

Fatigue analysis in newly designed hip prosthesis by finite element method

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June 27, 2022

Abstract

Fatigue life estimation is one of the vital factors in the design of biomedical prostheses. But fatigue tests of a hip prosthesis require over ten million cycles, furthermore experimental methods may be too expensive and take a long time for material selection or optimization. Therefore, numerical analyses performed by Finite Elements Methods (FEM) becomes necessary to pre-estimation of fatigue life. In this study, a numerical analysis performed by FEM analysis to estimate the fatigue performance of newly designed hip prosthesis. Prior to experimental testing processes, aimed to analyze the candidate designs and to contribute to complete of the verification process in a more efficient, economical, and fast manner.

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