
Preface

There remains a paucity of text literature regarding forensic implications of the lower extremity. *Forensic Medicine of the Lower Extremity: Human Identification and Trauma Analysis of the Thigh, Leg, and Foot* encompasses human identification, biomechanics, trauma analysis, and new areas for potential forensic research with regard to the thigh, knee, leg, ankle, and foot. Initially, the reader may question what makes the lower extremity different enough from other anatomic regions that it merits a separate text. Simply put, the lower extremity can provide a plethora of forensically useful information from an identification and biomechanical perspective.

The anatomic regions used for identification may include the dentition, skull, lumbar spine, and pelvis. If the remains are from an isolated body part as may be frequently encountered in violent deaths, mass disasters, and/or cases of human rights abuse including torture, the task of positive identification and trauma analysis may represent a significant and daunting task for forensic experts. Moreover, the aforementioned anatomic regions may be unavailable or too destroyed to be of forensic value.

Forensic Medicine of the Lower Extremity: Human Identification and Trauma Analysis of the Thigh, Leg, and Foot focuses on the use of the lower extremity to facilitate the identification of decomposed, mutilated, incinerated, and/or fragmented human remains. Additionally, trauma analysis is discussed with an emphasis on accident reconstruction and the biomechanics underlying the trauma from both a theoretical and practical perspective. The book is meant not as an all-inclusive discussion of forensic aspects of the lower extremity, but rather as a treatise on topics specific to the potential of this region relative to investigations involving human identification and trauma analysis. Areas for future research are presented, and each chapter is followed by references for further study.

Forensic Medicine of the Lower Extremity: Human Identification and Trauma Analysis of the Thigh, Leg, and Foot is divided into three parts. Part I of the text lays the groundwork for the applied forensic processes detailed in later chapters. The biochemical decomposition processes of human remains are discussed to help develop a greater appreciation of the mechanistic events surrounding a death scene. Perhaps the most challenging task of the forensic team is the positive identification of the remains. A discussion of human development, skeletal variations, and forensic analysis is included. Forensic radiology is explored, with emphasis on the use of radiographs to facilitate

identification and evaluate trauma. This section also discusses the practical aspects and processes of identification from the lower extremity.

Part II focuses on ante- and postmortem processes that can produce identifiable markers in the remains. Soft tissue and skeletal injuries and their implications for accident investigation and reconstruction are reviewed. A discussion of the physics of skeletal trauma is also presented. These chapters translate the theoretical considerations of the preceding chapters into practical information relevant to clinical observation and/or forensic inference.

Part III discusses case studies involving the foot and ankle and presents potential areas of investigation that may offer promise in medicolegal contexts. Specific identification processes and ongoing research are reviewed including the forensic potential of feet and footwear and barefoot impression evidence.

Forensic Medicine of the Lower Extremity: Human Identification and Trauma Analysis of the Thigh, Leg, and Foot serves as a comprehensive review of both the theoretical and practical aspects of the lower limb for the forensic expert. The readership may include physicians, physical anthropologists, engineers, and criminalists, along with other forensic investigators.

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