Clues To Wrinkles May Be Found In Facial Bone Structure

November 12 2007

There's a new wrinkle in the battle against looking old: doctors have discovered it's not gravity that's pulling your skin down -- it may be your shifting bone structure.

While many thought the Earth's gravitational pull was to blame for sagging facial features, researchers at Duke University Medical Center have discovered changes in the face's underlying bony structure may be the culprit. And, those changes appear to occur more dramatically in women than in men.

"This paradigm shift may have big implications for cosmetic eye and facial surgery," explains Michael Richard, MD, an oculoplastic surgeon at the Duke Eye Center, who presented his research at the annual meeting of the American Society of Ophthalmic Plastic and Reconstructive Surgeons in New Orleans today.

"Our focus has always been on tightening and lifting the soft tissues, skin and muscle in an attempt to cosmetically restore patients' youthful appearance. Based on this information, it might actually be better to restore the underlying bony framework of the face to its youthful proportions."

Since growth plates found in most of the body's bones stop growing after puberty, experts assumed the human skull stopped growing then too. However, the bones that comprise the human skull have no growth plates.

Using CT scans of 100 men and women, the researchers discovered that the bones in the human skull continue to grow as people age. The forehead moves forward while the cheek bones move backward. As the bones move, the overlying muscle and skin moves as well and that subtly changes the shape of the face. "The facial bones also appear to tilt forward as we get older," explains Richard, "which causes them to lose support for the overlying soft tissues. That results in more sagging and drooping."

The problems from these aging changes extend beyond cosmetic concerns. Drooping tissues around the eyelids can lead to vision problems, dry eyes, and excessive tearing.

Richard and colleague Julie Woodward, MD, Duke's head of oculoplastic and reconstructive surgery, also determined that women experience more rapid bone changes then men. That, says Richard, opens new areas of research, including the role of menopause in facial bone growth, and whether drugs commonly used for osteoporosis may affect the aging changes seen in the facial skeleton.

Just as important are the implications their research may hold for the future of cosmetic surgery. "One of the big risks of facial surgery is the potential for hitting the facial nerve," explains Richard, "which could cause paralysis." Doctors are extremely careful not to touch that nerve and its rare for those complications to occur. But, he says, "if we can move the focus to the bone surface, away from that nerve, we may create an even safer, less extensive surgical procedure than the ones we perform today."

Source: Duke University