Gruesome Viking “blood eagle” ritual is anatomically possible, study finds



Enlarge / Jarl Borg’s body after suffering the “blood eagle” ritual execution for his treachery in S2 of *Vikings*.
History Channel

Historical evidence for the blood eagle is scant. For instance, there is an account in the “Tale of Ragnar’s Sons” of Ivar the Boneless performing the blood eagle on King Ælla of Northumbria because the latter killed his father, Ragnar. (“They caused the bloody eagle to be carved on the back of Ælla, and they cut away all of the ribs from the spine, and then they ripped out his lungs.”)

There are also two accounts of Torf-Einarr’s execution of Halfdan Haaleg. In one version, an eagle is carved on Halfdan’s back with a sword, all the ribs cut from the

backbone, and the lungs drawn out. It's described as a sacrifice to Odin in thanks for Einarr's victory. The second account comes from Norse poet and historian Snorri Sturluson: "Afterwards, Earl Einarr went up to Halfdan and cut the 'blood eagle' on his back, in this fashion that he thrust his sword into his chest by the backbone and severed all the ribs down to the loins, and then pulled out the lungs; and that was Halfdan's death."

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Viking historian Luke John Murphy of the University of Iceland decided to enlist the aid of actual anatomical specialists to assess whether performing the blood eagle would even be feasible. "They've provided a totally fresh perspective on some very old questions, and let us tackle the blood eagle in a new way," he said. His co-authors conducted several simulations using modern anatomy software, while Murphy re-assessed the stories, archaeological evidence, and historical accounts in light of their findings.

Human anatomy is complex, and the authors noted three distinct anatomical challenges to performing the ritual—particularly if the goal was to keep the victim alive for the entire process. One would first need to rapidly remove all the skin and muscles of the back; it would otherwise not be possible to cut and manipulate the underlying ribs so the lungs could be removed. Second, the mere act of opening the thoracic cavity from behind would likely weaken or sever several major arteries of the body, and probably deflate the lungs. Finally, it would be extremely challenging to reposition the ribs in the shape of an eagle's wings, and then pull the lungs through the opening.

- A posterior view of the thorax (back), without the skin, illustrating the anatomical structures encountered during the initial phase of cutting the blood eagle.
  L.J. Murphy et al., 2021

- A posterior view of the thorax, illustrating some deeper structures encountered while exposing the ribs.
  L.J. Murphy et al., 2021
- A posterior view of the thorax illustrating the results of detaching or cutting the ribs.
  L.J. Murphy et al., 2021

Per the authors, “holding a sharpened blade parallel to the underlying muscle layer, while making long cutting incisions just superficial to the muscles” would have made it possible to remove the outer skin and muscle. This would be sufficient if the ritual was merely the carving of an eagle into the victim’s back, then folding back large flaps of skin and muscle to either side of the body to make “wings.” A typical Iron Age fighting knife would have been ideal for this purpose.

In order to perform the full legendary ritual, the executioner would be faced with obstruction from the shoulder blades and deeper back muscles and would hence need to sever the trapezius muscle and the underlying levator scapulae muscle in order to expose the ribs. One account describes the cut as extending “down to the loins,” and in that case, the lower back’s latissimus dorsi muscle would also have been cut.

It would have been very difficult to separate the ribs from the vertebrae, since the joints are stabilized by very strong ligaments. It wouldn’t be possible to cut each of them and detach the ribs quickly with a serrated blade while the victim was still alive. Hacking at the ribs with a sword or small axe would have seriously damaged the lungs.

Instead, “We suspect that a particular type of Viking spearhead could have been used as a makeshift tool to ‘unzip’ the rib cage quickly from the back,” the authors wrote in an accompanying essay for The Conversation. “Such a weapon might even be depicted on a stone monument found on the Swedish island of Gotland, where a scene carved into the stone depicts

something that could have been a blood eagle or other execution.”

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Enlarge / A section from the Stora Hammars I stone from Gotland, Sweden, shows a man lying on his belly with another man using a weapon on his back.

Finally, for the final stage of removing the lungs through the cuts along the spine, one would need to fold the ribs outward to create wings. This is technically possible, although it would require tremendous strength and coordination, and the ribs would likely need to be fractured again somewhere on the victim’s side. One would also need to sever the muscles attaching the ribs to the lower back. The vertebral column would still present an obstacle to removing the lungs, and the primary bronchi and pulmonary veins and arteries aren’t long enough to allow the lungs to be removed while they are still attached. The lungs would also likely have collapsed by this point into compact tissue about the size of a fist.

In *Vikings*, Jarl Borg endures the entire process in silence before expiring, thereby earning his place in Valhalla. In fact, he might have survived the first stage, although

probably not in silence, since the removal of the soft tissue from the back would have been excruciating. But he likely would have died of shock, suffocation, and/or exsanguination within seconds of the blade being thrust into his back to cut the ribs. Ergo, “even if the ritual was carefully performed the victim would have died very quickly,” the authors wrote. “Therefore any attempts to reshape the ribs into ‘wings’ or remove the lungs would have been performed on a corpse. That last ‘fluttering’ would not have happened.”

The authors also re-assessed archaeological and historical data and concluded that the blood ritual was in keeping with the behavior of the Viking Age warrior elite. Spectacular executions, displaying of dead bodies, and “deviant burials” did occur—such as the skeleton of a beheaded noblewoman buried with her head tucked under arm and her jawbone replaced by a pig’s mandible. Viking warriors were known to go to extreme lengths to protect their reputations, and the blood eagle appears to have been reserved for exacting revenge for the dishonorable killing of a father (or other male relative).

“Contrary to established wisdom, we therefore argue that the blood eagle could very well have taken place in the Viking Age,” the authors concluded in their essay. “It was physically possible, in line with broader social habits regarding execution and the treatment of corpses, and reflected a cultural obsession with demonstrating your honor and prestige. What’s more, its spectacular brutality would have ensured that everybody who heard about it would be keen to tell the story in all its gory details—just as we’re still telling them today.”

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