

## TRUNK BEHAVIOR CHARACTERIZATION IN PATIENTS WITH CAMPTOCORMIA THROUGH 3D VIDEO ANALYSIS

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**Keywords:** Imaging, Displacements analysis, Spine posture, Camptocormia

**Summary:** The objective of this study was the evaluation of the two types of postural evolution in patients with camptocormia.

Camptocormia or bent spine syndrome, characterized by the antero-flexion of the trunk, is a postural disease that affects the elderly population, around 70 years old. This pathology is highly incapacitating and usually developing lower back pain. This pain and posture precludes patients to walk for long periods of time but also in a social way, making difficult the social exchanges [1]-[3].

The camptocormia origins are not well known, however a treatment using orthosis has shown significant medical results [4] [5]. However, it was observed that the trunk behavior is not the same for all patients, and that to design an orthosis to treat camptocormia, the trunk postural evolution has to be characterized.

The most common way to obtain postural evolution information is the use of 3D video analysis techniques. Then, to obtain these characteristics, six vertebral processes (C7, T3, T7, T12, L3 and S1) were equipped with six reflective markers (Optitrack).

The results confirmed the existence of two postural behaviors in patients with camptocormia. In a first group, patients presented only one rotation axis and were named as “pivoting patients”; in the second group patients presented several rotation axes along the spine and were named “rolling patients”.

Additionally one could observe that for pivoting patients, the vertebral level in which the rotation axis is situated may change depending on the patient. This fact presents an important and necessary information during the treatment of camptocormia as well as during the orthosis development process.