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Approaches and trends in forensic anthropology

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Conventionally, forensic anthropology is defined as the application of physical anthropology to the legal process. As experts in osteology, skeletal biology and archeology, forensic anthropologists assist in the recovery and analyses of human remains, especially when they are skeletonized, burned, mutilated, or otherwise unrecognizable. Forensic anthropologists use knowledge of skeletal biology to develop a biological profile, aid in identification, reconstruct trauma, and estimate the postmortem interval. In the past three decades forensic anthropology has been growing rapidly and developing as both a forensic science and as an area of research in physical anthropology. Forensic anthropologists are increasingly involved in numerous aspects of crime scene, mass disaster, and human rights investigations, including search and recover, analysis of remains, and expert testimony. The number of both academic and non-academic positions in forensic anthropology has increased in the US in the past several decades. Forensic anthropology has also matured into a dynamic field of research that is generating new research questions and new methods for reexamining older anthropological and forensic hypotheses. This overview discusses the role of forensic anthropology as an applied forensic science and as an academic research area within physical anthropology.

Key words: **Anthropology, physical - Forensic anthropology - Forensic sciences.**

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Forensic anthropology is most commonly defined as the application of physical anthropological knowledge and methods to the legal process.[1, 2] The conventional view of a forensic anthropologist is an individual broadly educated in anthropology with specific training in skeletal biology (*i.e.*, the study of bone anatomy, physiology, mechanics, ontogeny, and growth) who works with other specialists (*e.g.*, pathologists, odontologists, entomologists, and homicide investigators) on the examination of human skeletal remains. Forensic anthropologists are generally recruited by law enforcement agents, lawyers, and medical examiners when a normal autopsy cannot be performed because the body is decomposed, burned, mutilated, or otherwise damaged. Forensic anthropologists are asked to use their knowledge of skeletal biology to help develop a biological profile, document skeletal trauma, estimate the postmortem interval, and aid in identification.

Forensic anthropology has been practiced by anthropologists for over a century,[3-8] but it was not formalized as a profession or field in the United States (US) until 1972 when the Physical Anthropology section was estab-

lished in the American Academy of Forensic Sciences.[3, 8] Since this time the role of forensic anthropology in both the forensic sciences and in traditional anthropology has been rapidly changing. In the past several decades forensic anthropology has developed into much more than the mere application of methods for assessing biological variables as characterized in the conventional definition above. Forensic anthropology has grown and developed both as an applied forensic science and as a research area within physical anthropology. Besides being experts in human skeletal biology, forensic anthropologists are also usually trained in archaeological and cultural anthropological methods. As a result, forensic anthropologists are becoming increasingly involved in many aspects of legal investigations, especially involving international crises.[9-11] Recently forensic anthropology has also become a recognized discipline of the International Association of Identification.

Additionally, forensic anthropology is rapidly maturing as an active research field within forensic science and anthropology.[11] Within physical anthropology, forensics is comparable to fields such as paleoanthropology, bioarchaeology, paleopathology, primatology, and human biology. Within the forensic sciences, physical anthropology is one of the most research driven disciplines in the American Academy of Forensic Sciences.[3, 8, 11] The reason for this is that most forensic anthropologists are also trained research scientists. Forensic anthropology is generating new research questions and new methods for reexamining older anthropological and forensic hypotheses. Forensically-oriented anthropologists have offered novel methods for analyzing and interpreting human biological variation, disease, trauma, and postmortem processes. Forensic anthropologists also frequently apply a biocultural perspective that recognizes the consequences of cultural viewpoints, variation in activity patterns and diet, secular change, and other factors that can affect skeletal morphology.

For decades forensic anthropologists were primarily physical anthropologists with substantial experience in conducting skeletal analyses. In the last several decades a growing number of forensic anthropologists have specialized graduate training in forensic anthropology. Several anthropologists have told me that any "good" physical anthropologist (*i.e.*, one who knows his/her osteology) can do forensic casework. While this may have been true a few decades ago, most physical anthropologist today would be bewildered in a modern forensic anthropology/pathology laboratory. While classical physical anthropologists are also concerned with methods for assessing age, sex, ancestry, stature, and other biological parameters, the traditional approaches to studying ancient human remains is often not sufficient in a modern medicolegal context. Furthermore, forensic anthropologists are expected to deal with many issues (*e.g.*, positive and presumptive identification, cause of death, high force trauma, and time-since-death) which are rarely within the realm of bioarchaeological examinations. Moreover, forensic anthropologists are also increasingly being asked to examine fresh remains and apply their knowledge to assist in the aging and identification of living individuals.[12] While this work is based on the physical anthropologist's knowledge of human variation, the goals and methods applied are unique and not typically used in academic anthropology.

