

# New evidence suggests Ötzi the Iceman's tattoos were made using a single-pointed tool

March 19 2024, by Bob Yirka

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This shows tattoo artist Danny Riday tattooing his own leg using a bone awl made from white-tailed deer (*Odocoileus virginianus*). This variety of puncture tattooing, colloquially known as "hand poke" or "stick and poke" tattooing, involves the use of a sharp implement either held directly in the hand or hafted to the end of a handle. Credit: *European Journal of Archaeology* (2024). DOI:

An international team of archaeologists, historians and tattoo artists has found evidence that suggests Ötzi the Iceman's tattoos were made via hand-poking with a single-pointed tool. In their [study](#), published in the *European Journal of Archaeology*, the group compared ancient tattooing techniques on modern skin with tattoos on Ötzi's skin.

Ötzi the Iceman was found in the Italian Alps in 1991 by hikers. Study of his remains showed he met his fate approximately 5,300 years ago, downed by an arrow to the back. In addition to other findings, the Iceman was found to have an abundance of tattoos on his body—on his lower back, his abdomen, lower legs and his left wrist. Researchers have since wondered how they were made.

Prior research has suggested four possibilities: hand poking, subdermal tattooing, hand tapping and [incision](#). Because many of the tattoos involved short, straight lines, many have suggested the tattoos were likely made using the incision method, in which an incision is made into the skin using a sharpened object, such as a stone, and a coloring material, such as ash, is introduced into the incision. In this new effort, the research team sought stronger evidence.



This video shows tattoo artist Mokonuiarangi Smith tattooing Danny Riday using a boar tusk comb. This variety of puncture tattooing, known as "hand tapping," involves sharp implements hafted at an angle to a handle being struck into the skin using a secondary tool. This tattooing technique is strongly associated with Austronesian languages and was traditionally limited in distribution to the southern Pacific Rim and small areas of inland Southeast Asia. Credit: *European Journal of Archaeology* (2024). DOI: 10.1017/ea.2024.5

The researchers recruited a tattoo artist as a guinea pig. He volunteered to make multiple tattoos on his leg that were similar to those found on Ötzi using the four techniques. After the tattoos healed, the researchers captured close-up images of each of the tattoos and compared them with Ötzi's. They found the new tattoos made via the hand-poking method were most similar to Ötzi's, making it the most likely method used by the

Iceman.

The hand-poking method involves sharpening the end of stick to a point, then dunking it in a coloring ink. The tip of the stick is then pushed into the skin, taking a bit of the ink with it. As the stick is removed, the ink is left behind. To create a line using this method, multiple pricks would be required, each new one abutting the prior one. This method, the team notes, results in a line with tiny, overlapping disks—a result observed both with the [tattoos](#) created for this new work and on Ötzi's body.

**More information:** Aaron Deter-Wolf et al, Chalcolithic Tattooing: Historical and Experimental Evaluation of the Tyrolean Iceman's Body Markings, *European Journal of Archaeology* (2024). [DOI: 10.1017/ea.2024.5](#)

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