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Six biometric measurements were recorded from dry mandibles of 53 *Papio anubis* and 84 *Cercopithecus aethiops*: intercondylar width, intercoronoid width, intermolar width (IMW), mesiodistal width of the condyles, height of the occlusal table and anteroposterior length of the chewing surface from P4 to M3 (CL). The mean values and correlation matrices of these variables show that, despite the difference in size, the overall shape of the mandible in male and female is similar within species. The principal component analysis shows that in *P. anubis* the six variables contribute almost equally to the first component (75% of total variance), suggesting that the large mandible may be force related because of the greater mechanical forces required for chewing certain foods. In *C. aethiops*, the contribution of IMW and CL is less in the first component (52.7% of total variance), suggesting that the biochemical forces of mastication are more complex to adapt the mandible to a shorter muzzle and a particular diet.