In this overview of forensic anthropology, the author will discuss the conventional role of the forensic anthropologist within forensic science, including the development of a biological profile, methods for identification, assessment of trauma and manner of death, and determination of the postmortem interval. I will also briefly discuss the role of forensic anthropologists as researchers addressing questions in both forensic science and traditional physical anthropology. Forensic anthropology is gaining acceptance in countries throughout the world, but since my background and training in forensic anthropology is from the US, I will primarily focus on developments in the US. There are several good overviews of the role of forensic anthropology in other countries and on the development of the field throughout the world.[3, 8, 11-17]

The forensic anthropologist in forensic science

Forensic science refers to any branch or discipline of science that is used for the purpose of law.[2] Forensic anthropologists are most often called upon to assist in the personal identification of skeletonized, burned, mutilated, or otherwise unrecognizable human remains from crime scenes and mass disaster sites. As experts in skeletal biology and archaeology, forensic anthropologists help in the discovery, recovery, and examination of human remains. Forensic anthropologists use techniques first developed within traditional skeletal biology to assess age-at-death, sex, ancestral background, stature, health, trauma, and occupational stress. Forensic anthropologists also frequently use knowledge of artifact mapping and taphonomy, first gained from research in archaeology, bioarchaeology, and zooarchaeology, to aid in documentation of crime scenes and the estimation of the postmortem interval.

Search and recovery

Increasingly forensic anthropologists are involved in the search and recovery of human remains at crime scenes and mass grave sites because of the extensive archaeological training that most physical anthropologists in the US receive. Archaeologists are trained in techniques for locating and excavating buried prehistoric and historic sites, and these same methods can be crucial in criminal investigations. Archaeological sites and crime scenes have several factors in common: 1) the collection of evidence is a destructive process; 2) only part of the information once at either the crime scene or the archaeological site can be recovered; and 3) it is often difficult when processing a crime scene or archaeological site to predict what information might be important to the investigation.[8, 11] Forensic anthropologists therefore can be key personnel in crime scene detection and in the retrieval of skeletonized or buried bodies. The amount of time, effort, and expense put into an archaeological or a crime scene investigation is dependent on the goals of the project. In an ideal world, investigators would spend the time and money to recover the maximum amount of information available at the site. However, in most cases there will be time, money, and manpower constraints that require the investigators to focus only on the most important goals. Therefore, it is critical that anthropologists understand the investigators' goals and their priorities.[11]

More recently, anthropologists have been employed to conduct search and recovery missions involving mass graves. In the US, anthropologists are recruited as members of the Disaster Mortuary Operational Response Team (DMORT) and have played a crucial role in the retrieval of missing US soldiers,[18, 19] members of the Branch Davidian compound,[20, 21] victims of the September 11th terrorist attacks [22] and other disasters. In other parts of the world, forensic anthropologists are actively involved in human rights and war crimes investigations in many countries, such as Afghanistan, Argentina, Bosnia, Croatia, Guatemala, Iraq, Kosovo, and Rwanda.

Species identification

Forensic anthropologists are experts in skeletal anatomy and are experienced at examining both complete and fragmentary bones. In addition, physical anthropologists usually have experience separating human and nonhuman bone fragments. While many medical examiners can recognize intact human bones, few have the training to distinguish between human and nonhuman fragmentary bones. The distinctions between human and nonhuman bones are related to differences in brain size, diet, locomotion, and evolutionary history. The human skeleton is adapted for a large brain, omnivorous diet, and bipedal locomotion. As a result, human bones differ from nonhuman bones in size, shape, robustness, and density.[23] While DNA analysis can often be used to differentiate between human and nonhuman bone, in most cases anthropologists can perform this task in a matter of minutes at minimal cost. In cases where the bone is highly fragmented or severely burned, microscopic

examination of the bone structure might still prove more efficient than DNA analyses.[24-26]

