Online supplementary material to: Gallagher A. Comparative morphometric analysis of the proximal femur of African hominids and large-bodied felids: Convergences, disparities, and their significance. S Afr J Sci. 2015;111(9/10), Art. 2014-0242, 11 pages. http://dx.doi.org/10.17159/sajs.2015/20140242

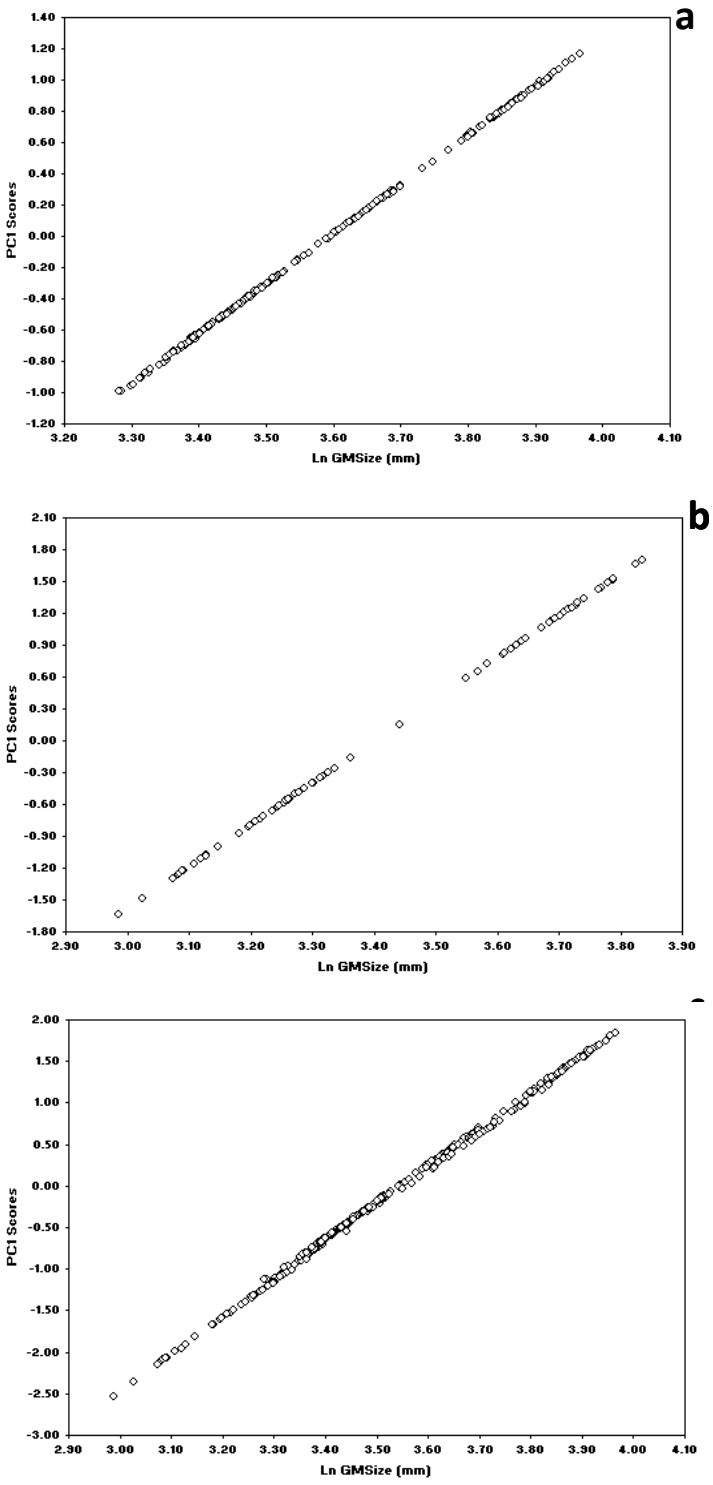
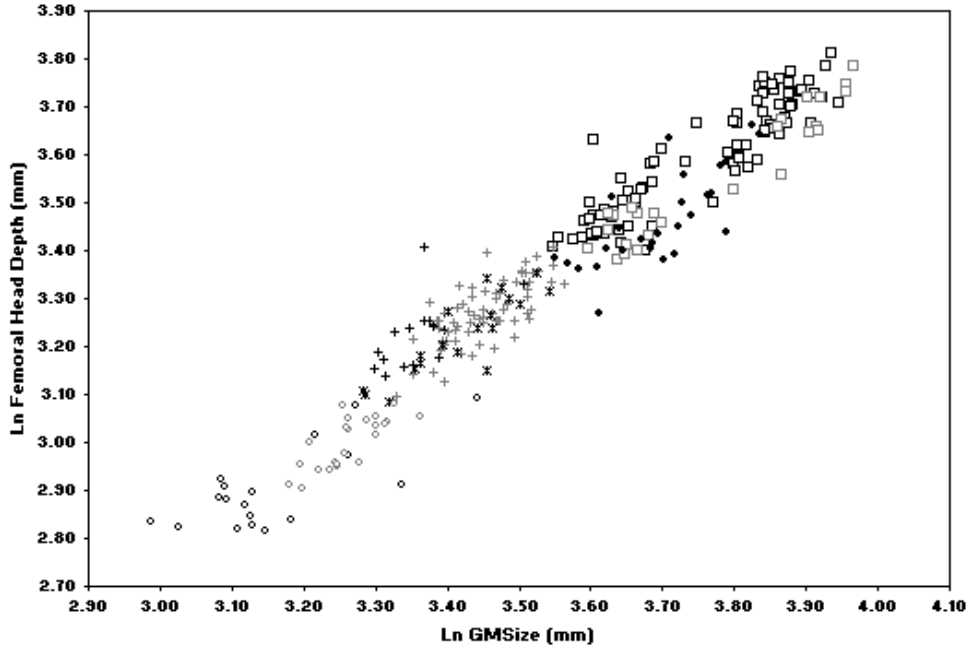
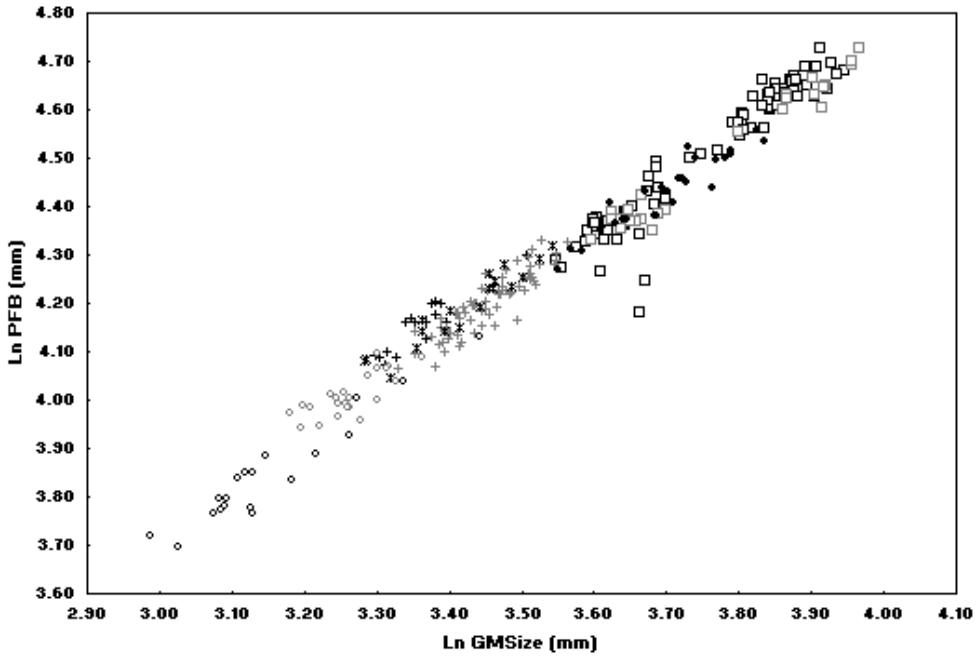


