

Why do eyelids sag with age? New study answers mystery

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A UCLA study finds that lower baggy eyelids are caused by fat expansion in the eye socket. Credit: American Society for Aesthetic Plastic Surgery

Many theories have sought to explain what causes the baggy lower eyelids that come with aging, but UCLA researchers have now found that fat expansion in the eye socket is the primary culprit. As a result, researchers say, fat excision should be a component of treatment for patients seeking to address this common complaint.

The study, published in the September issue of the peer-reviewed *Journal of Plastic and Reconstructive Surgery*, is the first to examine the anatomy of multiple subjects to determine what happens to the lower eyelid with age. It is also the first to measure what happens to the face with age using high-resolution magnetic resonance imaging (MRI).

"A common treatment performed in the past and present is surgical excision of fat to treat a 'herniation of fat' — meaning that the amount of fat in the eye socket does not change but the cover that holds the fat in place, the orbital septum, is weakened or broken and fat slips out," said lead author Dr. Sean Darcy, a research associate in the division of plastic and reconstructive surgery at the David Geffen School of Medicine at UCLA and a plastic surgery resident at the University of California, Irvine. "This orbital septum weakening or herniation-of-fat theory is what most plastic surgeons have been taught.

"However, our study showed there is actually an increase in fat with age, and it is more likely that the fat increase causes the baggy eyelids rather than a weakened ligament," Darcy said. "There have been no studies to show that the orbital septum weakens."

The study looked at MRIs of 40 subjects (17 males and 23 females) between the ages of 12 and 80. The findings showed that the lower eyelid tissue increased with age and that the largest contributor to this size increase was fat increase.

According to a recent report by the American Society of Plastic Surgeons, nearly 241,000 Americans underwent eyelid surgery in 2007, making it one of the top four surgical cosmetic procedures performed.

Currently, many plastic surgeons performing procedures to treat baggy eyelids do not remove any fat at all. They reposition the fat or conduct more invasive tightening of the muscle that surrounds the eye, or they tighten the actual ligament that holds the eyeball in place. These procedures are performed despite there being no data indicating that these structures change with age.

"Our findings may change the way some plastic surgeons treat baggy eyes," said study co-author Dr. Timothy Miller, professor and chief of

plastic surgery at the Geffen School. "Our study showed that a component of a patient's blepharoplasty procedure should almost routinely involve fat excision rather than these procedures."

Blepharoplasty refers to surgical rejuvenation of the upper or lower eyelids, or both, depending on the extent of aging or disease. The procedure is usually performed on the lower eyelid because the most common complaint patients have is that their eyes appear tired, puffy or baggy. The surgeon makes external incisions along the natural skin lines of the eyelid to remove the excess fat and improve the contour of the lower eyelid.

"Although baggy lower eyelids are a significant result of aging and fat expansion, there are other factors that can contribute too," Miller said. "We recommend that surgeons evaluate each component and address them accordingly in an individualized approach to blepharoplasty."

The next phase of research will be to perform MRIs of people with baggy eyelids.

Source: University of California - Los Angeles

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