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In the field of applied biomechanics the development of calculating models for studying the stressed-strained state of the bone tissue in a total arthroplasty of the hip joint, which provides man's movement and withstands a load, is the basic challenge. Finite-element calculating models of the bone-implant system in fixing an acetabular component by threading or press-fitting an arthroplasty cup are developed. The finite-element method in the form of the displacements method is used to study the stressed-strained state of the system under consideration. The 3D four-node finite elements are employed to build a finite-element model, and it is agreed that contact surfaces of a corpus of the acetabular component and a calxal bone

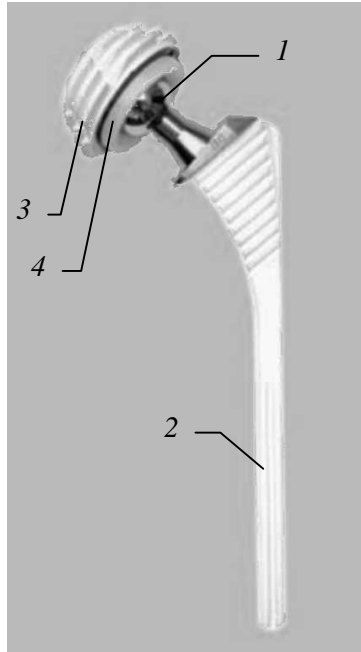
are linked and move jointly. The stressed-strained states of the two versions of fixation of the mounted acetabular component – with threaded or press-fitted cups – are calculated. It is found that in both cases the most loaded region is the one of the bone tissue contacting with an implant at a depth of 0.5 mm. The bottom of the acetabulum is characterized by maximum displacements. The values of maximum stresses and displacements increase as the thickness of the bone tissue following the bottom of the acetabulum decreases.

[1].

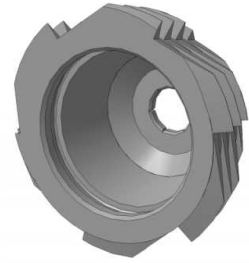
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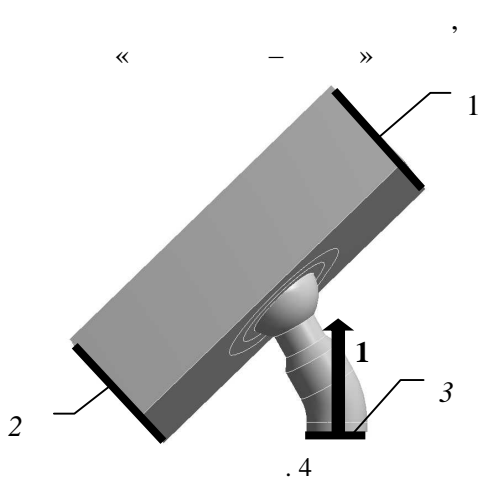
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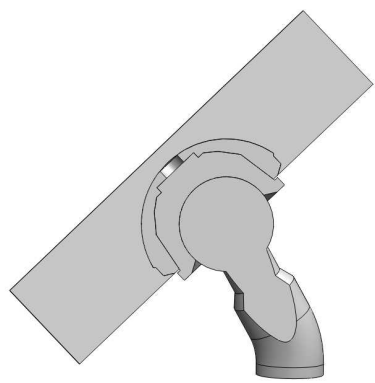
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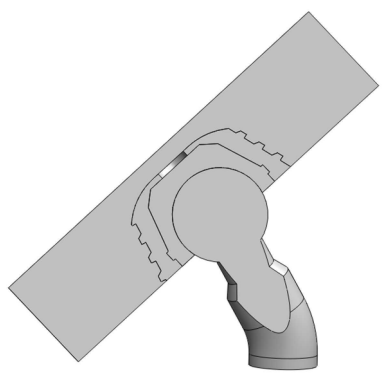
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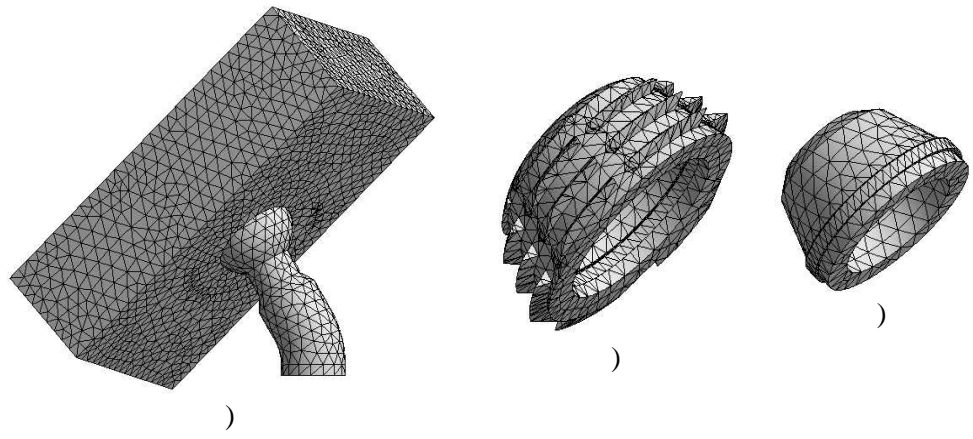
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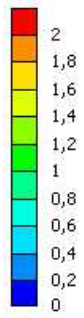


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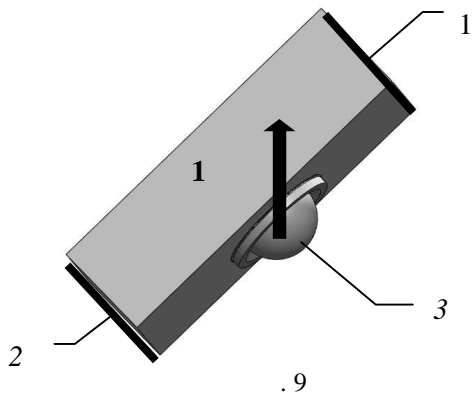
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