

Biomechanics, Tensegrity and Biotensegrity in Joint Modeling

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Abstract.

More than 60 years have passed since Fuller enunciated the principle of Tensegrity [1], which would later give rise to the field of biotensegrity [2].

However, many questions arise regarding the scope and feasibility of the applications of biotensegrity model for human biomechanics, in particular, for joint biomechanics or biomechanical units.

In this work, a review of 4890 works was carried out, from 1975 (first tensegrity joint model), until May 2022.

Throughout this journey, it is considered that there are only 20 works that include proposals for specific physical and/or digital models, of which 5 correspond to the health area, 10 to the robotics area, 2 to the design area and 3 to patents of invention that are discussed in this work. From this tour and always from the biotensegrity perspective, the description, analysis, and discussion of the categories of structures used to model human biomechanics is addressed.

Keywords: Tensegrity, Biotensegrity, Biomechanics, Joints