



Physical Anthropology Section – 2010

H47 Integrative Measurement Protocol Incorporating Morphometric and Behavioral Research Tools From Forensic Anthropology, Human Biology, and Primatology

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After attending this presentation, attendees will become familiar with a new integrative measurement protocol designed to promote an understanding of the relationship between soft and hard tissue anatomy and scale, will have access to video and written measurement definitions, and will be familiar with how these protocols can enhance forensic anthropological work.

This presentation will impact the forensic and biological anthropology communities by introducing a new integrative protocol that will enhance research designs for questions addressing human morphology and identification.

In recognition of the interdisciplinary nature of the forensic sciences, and particularly of the subfield forensic anthropology, the Bones and Behavior Working Group presents a set of protocols for linking behavioral, biological, and skeletal databases. The goal of this protocol is to promote greater synthesis across biological anthropology and to facilitate estimates of living parameters from skeletal remains of forensic interest. The practice of forensic anthropology involves research into human skeletal, but also behavioral, variation across and within populations, requiring an understanding of human and nonhuman primate evolution. Similarly, other human biologists, primatologists, and evolutionary morphologists seek to understand the evolution of human adaptation. Yet despite the interdependence within an individual organism of physiology, behavior, and skeletal biology, each subfield of biological anthropology works in relative isolation. Although each subfield might address similar “umbrella questions” regarding adaptation and growth, which would be enhanced by, for example, the ability to estimate body weight or size from skeletal remains, these scientists generally do so without integration of protocols across subareas.

A small group of scientists with expertise in each of the target subareas, particularly drawing from the fields of primatology, human biology, skeletal biology, and forensic anthropology, met to generate a set of interdisciplinary protocols. This set of protocols promotes the integration of data collection from living and skeletal specimens in order to enhance knowledge of biological variation and ultimately our ability to estimate aspects of living anatomy from an individual's skeletal remains. Questions involving proximal life history variables or stressors will be more accessible, which is of particular interest to forensic anthropologists investigating human identification. The group culled a set of core measures from across the subdisciplines, measures that address issues of universal concern and that could be made maximally comparable. The resulting protocol is designed to provide a small core of standard measures that can be easily added to lengthier and more specific protocols generated to address targeted research questions. The protocol includes “nonskeletal” measures such as body weight and overall size (e.g., stature, sitting height) and “proxies for key skeletal measures” (e.g., body segment measurements, cranial circumferences), with definitions that can be approximated on both living and skeletal samples.

To facilitate dissemination of the protocol and to obtain feedback for its refinement, this presentation demonstrates the protocol and examples of how it has been used in cross-disciplinary research and how it will



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benefit work in forensic anthropology. The presentation includes instructional videos of collection methods and tools, a sample database for entering protocol measurements, sample resources for acquiring research tools, and sample results of pilot research projects. Measures and proxies are demonstrated with written instructions, photographs, videos, and diagrams; users are assumed to have familiarity with skeletal landmarks and skeletal measurement technique. Pilot research projects include evaluation of how well skeletal proxies correlate with measures taken on living subjects, and consider the relationship between frame size (as measured from knee dimensions) and body weight. The group's website, which can be viewed at www.bonesandbehavior.org, provides protocols and videos for free download, along with ancillary data protocols targeting more specific questions (e.g., dental anatomy, blood spot collection), archives of methods papers, and references to sources that provide equipment and additional background information.

Morphometry, Protocol, Interdisciplinary