

BOOK REVIEW

Forensic anthropology: identification from human skeleton

**By Atamtürk D. Ankara: Palme Yayınevi, 2024. 284 pp. ISBN:978-625-6672-41-3
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Abstract

In the present review the book *Adli Antropoloji İnsan İskeletinden Kimlik Tespiti* (Forensic Anthropology: Identification from Human Skeleton) by Derya Atamtürk was evaluated. The book is designed in six chapters based on a comprehensive literature review. In the first chapter the historical development and the scope of forensic anthropology had been given. In the second chapter, a brief information had been given those contribute to human skeleton. The last four chapters are on the four important stages of identification. Given that forensic anthropology is a multidisciplinary field a comprehensive book on the subject be authored collaboratively by experts from various disciplines. The inclusion of contributions from a molecular biologist, a dentist specializing in forensic odontology, and a medical doctor with expertise in histology or pathology would undoubtedly enhance the credibility of the work and increase the reader's confidence in its scientific rigor.

Forensic anthropology as an important subfield in forensic sciences

Probably the most important characteristic that distinguishes of human being from other living creatures is their attachment to the past and the family. Even after death people want to fulfill their last duties to their relatives regardless from their religion or sociocultural habits. In Turkey, as a Middle East country, most of the people are strictly attached to religion and the identification of the victim is important for the last ceremony. On the other hand, as Derya Atamtürk (2024) mentioned in her preface the country is the site of earthquakes. More than 53 thousand of people had been killed in the earthquake on 2023 February 4th. Besides being an earthquake zone Anatolia is an important migration route and in recent years the Turkey received too much immigration. This special structure of the country emphasizes the requirement of forensic anthropology in Turkey. Forensic anthropology in Turkey is not yet institutionalized. However, postgraduate education on forensic anthropology has started to be given within the scope of forensic sciences.

Even though several anthropological researches on Turkish population had been reported up to date there are only a few textbooks on forensic anthropology published in Turkish. A detailed book in Turkish on the subject is still an important requirement. So the book “Forensic Anthropology, Identification from Human Skeleton” (Adli Antropoloji: İnsan İskeletinden Kimlik Tespiti) by Derya Atamtürk (2024) is a perfect text book not only for undergraduate students, but also for postgraduate students.

Identification is not the only purpose of a forensic anthropologist

The book is composed of six chapters. The first chapter had been designed in two part as the history and the scope of forensic medicine.

Even though Derya Atamtürk had been focused on identification, in her first lines in the chapter on the scope of forensic anthropology she also emphasized the main points such as time of death, cause of death, manner of death for a good collaboration with the other members of the team, and gave detailed knowledge on each of them.

I deeply agree with Dr. Atamtürk in her criticism of the concept of race. Even though the concept of race had been debunked by scientist identification of race still continues to be one of the central foci of forensic cases (Sauer, 1992; Ross and Williams, 2021). Many of the anthropologists suggests that using cranial variations to estimate the ancestry remains (Ross and Williams, 2021). Sauer (1992) suggest that the main aim is not the estimation of the race but rather a prediction that an individual, while alive was assigned to a particular socially constructed ‘racial’ category. Dr. Atamtürk may consider including a concise section in her book discussing her perspectives not on the concept of race, but on the estimation of ancestry and ethnicity

A detailed anatomical knowledge on bones is required for a reliable identification

Forensic anatomy, a vital sub-discipline within forensic science, focuses on the examination and identification of human skeletal remains. It plays a pivotal role not only in establishing the four fundamental parameters of forensic anthropology—biological profile, time since death, cause of death, and manner of death—but also in assessing morphological anomalies, pathological changes in bone tissue, and determining the manner of death.

In this chapter, Derya Atamtürk initially classifies the bones of the human skeleton into two main categories: the axial skeleton and the appendicular skeleton. Subsequently, the components of the appendicular skeleton are further categorized into the bones of the upper and lower limbs. Although the anatomical description of the skull bones is generally considered complex, Dr. Atamtürk provides a clear and comprehensive explanation of these bones, detailing their anatomical relationships and positions within the overall structure of the skull. In addition,

the distinguishing features of the vertebrae are fairly well defined. The main structures on the bones of the limbs and the landmarks those are crucial for anthropologists in practice are emphasized. However, it would be better to insert a section on general information on bones and bone tissue including the related cells at the beginning of the chapter. Such an information would also help the reader to understand the ossification mentioned in the fourth chapter on age estimation.

The only point I would like to highlight is that the pelvis is not a single bone, but rather a complex structure composed of multiple bones. Although Dr. Atamtürk has provided an excellent and comprehensive description of the pelvis and its components it would be more appropriate to place this section immediately after the discussion of the hip bone (*ossa coxae*).

Another point I would like to emphasize that the skeletal elements are poorly presented for photographic documentation; the lighting is inadequate, and as a result, important anatomical details are not clearly visible in the figures.

Big four of forensic anthropology

The last four chapters of the book are on sex, age, stature and body weight estimation, the big four of forensic anthropology.

Sex estimation

DNA analysis is widely regarded as the most reliable method for estimating biological sex, particularly when soft tissues are available. However, the extraction of DNA from skeletal elements such as bones or teeth is not always feasible. Furthermore, the implementation of molecular techniques in forensic anthropology is often cost-prohibitive, limiting their routine application. Consequently, sex estimation based on morphological and morphometric characteristics remains a critical approach for forensic anthropologists.

