

Appendix Three

Recording Forms

Some of the measurements taken during data collection were excluded from further analysis. Reasons for exclusion include: small sample size; measurements that were only obtainable unilaterally; the method for taking measurements could not be interpreted by a second observer; and difficult or awkward measurements that, although they exhibited low to moderate measurement error, they were found statistically to have numerous population outliers that were caused by measurement error (see electronic appendices). The results from tests for measurement error and normality tests for these excluded measurements can also be found in the electronic appendices. Subadult measurements excluded for small sample size include: orbital height, orbital breadth, *nasion-orbitale*, *frontomalare-nasospinale*, height of the mastoid process, *basion-asterion*, *lambda-frontomalare*, *lambda-asterion*, maximum length of the coracoid process of the scapula, breadth of the epicondyle of the humerus, and acetabular height. All tarsal measurements were removed for the age group foetal to infant due to low numbers of recordable measurements. The measurements greatest breadth of the alae and body of the sacrum were not used as they are not bilateral measurements. Other measurements removed for all age groups include: corpus length of the mandible; breadths of the anterior and posterior articular surfaces of the humerus; maximum diameter at the nutrient foramen of the ulna; maximum and minimum midshaft diameters of the metacarpals and metatarsals; maximum height and width of the pubic symphyseal face; the least antero-posterior and supero-inferior diameters of the femoral neck; the medio-lateral width of the distal tibia; and antero-posterior widths of the proximal and distal ends of the subadult humerus, the distal end of the subadult radius, distal end/epiphysis of the radius, distal end of the subadult femur, the distal and

proximal ends of the subadult tibia, and the distal and proximal ends/epiphyses of the tibia.

Table AP 3.1: Recording form for Late Adolescence to Mature Adult.

Site:

Skeleton:

Age:

Sex:

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)
Cranium	Orbital breadth (ec-d)	X	x		--	--
	Orbital height	X	x		--	--
	n-or	X	x		--	--
	fmt-n	X	x		--	--
	fmt-ns	x	x		--	--
	Cheek height	x	x		--	--
	Mastoid length	x	x		--	--
	Mastoid breadth	x	x		--	--
	Mastoid height	x	x		--	--
	ms-ast	x	x		--	--
	Digastric groove length	x	x		--	--
	Occipital condyle length	x	x		--	--
	ecm to intermaxillary suture	x	x		--	--
	o-po	x	x		--	--
	ba-po	x	x		--	--
	fmt-b	x	x		--	--
	b-po	x	x		--	--
	b-zo	x	x		--	--
	n-ms	x	x		--	--
	b-ast	x	x		--	--
l-fmt	x	x		--	--	
l-ast	x	x		--	--	
Mandible	Mandibular length	x	x		--	--
	Corpus length	x	x		--	--
	Maximum ramus height	x	x		--	--
	Maximum ramus breadth	x	x		--	--
	Minimum ramus breadth	x	x		--	--
Clavicle	Maximum length	x	x		--	--
	Maximum diameter at midshaft	x	x		--	--
	Minimum diameter at midshaft	x	x		--	--
	Maximum width of the acromial end	x	x		--	--
	Maximum width of the sternal end	x	x		--	--
	Maximum depth of the medial curve	x	x		--	--
	Maximum depth of the lateral curve	x	x		--	--

Table AP 3.1: Continued

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)	
Scapula	Glenoid cavity length	x	x		--	--	
	Glenoid cavity breadth	x	x		--	--	
	Maximum length of the acromion	x	x		--	--	
	Maximum length of the coracoid process	x	x		--	--	
Humerus	Maximum length	x	x		--	--	
	Maximum diameter at midshaft	x	x		--	--	
	Minimum diameter at midshaft	x	x		--	--	
	Maximum diameter at deltoid tuberosity	x	x		--	--	
	Vertical diameter of the head	x	x		--	--	
	Antero-posterior diameter of the head	x	x		--	--	
	Epicondylar breadth	x	x		--	--	
	Anterior breadth of the articular surface	x	x		--	--	
	Posterior breadth of the articular surface	x	x		--	--	
	Greater tubercle length	x	x		--	--	
	Radius	Maximum length	x	x		--	--
		Maximum diameter at midshaft	x	x		--	--
Minimum diameter at midshaft		x	x		--	--	
Greatest diameter of head		x	x		--	--	
Medio-lateral width of the distal end		x	x		--	--	
Antero-posterior width of the distal end		x	x		--	--	
Ulna		Maximum length	x	x		--	--
	Physiological length	x	x		--	--	
	Maximum diameter at midshaft	x	x		--	--	
	Minimum diameter at midshaft	x	x		--	--	
	Maximum diameter at the nutrient foramen	x	x		--	--	
	Height of the radial notch	x	x		--	--	
	Width of olecranon	x	x		--	--	
	Coronoid height	x	x		--	--	
1 metacarpal	Maximum length	x	x		--	--	
	Maximum diameter at midshaft	x	x		--	--	
	Minimum diameter at midshaft	x	x		--	--	
2 metacarpal	Maximum length	x	x		--	--	
	Maximum diameter at midshaft	x	x		--	--	
	Minimum diameter at midshaft	x	x		--	--	
3 metacarpal	Maximum length	x	x		--	--	
	Maximum diameter at midshaft	x	x		--	--	
	Minimum diameter at midshaft	x	x		--	--	

