



ARIZONA STATE MUSEUM SKELETAL INVENTORY FORM GUIDELINES

General Comments

Recording protocols and codes used in these forms are largely those described in *Standards for Data Collection from Human Skeletal Remains*, edited by Jane E. Buikstra and Douglas H. Ubelaker, Arkansas Archeological Survey Research Series No. 44, 1994. A copy of *Standards* is required in order to fill out these forms accurately. It may be obtained from the Arkansas Archeological Survey, 2475 N. Hatch Ave., Fayetteville, AR 72704, <http://www.uark.edu/campus-resources/archinfo/>. Additional codes are based on Ubelaker (1999) and McClelland (2003).

These forms have been developed in the Bioarchaeology Lab of the Arizona State Museum. Many of them are derived from forms included in *Standards* and may include drawings from that publication. These are used with permission of the publisher.

Select only those forms which apply, depending upon type of burial, condition of the remains, and age of the individual. An inventory package for a complete set of adult remains would include Forms 1-12. If pathologies are present, they should be illustrated on the element sheets (Forms 13-29).

An inventory package for juvenile remains will include a mixture of adult and juvenile forms, depending on age of the individual. The bone by bone inventory still appears on Form 1, but Form 30 is used for age assessment instead of Form 2. Measurements are recorded on Form 31 in lieu of Form 6, except in the case of older subadults with fused long bone epiphyses. Many juveniles have permanent as well as deciduous teeth and will require both sets of dental forms.

Form 35 (Isolated Bone) and Forms 36a and b (Cremated Bone) may be used as single sheets without the checklist.

If there is uncertainty about the presence of a specific trait or pathology, it is better to leave the line blank. Missing information is preferable to inaccurate data. However, textual description is essential in all cases.

Human Skeletal Remains Checklist

1. MNI Form is "individual" for sets of remains from a single individual. If more than one individual is represented and it is impossible to fully separate all bone fragments for analytical purposes, MNI Form is "mixed."
2. The burial feature should be fully described on a separate set of forms. Most archaeological contractors have standard form packages for burial features that record the minimum information required by *A.R.S. §41-844 and §41-865 Guidelines*. The Arizona State Museum Burial Record form may also be used and is available in a separate file.
3. Collection type categories include archaeological, forensic, anatomical, etc.

Skeletal Inventory (Form 1)

1. Long bone segments:
epi-p = proximal epiphysis
prox = proximal 1/3 of shaft
mid = middle 1/3 of shaft
dist = distal 1/3 of shaft
epi-d = distal epiphysis
2. If you cannot identify the exact position of a lumbar vertebra, or a metatarsal, etc., bracket the entire category and write in the total number of elements of that type with the average completeness stage.
3. If an element can be identified but the side is unknown, enter as a left and indicate in the Notes section that the element is unsided.

Adult Age and Sex Assessment (Form 2)

1. Note that three different numerical scales are used for the sex indicators. Therefore, the total estimated sex number cannot be a numerical average. The overall estimated sex assessment is judgmental based upon which traits you think are more indicative. Use the following codes for the overall assessment: 1= female, 2= female?, 3= indeterminate, 4= male?, and 5= male.
2. In the comments section for age, indicate any other criteria which led to the age estimate. State the age range in years.

Teeth (Forms 3, 4, 32a, 32b)

1. Tooth presence, wear, and development status is shown on Forms 3 and 32a. The stage of wear is written directly on the drawing of the tooth. Molar wear is recorded for each of four quadrants. An X is indicated if part of the tooth is missing, whether from caries or breakage. Type of loss or development status is shown on the line adjacent to the tooth.
2. Dental pathologies are recorded on Forms 4 and 32b. The section at the bottom of the form is a checklist for each category of pathology. Make sure that each category is checked off as either present, absent, or unobservable. This is to verify consistency of observation.
3. Mark the location of caries, hypoplasia, calculus, and hypocalcification (also referred to as opacities) on the diagram at the top of the page. Indicate the type or stage for each pathology. Refer to Buikstra and Ubelaker (1994) for codes.
4. Abscesses and periodontal disease should be indicated on the maxilla and mandible diagrams on the bottom of the page.

5. Also indicate on the drawings of the maxilla and mandible any portions of the bone that are missing.

Dental Morphology (Forms 5a, 5b, 32c, 32d)

1. Most of these traits are derived from Turner et al. (1991). Some traits of deciduous teeth are derived from Hanihara (1961). Others are defined in McClelland (2003).
2. Many of the traits are scored in comparison with dental casts that may be obtained from the Dental Anthropology Lab at Arizona State University. Generally, these forms should be completed only by an analyst who has had training or experience in dental anthropology.

Measurements (Forms 6, 7b, and 31)

1. Lengths of long bones should only be recorded if the ends are intact. Use Form 6 for all elements with fused epiphyses. The long bone lengths on Form 31 are shaft lengths without epiphyses. It should be used only for immature bones and not for bones that are incomplete.
2. Estimated lengths should only be recorded if there are small portions of the bone missing and the estimate is likely to be within 5 mm of the true value. In this case, the measurement is marked with an asterisk.
3. Skulls are frequently distorted postmortem by soil pressure. Do not record any cranial measurements that could have been affected by this process.

Nonmetric Traits (Forms 7a and b)

1. A copy of *Standards* is essential in order to complete these forms.
2. If there is uncertainty about trait presence or category of expression, record as unobservable or add a written description of the character.

Cranial Deformation (Form 8)

1. Do not record cranial deformation if there is significant postmortem warping of the skull.
2. The skull must be held in the Frankfort Horizontal plane in order to determine the relative angle of the plane of pressure.

Skeletal Pathologies (Form 9)

1. The purpose of the checklist is to insure that observations are made. Each condition should have a checkmark in one of the three columns. Description must be included for any pathology noted as present.

2. All pathologies on long bones, spine, extremities, skull, innominate, scapula, clavicle, and sacrum should be sketched and described on the individual element forms (Forms 13-29). Pathologies on other elements can be depicted or described in the Notes section of the Pathology Checklist or on an attached blank sheet if more space is required.
3. Most pathology descriptions should be written on the element forms, but if there are multiple pathologies that form a pattern, also reference them in the Notes section of the Pathology Checklist. This is especially relevant in the diagnosis of systemic diseases such as treponemal infections or tuberculosis.
4. For an inflammatory reaction or trauma, be sure to state whether the lesion appears to be active, healing, or fully remodeled.

Degenerative Joint Disease (Form 10)

1. Codes for stages of degenerative joint disease are those illustrated in Ubelaker (1999:87).
2. Give a general assessment of the severity of the DJD in the Notes section. Is the lipping very slight? Are there certain elements that have more pronounced lipping? Is it symmetrical or is there a greater degree of expression on one side even though it is the same stage?
3. A fifth category (type e) has been added to cover other forms of DJD, such as flattening of mandibular condyles. Describe these in the notes section.

Spinal Osteophytosis (Form 11)

1. Codes for stages of osteophytosis are those illustrated in Ubelaker (1999:85).
2. If the severity of osteophytosis varies along the spine, note on the drawing which stages apply where.
3. Compression fractures, ankylosis, or other conditions can be illustrated on this form or on Form 9 in the Notes section. For ankylosis, note if the fusion is in the vertebral body, the spinous process or both and indicate the degree of fusion.

Adult Skeleton, Infant Skeleton, and Child Skeleton (Forms 12, 33, and 34)

1. These drawings may be used to illustrate the distribution of skeletal lesions, trauma, or other conditions, when there are multiple manifestations of pathology in the individual.
2. The forms may also be used to graphically indicate the completeness of the remains by coloring in the portions which are present.

Individual Element Drawings (Forms 13-29)

1. Drawings of pathologies or other unusual conditions should include length and width measurements of the area affected and the location relative to at least one landmark. Illustrate on each aspect of the bone (anterior, lateral, etc.) on which it is visible.
2. Provide as thorough a description as possible. Is the lesion proliferative or lytic? Is the reactive bone porous (macro- or microporosity) or woven in texture? Does it appear to be confined to the cortical surface or does it extend into the medullary cavity? Does the lesion appear active, healing, or fully remodeled?
3. In the case of healed fractures, indicate if there has been a change in the alignment of the bone. Are there ridges or grooves that formed as a result of trauma?

Isolated Bone (Form 35)

1. This form may be used as a single sheet to record very fragmentary unburned human remains that are found outside the context of burial features. It may also be used to record the occasional human bone fragments that are sometimes found in bags of faunal bone once they reach the lab.
2. It may also be used as a supplement to a complete inventory package when there are a few bone fragments that clearly belong to another individual or individuals.
3. When multiple individuals are represented, specify which fragments belong to which individual.

Cremated Bone (Forms 36a and 36b)

1. Form 36a is used for cremations with few identifiable fragments and Form 36b for more complete cremations.
2. Estimate what percentage of the fragments belong to each anatomical region (cranial, dental, etc.). Include the percentage that is unidentifiable as to region.
3. Record maximum and average fragment lengths in centimeters.
4. If the color of fragments varies, estimate what percentages are in each category. Note if color (and therefore degree of burning) varies according to anatomical region.
5. Record the presence of cracking, checking, and warping. Is the bone calcined or weathered?
6. Note the presence of unidentified cranial vault bones or unidentified long bone (major or minor) shaft fragments.

7. In very fragmentary cremations, there may be no pieces that are identifiable as to element. In this case, is the bone “Consistent with human, but not diagnostic” or “Indeterminate with respect to human or animal?”

References

Buikstra, J. E., and D. H. Ubelaker, editors.

1994 *Standards for Data Collection From Human Skeletal Remains*. Arkansas Archeological Survey Research Series No. 44. Fayetteville, Arkansas.

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1961 Criteria for classification of crown characteristics of the human deciduous dentition. *Journal of the Anthropological Society of Nippon* 69:27-45.

McClelland, J. A.

2003 *Refining the Resolution of Biological Distance Studies Based on the Analysis of Dental Morphology: Detecting Subpopulations at Grasshopper Pueblo*. Unpublished Ph.D. dissertation University of Arizona, Tucson

Turner, C. G., II, C. R. Nichol and G. R. Scott

1991 Scoring procedures for key morphological traits of the permanent dentition: the Arizona State University dental anthropology system. In *Advances in Dental Anthropology*, edited by M. A. Kelley and C. S. Larsen, pp. 13-31. Wiley-Liss, New York.

Ubelaker, D. H.

1999 *Human Skeletal Remains: Excavation, Analysis, Interpretation*. Third edition. Manuals on Archeology, volume 2. Taraxacum, Washington D.C.



ARIZONA STATE MUSEUM HUMAN SKELETAL REMAINS CHECKLIST

Site Name/Number _____ Observers _____
 Feature/Burial Number _____
 Present Location of Remains _____ Date _____

General

Juvenile MNI _____ collection type _____
 Adult MNI Form _____

Taphonomy

Yes	No	Unobservable	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Weathering (describe severity and which elements affected) _____
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Discoloration _____
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Cutmarks, gnaw marks _____

Form List - indicate forms used

- | | | | |
|----------------------------------|--|----------------------------------|--|
| <input type="checkbox"/> 1 | Skeletal Inventory | <input type="checkbox"/> 21 | Left Ulna |
| <input type="checkbox"/> 2 | Adult Age and Sex | <input type="checkbox"/> 22 | Right Femur |
| <input type="checkbox"/> 3 | Permanent Teeth Inventory | <input type="checkbox"/> 23 | Left Femur |
| <input type="checkbox"/> 4 | Permanent Teeth Pathologies | <input type="checkbox"/> 24 | Right Tibia |
| <input type="checkbox"/> 5 a & b | Permanent Teeth Morphology
(optional) | <input type="checkbox"/> 25 | Left Tibia |
| <input type="checkbox"/> 6 | Postcranial Measurements
(Adult) | <input type="checkbox"/> 26 | Right Fibula |
| <input type="checkbox"/> 7a & b | Non-Metric Traits and
Cranial Metrics | <input type="checkbox"/> 27 | Left Fibula |
| <input type="checkbox"/> 8 | Cranial Deformation | <input type="checkbox"/> 28a & b | Hand |
| <input type="checkbox"/> 9 | Pathology Checklist | <input type="checkbox"/> 29a & b | Foot |
| <input type="checkbox"/> 10 | Degenerative Joint Disease | <input type="checkbox"/> 30 | Immature Epiphyseal Union
& Age Assessment |
| <input type="checkbox"/> 11 | Spinal Osteophytosis and DJD | <input type="checkbox"/> 31 | Immature Measurements |
| <input type="checkbox"/> 12 | Adult Skeleton | <input type="checkbox"/> 32a | Deciduous Teeth Inventory |
| <input type="checkbox"/> 13 | Adult Skull | <input type="checkbox"/> 32b | Deciduous Teeth Pathology |
| <input type="checkbox"/> 14 | Left Ilium, Scapula, and Clavicle | <input type="checkbox"/> 32c & d | Deciduous Teeth Morphology
(Optional) |
| <input type="checkbox"/> 15 | Right Ilium, Scapula, and
Clavicle | <input type="checkbox"/> 33 | Infant Skeleton |
| <input type="checkbox"/> 16 | Right Humerus | <input type="checkbox"/> 34 | Child Skeleton |
| <input type="checkbox"/> 17 | Left Humerus | <input type="checkbox"/> 35 | Isolated Bones |
| <input type="checkbox"/> 18 | Right Radius | <input type="checkbox"/> 36a & b | Cremated Bone (use 36b only for
more complete cremations) |
| <input type="checkbox"/> 19 | Left Radius | | |
| <input type="checkbox"/> 20 | Right Ulna | | |

