Bachelor’s work explores the loading of operated lower extremity with patients after total hip joint replacement during walking up the stairs. It advert to connections following from kinesiology of joints of lower extremity, bipedal locomotion, total hip joint replacement and use of supporting – locomotive aids with loading of lower extremities. It describes the function and use of force platform – one of the possibilities, with which we can measure the loading of lower extremities. A part of this work is evaluation of the results of values of reaction force, vertically influencing the lower extremities, which demonstrate a real loading. The patients after TEP of the hip joint burden the operated lower extremity with this loading, when they walk the stairs.