In the third chapter of the book on sex estimation, Derya Atamtürk addresses this topic under two main subheadings: sex estimation in prepubescent individuals and in adults. However, it is important to note that the Turkish term *erişkin* may be variably interpreted as referring to pre-pubertal, preadolescent, prepubescent individuals, or simply those under 18 years of age. Therefore, it would have been beneficial to clearly define the age-related cut-off points used in the analysis.

Atamtürk provides a comprehensive discussion on sex estimation based on morphological and morphometric characteristics of skeletal remains, highlighting the influence of secular trends and population-specific variation on the accuracy and applicability of these methods.

To date, molecular techniques for sex estimation have not been covered in details in any forensic anthropology textbook published in Turkish. The author provides comprehensive information on this subject, encompassing the extraction of DNA from skeletal remains, the identification of human DNA, its purification and sequencing, as well as the use of sex-specific markers.

Forensic anthropology is a multidisciplinary field that advances through the collaboration of experts from various specialized domains. Molecular biology, in particular, demands a high level of specialized education and training. Although Dr. Atamtürk is a highly competent author in the field of forensic anthropology, to enhance the credibility and scientific rigor of the text, it would have been more appropriate for this specific section to be developed in collaboration with a molecular biologist.

Age estimation

Estimation of age is without doubt one of the most important criteria for the reliable identification of the victims, moreover, it plays a vital role in assessing the age of living individuals who are unable to express themselves. At the beginning of the fourth section on sex

estimation the difference between the chronological and biological age, and the factors those effect the development of the body had been reported. Subsequently, age estimation was evaluated in two sections: age prediction during the early stages of development and age estimation in adults. As noted in the relevant section, radiological studies on sex estimation are constrained by ethical considerations not only in children but also in adults. However, archives of the radiology departments of several hospitals are good sources for such researches (e.g., Yavuz et al., 2023; Karaman et al., 2024; Ekizoğlu et al., 2015).

The initial section of Chapter Four, which addresses age estimation during the early stages of development, may lead to confusion for the reader. Presenting fetal age estimation as a distinct section would have enhanced clarity and improved the overall structure of the chapter.

As it is mentioned previously, a solid understanding of histology is necessary to understand mesenchymal and endochondral ossification. So at the beginning of the section it would have been better to give a brief knowledge on bone tissue and the cells those take part in ossification. Later to help the reader understand the stages of ossification, it would be better to give relevant information in bullet point format.

In the section concerning age estimation during the early stages of life, the author offers comprehensive information on sex determination based on dental characteristics. The methods of age estimation utilizing radiographic images of the hand, ankle had been mentioned only in Table 37 in the last section of the chapter. These methods are widely utilized by dentists to evaluate the developmental process and are also of significant importance to forensic anthropologists in assessing the legal responsibility of young adults. Although some studies have reported challenging approaches on the reliability of the use of cervical vertebrae for age estimation (Gelbrich et al., 2017; Gulsahi et al., 2020; Magalhães et al., 2022), it would have been beneficial to provide a brief information of the radiological evaluation of cervical vertebrae in this context.

The second section of the chapter on age estimation in the adults had been perfectly arranged in three parts as morphological, microscopic and radiological analysis and contains highly comprehensive information for both undergraduate students and the forensic anthropologists working in the field.

Stature estimation

In this chapter on stature estimation, the author initially introduces the anatomical and mathematical approaches, which represent the two primary methods for estimating stature. This is followed by a critical evaluation of numerous studies in the existing literature, through which the author provides comprehensive insights into various techniques used for predicting body height. In the final section, which addresses the challenges associated with stature estimation, the author highlights the influence of factors such as age, sex, secular trends, and inter-population variability. This well-structured and informative content is likely to assist early-career forensic anthropologists in minimizing errors during stature estimation in practical fieldwork.

Body weight estimation

The last chapter of the book on body weight estimation could be described as a quality literature review. Initially, the studies on body weight estimation were classified into two subgroups based on their methodology: estimation based on bone weight and estimation based on anthropometric measurements obtained from various parts of the body. Later, the author evaluated the studies on morphometric dimensions in three groups; body weight estimation for the studies on human evolution, estimation for the patients, body weight estimation related with medical studies and body weight estimation in forensic cases. However, body weight estimation is not considered a reliable criterion, particularly in forensic cases, as it is influenced by multiple factors. Even the body weight of the same individual may vary over time due to environmental influences or changes in personal habits.

Conclusion

Forensic Anthropology Identification from Human Skeleton (Adli Antropoloji: İnsan İskeletinden Kimlik Tespiti) is a well-prepared book depending on a comprehensive literature search. A concise section on pathological changes, such as fractures or bullet wounds, could be incorporated into the book to enhance its comprehensiveness.

This book is without doubt a valuable resource not only for undergraduate students, but for the post graduate ones as well. However, it is not an easy source for practical use. On the other hand, considering that forensic anthropology is a multidisciplinary field, it is recommended that such a book be developed in collaboration with experts from related disciplines, including molecular biologists, dentists, and potentially medical doctors, to ensure a more comprehensive and scientifically robust perspective.

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