SKELETAL INVENTORY

AXIAL			APPENDICULAR			CRANIAL		
element	#	cond	element	left	right	element	left	right
1st Cervical		___	Scapula	___	___	Parietal	___	___
2nd Cervical		___	glenoid	___	___	Temporal	___	___
3-6 Cervical	___	___	Clavicle	___	___	Zygomatic	___	___
7th Cervical		___	med. epi.	___	___	Lacrimal	___	___
1-9 Thoracic	___	___	Sternum			I. N. C.	___	___
10th Thoracic		___	manubrium	___	___	Nasal	___	___
11th Thoracic		___	body	___	___	Maxilla	___	___
12th Thoracic		___	xiphoid	___	___	Palatine	___	___
1st Lumbar		___				TMJ	___	___
2nd Lumbar		___	Ilium	___	___	Mandible		___
3rd Lumbar		___	auricular	___	___	Frontal		___
4th Lumbar		___	Pubis	___	___	Sphenoid		___
5th Lumbar		___	symphysis	___	___	Ethmoid		___
Sacrum		___	Ischium	___	___	Vomer		___
Coccyx	___	___	Acetabulum	___	___	Occipital		___
Left Ribs	___	___				Hyoid		___
Right Ribs	___	___	Patella	___	___	Thyroid		___
						Cricoid		___
						Ossicles		___

APPENDICULAR

element	left side	right side
	epi-p/ prox/ mid/ dist/ epi-d	epi-p/ prox/ mid/ dist/ epi-d
Humerus	___/___/___/___/___	___/___/___/___/___
Radius	___/___/___/___/___	___/___/___/___/___
Ulna	___/___/___/___/___	___/___/___/___/___
Femur	___/___/___/___/___	___/___/___/___/___
Tibia	___/___/___/___/___	___/___/___/___/___
Fibula	___/___/___/___/___	___/___/___/___/___

Codes:

c = >= 75% present
 p = 25% - 75% present
 f = < 25% present

NOTES

EXTREMITIES

element	#	cond	element	#	cond
Scaphoid	___	___	Calcaneus	___	___
Lunate	___	___	Talus	___	___
Trapezium	___	___	Cuboid	___	___
Trapezoid	___	___	Navicular	___	___
Capitate	___	___	Medial Cuneiform	___	___
Hamate	___	___	Intermed. Cuneiform	___	___
Triquetral	___	___	Lateral Cuneiform	___	___
Pisiform	___	___			
Metacarpals			Metatarsals		
1st	___	___	1st	___	___
2nd	___	___	2nd	___	___
3rd	___	___	3rd	___	___
4th	___	___	4th	___	___
5th	___	___	5th	___	___
C. Phalanges			T. Phalanges		
proximal	___	___	proximal	___	___
middle	___	___	middle	___	___
distal	___	___	distal	___	___
Sesamoids	___	___	Sesamoids	___	___

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ADULT AGE/SEX RECORDING FORM

Age Criteria

Pubic Symphysis	Left	Right	Auricular Surface	Left	Right
Todd (1-10)	_____	_____	(1-8)	_____	_____
Suchey-Brooks (1-6)	_____	_____			

Suture Closure & Epiphyseal Union: blank = unobservable, 0 = open, 1 = minimal, 2 = significant, 3 = complete

External Cranial Vault	1. Midlambdoid _____	Palatine	11. Incisive Suture _____
	2. Lambda _____		12. Anterior Median Palatine _____
	3. Obelion _____		13. Posterior Median Palatine _____
	4. Anterior Sagittal _____		14. Transverse Palatine _____
	5. Bregma _____	Internal Cranial Vault	15. Sagittal _____
	6. Midcoronal _____		16. Left Lambdoid _____
	7. Pterion _____		17. Left Coronal _____
	8. Sphenofrontal _____		
	9. Inferior Sphenotemporal _____	Vertebral Annular Epiphyses	Cervical superior _____
	10. Superior Sphenotemporal _____		inferior _____
Clavicle	Sternal epiphysis _____		Thoracic superior _____
Sacrum	S1/S2 fusion _____		inferior _____
Innominate	Iliac crest _____		Lumbar superior _____
			inferior _____

Estimated Age: Subadult (12-18 years) _____
 Young Adult (18-35 years) _____
 Middle Adult (35-50 years) _____
 Old Adult (50+ years) _____

Comments: _____

Sex

Pelvis	Left	Right	Skull
Ventral Arc (1-3)	_____	_____	Nuchal Crest (1-5) _____
Subpubic Concavity (1-3)	_____	_____	Mastoid Process (1-5) _____
Ischiopubic Ramus Ridge (1-3)	_____	_____	Supraorbital Margin (1-5) _____
			Glabella (1-5) _____
Greater Sciatic Notch (1-5)	_____	_____	Mental Eminence (1-5) _____
Preauricular Sulcus (0-4)	_____	_____	

Estimated Sex, Pelvis (1-5) _____ = _____ Estimated Sex, Skull (1-5) _____ = _____

Comments: _____

PERMANENT TEETH RECORDING FORM Wear, Development, Loss

Loss Categories

A = antemortem
P = postmortem
U = unknown

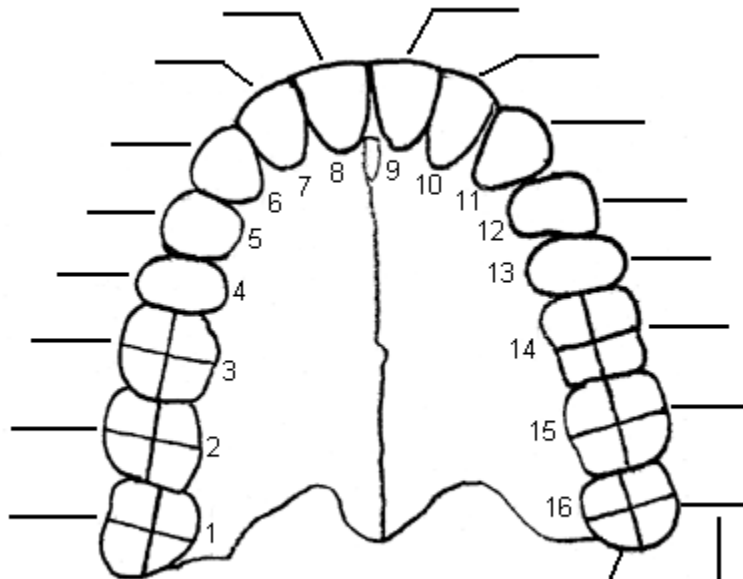
Wear Stages

0 = not in occlusion
1-10 = per *Standards*
X = unknown due to caries or breakage

Development Stages

0 = unobservable
1-14 = per *Standards*

RIGHT

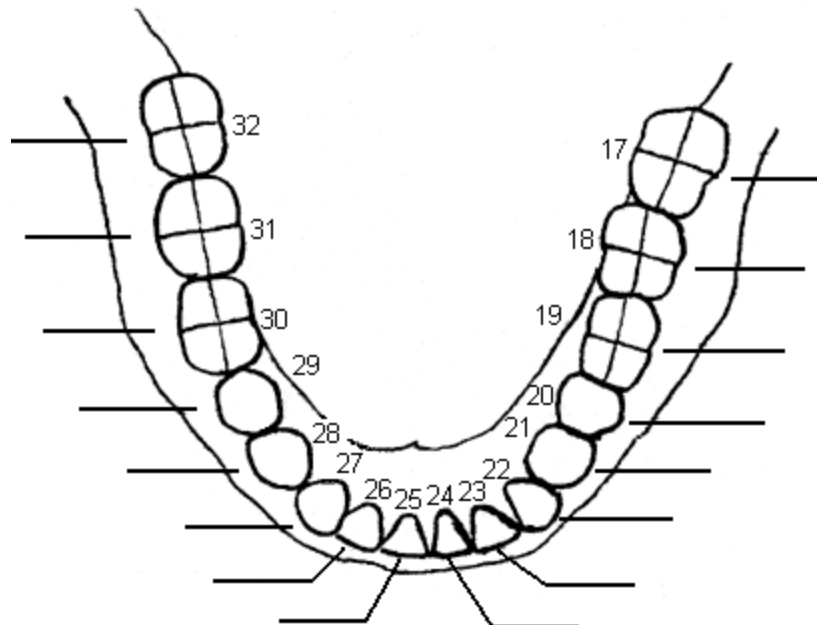


MAXILLA

Wear

Development or Loss
Category

LEFT

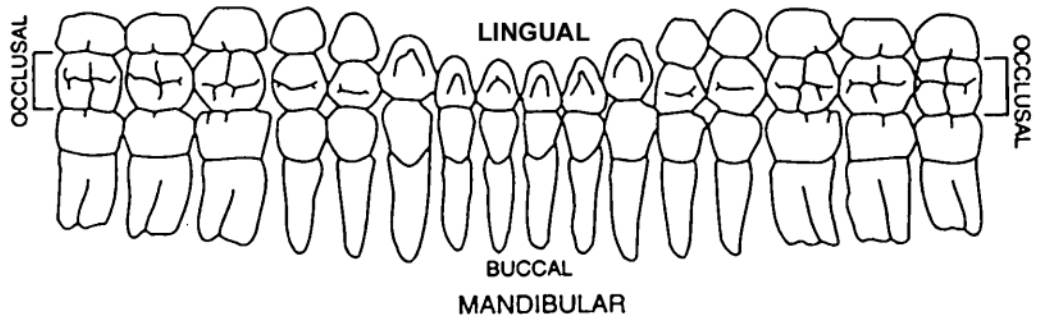
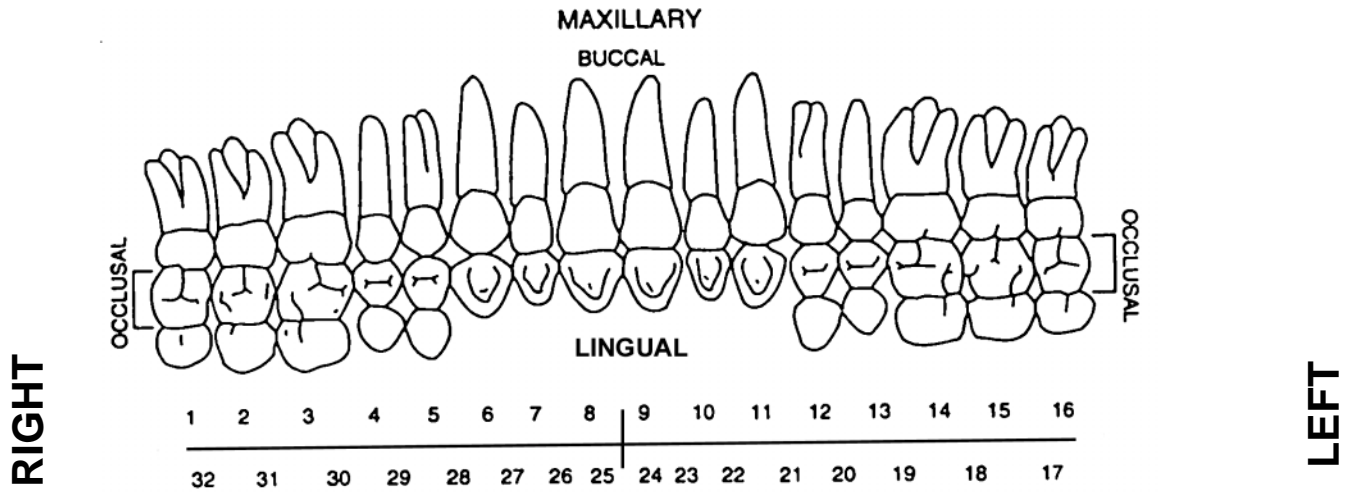


MANDIBLE

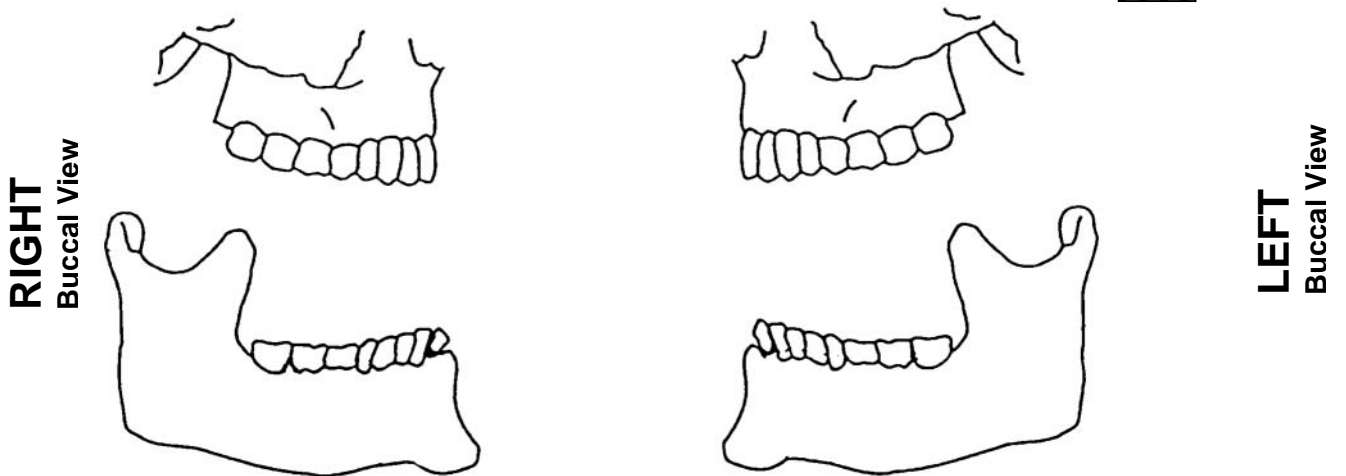
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PERMANENT TEETH RECORDING FORM

Pathologies



Indicate missing alveolar bone on drawings below with cross-hatching



Note: Indicate dental pathologies on the drawings above. Use codes per *Standards*.

