

Skilled Inca Surgeons



An ancient Inca skull shows evidence of skull surgery known as trepanation. A new study finds that the procedure was performed rather commonly by the Inca, likely to treat injuries suffered during combat

These, along with maize beer, may have been used to **alleviate** some of the pain.

"Skull Was Slowly Scraped Away"

Andrushko and study co-author John Verano of Tulane University in New Orleans studied remains from 11 burial sites in Cuzco and the surrounding region.

Their survey found that trepanation was a remarkably common practice in the Inca capital. Of 411 skulls that were sufficiently well preserved to study, 66 had holes cut through the bone.

In one location, 21 of 59 skulls—over a third—had received trepanation.

While methods of trepanation varied over time, Inca surgeons eventually settled on a scraping technique to penetrate the skull without causing wider injury.

"The skull was slowly scraped away, resulting in a circular hole surrounded by a wider area of scraped bone," Andrushko said.

Some of the skulls had been perforated more than once, including one individual who had undergone the operation seven times.

In another unusual case, in which the patient did not survive the operation, a rectangular section of bone that had been removed was set back in place **prior to** burial.

Tiffany Tung is an archaeologist at Vanderbilt University in Nashville, Tennessee, and was not part of the research.

She said that the new study is the first to compare the frequency and success rate of trepanation over time and in different communities.

"This is the kind of richly detailed study that really gives us a sense of what life was like for ancient Andean populations," Tung said.

"It's astounding that [such a large percentage] of the population underwent **skull** surgery and that so many survived."

War Wounds

Trepanation was practiced as early as 400 B.C. in South America and is known from other parts of the world as well.

Archaeologists have long debated whether the skull perforations were conducted as a medical procedure or for ritual or cultural reasons.

With regard to the Inca, Tung said, the new study should settle the debate.

"I think the authors are spot on when they suggest that cranial surgery was performed primarily to treat head injuries," she said.

Those injuries may have most often been sustained during warfare, according to the new study's authors.

Nearly all of the surgeries were performed either near the middle of the skull or on the left side—the regions most likely to be injured during combat with a right-handed opponent, Andrushko noted.

In addition, some of the skulls showed signs of previous injury in the area where the operation was performed.

The fact that 19 of the surgical patients were women, however, suggests that the operation may have sometimes been performed for other reasons—possibly as an attempted cure for epilepsy or **chronic bone infection**, the authors note.

Inca surgeons in ancient [Peru](#) commonly and successfully removed small portions of patients' skulls to treat head injuries, according to a new study.

The surgical procedure—known as trepanation—was most often performed on adult men, likely to treat injuries suffered during combat, researchers say.

A similar procedure is performed today to relieve pressure caused by fluid buildup following severe head trauma.