



E73 A Crucifixion Experiment to Assess Wrist and Forearm Blood Flows as Observed on the Shroud of Turin

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Learning Overview: The goal of this presentation is to test the blood flow patterns on the Shroud of Turin with actual crucifixion configurations of a human body.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by utilizing medical forensics, physics, and historical data to probe and provide insight into the practice of crucifixion, using the Shroud of Turin as a possible example of that ancient practice, and by possibly providing help with other forensic problems or having forensic applications to archaeology.

A recent paper reported by Borrini and Garlaschelli concluded from blood flow experiments that the observed wrist/forearm blood flow patterns on the Shroud of Turin are sufficiently inconsistent with the studies so that the Shroud of Turin should be considered to be a probable forgery.¹ However, the conclusion of the scientific experiments and analyses of the same blood flows have reached the opposite conclusion.

In this presentation, the forensic analysis is based on live suspensions on a cross with volunteer subjects, a methodology that was not used by Borrini and Garlaschelli to reach the conclusions.¹ After reviewing and discussing important pertinent historical data and archaeological artifacts related to the practice of crucifixion in the ancient Roman world, this study designed an experimental protocol by which special wrist and foot attachment mechanisms safely and realistically suspend the male subjects on a full-size cross. Professional medical personnel were invited to not only contribute to the experimental protocol and analyses, but also to ensure the medical safety of the subjects. The male subjects were carefully chosen to correspond, as closely as possible, to the physiology depicted by the frontal and dorsal imprints visible on the Shroud of Turin. A comprehensive evaluation was performed of the totality of blood flows found on the Shroud to determine which flows occurred during the alleged crucifixion process and which were of a postmortem nature. The specific crucifixion nailing characteristics and locations represented by the Shroud image were also determined. The subjects were then suspended on the cross according to those determinations. The cross and suspension system were designed to accommodate various positional adjustments of the body as appropriate.

Once the study team and supporting review team were satisfied with the validity of the crucifixion positions of the subjects, blood was deposited externally on the body at the previously determined nail sites. The resulting flow patterns over the simulated, crucified subjects were documented and analyzed. The crucifixion positions of the subjects were likewise documented.

These experiments represent an important utilization of medical forensics, physics, and historical data to probe and provide insight into the practice of crucifixion, using the Shroud of Turin as a possible archaeological depiction of that ancient practice, the details of which are virtually unknown in modern times. Moreover, the techniques that were specifically developed for this study conceivably may be helpful in analyzing certain other forensic problems, as well as in forensic applications to archaeology.

The presentation, using the perspectives from the above disciplines, will discuss how conclusions were obtained that appear to support the hypothesis of Shroud authenticity in some new and unexpected ways.

Reference(s):

¹. Matteo Borrini and Luigi Garlaschelli. A BPA Approach to the Shroud of Turin. *Journal of Forensic Sciences*. 2018.

Shroud of Turin, Blood Flow Pattern, Crucifixion