Checklist:	Caries	Abscesses	Hypoplasia	Calculus	Periodontal Disease	Hypocalcification
present	___	___	___	___	___	___
absent	___	___	___	___	___	___
unobservable	___	___	___	___	___	___

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DENTAL MORPHOLOGY – PERMANENT TEETH

MANDIBLE

	Right								Left							
	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
	M ₃	M ₂	M ₁	P ₂	P ₁	C	I ₂	I ₁	I ₁	I ₂	C	P ₁	P ₂	M ₁	M ₂	M ₃
Shovel																
Double shovel																
Distal acces ridge																
Radical number																
Odontome																
Cong absence																
Lingual cusps																
Anterior fovea																
Groove pattern																
Cusp number																
Deflect wrinkle																
Distal trigonid crest																
Mid trigonid crest																
Protostylid																
Cusp 5																
Cusp 6																
Cusp 7																
C Root number																
Tome's root																
M Root number																
Torsomolar angle																

DENTAL MORPHOLOGY – PERMANENT TEETH

MAXILLA

	Right								Left													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16						
	M ³	M ²	M ¹	P ²	P ¹	C	I ²	I ¹	I ¹	I ²	C	P ¹	P ²	M ¹	M ²	M ³						
Winging																						
Labial curve																						
Shovel																						
Double shovel																						
Interrupt groove																						
Tuberculum dentale																						
C mesial ridge																						
Distal acces ridge																						
Tricusped premolars																						
Accessory cusps																						
Distosagittal ridge																						
Metacone																						
Hypocone																						
Cusp 5																						
Carabelli's Trait																						
Parastyle																						
Enamel ext																						
Root number																						
Root number																						
Radical number																						
Peg incisor																						
Peg molar																						
Odontome																						
Cong absence																						

POSTCRANIAL MEASUREMENT RECORDING FORM (ADULTS)

All measurements are in millimeters.

* indicates that measurement is approximate

	left	right		left	right
35. Clavicle: maximum length	_____	_____	56. Os Coxae: height	_____	_____
36. Clavicle: A-P Dia. at midshaft	_____	_____	57. Os Coxae: Iliac breadth	_____	_____
37. Clavicle: sup-inf Dia. at midshaft	_____	_____	58. Os Coxae: pubis length	_____	_____
38. Scapula: height	_____	_____	59. Os Coxae: ischium length	_____	_____
39. Scapula: breadth	_____	_____	60. Femur: maximum length	_____	_____
40. Humerus: maximum length	_____	_____	61. Femur: bicondylar length	_____	_____
41. Humerus: epicondylar breadth	_____	_____	62. Femur: epicondylar breadth	_____	_____
42. Humerus: vertical dia. of head	_____	_____	63. Femur: max. dia. of head	_____	_____
43. Humerus: max. dia. at midshaft	_____	_____	64. Femur: A-P subtrochanteric	_____	_____
44. Humerus: min. dia. at midshaft	_____	_____	65. Femur: M-L subtrochanteric	_____	_____
45. Radius: maximum length	_____	_____	66. Femur: A-P midshaft dia.	_____	_____
46. Radius: A-P dia. at midshaft	_____	_____	67. Femur: M-L midshaft dia.	_____	_____
47. Radius: M-L dia. at midshaft	_____	_____	68. Femur: midshaft circum.	_____	_____
48. Ulna: maximum length	_____	_____	69. Tibia: length	_____	_____
49. Ulna: A-P diameter	_____	_____	70. Tibia: max. prox. epi. breadth	_____	_____
50. Ulna: M-L diameter	_____	_____	71. Tibia: max. dist. epi. breadth	_____	_____
51. Ulna: physiological length	_____	_____	72. Tibia: max. dia. at foramen	_____	_____
52. Ulna: minimum circumference	_____	_____	73. Tibia: min. dia. at foramen	_____	_____
53. Sacrum: anterior length	_____		74. Tibia: circum. at foramen	_____	_____
54. Sacrum: anterior superior breadth	_____		75. Fibula: maximum length	_____	_____
55. Sacrum: max. trans. dia. of base	_____		76. Fibula: max midshaft dia.	_____	_____
			77. Calcaneus: maximum length	_____	_____
			78. Calcaneus: middle breadth	_____	_____

	L	M	R		L	M	R
1. Metopic suture:							
0 = absent							
1 = partial							
2 = complete							
9 = unobservable							
2. Supraorbital structures:							
a. Supraorbital notch:							
0 = absent							
1 = present, < 1/2 occluded by spicules							
2 = present, > 1/2 occluded by spicules							
3 = present, degree of occlusion unknown							
4 = multiple notches							
9 = unobservable							
b. Supraorbital foramen:							
0 = absent							
1 = present							
2 = multiple foramina							
9 = unobservable							
3. Infraorbital suture:							
0 = absent							
1 = present							
2 = complete							
9 = unobservable							
4. Multiple infraorbital foramina:							
0 = absent							
1 = internal division only							
2 = two distinct foramina							
3 = more than two distinct foramina							
9 = unobservable							
5. Zygomatico-facial foramina:							
0 = absent							
1 = 1 large							
2 = 1 large plus smaller f.							
3 = 2 large							
4 = 2 large plus smaller f.							
5 = 1 small							
6 = multiple small							
9 = unobservable							
6. Parietal foramen:							
0 = absent							
1 = present, on parietal							
2 = present, sutural							
9 = unobservable							
7. Sutural bones: 0 = absent, 1 = present, 9 = unobserv.							
a. epiteric bone							
b. coronal ossicle							
c. bregmatic bone							
d. sagittal ossicle							
e. apical bone							
f. lambdoid ossicle							
g. asterionic bone							
h. ossicle in occipito-mastoid suture							
i. parietal notch bone							
8. Inca bone:							
0 = absent							
1 = complete, single bone							
2 = bipartite							
3 = tripartite							
4 = partial							
9 = unobservable							
9. Condylar canal							
0 = not patent							
1 = patent							
9 = unobservable							
10. Divided hypoglossal canal:							
0 = absent							
1 = partial, internal surface							
2 = partial, within canal							
3 = complete, internal surface							
4 = complete, within canal							
9 = unobservable							
11. Flexure of superior sagittal sulcus							
1 = right							
2 = left							
3 = bifurcate							
9 = unobservable							
12. Foramen ovale incomplete							
0 = absent							
1 = partial formation							
2 = no definition of foramen							
9 = unobservable							
13. Foramen spinosum incomplete							
0 = absent							
1 = partial formation							
2 = no definition of foramen							
9 = unobservable							
14. Pterygo-spinous bridge							
0 = absent							
1 = trace (spicule only)							
2 = partial bridge							
3 = complete bridge							
9 = unobservable							
15. Pterygo-alar bridge							
0 = absent							
1 = trace (spicule only)							
2 = partial bridge							
3 = complete bridge							
9 = unobservable							
16. tympanic dehiscence:							
0 = absent							
1 = foramen only							
2 = full defect present							
9 = unobservable							

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CRANIAL DEFORMATION RECORDING FORM**GENERAL CATEGORY:** _____

1. Tabular
2. Circumferential
3. Other (describe)

POSTERIOR ASPECT

Cranial deformation present: _____

1. yes
2. no

Pressure was centered at: _____

1. Lambda
2. Squamous portion of occipital
3. Below inion

Plane of pressure in relationship to transverse plane: _____

1. Perpendicular (90°)
2. Obtuse (>90°)

Are any of the following present? _____

1. Sagittal elevation
2. Lambdic elevation
3. Lambdic depression

Pad impressions: _____

0. No pad impressions
1. One pad
2. Two pads
3. More than two pads

Pad location: _____

1. Midline
2. Symmetrically lateral to midline
3. Asymmetrically left
4. Asymmetrically right

Pad shape: _____

1. Circular or oval
2. Donut-shaped
3. Triangular
4. Irregular form
5. Not observable

Impression of bindings visible: _____

1. Yes (describe below)
2. No

ANTERIOR ASPECT

Cranial deformation present: _____

1. Yes
2. No

Pad location: _____

1. High, near coronal suture
2. Low, near or below frontal boss

Symmetrical reshaping? _____

1. Yes
2. No, right side more deformed
3. No, left side more deformed

Bregmatic elevation? _____

1. Yes
2. No

Pad impressions: _____

0. No pad impressions
1. One pad
2. Two pads
9. Not observable

Pad location: _____

1. Midline
2. Symmetrically lateral to midline
3. Asymmetrically left
4. Asymmetrically right

Pad shape: _____

1. Circular or oval
2. Donut-shaped
3. Triangular
4. Irregular form
5. Not observable

Impression of bindings visible: _____

1. Yes (describe below)
2. No

Post-coronal depression present? _____

1. Yes
2. No

PATHOLOGY CHECKLIST

Cranial	present	absent	unobservable	Axial	present	absent	unobservable
Porotic hyperostosis	_____	_____	_____	ankylosis	_____	_____	_____
Cribriform orbitalia	_____	_____	_____	arch defects	_____	_____	_____
Premature synostosis	_____	_____	_____	compression fractures	_____	_____	_____
osteomas	_____	_____	_____	Schmorl's nodes	_____	_____	_____
periosteal reaction	_____	_____	_____	periosteal reactions	_____	_____	_____
lytic reactions	_____	_____	_____	lytic reactions	_____	_____	_____
proliferative reactions	_____	_____	_____	osteoporosis	_____	_____	_____
trauma	_____	_____	_____	trauma	_____	_____	_____
cultural modifications	_____	_____	_____				
Appendicular	present	absent	unobservable	Extremities	present	absent	unobservable
periosteal reaction	_____	_____	_____	lytic reactions	_____	_____	_____
lytic reactions	_____	_____	_____	proliferative reactions	_____	_____	_____
proliferative reactions	_____	_____	_____	periosteal reactions	_____	_____	_____
osteoporosis	_____	_____	_____	trauma	_____	_____	_____
trauma	_____	_____	_____	exostoses	_____	_____	_____
cultural modifications	_____	_____	_____				
osteomyelitis	_____	_____	_____				
exostoses	_____	_____	_____				

Notes:

DEGENERATIVE JOINT DISEASE

SKULL

element	left	right
TMJ	_____	_____
Mand. condyles	_____	_____
Occip. Condyles	_____	_____

ELBOW

element	left	right
Dist. Humerus	_____	_____
Prox. Radius	_____	_____
Prox. Ulna	_____	_____

SHOULDER

Scapula		
glenoid	_____	_____
acromium	_____	_____
Clavicle		
medial	_____	_____
lateral	_____	_____
Prox. Humerus	_____	_____

WRIST

element	left	right
Dist. Radius	_____	_____
Dist. Ulna	_____	_____
Carpals	_____	_____
Metacarpals	_____	_____

PHALANGES

element	prox.	distal
C. proximal	_____	_____
C. middle	_____	_____
C. distal	_____	_____
T. proximal	_____	_____
T. middle	_____	_____
T. distal	_____	_____

HIP

element	left	right
Acetabulum	_____	_____
Femoral head	_____	_____
Greater troch.	_____	_____
Lesser troch.	_____	_____

KNEES

element	left	right
Dist. Femur	_____	_____
Prox. Tibia	_____	_____
Prox. Fibula	_____	_____
Patella	_____	_____

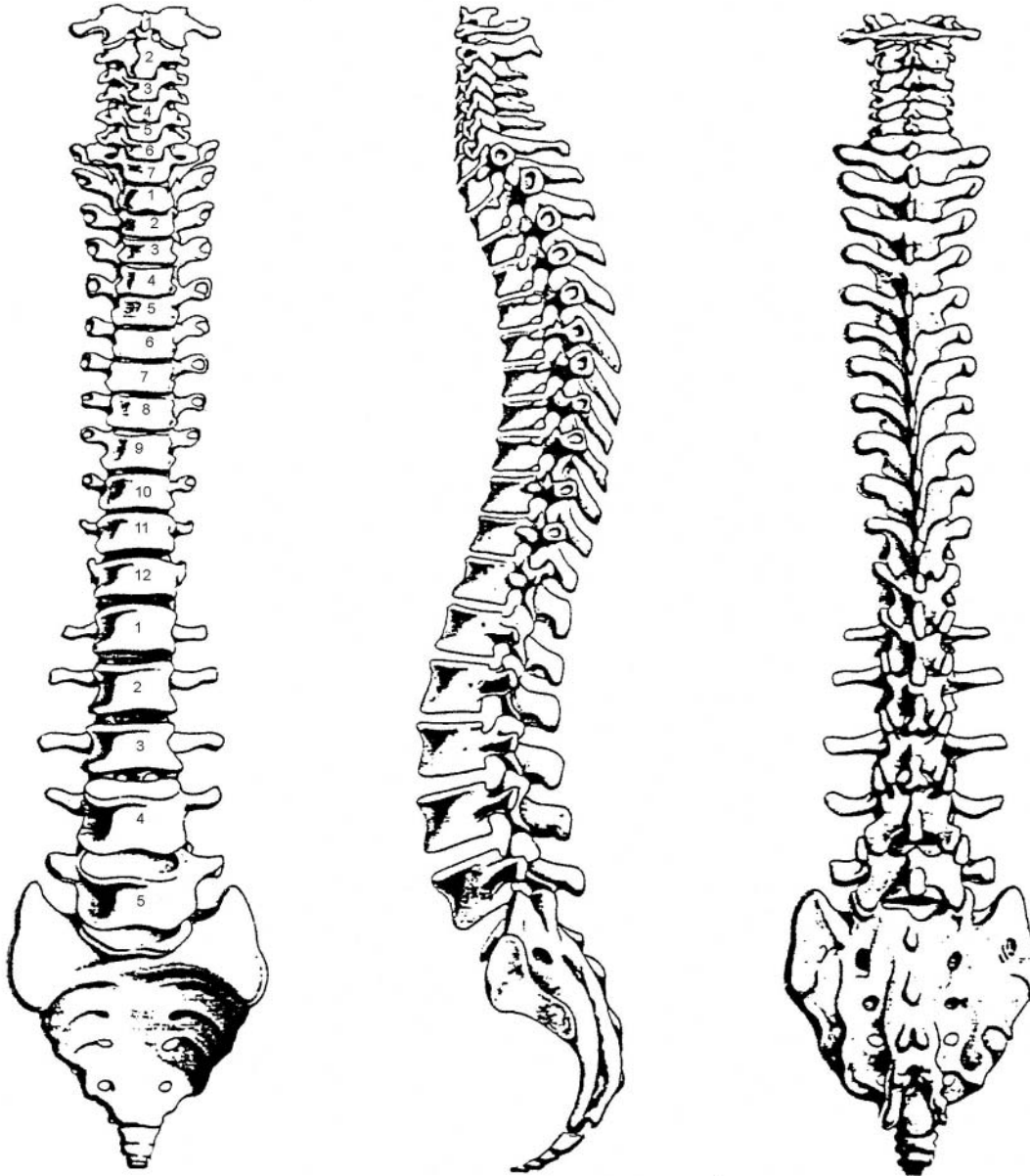
ANKLES

element	left	right
Dist. Tibia	_____	_____
Dist. Fibula	_____	_____
Calcaneus	_____	_____
Other tarsals	_____	_____
Metatarsals	_____	_____