Table AP 3.1: Continued.

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)
4 metacarpal	Maximum length	x	x		--	--
	Maximum diameter at midshaft	x	x		--	--
	Minimum diameter at midshaft	x	x		--	--
5 metacarpal	Maximum length	x	x		--	--
	Maximum diameter at midshaft	x	x		--	--
	Minimum diameter at midshaft	x	x		--	--
Sacrum	Greatest breadth of the ala		x		--	--
	Maximum breadth of the body		x		--	--
	Minimum distance from body to ala	x	x		--	--
	A-P width of ala	x	x		--	--
	Maximum antero-posterior length of the auricular surface	x	x		--	--
	Maximum inferior-superior width of the auricular surface	x	x		--	--
	Anterior distance from the first foramen to the superior surface of body	x	x		--	--
Os coxae	Height	x	x		--	--
	Iliac breadth	x	x		--	--
	Pubis length	x	x		--	--
	Ischium length	x	x		--	--
	Acetabular height	x	x		--	--
	Maximum height of the pubic symphyseal face	x	x		--	--
	Maximum width of pubic symphyseal face	x	x		--	--
	Auricular surface height	x	x		--	--
	Auricular surface breadth	x	x		--	--
Femur	Maximum length	x	x		--	--
	Maximum diameter at midshaft	x	x		--	--
	Minimum diameter at midshaft	x	x		--	--
	Maximum subtrochanteric diameter	x	x		--	--
	Minimum subtrochanteric diameter	x	x		--	--
	Epicondylar breadth	x	x		--	--
	Maximum width lateral epicondyle	x	x		--	--
	Maximum antero-posterior head diameter	x	x		--	--
	Maximum supero-inferior head diameter	x	x		--	--
	Maximum width of proximal end	x	x		--	--
	Least antero-posterior diameter of neck	x	x		--	--
	Least vertical diameter of neck	x	x		--	--

Table AP 3.1: Continued.

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)
Tibia	Maximum length	x	x		--	--
	Maximum diameter at the nutrient foramen	x	x		--	--
	Minimum diameter at the nutrient foramen	x	x		--	--
	Maximum breadth of the distal end	x	x		--	--
	Maximum antero-posterior width of the distal end	x	x		--	--
	Maximum proximal breadth	x	x		--	--
	Maximum proximal antero-posterior width	x	x		--	--
	A-p diameter of the medial condyle	x	x		--	--
	A-p diameter of the lateral condyle	x	x		--	--
Calcaneus	Maximum length	x	x		--	--
	Maximum breadth	x	x		--	--
	Maximum height	x	x		--	--
Talus	Maximum length	x	x		--	--
	Maximum breadth	x	x		--	--
	Maximum height	x	x		--	--
1 Metatarsal	Maximum length	x	x		--	--
	Maximum diameter at midshaft	x	x		--	--
	Minimum diameter at midshaft	x	x		--	--
2 Metatarsal	Maximum length	x	x		--	--
	Maximum diameter at midshaft	x	x		--	--
	Minimum diameter at midshaft	x	x		--	--
3 Metatarsal	Maximum length	x	x		--	--
	Maximum diameter at midshaft	x	x		--	--
	Minimum diameter at midshaft	x	x		--	--
4 Metatarsal	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
5 Metatarsal	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--

Table AP 3.2: Recording form for Childhood to Early Adolescence.

