optimize Remaining Sight](#) (VICTORS) program complements existing BRCs to support Veterans who are not blind but have significant visual impairment. VICTORS provides rehabilitation through offering definitive medical diagnosis and functional visual evaluation, prescribing low-vision aids and training Veterans in their use, and providing counseling and follow-up.

VA RESEARCH ON VISION LOSS: OVERVIEW

- In addition to developing vision-restoring treatment, VA investigators are designing and improving assistive devices for those with visual impairments, as well as doing work on a number of innovative wayfinding systems to help Veterans with vision loss navigate in various environments and perform everyday tasks.
- Investigators are also developing more accurate and efficient methods of vision testing, and are studying the connections between injury and vision loss in eyes that have suffered no overt damage.
- VA's Atlanta-based [Center for Visual and Neurocognitive Rehabilitation](#) is focused on enhancing Veterans' health by conducting research on the rehabilitation of visual and related neurological impairments.

- Researchers at the [VA Center for the Prevention and Treatment of Visual Loss](#), located at the Iowa City VA Health Care System, focus on the early detection of potential blinding disorders of the Veteran and general population. These include retinal disease, glaucoma, and TBI. Researchers at the center test new ways of determining early signs of disease progression and response to treatment. They also develop new treatments.

SELECTED MILESTONES AND MAJOR EVENTS

- 1947** - Developed the [first mobility and orientation rehabilitation training program](#) for blind persons
- 1948** - Established the first [Blind Rehabilitation Center](#) for Veterans in Hines, Illinois
- 1975** - Developed the [C-5 laser cane](#) to help blinded veterans navigate
- 2013** - [Found](#) that more than 65 percent of Veterans with blast-induced TBIs had vision problems, and 77 percent had sensitivity to light
- 2016** - [Found](#) that visual field testing for Veterans with TBIs within two months of combat blast exposure provides a reliable indicator of long-lasting vision problems

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2016 – Participated in [developing](#) a regenerative medicine approach to remove congenital cataracts in infants, allowing stem cells to regrow functional lenses

2017 – [Found](#) that increased physical activity was associated with greater visual function and improved quality of life in people with retinitis pigmentosa

RECENT STUDIES: SELECTED HIGHLIGHTS

Combining dietary supplementation with cholesterol synthesis could protect against retinal damage caused by a genetic disease,

found a study by VA Western New York Healthcare System and Louis Stokes Cleveland VA Medical Center researchers and their colleagues. Smith-Lemi-Opitz is a recessive human disease caused by defective cholesterol synthesis, which causes retinal degeneration. Using rats, the researchers showed that dietary supplements combining cholesterol and antioxidants protected against retinal dysfunction and degeneration better than cholesterol supplementation alone. ([Science Reports](#), Jan. 19, 2018)

Increased physical activity may improve visual function in people with retinitis pigmentosa, according to a study by Atlanta VA Medical Center and Emory University researchers. In a

study of 143 patients, active patients scored better than insufficiently active patients on measures of overall visual function, color vision, and peripheral vision. The results show that aerobic exercise may help protect against retinal degeneration. ([Journal of Ophthalmology](#), May 17, 2017)

VA makes greater use of routine preoperative testing for cataract surgery than Medicare, according to researchers at Palo Alto VA Medical Center and VA Tennessee Valley Healthcare. They surveyed 89 cataract surgeons working in VA, and found routine preoperative testing from other departments—like cardiography and blood work—was used in 45 percent of ophthalmology departments, compared to only 8 percent of Medicare beneficiaries. They also found that use of emerging practices, such as femtosecond laser-assisted cataract surgery, is limited in VA. ([Journal of Cataract and Refractive Surgery](#), April 2017)

Remote eye care services significantly improved access to vision care for rural Veterans in the Atlanta VA Health Care System. The Technology-based Eye Care Services (TECS) program improved the number of Veterans receiving eye care screenings and lowered the wait time for appointments for rural Veterans, as well as for homeless Veterans. TECS

also lowered health care costs for VA and travel costs for patients. A similar program may improve access to vision care in other VA health care systems. ([Rural Remote Health](#), Jan. 26, 2017)

Eye care technicians improve vision clinic productivity, found an Atlanta VA Health Care System study. By looking at health care usage data, researchers found that having ophthalmology technicians increased how many patients ophthalmologists could see. More ophthalmology residents also increased ophthalmologist productivity. Similarly, more optometry technicians lead to more patients seen by optometrists. The results show that technicians are a cost-effective way to improve quality and access to eye care by making clinics more productive. ([Military Medicine](#), January 2017)

The SightBook app allows patients to test their vision frequently on their smartphones and share their test results with their physician in real time. A research team from the Miami VA Healthcare System and the University of Miami tested the accuracy of readings from SightBook compared with in-person eye chart tests. They found that while there were discrepancies in results between each method, the results from each could be successfully reproduced, and that baseline SightBook acuity measures allow for future vision comparisons. ([Retina](#), May 2016)

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