

Forensic Anthropology: Terms and Definitions

DRAFT



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Forensic Anthropology: Terms and Definitions

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Foreword

This document is a compilation of terms and definitions used in the field of Forensic Anthropology. The terms and definitions in this document are primarily drawn from the published ANSI/ASB Forensic Anthropology Standards and Best Practices. Using the terms as defined in this document will promote consistency across jurisdictions, practitioners, and researchers. The definitions in this document reflect their use within the discipline of Forensic Anthropology, and may not correspond with dictionary definitions. For example, “pathology” is defined in this document as “The study of disease processes and anomalies as they affect the human skeleton”—since the skeleton is the relevant anatomical system evaluated by Forensic Anthropologists—rather than the medical definition: “The study of disease.” This document will be updated as Forensic Anthropology Standards and Best Practices are published and/or modified.

The AAFS established the ASB in 2015 with a vision of safeguarding Justice, Integrity, and Fairness through consensus-based American National Standards. To that end, the ASB develops consensus-based forensic standards within a framework accredited by the American National Standards Institute (ANSI) and provides training to support those standards. ASB values integrity, scientific rigor, openness, due process, collaboration, excellence, diversity, and inclusion. ASB is dedicated to developing and making freely accessible the highest quality documentary forensic science consensus Standards, Guidelines, Best Practice Recommendations, and Technical Reports in a wide range of forensic science disciplines as a service to forensic practitioners and the legal system.

This document was prepared, revised, and finalized as a technical report by the Anthropology Consensus Body of the AAFS Standards Board.

Questions, comments, and suggestions for the improvement of this document can be sent to ASB Secretariat, asb@aafs.org or 410 N 21st Street, Colorado Springs, CO 80904.

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Forensic Anthropology: Terms and Definitions

1 Scope

This technical report provides standardized terms and definitions used in the field of forensic anthropology. The terms in this document promote consistency across jurisdictions and among practitioners.

2 Normative References

There are no normative references for this document.

3 Terms and Definitions

3.1

age estimation

The estimation of chronological age from osseous, dental, and/or cartilaginous material, reported as an interval.

3.2

age mimicry

A phenomenon that occurs when means and confidence intervals for particular features/phases are calculated directly from the ages of individuals with those features in the reference sample, resulting in a method that produces results more influenced by the composition of the reference sample than the true age distribution of the features in the population.

3.3

anatomical method

A method of estimating living stature that involves measuring all bones constituting the components of stature, summing those measurements, and correcting for the missing soft tissue.

3.4

anomaly

A deviation from typical anatomy; often non-lethal or non-disruptive to function; it may or may not have clinical or forensic significance.

3.5

antemortem skeletal feature

A skeletal condition, defect, or anomaly that occurred before an individual's death, with evidence of a biological reaction.

3.6

antemortem trauma

A skeletal defect that occurred before an individual's death and shows evidence of osteological reaction.

3.7

articulation

When a skeletal element forms a congruent joint or juncture with another element.

3.8

biological profile

The description of an individual's estimated age, skeletal sex, population affinity, and living stature derived from an anthropological analysis.

3.9

blunt trauma

A skeletal defect produced by low-velocity impact from a blunt object (e.g., being struck by an object or concussive wave) or the low-velocity impact of a body with a blunt surface (e.g., motor vehicle accident or fall).

3.10

cadaver length

The measured stature of a body after death.

3.11

chronological age

The age of an individual in years, months, and/or days, calculated as the difference between the individual's date of birth and a specific later date.

3.12

commingling

The intermixing of biological material representing multiple individuals.

3.13

comparative medical imaging

An identification technique involving the direct comparison of antemortem and postmortem medical imaging to include radiographs, computed tomography (CT), magnetic resonance imaging (MRI) and other modalities.

3.14

congenital defect

A characteristic present at birth.

3.15

datum

A reference point or an approximation of the Earth's surface against which positional measurements are made for computing locations. Horizontal datums are used for describing a point on the Earth's surface, in latitude and longitude or other recognized coordinate systems.

3.16

delamination

A separation of cortical and cancellous bone.

3.17

dental development

Growth and maturation of the dentition, including enamel mineralization, crown, and root formation.

3.18

dental eruption

The process of tooth migration from its initial position in its bony crypt through the alveolar bone, the gingival tissue, and toward the occlusal plane.

NOTE For the purpose of forensic anthropology, most methods consider only eruption through the alveolar bone.

3.19

depositional environment

The combination of physical, chemical, biological, and cultural processes associated with a deposit in a particular type of environment that may contain human remains.

3.20

differential diagnosis

A process through which all possible causes of a skeletal or dental anomaly/abnormality are considered. Through a careful process of elimination, only the most likely causes remain to aid in the identification of the pathological or anomalous condition(s) of the skeleton.

3.21

estimate/estimation

An approximation derived from a statistical sample of a population.

3.22

facial approximation

An investigative technique combining anatomical knowledge, artistic capability, and forensic anthropological evidence to render an estimate of an individual's facial appearance in life.

3.23

forensic anthropology

The application of specialized knowledge of the human skeleton and its cartilaginous structures, as well as archaeological methods, to assist with medicolegal death investigations.

3.24

forensic anthropology scene

Any environment where human remains and material associations, potentially relevant in a medicolegal setting, may be recovered, and where a forensic anthropology or forensic archaeology practitioner is requested to assist a jurisdictional authority.

3.25

forensic art

The use of artistic techniques in a medicolegal context for creating composite images, age progressions, and facial approximations to aid in the identification of missing, wanted, or unidentified deceased individuals.

3.26

gender

An individual's culturally mediated social expression along the feminine-masculine continuum.

3.27

geotaphonomic

Conditions that reflect how the buried body, or evidence, affects the surrounding environment.