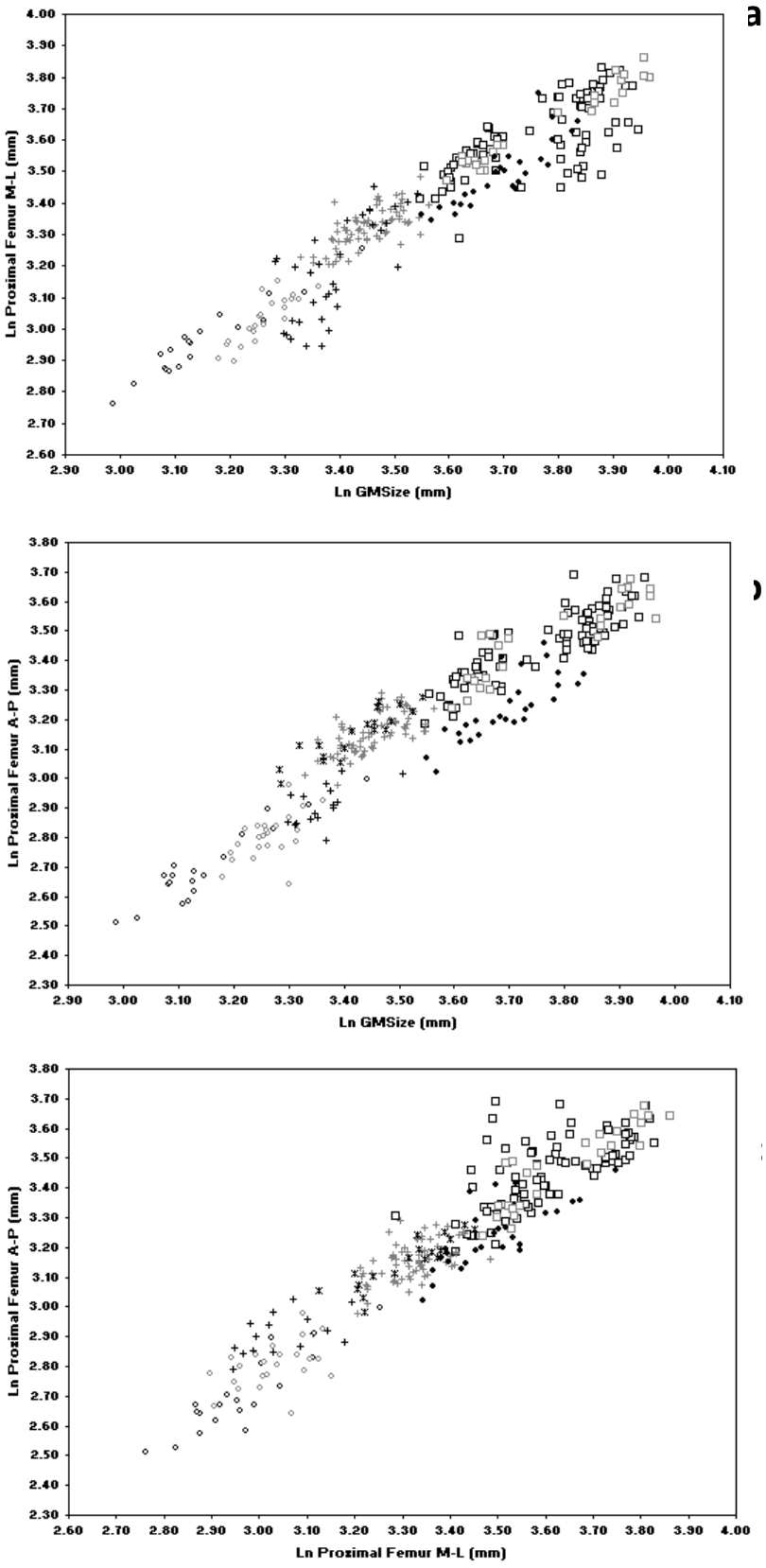
Figure 1: Bivariate scatter plots of principal component (PC)1 scores to GMSize for (a) the pooled-sample extant African hominids, (b) pooled-sample large-bodied felids and (c) total sample. In all cases the parametric correlation is perfect (r=1.00) and the first principal component is a generalised size vector.





