Supplemental Table S1. Anthropometric measurements for use in the multiple regression analysis.

Parameter	*Abbreviation*	*Measurement (cm)*
Height	HT	Total body height measured on the CT scout images.
Os coxae width	OC.W	Maximum width of the os coxae in the coronal plane.
Os coxae height	OC.H	Average of the maximum heights of the left and right side of the os coxae in the coronal plane.
Bitrochanteric breadth	Bi.B	Distance between the outermost portions of the greater trochanters in the coronal plane.
Anterior sacral height	ASH	Distance from the anterior sacral promontory to the apex of the sacrum in the sagittal plane.
Sacral width	S.W	Maximum width of the sacrum in the transverse plane.
L_5 thickness	L5.T	Thickness of the fifth lumbar (L_5) vertebrae in the sagittal plane. The measurements were made parallel to the anterior surface of the vertebral body and approximately 1.5 cm into the vertebral body.
S_1 breadth	S1.B	Longest diameter of the S_1 sacral plate in the transverse plane.
Femoral head perimeter	P	Average of the maximum perimeter of the left and right femoral heads in the coronal plane.
Feret's diameter	FD	Average of the FD for the right and left femoral heads measured in the coronal plane. This measurement, based on the femoral head perimeter, represents the longest distance between any two points along the perimeter of the femoral head.
Maximum height of femoral head	Max.H	Maximum height of the femoral head in the coronal plane, calculated as the average of the left and right femoral heads.
Maximum width of femoral head	Max.W	Maximum width of the femoral head in the coronal plane, calculated as the average of the left and right femoral heads.
Humeral head breadth	HH	Distance between the outermost portions of the right and left proximal humeral heads in the CT scout image.
Femoral height	FH	Maximum height of the femoral bones in the CT scout image, calculated as the average of the left and right femoral bones.

Modified from Brindle et al. *(14)*.

Supplemental Table S2. Cadaver data used in the regression analysis. All skeletal measurements are in cm. TSSV is in given in units of cm^3. Abbreviations are from Table 2. The data corresponding to the first ten cadavers are from Ref. (*14*).

