

عنوان مقاله:

Effect of Load Direction on fracture type in tibia An FEM Analysis

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خلاصه مقاله:

Abstract—The main purpose of this research was to predict the site and type of fracture in the tibial shaft under transversal and torsional impacts, using FEA In this research, tibia was supposed to act as an elasticcorticalshell with transversely isotropic symmetry. Effects of the spongy bone were ignored because of its much lower stiffness than the cortical shell. Results of stress contours were in agreement with those previously obtained by experimental works, i.e. in cases of loading medially, laterally and dorsally mostly direct fracture mechanism was seen with transverse, oblique and wedge shaped fracture patterns while an indirect mechanism was created byventrally loading with a pattern of oblique fracture lines >30°. Spiral fracture pattern was observed by loading a torsional moment. Prediction of the fracture type and its propagation patterns in the tibial shaft were highly comparable to the radiography images taken .from injured bones of pedestrians and experimental impact loadings of real bone by other researchers

کلمات کلیدی:

bone mechanics; tibia; fracture pattern; finite element method; and load direction

لینک ثابت مقاله در پایگاه سیویلیکا:



