

Supporting Information

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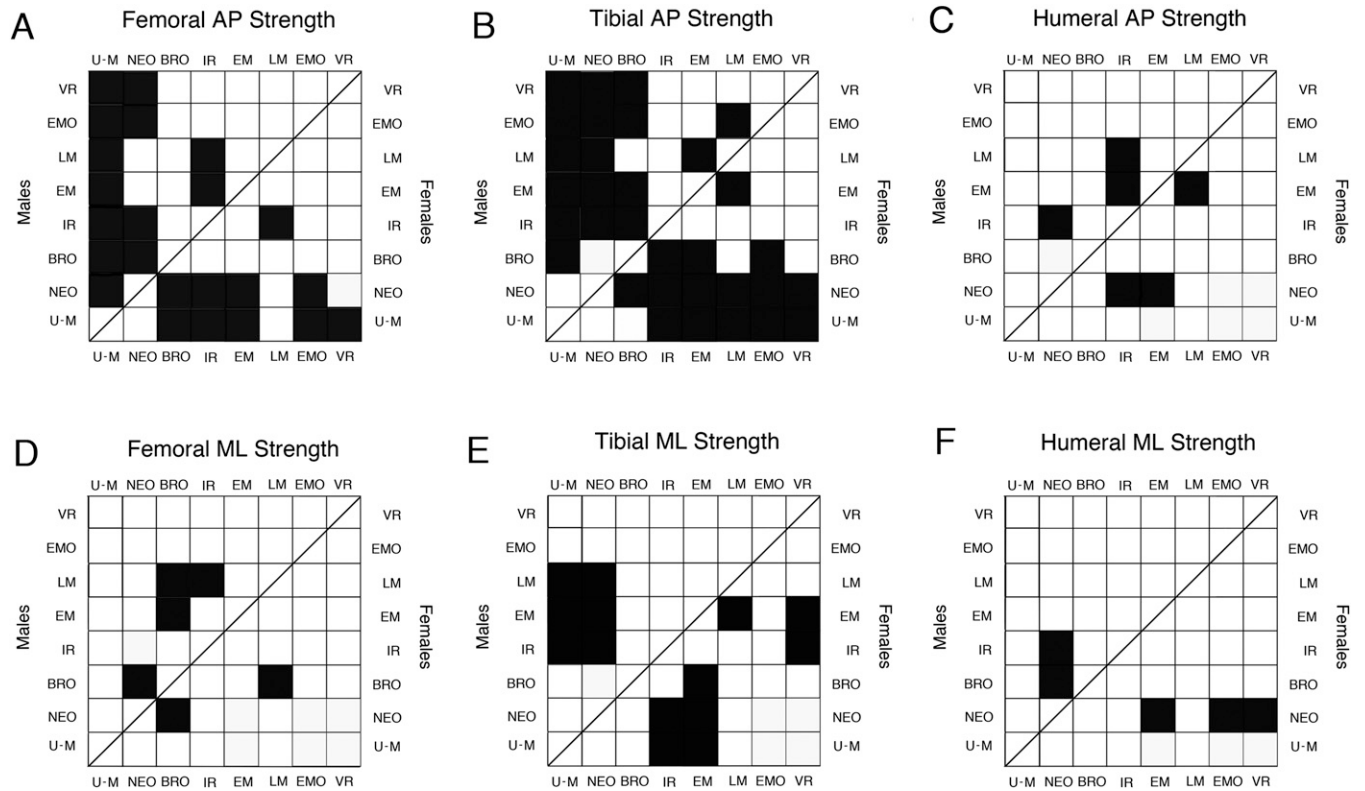


Fig. S1. Results of pairwise comparisons between temporal periods, combining Upper Paleolithic and Mesolithic periods (U–M). (A) Femoral A–P strength. (B) Tibial A–P strength. (C) Humeral A–P strength. (D) Femoral M–L strength. (E) Tibial M–L strength. (F) Humeral M–L strength. In all panels, males: *Upper Left*; females: *Lower Right*. Black filled squares: significant ($P < 0.05$) Games–Howell tests. BRO, bronze; EM, Early Medieval; EMO, early modern; IR, Iron/Roman; LM, Late Medieval; NEO, Neolithic; U–M, Upper Paleolithic–Mesolithic; VR, very recent.