Stages of DJD from Ubelaker (1999). a = normal articular surface; b= appearance of small deposits of bone on articular margins; c= small pits; d= polishing/eburnation; e= other (describe below)

NOTES

SPINAL OSTEOPHYTOSIS RECORDING FORM



Osteophytosis - stages 0-4 (Ubelaker 1999)

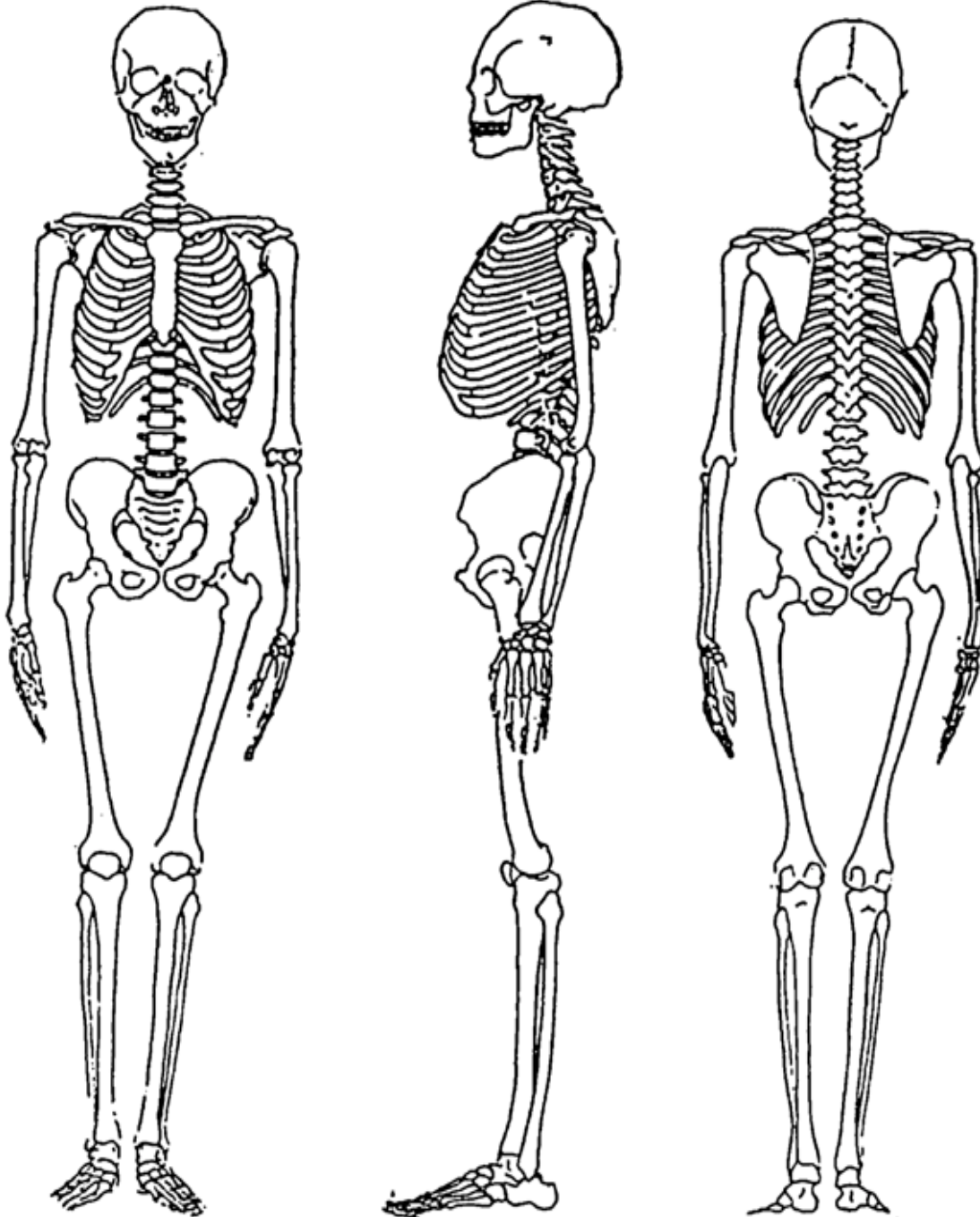
Vertebral Category	Superior Surface	Inferior Surface
Cervical	_____	_____
Thoracic	_____	_____
Lumbar	_____	_____

Degenerative Joint Disease (Vertebral Articular Surfaces) – stages a-d (Ubelaker 1999)

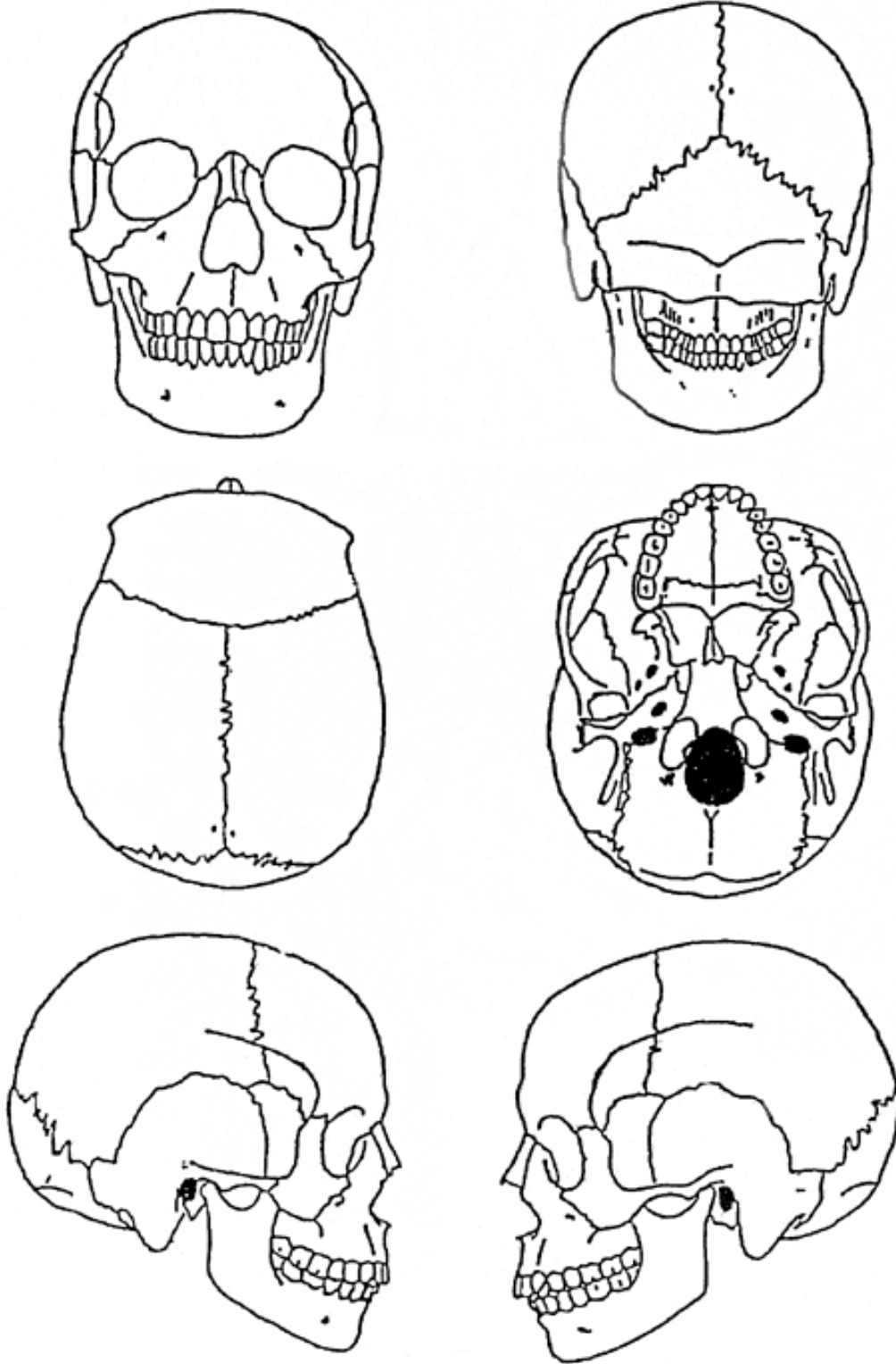
Vertebral Category	Superior Surface		Inferior Surface	
	Left	Right	Left	Right
Cervical	_____	_____	_____	_____
Thoracic	_____	_____	_____	_____
Lumbar	_____	_____	_____	_____
Sacral	_____	_____	_____	_____

NOTE: If condition varies, bracket & note areas of major differences on graph. Applies to both DJD & osteophytosis.

