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# Stop and go. Inferring goat mobility patterns through biomechanical features of the long bones. Tibiae and humeri from Tell Halula under the scope of digital cross-sections.

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## Résumé

The study of animal mobility and activity patterns is fundamental to understand animal management strategies through archaeozoology. Methodological approaches to infer physical and biomechanical characteristics such as geometric morphometrics have been increasingly developed within the archaeozoological research framework, showing significant and interesting advances in our knowledge on the acquisition and management of the first domesticated animals. We present in this communication the results derived from the study of husbandry regimes in first domestic goat populations based on computerized tomography scanner (CT scan). A significant sample of goat humeri and tibia remains recovered from the settlement of tell Halula (7700 cal BC to 5500 cal BC, middle Euphrates valley, Syria) has been analysed. A modern sample has been also included in the analysis to establish a reference framework for interpretation. The raw data obtained from the CT scan was processed and allowed to generate 3D models of each bone. Digital cross-sections measurements were taken and were used to calculate physical properties of these bones, including bone area, anteroposterior and mediolateral moments of inertia and polar moment of inertia. The values obtained are representative of the modifications that the bone tissue may undergo as a result of its adaptation or response to the different loads received during the life of the animal, being a reflection of its intensity, recurrence, duration and direction. Results show that a group of domestic individuals with activity levels and mobility patterns similar to those of wild goats whereas most of the domestic show different activity levels between domestic populations as well as differentiated mobility patterns which are especially visible regarding lateral movement.

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