Postmortem interval and taphonomy

Forensic anthropologists generally make an estimation of the postmortem interval or how long the person has been dead. To estimate the time-since-death, anthropologists usually work closely with law enforcement agents, entomologists, and other specialists. Rarely is there any one factor that can be used to reliably estimate the postmortem interval. This is in part because the rate and pattern of postmortem events is highly influenced by environmental, biological, and cultural factors.[27, 28] Environmental events include ambient temperature, moisture (rainfall and humidity), exposure (sun, wind, rain, and fire), soil acidity, and other natural variables. Biological factors include access to the remains by insects, carnivores, and rodents, the amount and type of plant activity, the size, build, and weight of the deceased individual, and trauma to the body. Cultural factors include burning, clothing on the body, depth of burial, type of burial container, and preparation of the body.

Time-since-death is often one of the most difficult questions the forensic anthropologist faces, and the length of the postmortem interval often influences the accuracy of the estimation.[28] In relatively fresh remains, entomological and soft tissue change information can be used to estimate the postmortem interval with accuracy. However, determining the time-since-death in skeletonized remains is often much more difficult. In cases of dry bone, the forensic anthropologist may only be able to characterize the body as either likely to be of forensic or archaeological significance (from a historical or prehistorical burial). Often associated artifacts, knowledge of archaeological site locations, and cultural modifications of the skeleton can provide clues to the archaeological nature of human remains. In more recent skeletal cases, plant growth,[29] volatile fatty acids,[30] and artificial radiocarbon [31, 32] may be used to more accurately determine the postmortem interval. However, in many cases, forensic anthropologists can only provide broad estimations (months, seasons, and years) of the time since death based on the human remains. More precise estimations usually require collaboration with other investigators.

In addition to the time-since-death, anthropologists can often determine if and when postmortem events occurred using the taphonomic record.[11] Postmortem events include any event that occurs to the body after death, but commonly reported events include secondary movement of the body or bones by humans, animals, or water, modification of the bone by human or animal activity, fire, water, or the sun., and attempts to destroy the body using fire, chemicals, or other means.

Biological profile

The traditional involvement of physical anthropologists in medicolegal investigations has been to interpret the morphological features of the skeleton to develop a biological profile of the person. The biological profile generally consists of assessment of age-at-death, sex, ancestral background, stature, and unique skeletal diseases or traits. While the forensic anthropologist will develop a biological profile for individuals at any stage of life, assessing age-at-death is more straightforward and more accurate for skeletally immature individuals, while the assessment of sex, stature, and ancestry are usually simpler for adult skeletons.

Forensic anthropologists use multiple methods to help provide the most accurate age-at-death assessment possible. In most cases a lower and upper age range is provided along with a probability that the individual's age-at-death falls within the range provided. The methods used to estimate age-at-death are dependent not only on the stage of life of the individual being analyzed but also the preservation of the bones, the accuracy of the method, the equipment available to the investigator, and the experience of the forensic anthropologist conducting the analysis.

Human bone is a dynamic tissue that constantly changes through life, and many of these changes are highly correlated with chronological age. Forensic anthropologists

use knowledge of growth and development of the teeth and bones to help determine the age-at-death in infants, children, juveniles, and adolescents. Long bone lengths, epiphyseal formation and fusion, dental formation and eruption, and other processes of growth are most commonly used to assess age-at-death in skeletally immature individuals. Once growth is complete, forensic anthropologists rely on skeletal features that have documented age-related degenerative changes in morphology. Morphological changes in the symphyseal face of the pubic bone,[33, 34] auricular surface [35] and sternal end of the rib [36] are frequently examined to estimate age in adults. However, degenerative joint disease, cranial suture closure, dental attrition, and many other morphological alterations provide additional clues about the age of the deceased individual.

The accuracy of the method employed is dependent on multiple factors. First, there has to be a great enough number of recognizable morphological changes in the skeletal area being examined. Second, all individuals should progress through the changes in the same order. Third, the changes must have a strong relationship with chronological age. Fourth, the morphological changes should not be affected by genetic variation, sex, activity patterns, health, or other factors. Rarely do age-at-death estimation methods meet the last criterion. As a result, the method may only be accurate on the sample used for its development and require separate population and sex standards. The availability of equipment and experience of the investigator also influence the methods used to estimate age-at-death. Accurate age estimations can be determined using histological observations of the teeth and cortical bone,[37, 38] but these methods require equipment that is not universally available, are time-consuming, and often required specialized training.