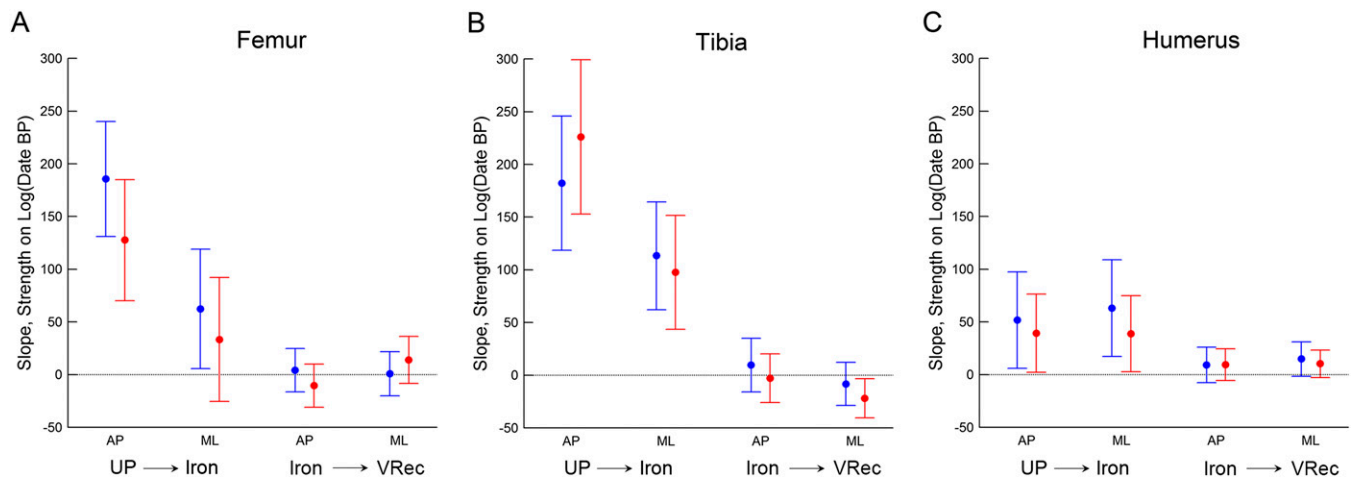


Fig. S2. Regression slopes \pm 95% CI, for femoral (A), tibial (B), and humeral (C) relative strengths against $\log_{10}(\text{Cal y B.P.})$, corrected for bi-iliac breadth/stature, for two temporal ranges: Upper Paleolithic (UP) through Iron Age, and Iron Age through very recent (VRec) (see Table 1). Males: blue; females: red. Because time is represented in reverse (years before present), positive slopes indicate negative chronological trends. See Table S3 for associated statistics.

Table S1. Cross-sectional properties by temporal period and sex, standardized by body mass \times bone length

Period		FZxstd	FZystd	TZxstd	TZystd	HZxstd	HZystd
Very recent							
Male	<i>n</i>	94	94	76	76	51	51
	Mean	578.6	628.0	598.3	463.8	350.2	314.6
	SE	9.2	9.5	11.6	10.3	11.4	10.4
Female	<i>n</i>	57	57	51	51	38	38
	Mean	514.6	571.0	514.1	413.9	259.6	229.5
	SE	8.6	13.8	11.6	10.0	8.9	7.1
Early Modern							
Male	<i>n</i>	85	85	78	78	74	74
	Mean	558.9	620.7	574.7	454.0	335.7	311.5
	SE	10.1	10.5	15.0	14.1	7.8	7.8
Female	<i>n</i>	50	50	53	53	45	45
	Mean	493.4	576.5	479.1	392.9	252.8	232.5
	SE	12.9	15.5	16.8	13.3	9.6	8.2
Late Medieval							
Male	<i>n</i>	204	204	182	182	147	147
	Mean	595.5	645.0	632.2	462.5	345.8	319.4
	SE	6.7	6.7	9.4	6.7	5.7	5.7
Female	<i>n</i>	177	177	150	150	128	128
	Mean	530.5	592.0	521.0	392.3	284.1	251.3
	SE	6.9	7.5	7.8	6.0	5.9	4.9
Early Medieval							
Male	<i>n</i>	155	155	144	144	120	120
	Mean	594.6	637.1	573.2	434.4	349.9	323.7
	SE	7.6	7.8	9.7	7.3	5.6	5.8
Female	<i>n</i>	119	119	111	111	88	88
	Mean	507.2	567.2	476.3	361.0	259.2	236.3
	SE	7.7	7.9	7.6	6.4	4.4	4.5
Iron/Roman							
Male	<i>n</i>	139	139	125	125	94	94
	Mean	543.7	607.7	597.4	436.4	315.1	300.2
	SE	10.4	10.2	12.9	9.6	7.3	6.5
Female	<i>n</i>	131	131	119	119	97	97
	Mean	489.4	574.8	493.1	372.0	264.0	246.8
	SE	7.4	9.1	10.4	7.6	5.9	5.9
Bronze							
Male	<i>n</i>	114	114	100	100	82	82
	Mean	564.5	589.9	681.9	469.8	329.1	303.9
	SE	9.1	9.7	14.4	9.0	6.4	6.2
Female	<i>n</i>	83	83	75	75	64	64
	Mean	499.0	541.1	545.7	396.4	270.8	254.2
	SE	10.0	11.9	11.8	8.3	5.7	6.1
Neolithic							
Male	<i>n</i>	157	157	150	150	116	116
	Mean	616.5	645.0	710.0	497.8	349.3	340.6
	SE	7.8	9.1	12.0	9.1	6.3	6.7
Female	<i>n</i>	108	108	94	94	76	76
	Mean	544.6	603.0	596.2	420.5	290.3	266.2
	SE	9.6	10.1	11.5	9.1	5.9	6.1
Mesolithic							
Male	<i>n</i>	37	37	28	28	16	16
	Mean	694.6	672.9	778.0	521.8	354.8	356.7
	SE	18.3	16.0	31.2	16.4	21.1	24.2
Female	<i>n</i>	14	14	8	8	6	6
	Mean	608.8	610.1	617.1	443.5	345.4	314.3
	SE	25.3	30.1	32.3	29.5	49.1	44.7