Site:

Skeleton:

Age:

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)
Cranium	Orbital breadth (ec-d)	X	x		--	--
	Orbital height	X	x		--	--
	n-or	X	x		--	--
	fmt-n	X	x		--	--
	fmt-ns	X	x		--	--
	Cheek height	X	x		--	--
	Mastoid length	X	x		--	--
	Mastoid breadth	X	x		--	--
	Mastoid height	X	x		--	--
	ms-ast	X	x		--	--
	Digastric groove length	X	x		--	--
	Occipital condyle length	X	x		--	--
	ecm to intermaxillary suture	X	x		--	--
	fmt-b	X	x		--	--
	b-ast	X	x		--	--
	l-fmt	X	x		--	--
l-ast	X	x		--	--	
Mandible	Mandibular length	X	x		--	--
	Corpus length	X	x		--	--
	Maximum ramus height	X	x		--	--
	Maximum ramus breadth	X	x		--	--
	Minimum ramus breadth	X	x		--	--
Clavicle	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
	Maximum width of the acromial end	X	x		--	--
	Maximum width of the sternal end	X	x		--	--
	Maximum depth of the medial curve	X	x		--	--
	Maximum depth of the lateral curve	X	x		--	--
Scapula	Glenoid cavity length	X	x		--	--
	Glenoid cavity breadth	X	x		--	--
	Maximum length of the acromion	X	x		--	--
	Maximum length of the coracoid process	X	x		--	--

Table AP 3.2: Continued.

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)	
Humerus	Maximum length	X	x		--	--	
	Maximum diameter at midshaft	X	x		--	--	
	Minimum diameter at midshaft	X	x		--	--	
	Maximum diameter at deltoid tuberosity	X	x		--	--	
	Vertical diameter of the head	X	x		--	--	
	Antero-posterior diameter of the head	X	x		--	--	
	Epicondylar breadth	X	x		--	--	
	Maximum width of the distal end	X	x		--	--	
	Maximum a-p width of the distal end	X	x		--	--	
	Maximum width of the proximal end	X	x		--	--	
	Maximum a-p width of the proximal end	X	x		--	--	
	Greater tubercle length	X	x		--	--	
	Radius	Maximum length	X	x		--	--
Maximum diameter at midshaft		X	x		--	--	
Minimum diameter at midshaft		X	x		--	--	
Greatest diameter of head		X	x		--	--	
Medio-lateral width of the distal end		X	x		--	--	
Antero-posterior width of the distal end		X	x		--	--	
Maximum width of the distal epiphysis		X	x		--	--	
Antero-posterior width of the distal epiphysis		X	x		--	--	
Ulna		Maximum length	X	x		--	--
		Physiological length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--	
	Minimum diameter at midshaft	X	x		--	--	
	Maximum diameter at the nutrient foramen	X	x		--	--	
	Height of the radial notch	X	x		--	--	
	Width of olecranon	X	x		--	--	
	Coronoid height	X	x		--	--	
1 Metacarpal	Maximum length	X	x		--	--	
	Maximum midshaft diameter	X	x		--	--	
	Minimum diameter at midshaft	X	x		--	--	
2 Metacarpal	Maximum length	X	x		--	--	
	Maximum midshaft diameter	X	x		--	--	
	Minimum diameter at midshaft	X	x		--	--	
3 Metacarpal	Maximum length	X	x		--	--	
	Maximum diameter at midshaft	X	x		--	--	

Table AP 3.2: Continued.

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)
	Minimum diameter at midshaft	X	x		--	--
4 Metacarpal	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
5 Metacarpal	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
Sacrum	Greatest breadth of the S1		x		--	--
	Maximum breadth of the body of S1		x		--	--
	Minimum distance from body to ala	x	x		--	--
	Body height of S1	X	x		--	--
Os coxae	Iliac height	X	x		--	--
	Iliac breadth	X	x		--	--
	Pubis length	X	x		--	--
	Ischium length	X	x		--	--
	Maximum height of the pubic symphyseal face	X	x		--	--
	Maximum width of pubic symphyseal face	X	x		--	--
	Auricular surface height	X	x		--	--
	Auricular surface breadth	X	x		--	--
Femur	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
	Maximum subtrochanteric diameter	X	x		--	--
	Minimum subtrochanteric diameter	X	x		--	--
	Medio-lateral width of the distal end	X	x		--	--
	Antero-posterior width of the distal end	X	x		--	--
	Medio-lateral width of the distal epiphysis	X	x		--	--
	Maximum width lateral epicondyle	X	x		--	--
	Maximum antero-posterior head diameter	X	x		--	--
	Maximum supero-inferior head diameter	X	x		--	--

Table AP 3.2: Continued.

