

Static and Dynamic Load on Hip Contact of Hip Prosthesis and Thai Femoral Bones

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Abstract : Total hip replacement had been one of the most successful operations in hip arthritis surgery. The purpose of this research had been to develop a dynamic hip contact of Thai femoral bone to analyze the stress distribution on the implant and the strain distribution on the bone model under daily activities and compared with the static load simulation. The results showed the different of maximum von Mises stress 0.14 percent under walking and 0.03 percent under climbing stair condition and the different of equivalent total strain 0.52 percent under walking and 0.05 percent under climbing stair condition. The muscular forces should be evaluated with dynamic condition to reduce the maximum von Mises stress and equivalent total strain.

Keywords : dynamic loading, static load, hip prosthesis, Thai femur, femoral bone, finite element analysis

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