



F46 A Preliminary Investigation of Bite Marks on Human Skin: Clothed Versus Unclothed

*Tanya R. Peckmann, PhD**, Saint Mary's University, Department of Anthropology, Mail Stop 208, 923 Robie Street, Halifax, NS B3H 3C3, CANADA; and *Jeanette D.H. Kristiansen, MSc**, Ulvefaret 2, Blystadlia, NORWAY

After attending this presentation, attendees will understand some principles of bite mark investigation, in relation to force and bruising on a given anatomical location.

This presentation will impact the forensic science community by increasing understanding of the nature of bruising on clothed skin versus unclothed skin.

In bite mark analyses, a forensic odontologist must consider the probability that a bite mark found on the skin surface can be matched to a given pair of teeth. Acceptance of bite mark evidence in court can be traced back to the early nineteenth century, although recent knowledge in the field has increased since the late 1970s. This development was substantiated by the number of reported criminal cases which began to accelerate after the conviction of Ted Bundy in 1978. Much attention has been concentrated and focused around the preservation and accuracy in bite mark analyses. The American Board of Forensic Odontology (ABFO) developed a set of guidelines to improve the methodologies used in bite mark cases with one of the most important developments being the ABFO No. 2 reference scale.

This study collected bite mark data and analyzed the differences in bruises between bites on bare skin versus bites through clothing from eight white European adults, in Nova Scotia, of both male and females from various ages. One set of dentition was used to create the bite marks; the dentition were dentures mounted on a vice grip-type device. Photographs were recorded every 15 minutes for the first two hours and then hourly up to six hours in indoor day light illumination. The following day, examinations of bruising were carried out in a dark room using alternative ultraviolet crime light sources at 415 nm and 450 nm wavelength (Hughes *et al*: 2006). The anterior side of the left forearm was chosen as the substrate for the bites; the unclothed bite mark was created approximately 7 cm from the wrist and the clothed bite mark was created approximately 5 cm from the elbow. The force was kept constant for each bite mark created on the volunteers. Variances were observed between the bite mark inflicted upon clothed skin as compared to the classical bite mark structure. The strongest variable, regarding visibility of the bite marks, was the age of the volunteer. Other variations were also seen between volunteers within the same age range. Body Mass Index (BMI) was not included in this study so the results do not reflect the individual distribution of fat and musculature tissue in this anatomical location.

The results of this study provide preliminary data for the analysis of bite marks inflicted on unclothed and clothed skin. The results indicate that the bites on clothed skin heal faster than the bite marks on unclothed skin. Further studies would need to be conducted in order to assess the distortion and bruising of skin in relationship to age, sex, BMI, and bite mark distortion on clothed and unclothed skin surface with a given force.

A preliminary study of bite marks on clothed versus unclothed skin as examples of case work related to sexual assault and abuse will be presented.

Bite Mark, Force, Bruising