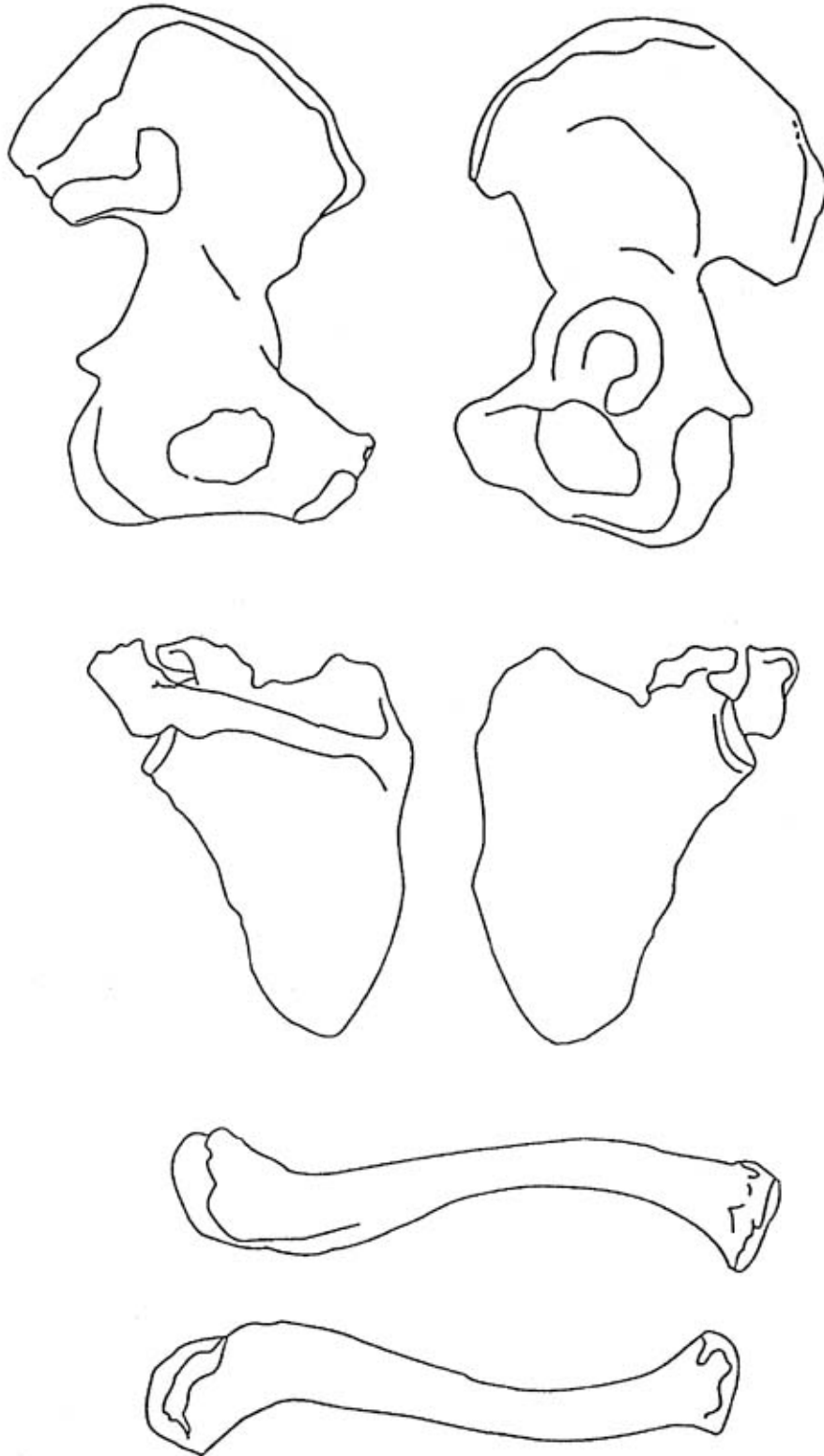
ADULT SKELETON



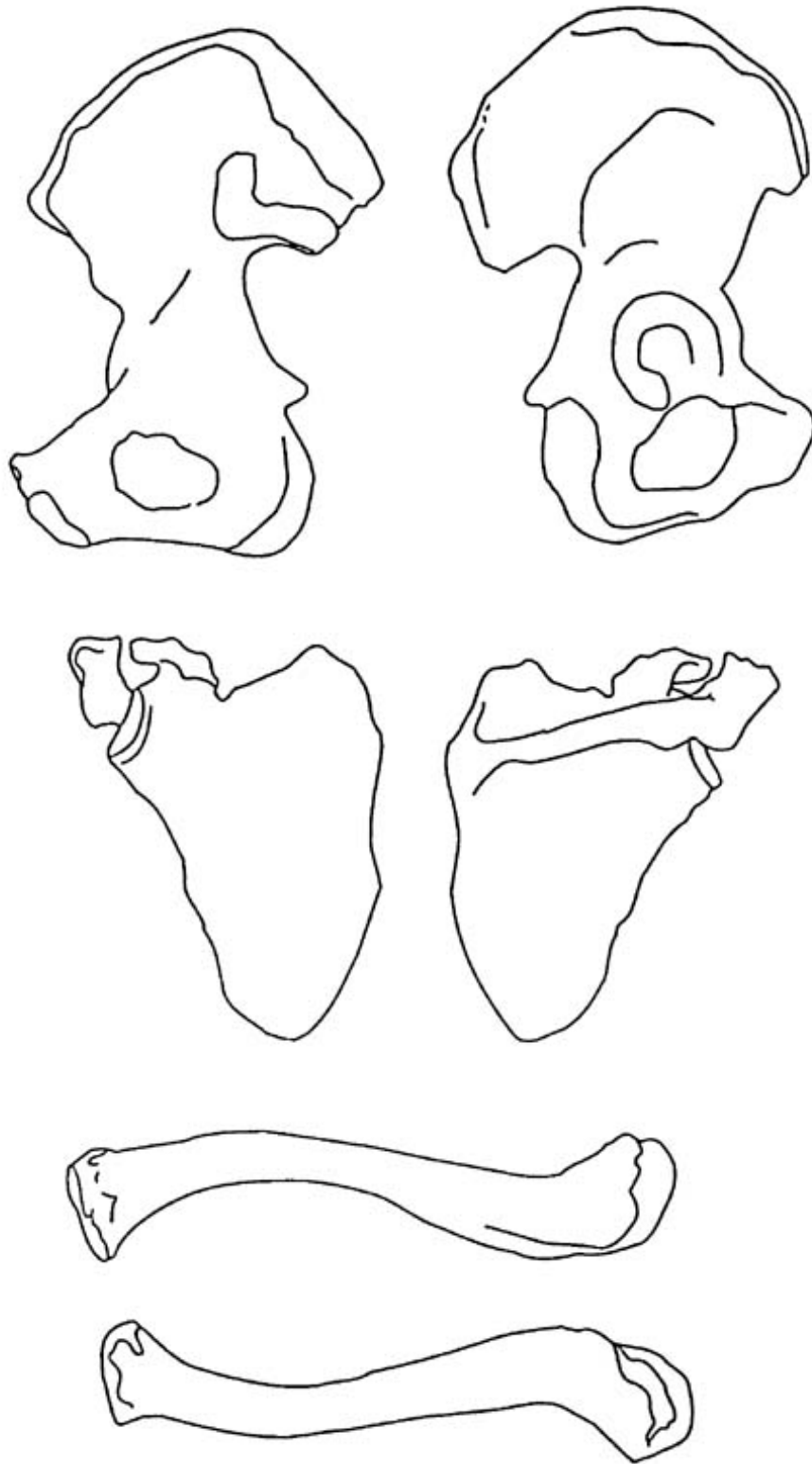
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LEFT ILIUM, SCAPULA, CLAVICLE



RIGHT ILIUM, SCAPULA, CLAVICLE



RIGHT HUMERUS



anterior



medial



posterior



lateral

Notes:

LEFT HUMERUS



lateral



posterior



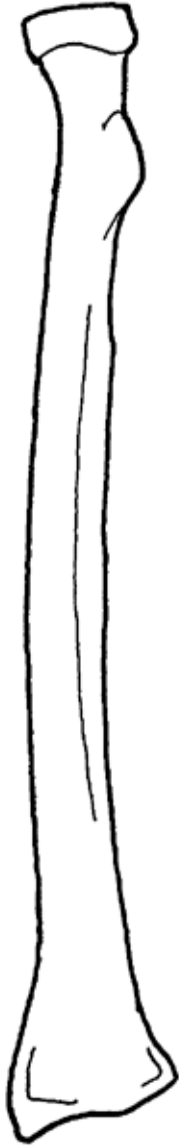
medial



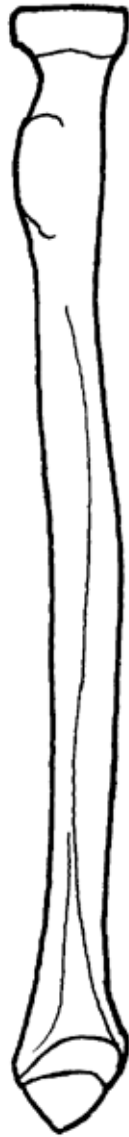
anterior

Notes:

RIGHT RADIUS



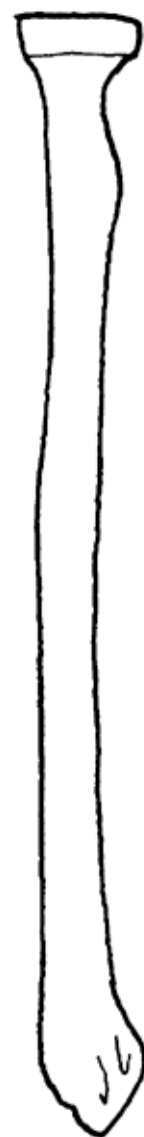
anterior



medial



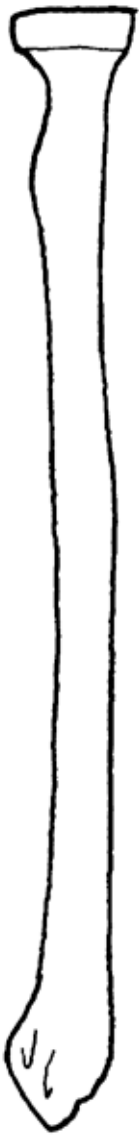
posterior



lateral

Notes:

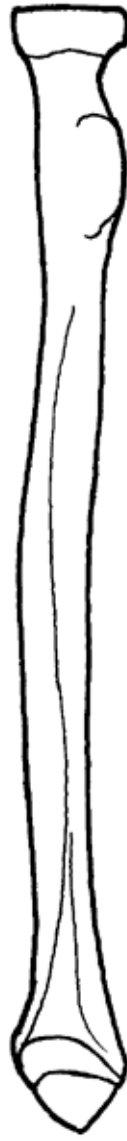
LEFT RADIUS



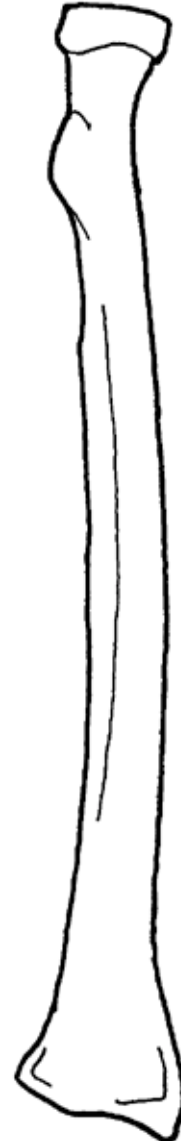
lateral



posterior



medial



anterior

Notes:

RIGHT ULNA



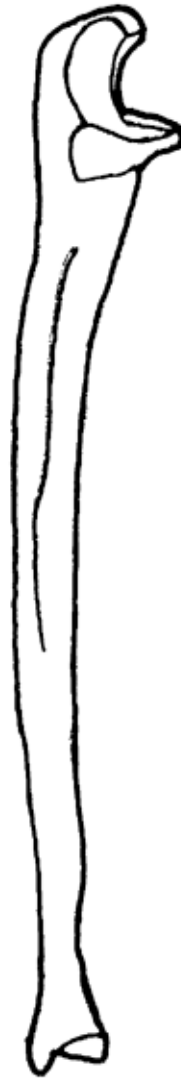
anterior



medial



posterior



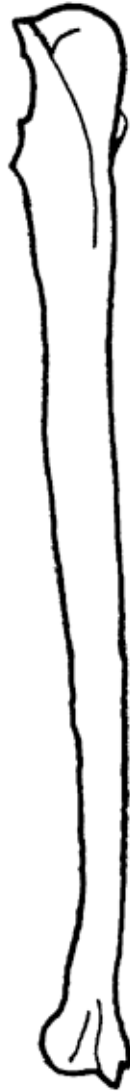
lateral

Notes:

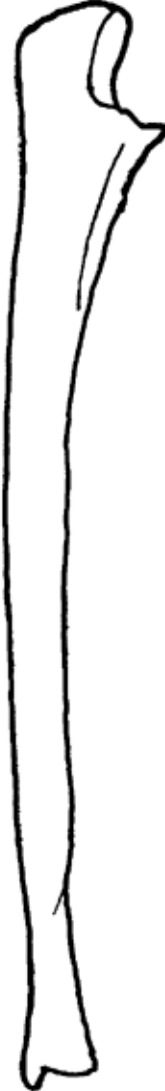
LEFT ULNA



lateral



posterior



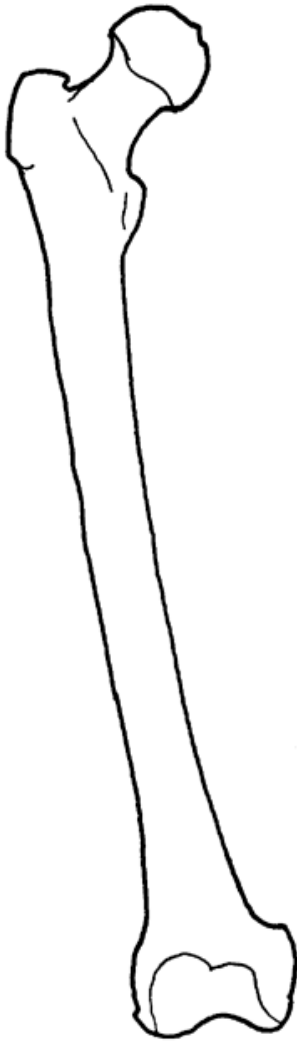
medial



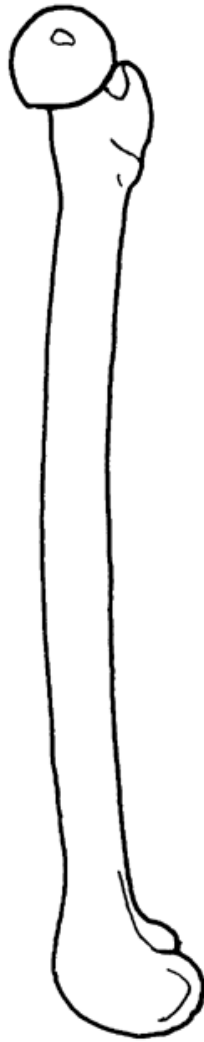
anterior

Notes:

RIGHT FEMUR



anterior



medial



posterior



lateral

Notes:

LEFT FEMUR



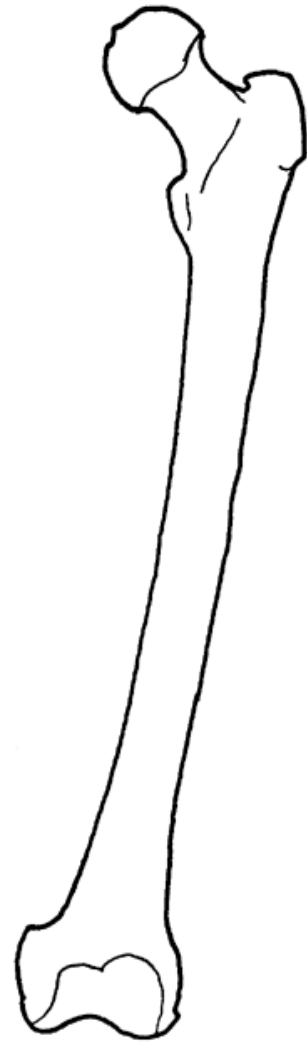
lateral



posterior



medial



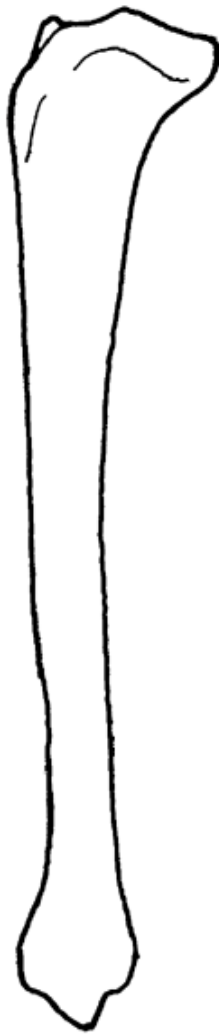
anterior

Notes:

