

A close look at blinking after facial transplantation

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Recovery of blinking function is a critical but easily overlooked outcome after facial transplantation, according to a report in the January issue of [Plastic and Reconstructive Surgery](#), the official medical journal of the [American Society of Plastic Surgeons](#) (ASPS).

In their study, ASPS member surgeon Eduardo DeJesus Rodriguez, MD, DDS, and colleagues highlight the need for careful surgical planning and technique to achieve optimal voluntary and reflex [blinking](#)—essential to protect long-term visual outcomes—in [facial transplant](#) recipients. Dr. Rodriguez is chair of the Department of Plastic Surgery at NYU Langone Medical Center and director of its Institute for Reconstructive Plastic Surgery.

Blinking Function Restored after Facial Transplantation

The study included detailed assessments of blinking function in a patient who underwent "facial vascularized composite tissue allotransplantation" after a devastating injury to the central and lower face caused by an accidental gunshot. The operation was one of the most extensive facial transplants to date, including "total face, double jaw, and tongue transplantation." The facial transplant was performed in March, 2012, when Dr. Rodriguez was at the University of Maryland Medical Center in Baltimore.

Vision and blinking function were evaluated before facial transplantation and up to several months afterward. Assessments included slow-motion video analysis of blinking—particularly involuntary or "reflex" blinking, which is essential to protect the eye.

Before transplantation, the patient had 100 percent voluntary blinking function (complete eyelid closure) in both eyes. But reflex blinking was significantly impaired immediately following the surgery, with only 40 percent reflex blinking on the right side. On the left side, the patient had 90 percent reflex blinking function.

Six months following the transplantation, visual acuity and eye movement remained normal on both sides. Meanwhile, involuntary reflex blinking improved substantially: 70 percent in the right eye and 100 percent in the left eye.

Call for Increased Attention to Periorbital Planning and Follow-up

Vision and blinking function again decreased as the patient went through a series of revision surgeries to improve functioning and appearance in the months after transplantation. These issues likely resulted from nerve injury (neuropraxia) caused by tissue handling during surgery. Both vision and blinking recovered over several weeks after these procedures.

Facial transplantation is still a rare procedure, but experience has shown excellent outcomes for carefully selected patients with severe facial injuries. Although blinking is easily overlooked, it is a complex facial function that is critical to protecting vision. At least some facial transplant recipients have experienced severe eyelid-related complications.

The study provides important information on recovery of blinking, especially reflex blinking, after facial transplantation. Dr. Rodriguez and colleagues believe their successful results reflect careful preservation of periorbital tissues from both the recipient and donor, followed by ingrowth of critical facial nerves. They encourage other facial [transplant](#) groups to perform similar evaluations of blinking function.

The effort to monitor restoration of blinking ability is an example of refinements to improve the long-term outcomes of facial transplantation, according to this month's introductory video by Rod J. Rohrich, MD, Editor-in-Chief, on the [Plastic and Reconstructive Surgery](#) website. "The fact that we are now researching blinking outcomes for these patients when [face transplantation](#) likely seemed more science fiction than science just a decade ago, shows how dedicated plastic and reconstructive surgeons around the globe have been in developing and refining this amazing, life-changing procedure," Dr Rohrich comments. Watch the accompanying "[Hot Topics in Plastic Surgery Video](#)."

More information: [Click here to read "Eyelid Transplantation: Lessons from a Total Face Transplant and the Importance of Blink."](#)

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