Cadaver	Sex	Age (y)	HT	OC.W	OC.H	Bi.B	ASH	S.W	L5.T	S1.B	P	FD	Max.H	Max.W	HH	FH	TSSV (cm^3)
1	M	35	188.2	32.7	23.3	29.7	11.7	12.7	2.8	6.1	16.1	5.2	4.8	5.3	46.8	52.3	2493.20
2	M	66	172.2	28.7	21.8	26.9	12.9	13.2	2.4	5.5	14.5	4.7	4.5	4.9	35.6	47.7	2151.14
3	F	77	156.8	29.7	20.1	31.0	10.3	11.9	2.2	4.0	12.7	4.1	4.0	3.9	34.1	41.9	1265.24
4	M	68	181.2	27.6	21.6	27.4	10.7	10.8	2.4	5.1	15.3	5.0	4.7	5.1	39.9	50.2	2380.45
5	M	81	175.8	29.3	23.1	28.5	11.4	13.8	2.5	5.8	15.1	4.9	4.5	5.0	38.6	48.5	2852.19
6	M	72	165.2	27.6	21.3	29.9	10.4	11.6	2.4	5.5	14.7	4.7	4.5	4.7	38.9	47.4	2256.33
7	F	70	159.1	33.6	20.1	30.3	9.2	12.9	2.5	4.7	12.8	4.2	3.9	4.2	38.6	42.8	1364.31
8	F	62	157.5	26.3	20.0	24.6	8.5	11.7	2.4	5.0	12.4	4.1	3.7	4.0	33.3	43.0	1426.07
9	M	67	171.1	31.5	21.3	27.9	11.3	13.1	2.8	5.6	14.6	4.8	4.3	4.7	38.7	47.3	2300.99
10	M	78	175.0	33.6	22.5	28.5	12.5	12.0	2.7	5.6	14.9	4.8	4.4	4.9	41.3	49.3	2318.72
11	F	82	162.9	32.3	20.5	27.2	10.5	12.5	2.2	5.7	13.2	4.4	3.9	4.3	38.4	46.0	1410.27
12	F	78	149.9	28.3	19.7	27.1	10.1	11.4	2.6	5.4	12.7	4.1	3.9	4.1	34.7	41.4	1354.31
13	F	73	159.6	30.3	20.8	28.2	13.2	12.5	2.3	4.6	13.2	4.3	4.3	4.2	34.8	43.0	1764.06
14	M	76	165.0	23.6	20.9	24.9	10.2	10.9	2.6	4.9	13.6	4.4	4.1	4.5	34.7	42.6	2137.16
15	F	64	168.0	32.0	20.3	26.7	12.1	13.7	2.3	5.6	12.0	3.9	3.6	3.9	35.9	45.5	1585.72
16	F	68	158.4	31.2	20.3	31.1	8.7	11.9	2.5	5.1	12.4	4.0	3.8	3.9	35.9	42.6	1661.10
17	F	80	156.9	33.8	21.1	28.3	12.1	13.7	2.1	3.7	12.2	4.1	3.4	4.0	34.7	44.4	1788.23
18	F	75	165.0	30.5	20.6	31.8	11.2	12.8	2.7	4.8	12.8	4.2	4.1	4.2	35.4	43.3	1590.72
19	M	75	169.2	26.0	20.5	26.0	11.8	11.7	2.1	4.8	12.3	4.0	4.1	4.1	38.4	43.3	1716.77
20	M	40	168.6	30.3	21.2	31.2	11.8	12.5	2.3	4.6	13.5	4.4	4.2	4.1	41.1	46.7	1605.73
21	F	73	157.9	28.7	20.6	30.2	13.0	12.8	2.6	6.0	14.0	4.6	4.3	4.6	32.0	42.2	1611.88
22	M	61	176.7	27.3	22.0	29.0	11.2	12.3	2.9	5.5	14.9	4.9	4.5	4.9	37.2	49.1	1861.87
23	M	65	171.2	27.4	22.1	32.5	9.2	12.2	2.9	5.9	15.6	5.4	5.4	4.6	43.5	47.4	2205.28
24	M	18	177.5	28.1	22.4	31.7	11.8	12.6	3.1	5.8	15.0	4.9	4.6	4.9	43.2	46.9	2125.40
25	M	73	173.7	29.5	23.1	32.4	9.8	13.3	2.7	6.0	16.4	5.4	5.2	5.2	41.0	47.6	2330.17
26	F	68	164.4	28.7	20.7	30.2	10.9	13.8	2.8	4.9	15.3	5.1	4.9	4.8	35.7	45.9	1275.71
27	F	63	162.3	26.7	20.2	29.4	11.2	12.4	3.2	4.3	12.3	4.0	3.9	3.9	36.2	44.1	1294.98
28	M	56	177.6	27.0	21.0	30.2	12.4	11.3	2.7	5.6	16.1	5.3	5.1	5.2	42.9	46.9	1856.28
29	F	49	182.0	32.8	23.5	31.4	11.6	13.8	3.2	5.6	14.1	4.6	4.5	4.5	40.1	49.9	1837.11
30	F	61	152.5	26.5	18.7	25.5	11.6	11.4	2.9	4.6	13.5	4.3	4.2	4.3	34.7	40.9	1545.60
31	M	65	158.8	26.1	19.8	26.2	9.2	10.6	2.7	5.4	13.4	4.3	4.2	4.3	36.5	43.0	1372.11
32	F	60	160.3	27.0	19.8	29.7	12.5	12.8	2.6	5.2	13.3	4.4	4.1	4.4	37.1	42.8	1528.78
33	F	63	160.7	26.8	20.4	29.7	11.1	13.1	3.0	4.6	12.9	4.2	4.2	4.1	35.3	44.0	1340.00
34	F	60	172.8	28.7	21.8	28.7	12.0	12.8	3.0	4.4	14.4	4.7	4.6	4.5	37.2	47.7	1979.25
35	M	70	172.2	28.9	22.1	31.6	11.2	13.3	2.9	5.4	16.1	5.3	5.1	5.2	43.4	45.9	2058.80
36	F	69	161.0	24.6	19.4	28.1	11.8	11.6	2.8	3.5	12.5	4.1	4.0	4.0	33.5	42.9	1567.89
37	M	59	166.8	27.6	22.1	29.3	12.6	12.0	3.1	5.5	15.8	5.1	5.1	5.0	40.8	45.8	2322.50
38	F	63	164.3	26.6	21.2	30.0	10.7	12.3	2.8	5.1	14.5	4.7	4.2	4.7	34.7	43.6	1694.59
39	M	75	181.8	29.1	23.2	32.0	12.5	12.9	2.8	6.4	16.2	5.2	5.2	5.1	42.6	50.3	2414.21
40	M	74	176.6	26.9	23.0	29.3	13.6	12.4	2.7	5.4	16.4	5.5	5.0	5.5	41.9	48.9	2310.57