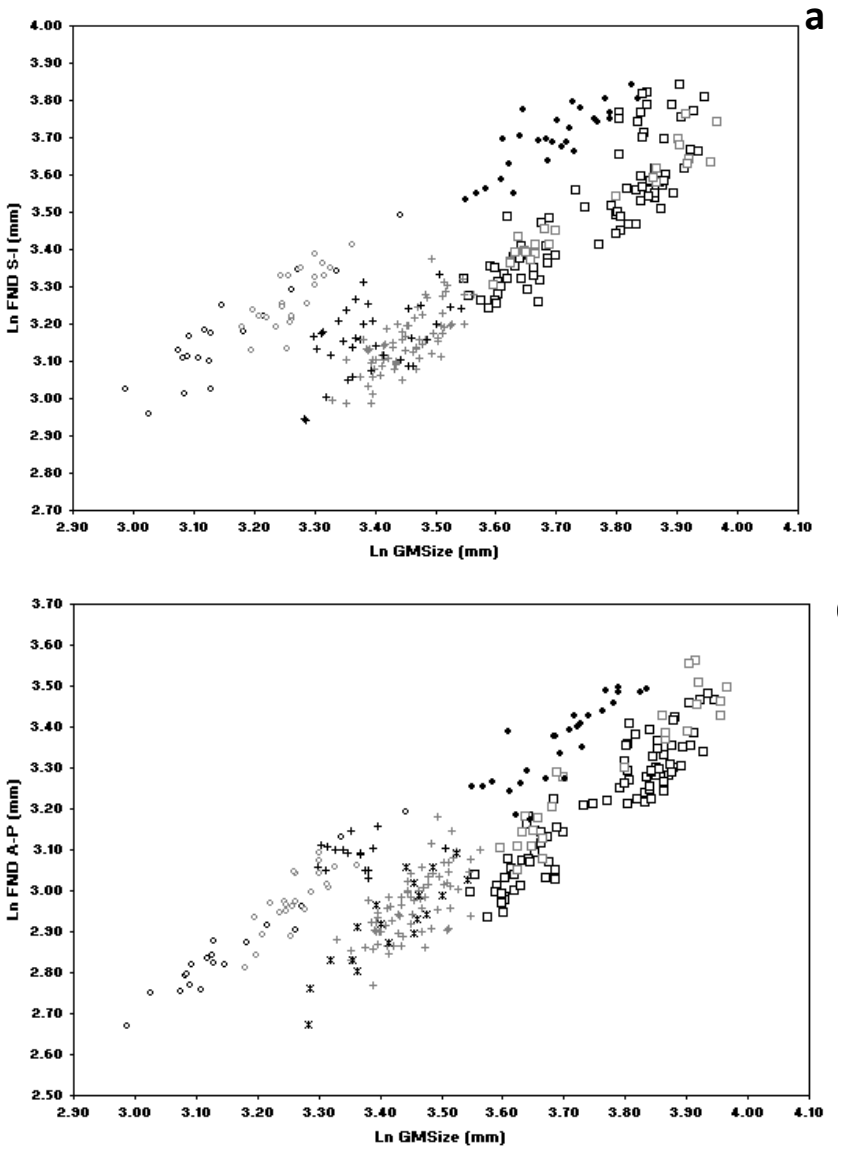
Open black squares, G. g. gorilla*; open grey squares,* G. b. graueri/G. b. beringei*; black crosses,* Pn. paniscus*; grey crosses,* Pn. t. troglodytes*; black asterisks,* Pn. t. schweinfurthii*; filled black circles,* Pa. tigris/P. leo*; open black circles,* Pa. pardus*; open grey circles,* Ac. jubatus.