Sexual dimorphism can be detected with relative ease in adult skeletal remains. Assessing sex in skeletally immature individuals is much more difficult, however, because most of the sex specific morphological changes of the skeleton occur late into the adolescent growth spurt. The most reliable methods for assessing sex from the adult skeleton involve morphological features of the pelvis. To accommodate the large head of the neonate during childbirth, the female pelvis is larger relative to body size and shaped differently than the male pelvis. In addition, females often exhibit distinct scars associated with relaxation of the ligaments at the pelvic joints during pregnancy. While sexual dimorphism is also detectable on most other bones, the differences between males and females is primarily in size, robustness, and muscle attachment site morphology. The differences between males and females can be evaluated based on visually assessed categorical observations or metrically. However, many of the categorical observations also contain a size component. As a result, the sectioning point or distinction between male and female can vary between populations and over time.

Categorizing skeletal remains according to ancestral background is perhaps the most controversial task facing the forensic anthropologist. This is in part because physical anthropology is historically rooted in the typological approach and because of misunderstanding and confusion about the definition of race.[39] As a result, forensic anthropologists often prefer to use the term "ancestry" instead of race. However, while substantial within group variation exists in all populations, there also exists detectable difference between populations based on biological, geographical, and historical differences.[39] To aid in the identification process, forensic anthropologists generally attempt to determine the ancestral background or the social race that the individual would most likely self identify. The group or population descriptions used by forensic anthropologists are usually dictated by the local population diversity.[40] The forensic anthropologist must assess morphological features of the skeleton in the context of worldwide human variation, but use language congruent with the local community. For example, in the Midwest US, terms such as white, black, Asian and Hispanic may be appropriate. However, in southern Florida the term Hispanic is not suitable because of the complex geographi-

cal, biological, and social histories of individuals that self identify as Hispanic.[41]

In most cases, morphological and metric features of the teeth and skull provide the most reliable estimation of group classification. In recent years, the development of large craniometric data bases and computer programs for conducting discriminant function analyses make the estimation of ancestry easier.[42] Forensic anthropologists, however, should clearly convey the groups and sample sizes used in the analyses as well as the posterior and typicality probabilities of the classification, and use caution in the interpretation of statistical results.

Adult stature can be estimated using "anatomical" or "statistical" approaches.[43] When using the anatomical approach, usually referred to as the Fully method,[44] forensic anthropologists sum the superoinferior dimensions of all bones that contribute to stature and add a soft tissue factor.[43, 44] When using statistical methods, on the other hand, anthropologists calculate stature using bone lengths and published or calculated stature regression formulae. The anatomical approach provides the most accurate estimates of adult height, but this method is much more difficult to apply since all (or at least most) of the skeletal elements must be present and relatively well preserved. Statistical approaches, on the other hand, usually require sex and population specific formulae.

Error in estimating stature is a persistent problem in forensic anthropology because of differences in living, cadaver, and forensic stature.[45] Ideally forensic anthropologists would estimate the living stature of an individual. However, records for a missing person may not accurately portray their living stature. In the US, self reported living stature is often erroneously reported on driver's licenses and other forms of identification [46] or not updated to match age related decrease in stature.[47] As a result, forensic anthropologists are really asked to estimate the "known" or forensic stature of an individual. This procedure is complicated by the fact that only cadaver length is known for individuals in many of the reference samples used to create statistical regression formulae. Cadaver length has been demonstrated to overestimate living stature.[48]

Forensic anthropologists often examine the skeleton for unique characteristics that may aid in the identification of an individual. Unique characteristics cannot be used for identification, but serve as a method for excluding individuals and to help narrow the search parameters. Unique characteristics can include antemortem diseases or fractures, unique bony and dental morphology that may be captured in medical records, medical prosthetic and surgical devices, or skeletal indicators of habitual activity.

Identification

One of the primary goals of most forensic anthropological investigations is to positively identify the skeletal remains. The process of positive identification often begins by excluding individuals based on their sex, age, ancestry, and stature. The presence or absence of unique skeletal features or pathology can further exclude individuals. Photographic superimposition is a technique used by some anthropologists that compares anatomical features of a recovered skull with an antemortem photograph of the suspected individual. If the anatomical features do not match the individual can be excluded. However, photographic superimposition is not used as a method of positive identification.