Supplemental Table S3. Comparison of our skeletal measurements to those found in the literature. Skeletal measurements for which we found no data in the literature are excluded from the table. All measurements correspond to white males and females in the United States.

Sex	Sample Size	Age		HT	OC.H	ASH	S.W	L5.T	S1.B	Femoral Head		FH	Source
		Range	Mean							FD	Max.H		
Male	20	18-81	64	173.2 (6.7)	21.9 (1.0)	11.4 (1.2)	12.3 (0.9)	2.7 (0.3)	5.5 (0.4)	4.9 (0.4)	4.7 (0.4)	47.4 (2.5)	Present study / Ref. *(15)*
	1687	18-96	53	170.7 (7.3)									Hamann-Todd Collection
	242	70-79	74	172.7 (6.2)								43.2 (0.1)	Ref. *(16)*
	141	60-97	76	173.3 (7.4)						6.2 (0.3)			Ref. *(35)*
	244				22.3	11.2	10.8		5.1	4.9		47.5	Ref. *(36)*
	55	22-80	50					2.7 (0.2)	5.7 (0.5)				Ref. *(34)*
Female	20	49-82	68	161.6 (7.0)	20.5 (1.0)	11.1 (1.3)	12.6 (0.8)	2.6 (0.3)	4.8 (0.7)	4.3 (0.3)	4.1 (0.4)	43.9 (2.2)	Present study / Ref. *(15)*
	237	18-93	53	158.5 (8.4)									Hamann-Todd Collection
	197	70-79	74	157.9 (7.0)								39.5 (0.2)	Ref. *(16)*
	330	60-99	74	158.4 (6.6)						5.4 (0.3)			Ref. *(35)*
	144				20.1	10.9	11.1		4.5	4.2		43.8	Ref. *(36)*
	71	22-80	49					2.5 (0.2)	5.0 (0.5)				Ref. *(34)*

Age is given in years. All skeletal measurements are in cm. The number in parentheses is the standard deviation.
Entries left blank were not provided by the source.
Hamann-Todd Collection: http://www.cmnh.org/site/ResearchandCollections_PhysicalAnthropology_Collections_Hamann-ToddCollection.aspx

Supplemental Table S4. Pooled, male, female, and sex-specific models chosen by the different selection criteria. The criteria used to select each model are provided in parentheses next to the type of model. In the case of the stepwise method, the mode—i.e. backward or mixed—is only indicated when each mode selected a different set of variables.

Model	Based on	Variables	R^2	adj-R^2	Reason(s) for rejection
Pooled (stepwise, AICc, BIC)	All data	OC.H, Bi.B, P	0.76	0.74	
Pooled (adj-R^2)*	All data	OC.H, Bi.B, P, L5.T, FD	0.78	0.74	P and FD are highly collinear.
Sex-Specific (AICc, BIC)	All data	Sex, OC.H, Bi.B	0.79	0.77	
Sex-Specific (adj-R^2)	All data	Sex, Age, OC.H, Bi.B, Max.W	0.81	0.78	
Sex-Specific (stepwise-mixed)*	All data	Sex, OC.H, Bi.B, L5.T, P, FD	0.80	0.77	P and FD are highly collinear.
Sex-Specific (stepwise-backward)	All data	Sex, OC.H, Bi.B, P	0.79	0.77	

Abbreviations are explained in Table 2.
Models marked by an asterisk (*) were not considered for further analysis because they included too many variables, included variables with large p-values, or included variables that were highly collinear.