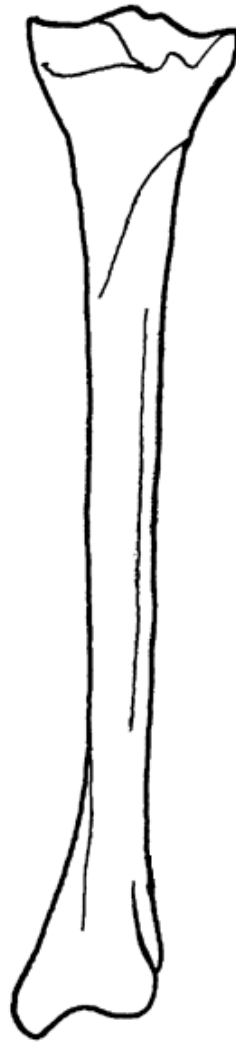
RIGHT TIBIA



anterior



medial



posterior



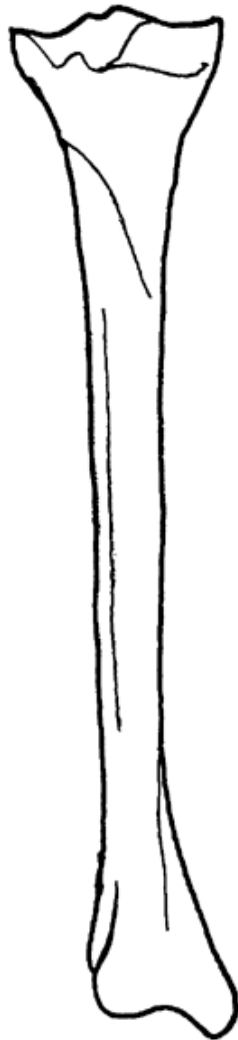
lateral

Notes:

LEFT TIBIA



lateral



posterior



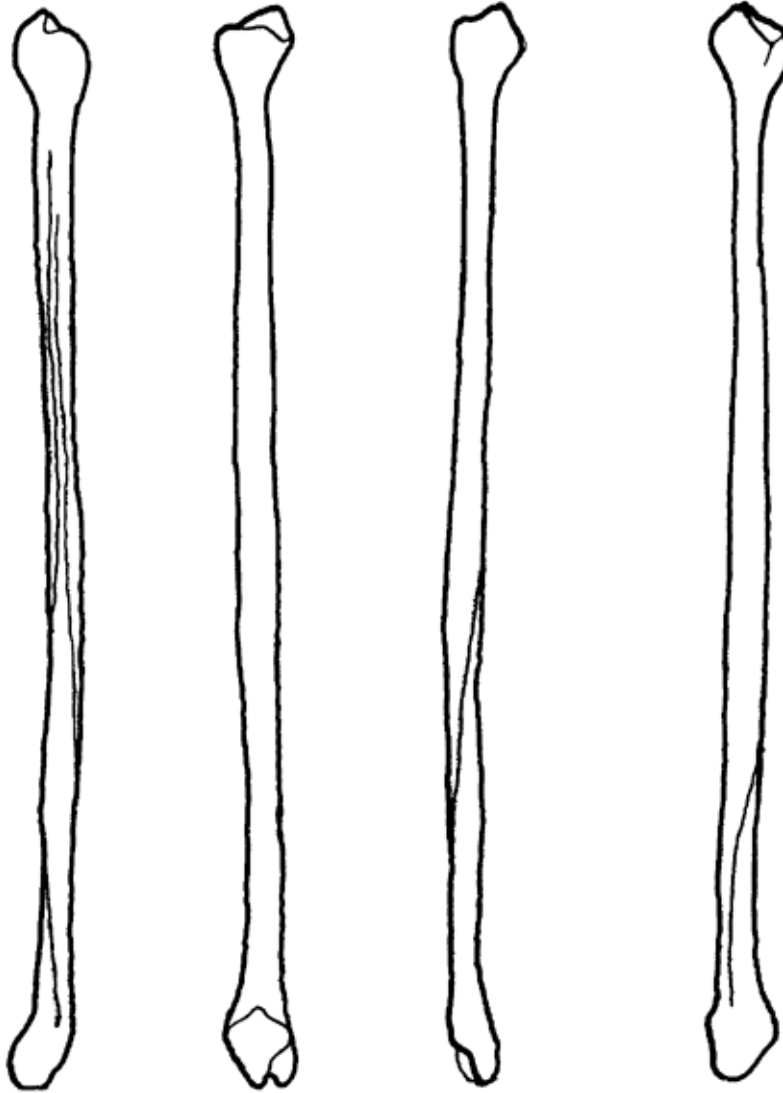
medial



anterior

Notes:

RIGHT FIBULA



anterior

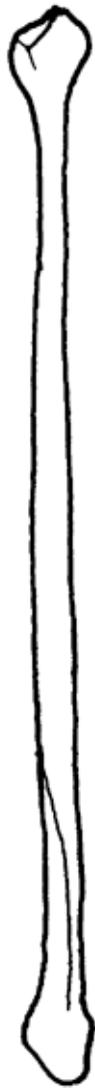
medial

posterior

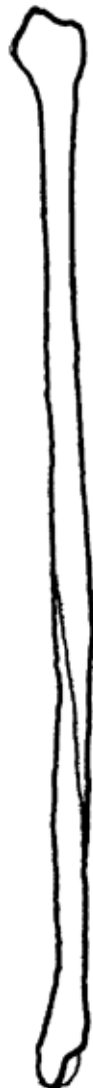
lateral

Notes:

LEFT FIBULA



lateral



posterior



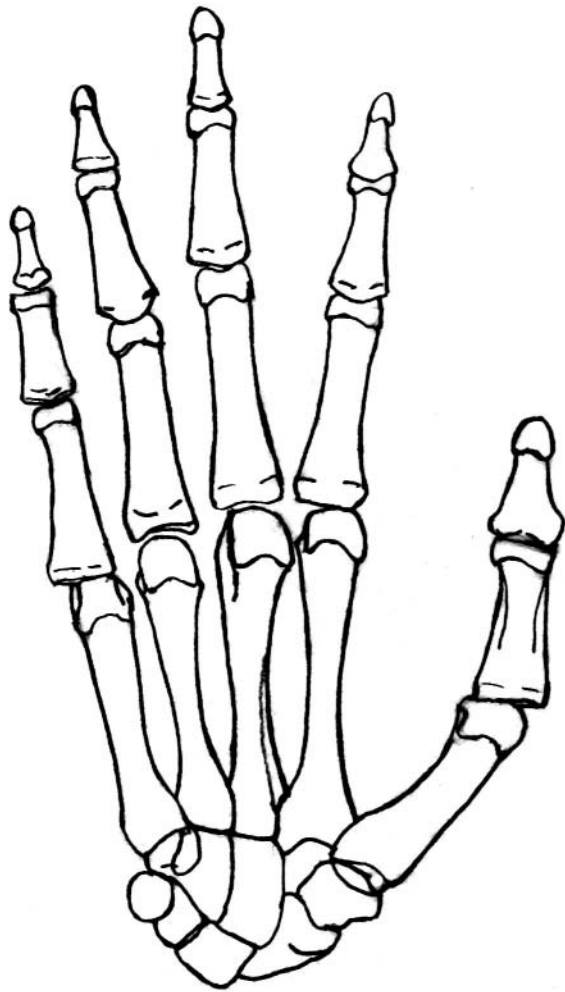
medial



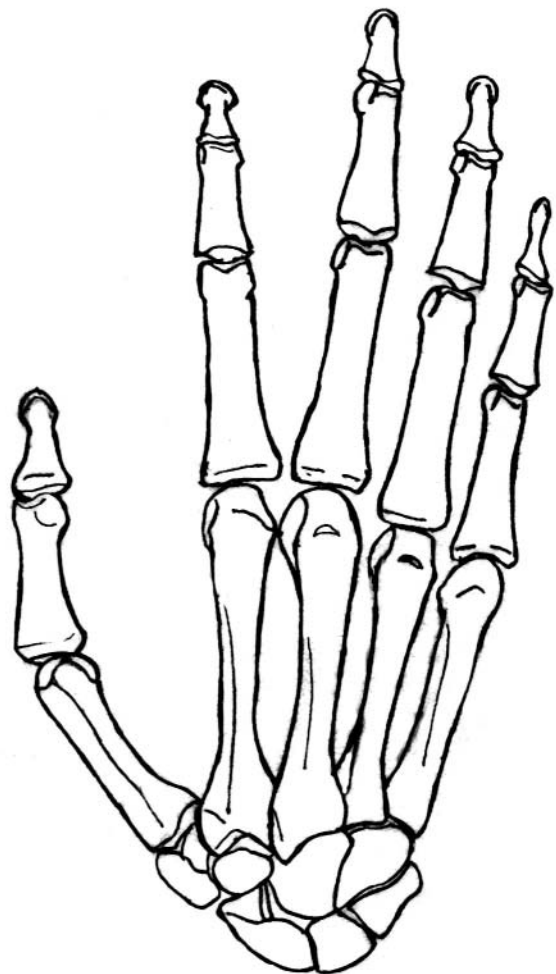
anterior

Notes:

