

Determination of muscle effort at the proximal femur rotation osteotomy

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Abstract

© Published under licence by IOP Publishing Ltd. The paper formulates the problem of biomechanics of a new method for treatment of Legg-Calve-Perthes disease. Numerical calculations of the rotational flexion osteotomy have been carried out for a constructed mathematical model of the hip joint, taking into account the main set of muscles. The work presents the results of the calculations and their analysis. The results have been compared with the clinical data. The calculations of the reactive forces arising in the acetabulum and the proximal part of the femur allowed us to reveal that this reactive force changes both in value and direction. These data may be useful for assessing the stiffness of an external fixation device used in orthopedic intervention and for evaluating the compression in the joint.

<http://dx.doi.org/10.1088/1757-899X/158/1/012079>
