The frequency of proximal femoral fractures in the aged constitutes up to 45% in the structure of all fractures of the skeleton. Hip replacement given population allows to achieve functional restoration in the early postoperative period, which is impossible using the modern methods of fixation. The use of final element method, stressed-strained state of mathematical model of bone with trochanteric fractures of different types in their treatment by means of hip replacement allows to create solid models of biological objects and elicit the main tendencies of changes in their stressed-strained state. In endoprosthetics the osseous tissue in the region of the fracture is loaded less significantly than the plate or nail fixation depending on the fracture type.

Materials and methods of research: in biomechanics laboratory the research with the use of final element method of stressed-strained state of mathematical models of the femur with trochanteric fractures of different types was conducted in their treatment by means of endoprosthetics with fragments fixation with wires, for which the models of femur with trochanteric fractures according to Evans classification were developed. The modeling was conducted with the help of the system of computer-aided drafting SolidWorks. The evaluation of the stressed-strained state of models was performed by means of CosmosM software suite. The von Mises yield criterion was taken as a criterion for the evaluation of the stressed state of models. Results: in endoprosthetics the osseous tissue in the region of the fracture is loaded less significantly than the plate or nail fixation depending on the fracture type.

Conclusion: In endoprosthetics the main load is assumed by the metal structures, which allows to lessen the load in the region of the fracture thus preventing secondary fragments dislocation in case of load on the limb in the early postoperative period.