Figure 2: Bivariate scatter plots of selected parameters versus GMSize: (a) femoral head depth; (b) proximal femoral breadth (PFB).



Open black squares, G. g. gorilla*; open grey squares,* G. b. graueri/G. b. beringei*; black crosses,* Pn. paniscus*; grey crosses,* Pn. t. troglodytes*; black asterisks,* Pn. t. schweinfurthii*; filled black circles,* Pa. tigris/P. leo*; open black circles,* Pa. pardus*; open grey circles,* Ac. jubatus.

Figure 3: Bivariate scatter plots of selected parameters (a) proximal femoral diaphysis (mediolateral, M-L) versus GMSize, (b) proximal femoral diaphysis (anteroposterior, A-P) versus GMSize and (c) proximal femoral diaphysis (A-P diameter) versus M-L diameter.



Open black squares, G. g. gorilla*; open grey squares,* G. b. graueri/G. b. beringei*; black crosses,* Pn. paniscus*; grey crosses,* Pn. t. troglodytes*; black asterisks,* Pn. t. schweinfurthii*; filled black circles,* Pa. tigris/P. leo*; open black circles,* Pa. pardus*; open grey circles,* Ac. jubatus.

Figure 4: Bivariate scatter plots of selected parameters versus GMSize: [a] superoinferior (S-I) femoral neck diameter (FND) and [b] anteroposterior (A-P) FND.

Table 1: Samples used in the analysis

Sample	Subsets	Repositories
Extant African hominids	*Pan paniscus* (*n*=16); *Pn. t. troglodytes* (*n*=72); *Pn. t. schweinfurthii* (*n*=19); *Gorilla g. gorilla* (*n*=81); *G. b. graueri*/*G. b. beringei* (*n*=25)	Royal Museum of Central Africa, Powell-Cotton Museum, Cleveland Museum of Natural History
Extant Old World felids	*Panthera tigris* (*n*=4); *Pa. leo* (*n*=23); *Pa. pardus* (*n*=19); *Acinonyx jubatus* (*n*=23)	Royal Museum of Central Africa, Iziko Museum

Table 2: Component loadings for the African hominids

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	JIC
FHD SI	0.327	0.085	0.091	-0.162	0.008	0.023	0.067	-0.557	-0.240	-0.691	1.035
FHD AP	0.319	0.109	0.061	-0.157	0.051	0.040	0.080	-0.549	-0.167	0.720	1.010
FH Dpt	0.309	0.077	-0.056	-0.461	-0.038	0.735	-0.190	0.322	0.032	-0.008	0.976
PFB	0.313	0.083	-0.043	-0.256	0.188	-0.262	0.257	-0.004	0.810	-0.047	0.989
FBNL	0.311	0.008	-0.011	-0.247	0.232	-0.358	0.419	0.485	-0.499	0.018	0.984
PFD ML	0.315	-0.258	0.609	0.104	0.294	-0.176	-0.567	0.114	0.026	0.015	0.997
PFD AP	0.319	-0.142	0.412	0.355	-0.601	0.157	0.418	0.117	0.084	0.019	1.009
FNAL	0.346	-0.708	-0.568	0.215	0.046	0.037	-0.057	-0.064	-0.004	0.000	1.093
FNM SI	0.336	0.403	-0.317	0.039	-0.509	-0.376	-0.456	0.115	-0.033	0.014	1.062
FNM AP	0.260	0.466	-0.139	0.652	0.445	0.249	0.070	0.071	0.004	-0.030	0.822