Circumstantial or presumptive identification can often be established when multiple skeletal features match known characteristics of a missing individual.[49] However, positive identification requires the comparison of antemortem and postmortem records. Maxillary sinus patterns and vertebral trabecular bone patterns may be significantly unique between individuals to be used for positive identification if records are available.[50] However, in most cases involving skeletal remains positive identification is made using dental remains or DNA matching. Forensic anthropologists often have the expertise to conduct dental identifications or work in conjunction with odontologists.

Advances in DNA methods have greatly improved the identification process. While there are preservation and contamination issues associated with DNA analyses, genetic identification is today a very common method used in medicolegal cases.

The most difficult process in DNA identification is often obtaining a comparative sample. This is especially true for skeletal remains found near the United States – Mexico border. Lori Baker at Baylor University has created a database of unidentified individuals found near the border that is accessible via the internet. The database contains all available information on the unidentified individual including the biological profile, unique or individualistic characteristics, clothing, and personal belongings found with the remains. Family members in the US and Mexico can access the website and search the database for a description that matches the missing relative. If a significant number of characteristics match to form a presumptive identification, family members in the maternal line can send Dr. Baker a sample of mtDNA that she compares to the mtDNA sample obtained from the skeletal remains. Other national databases are also being developed that will greatly improve the likelihood of positive identification in many skeletal cases.

Trauma analysis

Forensic anthropologists are often called upon to assist in describing and interpreting damage and trauma on the skeleton. Of particular importance to law enforcement is whether the wound occurred before death (antemortem), around the time of death (perimortem), or after death (postmortem). However, the forensic anthropologist may only be able to provide information about whether the bone was "green" or "dry" at the time of injury.[51] Antemortem and perimortem lesions can also be scrutinized to determine the type of wound and the direction of the force. The type of wound is usually described as projectile, sharp force, or blunt force. While forensic anthropologists lack the legal authority to declare the official cause of death, the description of trauma provided by the anthropologist is frequently used by the medical examiner to determine the cause of death.

Legal responsibilities

As anthropologists have become increasingly involved in the medicolegal system, they are also becoming more aware of the legal and ethical responsibilities accompanying this involvement.[13, 52] Galloway *et al.*[13] provide an excellent overview of the legal responsibilities of the forensic anthropologist. Grivas and Kumar [53] examine the impact of the Frye Ruling, Daubert Ruling, and the Kumho Ruling on forensic anthropology. Likewise, Kumar and Buikstra [52] include a chapter in their new forensic anthropology textbook which discusses judicial rules. Furthermore, laboratory accreditation and quality assurance programs are becoming more common in forensic anthropology. As forensic anthropology matures within the forensic sciences, its practitioners also have an obligation to gain knowledge of the legal system in which they operate.

Research

Underlying all forensic science applications is the accepted scholarly theory, methodology and technology used to examine evidence. Forensic anthropology requires reliable, objective methods for developing a biological profile, interpreting trauma, and estimating the postmortem interval. Frequently the techniques used in traditional physical anthropology, especially bioarchaeology, can be modified to meet the regional needs of the forensic anthropologist with new cut-off points and data ranges or new statistical methods and the use of informative priors can be used to provide probability statements about the reliability of the estimate.[40, 54] In many cases, however, the methods and validation processes are unique to forensic anthropology. Forensic anthropology has posed challenges to existing methodology and reference samples. Forensic anthropology has also required researchers to investigate scientific questions that are unique to forensic anthropology or that were insignificant in the past (*e.g.*, frag-

mentation, heat alteration, taphonomic effects, high momentum and unusual trauma, and positive and presumptive identification).[8] In the past several decades forensically-oriented researchers have been testing the validity of methods, especially for the assessment of age-at-death, sex, stature, and ancestry. However, research regarding the validity of facial reproductions, interpretation of trauma and pathology, as well as the determination of the timing of trauma is still lacking.

The forensic anthropologist as an anthropologist

While there are often distinct divisions between scientists working in a mediocolegal context and those working in academic fields, and the forensic anthropologist frequently either straddles these two areas or jumps back and forth. Many anthropologists that do regular casework also conduct research in more traditional areas of physical anthropology, including bioarchaeology, paleopathology, population genetics, paleodemography. Within traditional anthropology departments, forensic anthropologists are often criticized because their casework is an applied science and does not advance knowledge in the field of anthropological theory. Too often forensic anthropology is only tolerated in anthropology departments because it provides recognition for the department and a source of revenue.