RIGHT HAND

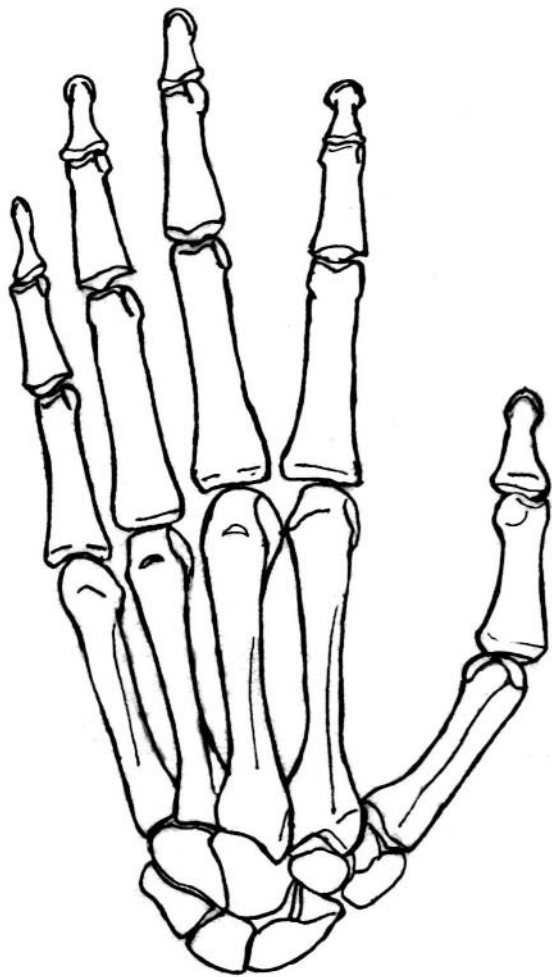


palmar

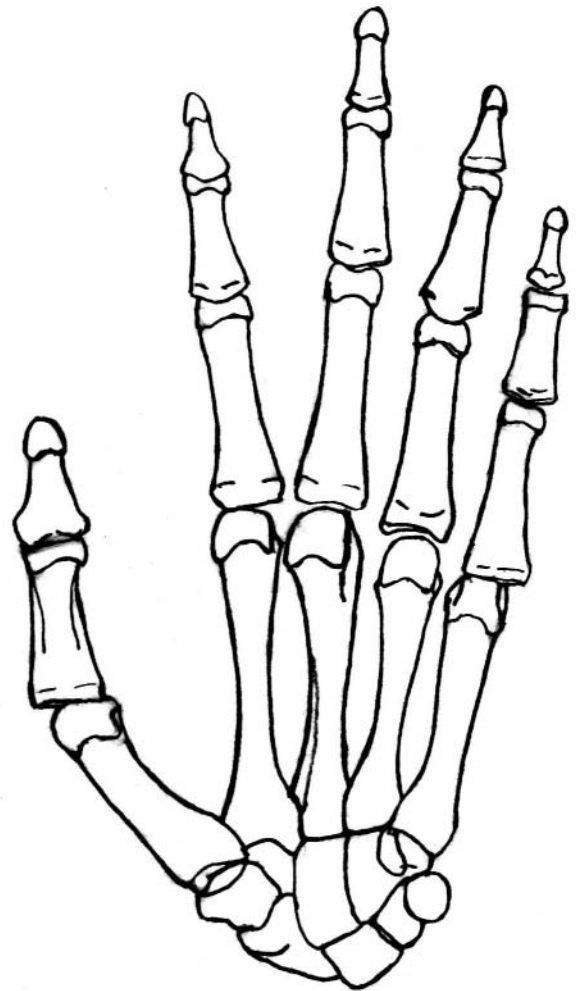


volar

LEFT HAND

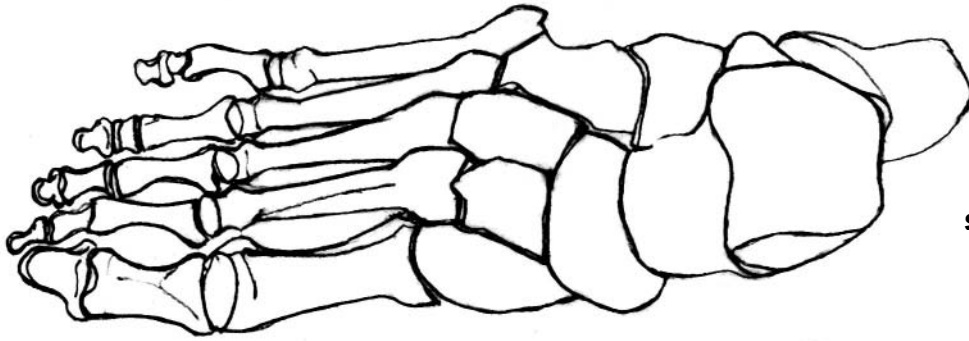


volar

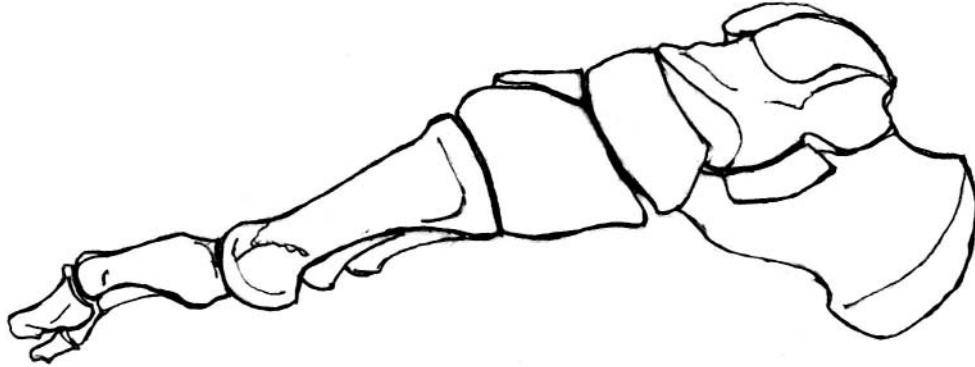


palmar

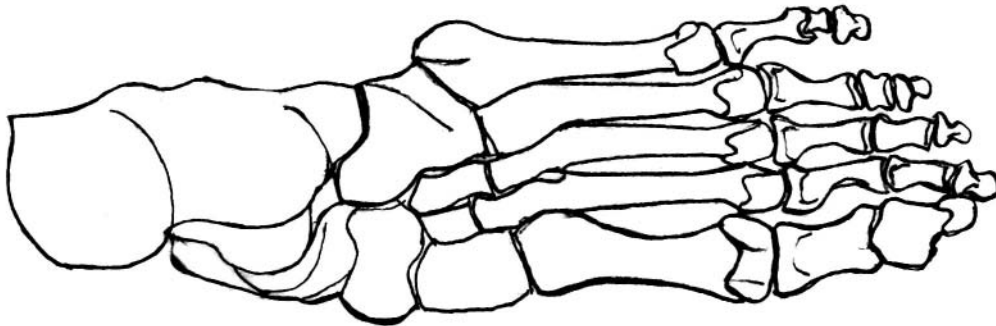
RIGHT FOOT



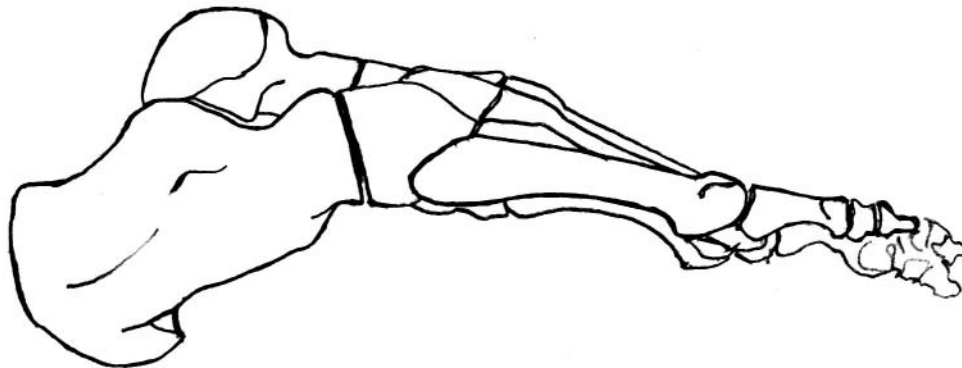
superior



medial



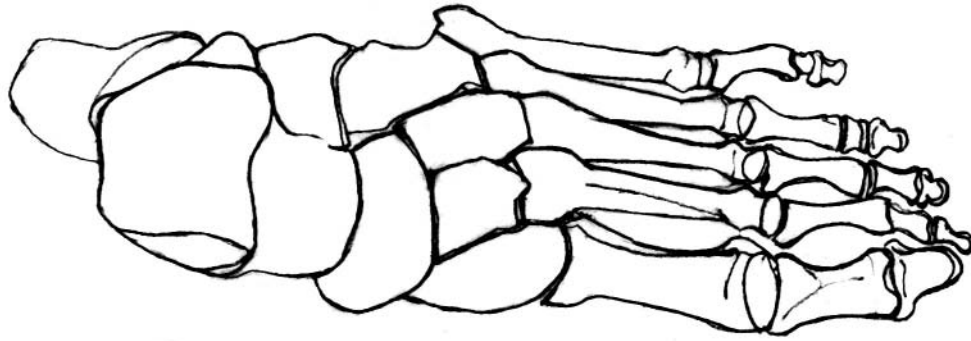
inferior



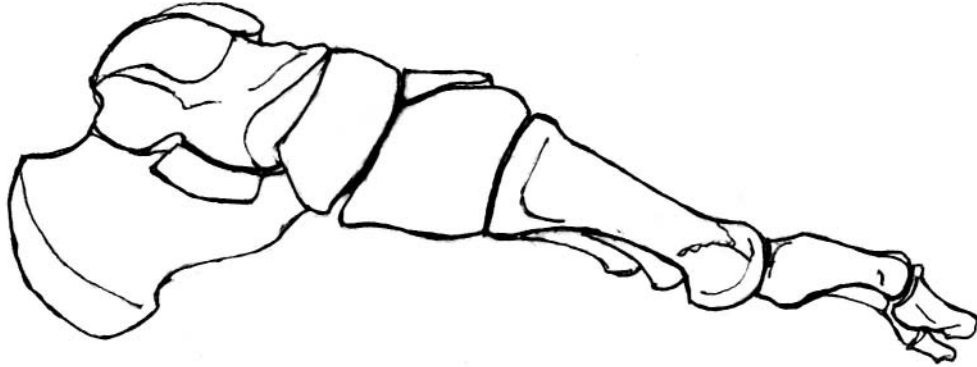
lateral

LEFT FOOT

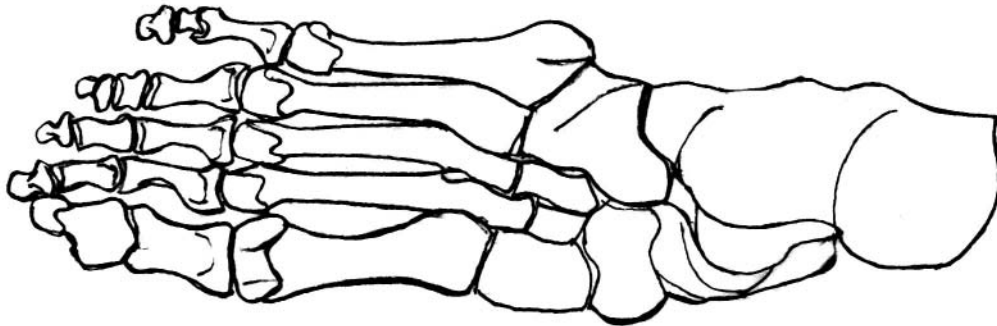
superior



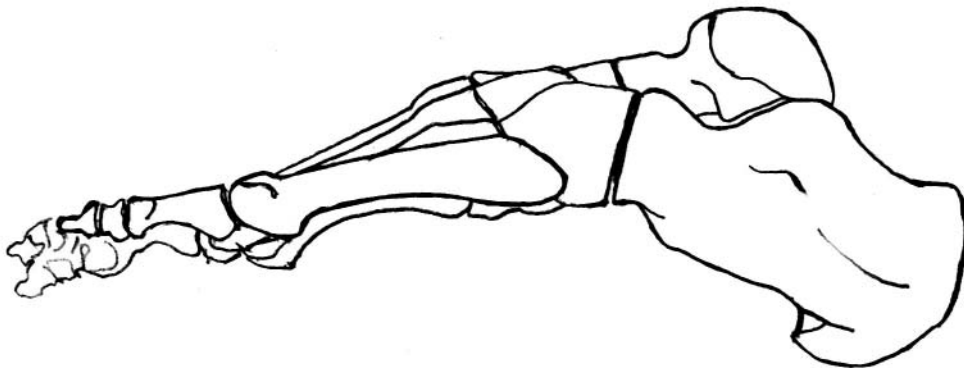
medial



inferior



lateral



IMMATURE REMAINS: EPIPHYSEAL UNION & AGE ASSESSMENT

Epiphyseal Union

element	epiphysis	stage of union	
Cervical vertebrae	superior	_____	_____
	inferior	_____	_____
Thoracic vertebrae	superior	_____	_____
	inferior	_____	_____
Lumbar vertebrae	superior	_____	_____
	inferior	_____	_____
		left	right
Scapula	coracoid	_____	_____
	acromium	_____	_____
Clavicle	sternal	_____	_____
Humerus	head	_____	_____
	distal	_____	_____
Radius	medial epicondyle	_____	_____
	proximal	_____	_____
	distal	_____	_____
Ulna	proximal	_____	_____
	distal	_____	_____
Innominate	iliac crest	_____	_____
	ischial tuberosity	_____	_____
Femur	head	_____	_____
	greater trochanter	_____	_____
	lesser trochanter	_____	_____
	distal	_____	_____
Tibia	proximal	_____	_____
	distal	_____	_____
Fibula	proximal	_____	_____
	distal	_____	_____
Metacarpals	proximal (1st)	_____	_____
	distal (2-5)	_____	_____
Metatarsals	proximal (1st)	_____	_____
	dist (2-5)	_____	_____
C. Phalanges	proximal	_____	_____
T. Phalanges	proximal	_____	_____

Primary Ossification Centers

element	area of union	stage of union
Innominate	ilium-pubis	_____
	ischium-pubis	_____
	ischium-ilium	_____
Sacrum	1-2	_____
	2-3	_____
	3-4	_____
	4-5	_____
Cervical vertebrae	neural arches to each other	_____
	neural arches to centrum	_____
Thoracic vertebrae	neural arches to each other	_____
	neural arches to centrum	_____
Lumbar vertebrae	neural arches to each other	_____
	neural arches to centrum	_____
Cranium	basilar suture	_____
	Occipital lateral – squama	_____
	basilar – lateral	_____
Mandibular Symphysis		_____
Metopic Suture		_____

Stage of union: blank = unobservable, 0 = open, 1 = partial union, 2 = complete union

Age Assessment:

	<u>Age class</u>	<u>Age range in months or years</u>
Fetus	_____	lunar months _____
Infant (birth – 2 yr)	_____	months/years _____
Child (2 – 12 yr)	_____	years _____
Subadult (12-18yr)	_____	years _____

Comments (criteria used for age assessment):

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IMMATURE MEASUREMENT RECORDING FORM

Cranial Measurements

All measurements are in millimeters. * indicates that measurement is approximate

measurement	left	midline	right
1. lesser wing of sphenoid			
length	_____		_____
width	_____		_____
2. greater wing of sphenoid			
length	_____		_____
width	_____		_____
3. body of sphenoid			
length		_____	
width		_____	
4. petrous/mastoid portions of temporal			
length	_____		_____
width	_____		_____
5. basilar part of occipital			
length		_____	
width		_____	
6. zygomatic			
length	_____		_____
width	_____		_____
7. maxilla			
length	_____		_____
height	_____		_____
width	_____		_____
8. mandible			
length of body	_____		_____
width of arc	_____		_____
full length of half mandible	_____		_____

Postcranial Measurements

element	left	right	element	left	right
9. clavicle			15. ulna		
length	_____	_____	length	_____	_____
diameter	_____	_____	diameter	_____	_____
10. scapula			16. radius		
length (height)	_____	_____	length	_____	_____
width	_____	_____	diameter	_____	_____
length of spine	_____	_____			
11. ilium			17. femur		
length	_____	_____	length	_____	_____
width	_____	_____	width	_____	_____
			diameter	_____	_____
12. ischium			18. tibia		
length	_____	_____	length	_____	_____
width	_____	_____	diameter	_____	_____
13. pubis			19. fibula		
length	_____	_____	length	_____	_____
			diameter	_____	_____
14. humerus					
length	_____	_____			
width	_____	_____			
diameter	_____	_____			

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DECIDUOUS TEETH RECORDING FORM Wear, Development, Loss

Loss Categories

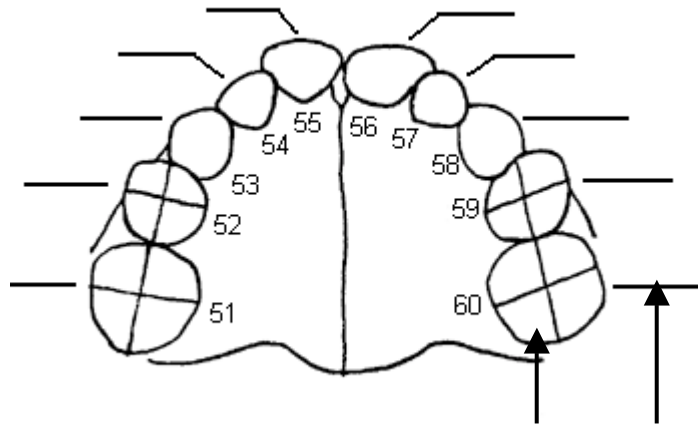
A = antemortem
P = postmortem
U = unknown

Wear Stages

0 = not in occlusion
1-10 = per *Standards*
X = unknown due to caries or breakage