Table S1. Cont.

Period		FZxstd	FZystd	TZxstd	TZystd	HZxstd	HZystd
Upper Paleolithic							
Male	<i>n</i>	23	23	18	18	14	14
	Mean	709.8	590.7	747.4	494.7	352.8	311.4
	SE	28.1	21.6	26.0	20.65	17.0	18.1
Female	<i>n</i>	12	12	8	8	8	8
	Mean	647.5	585.8	693.4	511.1	310.8	264.0
	SE	40.7	26.8	67.6	38.2	21.4	19.3

F, femur, H, humerus; T, tibia; Zx, A–P bending strength; Zy, M–L bending strength.

Table S2. Slopes and 95% CIs for regressions of A–P and M–L bending strengths on $\log_{10}(\text{Cal y B.P.})$

Bone	Time range	Plane	Sex	Slope	Lower 95% CI	Upper 95% CI
Femur	Upper Paleolithic–Iron Age	A–P	Male	171.5	132.4	210.6
			Female	125.5	83.9	167.1
		M–L	Male	23.6	–16.9	63.9
	Iron Age–very recent	A–P	Female	16.8	–29.6	63.2
			Male	–5.6	–19.9	8.7
		M–L	Female	–10.6	–25.9	4.7
Tibia	Upper Paleolithic–Iron Age	A–P	Male	203.7	147.5	259.9
			Female	202.4	148.7	256.1
		M–L	Male	92.6	52.7	132.5
	Iron Age–very recent	A–P	Female	108.9	69.2	148.7
			Male	3.0	–18.8	24.8
		M–L	Female	–10.4	–30.2	9.4
Humerus	Upper Paleolithic–Iron Age	A–P	Male	48.1	17.0	79.2
			Female	48.1	19.0	77.2
		M–L	Male	47.4	15.7	79.1
	Iron Age–very recent	A–P	Female	33.1	4.0	62.2
			Male	–8.5	–22.3	5.3
		M–L	Female	7.4	–5.8	20.6
		Male	0.8	–12.4	14.0	
		Female	13.1	1.5	24.7	

Positive slopes indicate negative chronological trends. See Fig. 4.

Table S3. Partial regression slopes and 95% CIs for regressions of A–P and M–L bending strengths on $\log_{10}(\text{Cal y B.P.})$, controlling for bi-iliac breadth/stature

Bone	Time range	Plane	Sex	Slope	Lower 95% CI	Upper 95% CI
Femur	Upper Paleolithic–Iron Age	A–P	Male	185.6	131.0	240.2
			Female	127.6	70.2	185.0
	Iron Age–very recent	M–L	Male	62.4	5.8	119.0
			Female	33.3	–25.5	92.1
		A–P	Male	4.2	–16.4	24.8
			Female	–10.4	–30.8	10.0
Tibia	Upper Paleolithic–Iron Age	A–P	Male	182.2	118.5	245.9
			Female	226.0	152.8	299.2
	Iron Age–very recent	M–L	Male	113.3	62.2	164.4
			Female	97.6	43.5	151.7
		A–P	Male	9.6	–15.9	35.1
			Female	–2.8	–25.8	20.2
Humerus	Upper Paleolithic–Iron Age	A–P	Male	51.7	6.0	97.4
			Female	39.3	2.1	76.5
	Iron Age–very recent	M–L	Male	63.0	17.1	108.9
			Female	38.8	2.8	74.8
		A–P	Male	9.2	–7.7	26.1
			Female	9.5	–5.6	24.6
Iron Age–very recent	M–L	Male	14.8	–1.5	31.1	
		Female	10.3	–2.7	23.3	

Positive slopes indicate negative chronological trends. See Fig. S2.

Other Supporting Information Files

[Dataset S1 \(DOCX\)](#)