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)
Femur (Continued)	Maximum width of proximal end	X	x		--	--
	Least antero-posterior diameter of neck	X	x		--	--
	Least vertical diameter of neck	X	x		--	--
Tibia	Maximum length	X	x		--	--
	Maximum diameter at the nutrient foramen	X	x		--	--
	Minimum diameter at the nutrient foramen	X	x		--	--
	Maximum breadth of the distal end	X	x		--	--
	Maximum antero-posterior width of the distal end	X	x		--	--
	Maximum medio-lateral width of the distal epiphysis	X	x		--	--
	Maximum antero-posterior width of the distal epiphysis	X	x		--	--
	Maximum proximal breadth	X	x		--	--
	Maximum proximal antero-posterior width	X	x		--	--
	Maximum medio-lateral width of the proximal epiphysis	X	x		--	--
	Maximum antero-posterior width of the proximal epiphysis	X	x		--	--
	A-p diameter of the medial condyle	X	x		--	--
	A-p diameter of the lateral condyle	X	x		--	--
Calcaneus	Maximum length	X	x		--	--
	Maximum breadth	X	x		--	--
	Maximum height	X	x		--	--
Talus	Maximum length	X	x		--	--
	Maximum breadth	X	x		--	--
	Maximum height	X	x		--	--
1 Metatarsal	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
2 Metatarsal	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--

Table AP 3.2: Continued.

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)
3 Metatarsal	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
4 Metatarsal	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
5 Metatarsal	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--

Table AP 3.3: Recording form for foetal-infancy.

Site:

Skeleton:

Age:

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)
Cranium	fmt-n	X	x		--	--
	Cheek height	X	x		--	--
	Occipital condyle length	X	x		--	--
Mandible	Mandibular length	X	x		--	--
	Corpus length	X	x		--	--
	Maximum ramus height	X	x		--	--
	Maximum ramus breadth	X	x		--	--
	Minimum ramus breadth	X	x		--	--
Clavicle	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
	Maximum width of the acromial end	X	x		--	--
	Maximum width of the sternal end	X	x		--	--
Scapula	Glenoid cavity length	X	x		--	--
	Glenoid cavity breadth	X	x		--	--
	Maximum length of the acromion	X	x		--	--
	Maximum length of the coracoid process	X	x		--	--
Humerus	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
	Maximum width of the distal end	X	x		--	--
	Maximum a-p width of the distal end	X	x		--	--
	Maximum width of the proximal end	X	x		--	--
Radius	Maximum a-p width of the proximal end	X	x		--	--
	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
	Greatest diameter of head	X	x		--	--
	Medio-lateral width of the distal end	X	x		--	--
	Antero-posterior width of the distal end	X	x		--	--

Table AP 3.3: Continued.

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)
Ulna	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
	Maximum diameter at the nutrient foramen	X	x		--	--
	Height of the radial notch	X	x		--	--
	Width of olecranon	X	x		--	--
	Coronoid height	X	x		--	--
Os coxae	Iliac height	X	x		--	--
	Iliac breadth	X	x		--	--
	Pubis length	X	x		--	--
	Ischium length	X	x		--	--
	Maximum height of the pubic symphyseal face	X	x		--	--
	Maximum width of pubic symphyseal face	X	x		--	--
	Auricular surface height	X	x		--	--
	Auricular surface breadth	X	x		--	--
Femur	Maximum length	X	x		--	--
	Maximum diameter at midshaft	X	x		--	--
	Minimum diameter at midshaft	X	x		--	--
	Maximum subtrochanteric diameter	X	x		--	--
	Minimum subtrochanteric diameter	X	x		--	--
	Medio-lateral width of the distal end	X	x		--	--
	Maximum width of proximal end	X	x		--	--
	Least antero-posterior diameter of neck	X	x		--	--
	Least vertical diameter of neck	X	x		--	--
Tibia	Maximum length	X	x		--	--
	Maximum diameter at the nutrient foramen	X	x		--	--
	Minimum diameter at the nutrient foramen	X	x		--	--
	Maximum medio-lateral width of the distal end	X	x		--	--
	Maximum antero-posterior width of the distal end	X	x		--	--
	Maximum medio-lateral breadth of the proximal end	X	x		--	--
	Maximum antero-posterior width of the proximal end	X	x		--	--

Table AP 3.3: Continued.

Element	Measurement	Left	Right	Notes	R-L	Ln(R/L)
Calcaneus	Maximum length	X	x		--	--
	Maximum breadth	X	x		--	--
	Maximum height	X	x		--	--
Talus	Maximum length	X	x		--	--
	Maximum breadth	X	x		--	--
	Maximum height	X	x		--	--