Table 3: Component loadings for the large-bodied felids

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	PC9	PC10	JIC
FHD SI	0.323	-0.084	-0.190	-0.001	0.039	-0.111	0.004	0.679	0.039	-0.614	1.021
FHD AP	0.313	-0.066	-0.088	-0.076	0.121	-0.070	0.025	0.494	-0.228	0.753	0.989
FH Dpt	0.327	-0.186	-0.727	0.174	-0.240	-0.210	0.128	-0.392	-0.167	0.002	1.033
PFB	0.323	-0.057	-0.084	-0.400	0.167	-0.117	-0.160	-0.152	0.788	0.117	1.020
FBNL	0.329	0.008	0.114	-0.527	0.173	0.083	-0.443	-0.248	-0.525	-0.177	1.039
PFD ML	0.322	-0.095	0.051	0.278	-0.394	0.735	-0.300	0.034	0.138	0.052	1.017
PFD AP	0.319	-0.229	0.495	0.491	-0.037	-0.517	-0.277	-0.120	0.006	0.002	1.008
FNAL	0.302	0.934	-0.009	0.162	-0.031	-0.082	0.021	-0.041	0.016	0.001	0.956
FNM SI	0.311	-0.072	0.392	-0.333	-0.459	-0.016	0.645	-0.064	-0.040	-0.043	0.984
FNM AP	0.293	-0.107	0.078	0.266	0.708	0.322	0.422	-0.189	-0.026	-0.077	0.928

JIC, Jolicoeur multivariate allometry coefficients; FHD SI/AP, superoinferior/anteroposterior diameter of the proximal articulation; FH Dpt, mediolateral diameter of the proximal articulation; PFB, total mediolateral breadth of the proximal femur; FBNL, biomechanical length of the femoral neck; PFD ML/AP, mediolateral/anteroposterior diameter of the proximal diaphysis (distal to the lesser trochanter); FNAL, anatomical length of the femoral neck; FNM SI/AP, superoinferior/anteroposterior diameter of the femoral neck.

Table 4: Tests of the Flury hierarchy: Jump-up approach

Higher	Lower	Chi squared	Degrees of freedom	*p*-value
Equality	Unrelated	371.704	55	0.001
Proport	Unrelated	363.257	54	0.001
CPC	Unrelated	113.263	45	0.001
CPC(8)	Unrelated	111.636	44	0.001
CPC(7)	Unrelated	106.94	42	0.001
CPC(6)	Unrelated	84.512	39	0.001
CPC(5)	Unrelated	83.216	35	0.001
CPC(4)	Unrelated	80.502	30	0.001
CPC(3)	Unrelated	70.584	24	0.001
CPC(2)	Unrelated	59.862	17	0.001
CPC(1)	Unrelated	33.766	9	0.001

Table 5: Tests of the Flury hierarchy: Step-up approach

Higher	Lower	Chi squared	Degrees of freedom (df)	*p*-value	CS/df	AIC
Equality	Proport	8.447	1	0.004	8.447	371.704
Proport	CPC	249.994	9	0.000	27.777	365.257
CPC	CPC(8)	1.627	1	0.202	1.627	133.263
CPC(8)	CPC(7)	4.696	2	0.096	2.348	133.636
CPC(7)	CPC(6)	22.428	3	0.000	7.476	132.94
CPC(6)	CPC(5)	1.296	4	0.862	0.324	116.512
CPC(5)	CPC(4)	2.714	5	0.744	0.543	123.216
CPC(4)	CPC(3)	9.918	6	0.128	1.653	130.502
CPC(3)	CPC(2)	10.722	7	0.151	1.532	132.584
CPC(2)	CPC(1)	26.096	8	0.001	3.262	135.862
CPC(1)	Unrelated	33.766	9	0.000	3.752	125.766
Unrelated						110

CPC, common principal components analysis