However, a growing number of academic physical anthropologists are focusing their research on questions pertinent to forensic science, and forensic anthropological research seems to have a lot to offer to traditional physical anthropology. Even scientific questions that seem unique to forensic anthropology often have broader anthropological importance.[8] For example, the Anthropological Research Facility at the University of Tennessee was set up to examine questions about taphonomy in forensic settings. Knowledge gained from forensically-oriented taphonomic research, however, has also increased our understanding of taphonomic processes occurring in archaeological settings. Likewise, research in secular trends initially focusing on the question of whether skeletal collections consisting of individuals born in the 19th century are appropriate for comparison to modern forensic cases has greatly increased our knowledge of human skeletal plasticity and human genetic variation. As a result of this and other research, forensic anthropology is maturing as a research area within physical anthropology and is directly contributing to anthropological theory.

The author believes it is within physical anthropology that forensic anthropology will continue to grow. Even though anthropology is on the rise within forensic science, there are still relatively few individuals that are employed as full-time applied forensic anthropologists and the number of nonacademic positions will likely level off soon. Most forensic anthropology practitioners are employed as college professors in anthropology, anatomy, and biology departments. Furthermore, because of the increased research in forensic anthropology and popularity among students, the number of academic positions advertizing for candidates with a forensic anthropology background are on the rise. It is within academic physical anthropology that the methods used by forensic anthropologists will be developed and validated. The future of forensic anthropology ultimately relies on the quality of the research conducted by physical anthropologists interested in forensic anthropological research questions. Therefore, while specialized training in forensic anthropology is vital to the field, it is also critical that students receive not only broad anthropological training but also a robust science education that involves developing research skills.

Conclusions

Forensic anthropologists are asked to use their knowledge of skeletal biology to help develop a biological profile, document skeletal trauma, estimate the postmortem interval, and aid in identification of skeletonized or badly damaged human remains. Although physical anthropologists have been assisting in medicolegal investigations for over a cen-

tury, forensic anthropology is a relatively new subdiscipline of physical anthropology. Since the early 1970s, forensic anthropology has significantly gained recognition within forensic science and is becoming increasingly involved in many aspects of homicide investigations, mass disasters, and war crime. Initially an applied aspect of physical anthropology, forensic anthropology has also begun to mature as an area of research within anthropology. Forensically-oriented researchers are not only contributing forensic anthropology but they are also addressing scientific questions that have broader anthropological applications. The increased acceptance of forensic anthropological research in academic anthropology departments will only further increase what forensic anthropologists have to offer to both forensic science and anthropology.

Riassunto

Approcci e tendenze in antropologia forense

Convenzionalmente, l'antropologia forense è definita come l'applicazione dell'antropologia fisica al processo legale. In qualità di esperti in osteologia, biologia ed archeologia scheletrica, gli antropologi forensi partecipano al recupero e alle analisi di resti umani, soprattutto quando questi sono scheletrizzati, bruciati, mutilati o altrimenti non riconoscibili. Gli antropologi forensi impiegano le conoscenze di biologia scheletrica per sviluppare un profilo biologico, aiutare l'identificazione, ricostruire il trauma e stimare l'intervallo postmortem. Nelle ultime tre decadi, l'antropologia forense si è evoluta rapidamente e si è sviluppata sia come scienza forense, sia come area di ricerca nell'ambito dell'antropologia fisica. Gli antropologi forensi sono sempre più frequentemente coinvolti in numerosi aspetti della scena di un crimine, di un disastro di massa, e nella valutazione dei diritti umani, tra cui la ricerca e il recupero, l'analisi dei resti e la deposizione da esperti. Il numero di entrambi gli orientamenti accademico e non-accademico nell'antropologia forense è aumentato nelle ultime decadi negli USA. L'antropologia forense si è evoluta anche in un campo dinamico di ricerca che sta generando nuovi quesiti di ricerca e nuovi metodi per riesaminare precedenti ipotesi antropologiche e forensi. Con questo quadro generale, gli autori discutono il ruolo dell'antropologia forense come una scienza forense applicata e come area di ricerca accademica all'interno dell'antropologia fisica.

Parole chiave: Antropologia fisica - Antropologia forense - Scienza forense.

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