Iconographic approaches to the study of musculoskeletal stress markers

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Introduction

Paleopathologists examine both primary evidence (bones, calcified tissues, preserved bodies, and coprolites) and secondary sources such as contemporary documents and iconographic representations such as artifacts and works of art1,2.

Musculoskeletal Stress Markers: biocultural approach

Musculoskeletal markers (MSM) are distinct skeletal lesions that occur where a muscle, tendon or ligament inserts/origins into the bone surface1-3. Nevertheless, a profound gap remains between the type of bone lesion observed and the biomechanical forces produced by human gestures. The limitations identified are:
• Muscle insertion sites are morphologically complex4
• Lack of knowledge about the severity, duration and intensity of biomechanical forces
• Muscle groups respond to a complex mosaic of biomechanical stress5,10
• Multifactorial aetiology9

Hunting

Angola Bochimanes or “Bushman”: nomadic groups that live in deserted areas from Low Cunene (Namibia desert). The costal populations gather fish, mollusks and plant roots. The inland groups are active hunters, using bows and arrows as hunting technologies.

Fishing

Angola fishermen in a two paddle boat, transporting fish harpoons. Sculpture representation.

Discussion

Archery movements are well known and include three-phases: the stance, the drawing and the sighting12. In the considered cases, these behaviours are characterized by a similar body posture that involves extension/flexion of the upper limb. In addition, an asymmetrical use of the forearm and shoulder girdle is also noted. Biomechanically, these movements can produce extensor muscle fatigue and lateral epicondylitis at the elbow13. According to iconographic record, hunting is only performed by men.

Goals

To consider the usefulness of iconographic collections in the difficult task of understanding the musculoskeletal effects of occupation in past populations. For this proposal will be described a corpus of artefacts from Africa representing fishing and hunting activities and stored at the Museum of Anthropology at the University of Coimbra.

Bibliography