**Table 1**

Cortical thickness values of the superior (SUP) and the inferior (INF) cortices (mm), and ratio between these two measurements (SUP/INF) for the fossil sample used in this study.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | Base of the neck | | | Midneck | | |  |
|  |  | SUP | INF | SUP/INF | SUP | INF | SUP/INF | Source |
| *H. laietanus* | IPS18800.29 | 3.96 | 3.16 | 1.25 | 2.93 | 2.73 | 1.08 | This study; Pina et al. (2012) |
| *D. fontani* | IPS41724 | 2.16a | 4.84 | 0.45 a | 2.40 a | 5.42 | 0.44 a | This study |
| *A. africanus* | Stw 99 | 3.50 | 8.20 | 0.48 | 2.40 | 4.30 | 0.56 | Ruff and Higgins (2013) |
| *A. africanus* | Stw 311 | — | — | — | 1.80 | 3.40 | 0.53 | Ruff and Higgins (2013) |
| *A. africanus* | Stw 403 | — | — | — | 2.93 | 5.82 | 0.50 | Ruff and Higgins (2013) |
| *A. africanus* | Stw 479 | 1.71 | 4.36 | 0.39 | 1.76 | 2.82 | 0.62 | Ruff and Higgins (2013) |
| *A. africanus* | Stw 501 | — | — | — | 1.65 | 1.93 | 0.85 | Ruff and Higgins (2013) |
| *A. africanus* | Stw 522 | 1.59 | 5.10 | 0.31 | 1.59 | 2.97 | 0.54 | Ruff and Higgins (2013) |
| *P. robustus* | SK 82 | 1.93 | 4.09 | 0.47 | 3.00 | 2.86 | 1.05 | Ruff and Higgins (2013) |
| *P. robustus* | SK 97 | 1.18 | 2.83 | 0.42 | 1.50 | 2.20 | 0.68 | Ruff and Higgins (2013) |

a Given that the final resolution of the computed tomography images obtained for IPS41724 is not very high due to its strong internal mineralization, these values remain tentative (see text for further explanation and SOM S1 for a detailed description of the performed interobserver test).

**Table 2**

Computed tomography (CT) settings and parameters obtained for the IPS41724 scans.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| IPS41724 | Institution | CT-scanner model | CT-scanner type | No. slices | Pixel size (mm) | Interslice (mm) | Voltage (kV) | Current (mA) |
| Scan 1 | UBU | YXLON Compact | Industrial CT | 546 | 0.04 | 0.30 | 200 | 3.20 |
| Scan 2 | AMNH | GE phoenix v|tome|x s240 | µCT | 1600 | 0.07 | 0.07 | 185 | 1.80 |
| Scan 3 | ICTP | Elettra | µCT | 4800 | 0.03 | 0.03 | 150 | 2.00 |
| Scan 4 | ICP | YXLON Y.TU450.D09 | Industrial CT | 451a | 0.27 | 0.20 | 300 | 2.30 |

Abbreviations: AMNH = American Museum of Natural History, New York, USA; ICP = Institut Català de Paleontologia Miquel Crusafont, Sabadell, Spain; ICTP = ‘Abdus Salam’ International Centre for Theoretical Physics, Trieste, Italy; UBU = Universidad de Burgos, Spain.

a Only the most proximal part of this specimen was scanned, removing part of the diaphysis and the femoral head (see text for further explanation).

**Table 3**

Descriptive statistics for the SUP/INF index, and the residuals (RES and RESBM). Data were taken from Pina et al. (2012), except for *D. fontani* (this study). Due to uncertainties of body size estimates for *D. fontani* (IPS41724)and *H. laietanus* (IPS18800.29), RESBM for minimum and maximum body mass are given within parentheses.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| SUP/INF | | | | | | | |
| Locomotor group | *n* | Mean | SD | 95% CI | | Range | |
| Bipedalism | 2 | 0.395 | 0.148 | -0.939 | 1.729 | 0.290 | 0.500 |
| Knuckle-walking | 5 | 0.834 | 0.046 | 0.777 | 0.891 | 0.800 | 0.910 |
| Suspension | 11 | 0.746 | 0.163 | 0.637 | 0.856 | 0.520 | 0.990 |
| Quadrupedalism | 25 | 0.421 | 0.086 | 0.386 | 0.457 | 0.280 | 0.670 |
| Slow-climbing | 3 | 0.403 | 0.129 | 0.084 | 0.723 | 0.310 | 0.550 |
| Vertical-clingers-and-leapers | 10 | 0.548 | 0.077 | 0.493 | 0.603 | 0.430 | 0.680 |
| *Dryopithecus fontani* | 1 | 0.443 | — | — | — | — | — |
| *Hispanopithecus laietanus* | 1 | 1.020 | — | — | — | — | — |
| RES | | | | | | | |
| Locomotor group | *n* | Mean | SD | 95% CI | | Range | |
| Bipedalism | 2 | -0.219 | 0.398 | -3.791 | 3.352 | -0.501 | 0.062 |
| Knuckle-walking | 5 | 0.563 | 0.049 | 0.502 | 0.624 | 0.528 | 0.649 |
| Suspension | 11 | 0.441 | 0.221 | 0.293 | 0.590 | 0.099 | 0.739 |
| Quadrupedalism | 25 | -0.122 | 0.200 | -0.204 | -0.039 | -0.529 | 0.371 |
| Slow-climbing | 3 | -0.175 | 0.313 | -0.954 | 0.604 | -0.417 | 0.179 |
| Vertical-clingers-and-leapers | 10 | 0.152 | 0.143 | 0.050 | 0.255 | -0.079 | 0.367 |
| *Dryopithecus fontani* | 1 | -0.074 | — | — | — | — | — |
| *Hispanopithecus laietanus* | 1 | 0.771 | — | — | — | — | — |
| RESBM | | | | | | | |
| Locomotor group | *n* | Mean | SD | 95% CI | | Range | |
| Bipedalism | 2 | 0.078 | 0.266 | -2.315 | 2.472 | -0.110 | 0.267 |
| Knuckle-walking | 5 | 0.820 | 0.279 | 0.474 | 1.166 | 0.561 | 1.160 |
| Suspension | 11 | 0.430 | 0.224 | 0.279 | 0.580 | 0.133 | 0.891 |
| Quadrupedalism | 25 | -0.157 | 0.239 | -0.256 | -0.059 | -0.534 | 0.367 |
| Slow-climbing | 3 | -0.062 | 0.267 | -0.725 | 0.602 | -0.306 | 0.224 |
| Vertical-clingers-and-leapers | 10 | 0.181 | 0.237 | 0.012 | 0.350 | -0.193 | 0.508 |
| *Dryopithecus fontani* | 1 | 0.708 (0.676–0.738) | — | — | — | — | — |
| *Hispanopithecus laietanus* | 1 | 0.794 (0.829–0.762) | — | — | — | — | — |

Abbreviations: SUP/INF = ratio between superior (SUP) and inferior (INF) cortical thicknesses; RES = allometric residuals for SUP vs. INF; RESBM = allometric residuals for SUP vs. body mass (BM).