



## Physical Anthropology Section - 2013

### H95 Reported and Observed Healed Fractures in a Modern Skeletal Collection

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After attending this presentation, attendees will be informed about reported medical history data of a modern skeletal collection and the reliability of information regarding reported fractures.

This presentation will impact the forensic science community by increasing the knowledge of the reported data on the individuals in the W.M. Bass Donated Skeletal Collection, thus guiding future research questions related to the medical history. It will also present healed fracture patterns observed in the collection and discuss how reliable the family-reported data is and whether it is applicable for identification purposes.

Forensic anthropology uses modern skeletal collections to create and test its methods. These collections usually have known demographic and other information for each individual. The information can be from different sources: self- or family-reported or measured. It is important to know the reliability of the reported information. For example, there are studies on the reliability of reported stature and weight information in the literature.

This presentation concentrates on the W.M. Bass Donated Skeletal Collection and the reported medical history of the individuals included in the collection, specifically healed fractures. This body donation program has a questionnaire for pre-donors and family members to complete. The questionnaire collects data on demographics, education, residence history, dental history, and medical history. The medical history section includes check boxes to document surgeries, fractures, amputations, prosthetics, diabetes, and cancer. Also, blank spaces are available for more detailed descriptions.

The focus of this study was to identify differences between the reported and observed fractures and to investigate possible sex dependence. The study population consisted of 160 White males and females. The age range of the population was 34 to 93 years, and females (average age 65 years) were slightly older than males (average age 62 years).

More self-donors reported fractures than family-donors. The number of individuals with reported fractures in males and females was nearly equal. Self-donors and family-donors had the same number of individuals with observed fractures. More females were observed to have at least one fracture than males.

An arm or spine fracture was the most common injury reported in females; an arm or leg fracture was the most common injury reported in males. Arm and leg fractures were reported more often by family-donors and arm and spine fractures more often by self-donors. Ribs and spine were fractured most frequently within both sexes.

Self-donor males reported the highest occurrence of fractures; 75% of the reported fractures were observed on the skeletal remains. In comparison, 77% of the fractures reported by self-donor females were observed; whereas, less than 60% of fractures reported by family donors (for both males and females) were observed. In general, the most under-reported fractures were rib fractures. Arm fractures were often reported and observed, while leg fractures were often reported but not observed.

The study of self- and family-reported fracture data has several limitations. Several individuals note a history of fracture(s), but do not provide specifics such as location. More often a leg, ankle, wrist, or arm is mentioned, not the specific bone or side. Other possible reasons for mismatch between the observed and reported fractures are missing or fragmentary elements, well-healed old fractures, fractures that occur after the self-donor questionnaire is completed, unawareness of the fracture, or forgotten fractures.

In conclusion, based on these data, the reliability of the reported information on fractures depends on the reporter (self-donor or family member) as well as the type of fracture. Other factors to be taken into consideration are how old the fracture is and how long ago the injury was reported.

**Antemortem Fracture, Reported Data, Identification**