A43 Comparing the Decomposition of Partially Suspended (Semi-Recumbent) Pigs With Fully Suspended Hanging Pigs and Fully Recumbent Pigs in Direct Contact With the Ground

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After attending this presentation, attendees will better understand the major differences in the decomposition patterns and rates between fully suspended hanging pigs, semi-recumbent pigs, and pigs decomposing on the ground.

This presentation will impact the forensic science community by adding to current knowledge concerning decomposition in hanging bodies and the appropriate decomposition scoring scales to use, which, when combined with Accumulated Degree Days (ADD), will allow for the calculation of time since death.

Establishing the Postmortem Interval (PMI) is an essential part of any death investigation. By using decomposition scoring and ADD, the PMI can be estimated. The findings of a decomposition study conducted under controlled conditions at the Taphonomic Research in Anthropology: Centre for Experimental Study (TRACES), University of Central Lancashire, United Kingdom, will be presented. Thirty freshly killed pigs (*Sus scrofa*) of the same age were used as human analogues. Twenty pigs were hung by the neck using nylon rope attached to hooks hung from A-frames built from scaffolding poles. Ten pigs were hung, fully suspended, with their hind feet approximately 100cm off the ground, with the remaining ten hung partially suspended, so that the flanks and hind legs were in direct contact with the ground. The animals were spaced 60cm-90cm apart. To protect the pigs from vertebrate and avian scavengers, each of the A-frames was surrounded with chicken wire up to a height of 60cm above ground and bird netting was stretched over the whole frame. A further ten control pigs were placed on the ground under scavenger-proof cages.

The pigs were observed and the patterns of decomposition recorded and photographed for head and neck, torso, and limbs at approximately 50 ADD intervals until 1,078 ADD. Ambient temperature was recorded by dataloggers every six hours. Total Body Scores were assigned to the control pigs (TBS_{surf}) at each visit using the Megyesi et al. decomposition scoring scale, adjusted to score from zero for fresh bodies.[1] Decomposition scores for the hanging pigs (TBS_{hang}) were obtained using the Lynch-Aird et al. hanging scale.[2] Initially, the semi-recumbent pigs were scored using both of these scales to assess the whole body until it became clear the upper and lower portions of the animals were displaying different decomposition patterns. The upper sections of the semi-recumbent pigs followed the same decomposition pattern as the hanging pigs and were scored using the hanging scale, covering the head, upper limbs, and upper torso, while the lower sections followed the same pattern as the control pigs and were scored using the surface scoring scale, covering the lower limbs and lower torso (the head was not scored), to give Partial Body Score Torso plus Limbs ($PBST_{surf} + PBSL_{surf}$).

The hanging and semi-recumbent upper bodies displayed the same levels of TBS response to ADD, with no statistically significant difference between the two groups (p=0.53, $F_{2,197}$=1,402). The TBS versus ADD responses for the lower sections of the semi-recumbent bodies were compared with the corresponding partial body scores for the controls; there was no statistically significant difference between these two groups either (p=0.8, $F_{2, 197}$=1,157).

Reference(s):

1. Megyesi M.S., Nawrocki S.P., Haskell N.H. (2005) Using Accumulated Degree-Days to Estimate the Postmortem Interval from Decomposed Human Remains. *J Forensic Sci*. 50(3) pp.618-26.
2. Lynch-Aird J., Moffatt C., Simmons T. (2015) Decomposition Rate and Pattern in Hanging Pigs. *J Forensic Sci*. 60(5) pp.1155-1163.

Taphonomy, Hanging, Decomposition