

Ancient tooth grooves: Take your pick

In 1911, a French anthropologist observed unnatural grooves on the teeth of several Neanderthal fossils. Similar grooves have been noted since in a variety of fossil teeth, including those belonging to *Homo habilis* around 1.84 million years ago, *H. erectus*, early *H. sapiens*, Stone Age and Bronze Age people and prehistoric North American Indians. Many researchers believe the grooves resulted from the repeated use of wood or bone toothpicks, but they differ on the reasons for their use. Some see the repetitive probing as a cultural behavior without practical use, while a more common theory holds that toothpicks were used to eliminate tissue damaged by tooth decay or gum disease and to remove trapped bits of food.

New evidence of grooving in the teeth of human ancestors, reported in the August-October CURRENT ANTHROPOLOGY, supports the cultural explanation. Polished, semicircular grooves in teeth from the skulls of three previously excavated *H. sapiens* are not associated with tooth decay or excessive tooth wear, says Vincenzo Formicola of the Anthropology and Human Paleontology Institute in Pisa, Italy. The teeth were uncovered at a site dating to between 10,000 and 20,000 years ago. Formicola suggests wooden toothpicks were used in "a largely nonfunctional, unnecessary, stereotyped activity."

Six teeth recently uncovered in the Soviet Union and estimated at between 400,000 and 700,000 years old contain polished grooves much like those described by Formicola, says Christy G. Turner of Arizona State University in Tempe. Soviet anthropologists, who showed Turner the teeth, said they think the teeth belong to *H. erectus* or early *H. sapiens*. Again, the teeth show no signs of decay, erosion or pitting. Even if dental problems or heavy tartar accumulation initially stimulated toothpick use, Turner suggests the activity often became a lifelong habit. "As far as can be empirically documented," he says, "the oldest human habit is picking one's teeth."

Robert B. Eckhardt and Andrea L. Piermarini of Pennsylvania State University in University Park report the first evidence of apparent prehistoric toothpick use in South America, based on teeth from a Peruvian site estimated to be 9,525 years old. But causes of grooving in these and other remains are poorly understood, they caution. Eckhardt and Piermarini lean toward explaining toothpick use as a means to deal with dental problems. Studies of modern populations are "sorely needed," they conclude, to determine what cultural practices might produce tooth grooves.

The high life in prehistoric Peru

At an open-air site in the high sierra of southern Peru, researchers have uncovered the remains of dwellings ranging from 6,040 to 6,850 years old. These represent the earliest domestic structures known from the high elevations of the south central Andes Mountains, reports anthropologist Mark Aldenderfer in the Sept. 30 SCIENCE. Humans living in this mountainous area between 10,000 and 4,000 years ago were thought to have resided only in caves and rock shelters.

Aldenderfer, of Northwestern University in Evanston, Ill., unearthed clay floors, post molds, hearths, garbage mounds and other features associated with 11 closely grouped residences. The houses are similar to those constructed at temporary, cold-season sites by modern foragers living in arid regions, Aldenderfer notes. The Peruvian site served either as a temporary camp lying near a residential base on a nearby plateau or, he suggests, as a temporary settlement for seasonal foragers. Stone tools found among the remains at the site may have been used to butcher animal carcasses, and a recovered scraper was used in the preparation of animal hides. The site was probably occupied for no longer than one month at a time during the wet season of November to April, Aldenderfer adds.

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Carol Eron reports from Arlington, Va., at the Research to Prevent Blindness science writers seminar

The long and short of contact lenses

The largest study yet of contact lens use in the United States indicates extended-wear lenses—those worn overnight—carry a 2 to 4 times greater risk of serious complications than daily-wear lenses. The study of 22,500 lens wearers reveals greater risk of sight-threatening complications, such as serious corneal abrasion, growth of blood vessels onto the cornea, corneal ulcers and severe corneal scarring.

Scott MacRae of the Oregon Health Sciences University in Portland found that daily lens users suffer corneal ulcers—sores that can lead to infection and loss of sight—at a rate of about 1 in 2,000 yearly and that 1 in 300 daily lens wears suffers other serious complications. Among extended-wear users, which includes both cosmetic wear and use by patients after cataract surgery, MacRae found rates of 1 in 500 for corneal ulcers and 1 in 100 for other serious reactions. The study, based on case histories gathered by lens manufacturers for the Food and Drug Administration from 1980 to 1988, includes patients who were followed from three to 24 months.

Retinal cell transplant: See how they see

By transplanting retinal cells from healthy rats into the eyes of diseased rats, two teams of researchers have for the first time treated a blinding condition in the animals. James E. Turner and Linxi Li at Wake Forest University in Winston-Salem, N.C., worked with rats suffering from retinal dystrophy. Their results were confirmed by Peter Gouras of Columbia University College of Physicians and Surgeons in New York City.

After removing defective cells from the rats' eyes, via an incision and gentle washing of the afflicted area, the scientists injected the transplant cells. In more than 200 cases in his lab, Turner told SCIENCE NEWS, the transplanted cells survived and prevented death of other cells essential for sight.

Retinal dystrophy in rats causes the death of epithelial cells of the retina, which cover and nourish the retina's photoreceptor cells. This, in turn, leads to death of the photoreceptor cells. The photoreceptor cells convert light to electrical impulses.

In humans, senile macular degeneration, a leading cause of blindness among those over 60 in the United States, is believed caused by degeneration of retinal epithelial cells.

Gouras expresses "optimism" about eventual application of the technique to senile macular degeneration and related conditions in humans. However, he says tissue rejection occurs following the procedure in rabbits, and the next step is studies in monkeys. Human treatment, Turner and Gouras estimate, is five to 10 years off.

Eye trauma prevention made easy

Results of what researchers are calling the first comprehensive study of eye trauma show that only about one-third of eye injuries occur in the workplace. "Prior to our study, we believed, like many investigators, that most eye injuries occurred at work," says Harold A. Helms of the Eye Injury Registry of Alabama and the National Eye Injury Data Center at the Eye Foundation Hospital, in Birmingham. In addition, many of the work-related injuries occurred in areas previously believed to be relatively safe—light industry and the construction trades—rather than in heavy industry, where safety precautions are recommended.

The remaining injuries occurred almost equally at home—resulting mainly from home repairs, cooking and use of household chemicals—and in sports and recreational activities. Racquetball and other hardball sports were leading causes in this category.

"Most people are unaware that safety goggles, available in hardware stores for under \$5, and sport glasses could prevent the majority of these costly injuries," he notes.

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