3.28

gross examination

Visual (macroscopic) assessment of skeletal, cartilaginous, and dental materials.

3.29

histological examination

Cellular level assessment of skeletal, cartilaginous, and dental materials.

3.30

incident-sterile soil

A soil level in an excavation or grave that does not contain evidence or data relevant to the scene under investigation. It does not mean that it is culturally or archaeologically sterile (e.g., historic or prehistoric artifacts or features may be present but are not related to the event under investigation).

3.31

kerf

The notch or groove in bone, tooth, or cartilage made by an object that is edged, pointed, or beveled.

3.32

Lincoln Index

LI

Quantification technique to estimate the actual number of individuals based on the number of paired and unpaired bones.

3.33

linear regression method

Method of estimating stature based on a statistical procedure for describing a relationship between stature and bone dimension that can be used to predict the former from the latter.

3.34

living stature

A person's recorded height, which may be derived from various sources including self-reported stature, family remembrance, or direct measurement.

3.35

medicolegal significance

Relevant to the medicolegal death investigation system; anthropologically, this term typically refers to human skeletal material of recent origin.

3.36

metric estimation

An estimate based on measurement of skeletal elements.

3.37

Minimum Number of Individuals

MNI

A minimum estimate of the number of individuals represented by a sample; calculated as the number of the most repeated element after sorting by element, side, and developmental status.

3.38

morphological estimation

An estimation based on qualitative phenotypic traits without explicit measurement.

3.39

morphometric data

Quantitative data that incorporates both size and shape.

3.40

Most Likely Number of Individuals

MLNI

Quantification technique to estimate the actual number of individuals based on the number of paired and unpaired bones; a modified Lincoln Index (LI).

3.41

non-human remains

Biological material that is not human in origin.

3.42

non-metric data

A skeletal variant or morphological feature that is classified categorically rather than quantified by a measurement (e.g., discrete, macromorphoscopic, or discontinuous trait).

3.43

non-osseous material

Biological or non-biological material that is not bone.

3.44

osteometric comparison

Technique that uses skeletal measurements and statistical models to objectively compare size and shape relationships between elements.

3.45

pathological condition

Skeletal abnormality resulting from disease processes.

3.46

pathology

The study of disease processes and anomalies as they affect the human skeleton.

3.47

perimortem trauma

A skeletal defect that occurred when bone is in a biomechanically fresh (visco-elastic) state with no evidence of an osteological reaction.

3.48

personal effects

Property, including clothing, jewelry, wallets, and other items found near/associated with an individual.

3.49

personal identification

The association of a set of remains to a known individual.

3.50

plastic deformation

A permanent distortion of bone's shape without fracture caused by a force exceeding an element's elastic limit/elastic modulus/yield point.

3.51

population

Individuals grouped by shared factors such as geography, biology, culture, language, etc.

3.52

population affinity

A measure (e.g., distance, probability of membership) of similarity between the individual and reference groups.

3.53

postmortem damage

A skeletal defect that occurred after a bone has lost its biomechanically fresh (visco-elastic) properties.

3.54

postmortem interval

PMI

The time between death and discovery of the decedent's remains; also known as time since death.

3.55

projectile trauma

A skeletal defect often produced by high-velocity impact over a relatively small surface area, typically by projectiles from firearms, but can result from any small object impacting a bone at a high velocity.

3.56

reference group

A sample of a population used in a method.

3.57

scene detection

The process of searching for, finding, and demarcating any environment where human remains and material associations, potentially relevant in a medicolegal setting, may be recovered.

3.58

scene search

A systematic survey of a demarcated environment that maximizes detection and recovery of data, physical evidence, and human remains, while fully documenting context and minimizing alteration.

3.59

scientific identification

The process of systematically comparing antemortem and postmortem biological data to facilitate a personal identification.

3.60

secular change

Change in phenotype (e.g., stature) in a population over time.

3.61

sex

A set of biological attributes, such as chromosomes, gene expression, and/or physiological functions that influence skeletal expressions across the spectrum of sexual dimorphism.

3.62

sex assigned at birth

Classification of male or female provided by a physician at birth based on external genitalia; typically aligns with skeletal expressions across the spectrum of sexual dimorphism.

3.63

sharp trauma

A skeletal defect produced by an object that is edged, pointed, or beveled.

3.64

skeletal sex

Variation in the expression of skeletal traits influenced by sexual dimorphism.

3.65

skeletal trauma

A defect to osseous, dental, and/or cartilaginous tissue as a result of external forces.

3.66

skeleton

skeletal

skeletal material

Osseous, cartilaginous, and/or dental tissues.

3.67

skull-photo superimposition

A technique involving the superimposition of a facial photograph or video of a known individual with an unidentified skull.

3.68

spatial distribution

The locations of defects (or damage/breakage) in relation to each other throughout the skeleton.

3.69

surgical implants

Devices or tissues that are surgically placed.

3.70

taphonomy

The study of the processes affecting remains after death.

3.71

thermal trauma

A skeletal defect produced by exposure to high temperature or direct contact with flame.

3.72

trauma description

Reporting of the location, dimension(s), and other observed characteristics of the skeletal defect(s).

3.73

trauma interpretation

Explanation regarding the mechanism, timing, direction of impact(s), and/or minimum number of impacts associated with skeletal defect(s) using quantitative and/or qualitative evidence.

3.74

trauma mechanism

The external factors that produce a skeletal defect.

3.75

trauma timing

Occurrence of a skeletal injury relative to an individual's time of death (e.g., antemortem or perimortem).

3.76

unidentified remains

A decedent or human remains whose identity is unknown or not scientifically established.

3.77

visual pair-matching

The association of homologous (i.e., left-right) elements based on similarities in morphology.

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