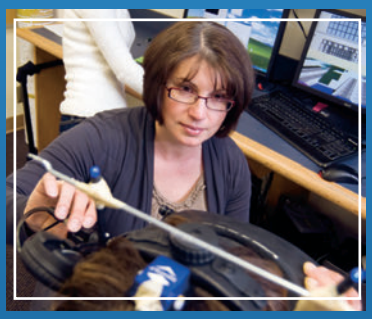
Vision Restoration



Dr. Huxlin (above) is one of the pioneers who first recognized the brain's ability to process and use visual stimuli to recover vision after stroke. "My vision has improved dramatically. Driving is easier, and I've become much more aware of my surroundings. I look forward to continued progress," said John Murphy, an Ohio resident and patient of Dr. Huxlin. "It's fabulous that the brain can be trained to do something once thought it couldn't."

John suffered a stroke that caused a loss of nearly half his vision, a type of blindness considered incurable at the time. After some research, he contacted Dr. Huxlin, who had been recruiting patients for an ongoing study related to the process of restoring vision to stroke patients and others with cortical damage. After rigorous training requiring hours of intensive computer screen time, John began to regain useful visual function. The results were published in the prestigious *Journal of Neuroscience*, one of the first articles demonstrating that stroke patients can indeed regain vision.

John was so grateful for the work of Dr. Huxlin and her team that he made a generous gift to the Flaum Eye Institute in support of vision research.

John Murphy at home

Keeping Sight of Patient Needs

Blindness and partial vision loss are among our most devastating health problems, affecting 3.3 million Americans age 40 and over. By 2020, this number is expected to climb to 5.5 million as our population ages. Researchers and clinicians at the Flaum Eye Institute (FEI) have been working tirelessly to push the frontiers of medicine, introducing new ways to restore and preserve vision.

Although the eyes are critical for vision, images transmitted by the eye must be extensively processed in the brain before we can see. Strokes, traumatic brain injury and other forms of brain damage can cause impairment as severe as blindness or as subtle as the inability to see colors or movement. We need to study how the brain processes visual inputs to better understand the nature of central visual processing, and to develop better ways to help patients with vision loss.

The FEI's Visual Recovery Lab studies how parts of the brain can be retrained to recover vision after injury. With strokes affecting as many as 800,000 Americans each year, and with our recent increase in combat-related brain injury, this research is vital in helping patients regain visual function to alleviate the difficulties of performing daily activities such as reading, driving, or ordinary chores like grocery shopping.

Krystel Huxlin, Ph.D. and her team have demonstrated that vision restoration after brain damage is possible with the use of intensive specialized visual training exercises. Her work focuses on visual relearning in cortical blindness and predicting the extent to which vision can be recovered. She is equally interested the quality of the recovered vision that can be achieved in each patient. Her work shows a remarkable capacity for "plasticity" in damaged, adult brains. The brain can change a great deal in older adults and some brain regions are capable of covering for other areas that have been damaged. Dr. Huxlin's research creates hope that patients with vision damage from stroke or brain trauma may benefit from behavioral therapy and drug treatment.

Further support of this important research initiative can help improve the lives of people across the nation and around the world.

Your gift helps us *give patients the invaluable gift of sight*

Please join us in continuing FEI's revolutionary work in visual research, education, and patient care. Your gift could be the difference that leads to us discovering new and better ways to improve the lives of patients and advance the elimination of blindness.

ENDOWED FELLOWSHIPS AND PROFESSORSHIPS—$750,000 *to* $2,000,000+

Supports the salary, benefits, research stipend, and programming for the individual who holds the professorship or fellowship.

Professorships ($1.5M – $2M+) are among the most coveted and defining rewards that a faculty member can receive, recognizing and fostering excellence. They also serve as a powerful recruitment tool, drawing new faculty and researchers of established distinction from around the world.

Research fellows ($750K+) are early-career scientists who have the imagination and drive to advance biomedical research and translate laboratory findings into the treatment of vision diseases.

BREAKTHROUGH FUNDS: ENDOWED EDUCATION, RESEARCH, AND PROGRAMMATIC SUPPORT—$250,000 *to* $750,000

We are on the threshold of making significant discoveries to enhance our ability to diagnose and treat causes of vision loss. For society to benefit from key technologies related to vision diseases, they need to reach the next stage of commercialization. Your support could be the catalyst for instrumentation and therapies used by vision professionals around the world. There is also a need for support of educational programs, including community outreach and patient education programs, health screenings, and support groups. Your gift can name a permanent fund, the earnings from which can support education, research, or specific programs.

BRIDGE FUNDS—$100,000

As government research funds become more restrictive, it is increasingly difficult for both well-established and new investigators to maintain funding when there is an interruption in NIH funding—interruptions that can have a significant, negative impact on the research being conducted. Private philanthropy is essential to sustain promising science and highly meritorious research projects.

FACILITY PROJECTS—$75,000+

There is a critical need to expand our facilities dedicated to research, education, and patient care. We need to renovate space for a faculty/administrative center to bring all of our doctors from across the Medical Center together into one space to make it easier for them to collaborate when treating patients with complex eye disease. The construction of a new tower above our translational eye research laboratories will create an educational center dedicated to the needs of our medical students, residents, and community eye care specialists. We also need to upgrade and expand the very limited space for our library, and lecture and seminar rooms.

POSTDOCTORAL AND STUDENT FELLOWSHIPS—$25,000 *to* $75,000 *(one year)*

Funds support an aspiring scientist while providing research training and mentorship in the laboratory setting.

"As an internationally-acclaimed center dedicated to the prevention and treatment of blinding diseases, the Flaum Eye Institute has attracted a superb clinical and research faculty who work in teams to provide exceptional patient care and research while inventing the technologies that will transform eye care. Krystel Huxlin's work is helping us restore and preserve vision for patients across the nation and around the globe."

—Steven E. Feldon, M.D., M.B.A.
Chair of Ophthalmology,
Director of the David and Ilene Flaum Eye Institute,
University of Rochester Medical Center

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