Development Stages

0 = unobservable
1-14 = per *Standards*



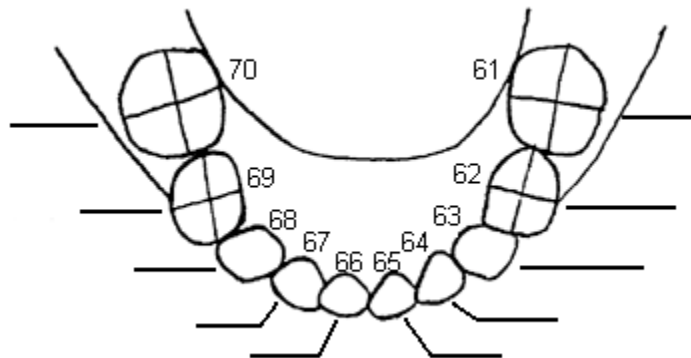
Wear

Development or Loss
Category

MAXILLA

RIGHT

LEFT

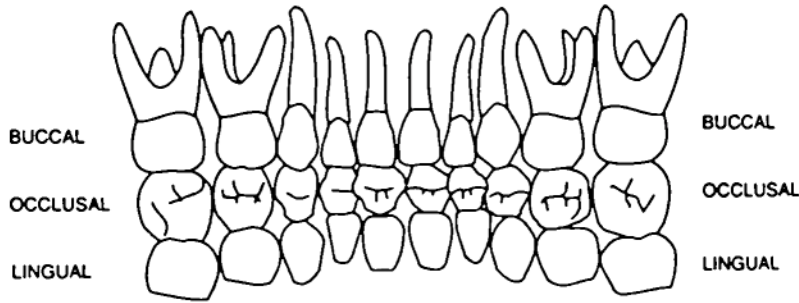


MANDIBLE

DECIDUOUS TEETH RECORDING FORM

Pathologies

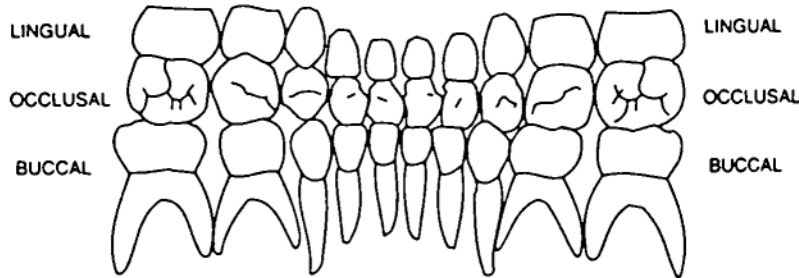
MAXILLARY



Right	51	52	53	54	55	56	57	58	59	60	Left
	70	69	68	67	66	65	64	63	62	61	

RIGHT

LEFT

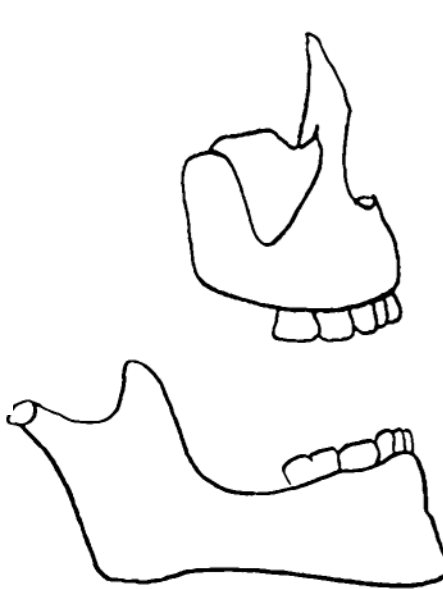


MANDIBULAR

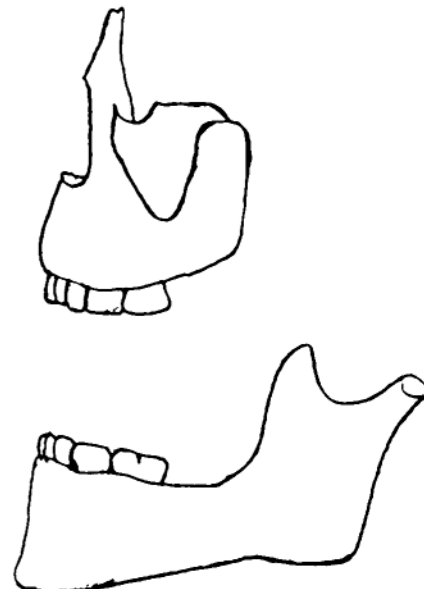
Indicate missing alveolar bone on the drawing below with cross-hatching



RIGHT
Buccal View



LEFT
Buccal View



Note: Indicate dental pathologies on the drawings above. Use codes per *Standards*.

Checklist:	Caries	Abscesses	Hypoplasia	Calculus	Periodontal Disease	Hypocalcification
present	___	___	___	___	___	___
absent	___	___	___	___	___	___
unobservable	___	___	___	___	___	___

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DENTAL MORPHOLOGY – DECIDUOUS TEETH

MANDIBLE

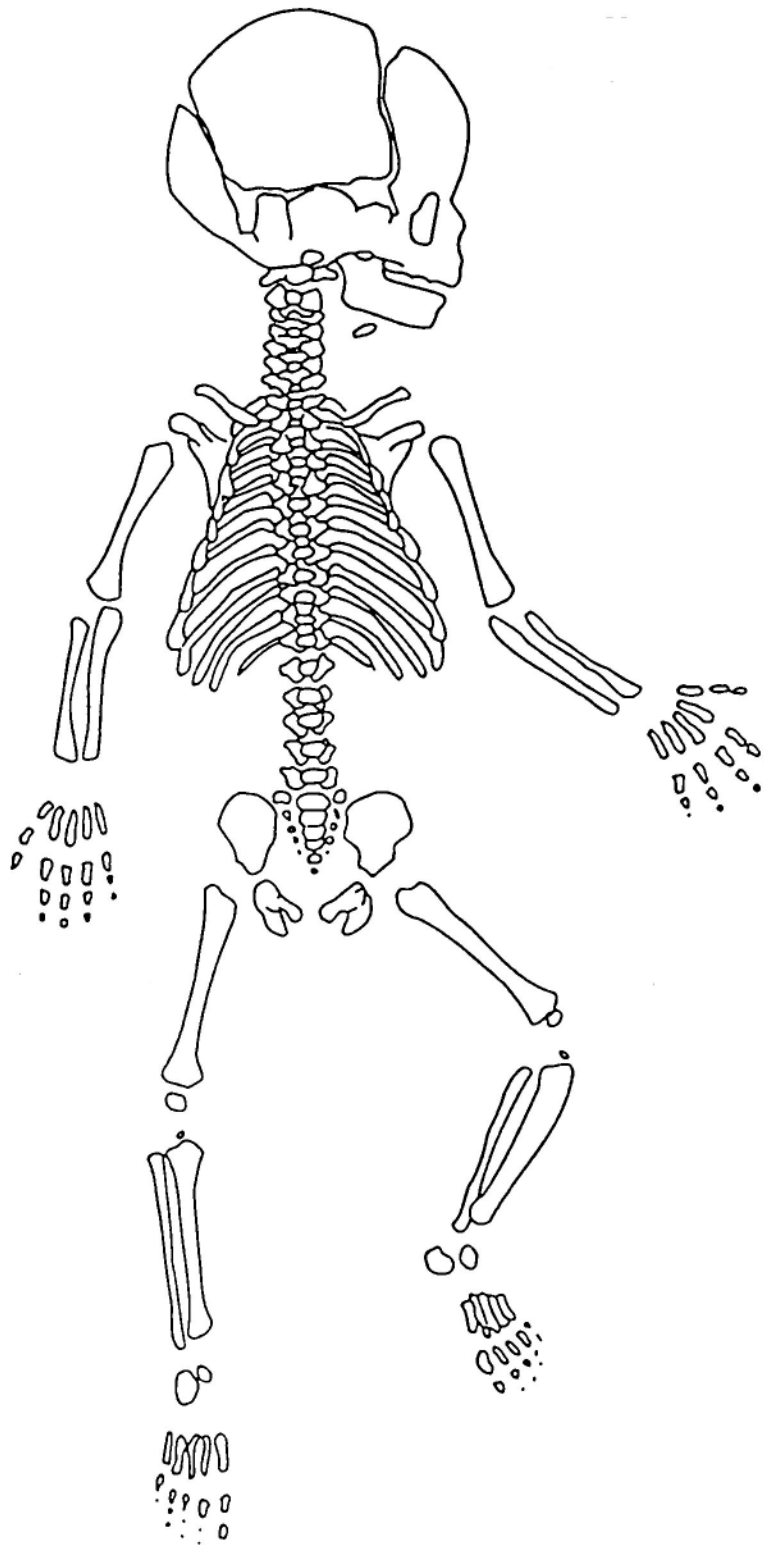
	Right					Left				
	70	69	68	67	66	65	64	63	62	61
	m ₂	m ₁	c	i ₂	i ₁	i ₁	i ₂	c	m ₁	m ₂
shovel										
root groove										
labial deflect										
double teeth										
dist acces rdg										
tuberc dentale										
canine form										
cong absence										
delta shape										
groove pattern										
cuspid number										
deflect wrinkle										
mid trig crest										
dist trig crest										
protostylid										
hypoconulid										
cuspid 6										
cuspid 7										
root no.										

DENTAL MORPHOLOGY – DECIDUOUS TEETH

MAXILLA

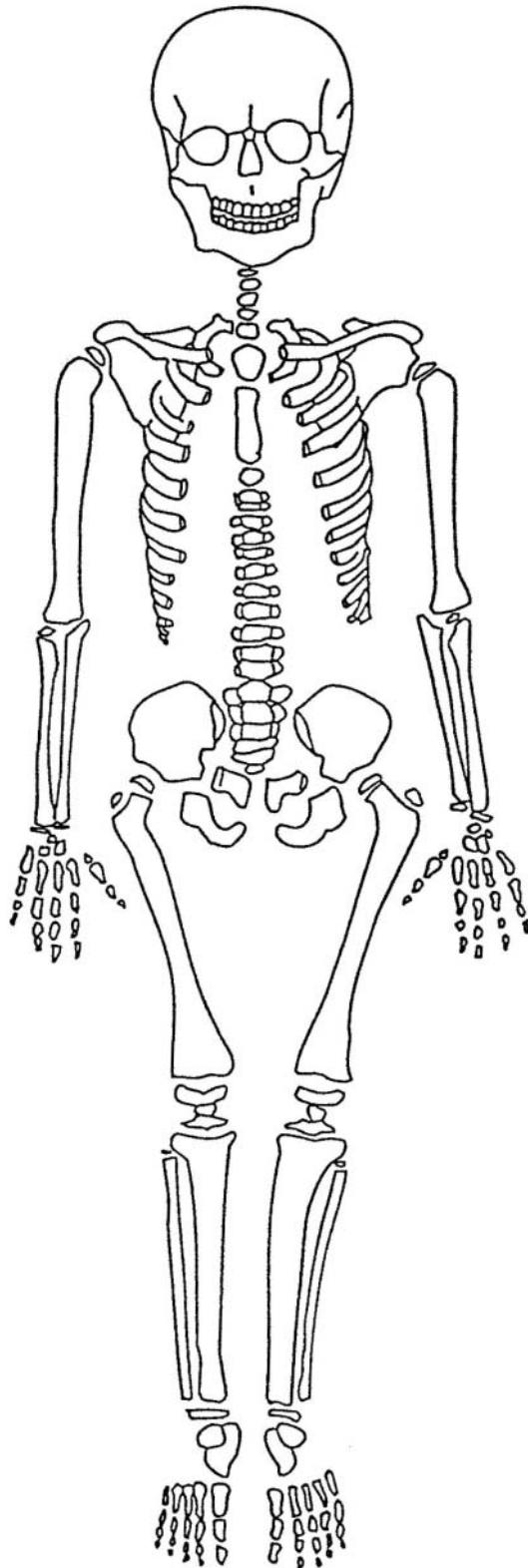
	Right					Left				
	51	52	53	54	55	56	57	58	59	60
	m ²	m ¹	c	i ²	i ¹	i ¹	i ²	c	m ¹	m ²
winging										
root groove										
labial deflect										
double teeth										
shovel										
double shovel										
interrupt groove										
tuberc dentale										
C mesial ridge										
dist acces rdg										
canine form										
metacone										
hypocone										
cuspl 5										
Carabelli's tr										
parastyle										
enamel ext										
root sheath										
root number										
cong absence										

INFANT SKELETON



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CHILD SKELETON



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ISOLATED BONE RECORDING FORM

ASM 8/24/04

Form 35

Site Name & # _____
Numeric ID _____

Date _____
Observer _____

MNI _____ MNI Category _____

Collection type _____

List each element. Indicate R or L side. Code completeness as C (75% or more), P (25-75%), or F (< 25%). For long bones, code regions as PE (proximal epiphysis), DE (distal epiphysis), P 1/3 (proximal third of shaft), M 1/3 (middle third), D 1/3 (distal third).

Elements Represented:

Cranial

Dental

Axial

Appendicular

Extremities

Unknown

Age & Sex assessment

Comments: (note pathologies, taphonomy, etc.)

CREMATED BONE RECORDING FORM

ASM 8/24/04

Form 36a

Site Name & # _____

Date _____

Numeric ID _____

Observer _____

MNI _____

Bone weight (grams) _____

Maximum length (cm) _____

Average length _____

Color _____

Warping/Surface texture _____

Elements Represented:

Cranial

% _____

Dental

% _____

Axial

% _____

Appendicular

% _____

Extremities

% _____

Unknown

% _____

Age & Sex assessment _____

Comments: (note pathologies, etc.)

