

Bone Clones[®]

OSTEOLOGICAL REPRODUCTIONS

Human Fetal Skeleton SC-181-A



Osteological Evaluation Report

Prepared by

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Human Fetal Skeleton

Product Number: SC-181-A

Specimen Evaluated: Bone Clones® replica of articulated skeleton
Bone Clones® replica of disarticulated long bone diaphyses

Skeletal Inventory: Complete skeleton

General observations:

In general, the molding process has preserved significant details necessary for evaluation. The remains are totally skeletonized. The general shape and configuration of the individual bones is within normal limits.

Diaphyseal Measurements:

	Length (mm)	Body length (mm) (Calculated)	Age (fetal months) (Calculated) [1]
Humerus	57.0	431.11	6.5 to 7 months
Radius	47.2	498.62	9.5 to 10 months
Ulna	57.2	471.42	8 to 8.5 months
Femur	66.4	432.13	6.5 to 7 months
Fibula	54.6	419.09	7 to 7.5 months
Tibia	57.5	421.2	7 to 7.5 months
<u>AVERAGE</u>		<u>445.6</u>	<u>Approx. 8.5 to 9 months</u>

SUMMARY:

1. Age

Calculated from average body length measurements → 8.5 to 9-month-old fetus.

This metric analysis is consistent with 34 to 36-week developmental age fetus.

Non-metric (developmental) osteologic features, as well as careful assessment of individual measurements is most suggestive of 7 to 7.5 month developmental age (28 to 30 weeks developmental age).

2. Sex

Cannot be determined.

3. Race

Cannot be determined.

EDUCATIONAL RESOURCES:

1. This is an excellent example of a fetal skeleton.
2. Complete assessment of the developing human (fetal) skeleton is not simply a mathematical exercise whereby analysts plug measurements into equations to spit out estimated ages. It is in fact a laborious effort mandating painstaking evaluation of all bony elements from the context of developmental (osteologic) anatomy.
3. It may be appropriate to discuss developmental osteology including especially the differences in osseous morphology that may be appreciated along the spectrum from early gestation to full-term.
4. Age assessment of skeletal remains is best done in the context of the entire skeleton. It is important for educators to emphasize that when limited to the skull, age assessment of subadult remains is best done through a coordinated evaluation of such features as dentition and fontanelle closure, as well as radiographs and/or computed tomography (CT) scans. This is particularly key for studies of tooth development (calcification, eruption). It is important to emphasize that the evaluation of a skeletal elements without these methods is artificial, and not reflective of actual practice. However, the ability to analyze such remains from the strict perspective of osteology is fundamental, and students must feel comfortable analyzing fetal and pediatric skulls and skeletons.
5. It is not currently possible to reliably differentiate amongst the major racial groups within fetal and other subadult remains.[2]
6. It is not currently possible to reliably differentiate male and female fetal, infant and young child skeletal remains.[2]

REFERENCES:

1. Fazekas, Istvan G. (1978). *Forensic Fetal Osteology*. Akadémiai Kiado.
2. Matshes, E. and Lew, E. (2005). Forensic osteology. In *Forensic Pathology: Principles and Practice*, D. Dolinak, E. Matshes, and E. Lew, Editors. San Diego, CA: Elsevier (Academic Press).

DISCLAIMERS:

This report is meant only as a teaching tool for introductory level students of the anatomical, anthropology or forensic sciences who might be using this specimen to learn human and forensic osteology. Evaluation of osteologic material is best done with original specimens. My evaluation was based solely upon studies of a Bone Clones® replica. My opinions are based solely upon the material presented to me. This is somewhat artificial as in real forensic investigations, additional studies would be undertaken prior to the formulation of diagnoses, and the production of a report. These studies might include plain film radiography, computed tomography (CT) studies, histology, etc. Evaluation of fetal and other subadult skeletal remains always involves radiography.

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