Introduction

Forensic anthropologists work with law enforcement and medical examiners to help identify skeletonized remains. Anthropological analyses of skeletal remains can include:
- Developing a biological profile (estimating the sex, age and stature)
- Trauma assessment
- Post mortem interval – or how long since the individual died.

The post mortem interval is typically estimated by visually assessing the body for the extent of decomposition. Megyesi et al. (2005) is the most widely used method for assessing human decomposition.

The body is divided into three portions: head and neck, trunk, and limbs (Fig. 1), which are individually assigned a score based on the presence or absence of listed criteria (Fig. 2). The scores are summed to provide a total body score (TBS) that correlates to an estimated post mortem stage.

Purpose, Goals & Objectives

While the Megyesi et al. (2005) method was designed for field use, anthropologists frequently receive photographs of decomposing from law enforcement agencies requesting an estimation of time since death.

The purpose of this study is to determine whether decomposition scoring is as accurate from a photograph, as it is from scoring a body in the field. The goal of this study aims to test the accuracy of decomposition scoring from a photograph compared to scores taken in the field.

Methods and Materials

Research took place at the Anthropological Research Facility (ARF), which is part of the Department of Anthropology at the University of Tennessee, Knoxville.

- The photographs used for this study derive from two current National Institute of Justice research projects3,4 underway at the research facility.
- 11 individuals were photographed and scored in the field every 5 days for 60 days.
- The photographs were randomized by individual and date.
- The photographs were scored according to Megyesi et al. 2005.
- To address intra-observer error, each photograph was scored three times.
- The data were analyzed using a paired sample t-test.
- Significance was set at p=0.05.

Table 1. Paired Samples T-Test Comparing Trials 1, 2, and 3, and each trial to the Field Assessment Scores.

<table>
<thead>
<tr>
<th>Trial</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Sig. (p ≤ 0.05)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Trial 2</td>
<td>-2.418</td>
<td>1.6679</td>
<td>.112</td>
</tr>
<tr>
<td>1-Trial 3</td>
<td>-5.246</td>
<td>1.6171</td>
<td>.000</td>
</tr>
<tr>
<td>2-Trial 3</td>
<td>-2.828</td>
<td>1.3936</td>
<td>.027</td>
</tr>
<tr>
<td>Field</td>
<td>.3566</td>
<td>2.2180</td>
<td>.078</td>
</tr>
<tr>
<td>Field</td>
<td>.5984</td>
<td>2.2733</td>
<td>.004</td>
</tr>
<tr>
<td>3-Field</td>
<td>.8811</td>
<td>2.1590</td>
<td>.000</td>
</tr>
</tbody>
</table>

Discussion and Conclusion

The results indicate that scores from photographs are different enough from the field scores to reach a level of significance.

There are a number of possible reasons for this:
- The total body scores from the field came from a third party.
- Individuals may give the same body different scores based on level of experience.
- Difficulty judging the state of decomposition of bodies placed in the prone position—or on their stomach.
- Poor picture quality
- Portions of the body were often missing from the photo.
- Coloration or shadowing on the photograph
- Poor resolution

Future Studies
- Addition of an inter-observer component to address inter-observer error.
- Improve the quality of photos

References

2. U.S. Dept. of Justice, National Institute of Justice “Assessment of Rapid, Robust and Efficient Postmortem DNA Sampling Method for DVI and Missing Persons Identification” D8-R-04437

Acknowledgements

Thank you Dr. Mankoff for your help and encouragement. Dr. Scott for your assistance, and the Forensic Anthropology Center.