H45 The Effect of Clothing on the Rate of Decomposition and Insect Colonization on *Sus Scrofa* Carcasses

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After attending this presentation, attendees will be able to understand how the presence of clothing affects the rate and pattern of decomposition on pig carcasses. Furthermore, attendees will be aware of any differences in the appearance and colonization preferences of forensically relevant insects between clothed and unclothed remains.

This presentation will impact the forensic science community by increasing awareness as to what extrinsic factors significantly alter the rate of decomposition and how these factors may influence the overall pattern of decomposition.

Although the presence of clothing on decomposing human remains is frequently encountered in forensic cases, there have been few quantitative studies regarding clothing's effect on decomposition.[1] Several retrospective studies and case reports have claimed that clothing retards the rate of decomposition because it both prevents insects from accessing desirable locations for oviposition and helps to protect decomposing tissue from external factors (e.g., sunlight or scavenging).[1-3] Conversely, other experimental studies noted accelerations in the rate of decomposition proposing clothing creates new areas for insect oviposition and reduces tissue desiccation.[4] Lastly, research has suggested that clothing has no quantitative effect on the rate of decomposition.[5] The inconsistent nature of these findings was the impetus for a new, quantitative study to examine the effect of clothing on rate of decomposition and insect colonization preferences.

Ethical approval was obtained for the use of 20 domestic pig (*Sus scrofa)* carcasses, which were dispatched and transported to the Taphonomic Research in Anthropology Center for Experimental Study (TRACES), a research facility located in Northwest England owned by the University of Central Lancashire (UCLan). The carcasses were separated into two groups clothed or unclothed and carcasses were dressed in identical white cotton t-shirts, black cotton boxer shorts, and belts in order to mimic loose-fitting summer clothing.

Data collection occurred at regular accumulated degree day intervals; the level of decomposition, pattern of decomposition and Diptera present were documented. Results indicated a statistically significant difference (t_{427}=2.59, p=0.010) between the decomposition rate of unclothed and clothed carcasses. This result must be interpreted with caution, however, as it equates to marginal scoring changes that become irrelevant in terms of forensic practicality. The overall decomposition rates from each carcass group are too similar to separate when applying a 95% Confidence Interval, which means that, although statistically significant, from a practical forensic point of view they are not sufficiently dissimilar as to warrant the application of different formulas. In regard to the overall pattern of decomposition, the carcasses appeared to follow a different pattern than what has been reported previously and differences appeared qualitatively between the two carcass groups which could indicate colonization preferences for insects.

In summary, the results of this study revealed that the presence of loose-fitting summer clothing does not affect the rate of carcass decomposition within a practical forensic context. Clothing did, however, provide colonizing insects with new areas for oviposition which resulted in differing localized patterns of decomposition between unclothed and clothed carcasses.

References:

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Clothing, Decomposition, Pattern

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