



Research Article



Analysis of Knee Joint

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ABSTRACT

Knee joint is an important part of human body. Failure of knee joint may occur

mainly because of surface to surface contact of femoral and tibial surfaces owing to the dry out of bursae fluid. The damaged surfaces must be replaced by artificial implants made of metals, ceramics, or composite materials. This process is known as total knee replacement. The failure of bearing component in knee implant is due to high stresses at the contact regions of femoral component and polyethylene insert causes wear and decreases the life of the implant. The stiffness of artificial implants is around 110 GPa to 210 GPa, while that of the human bone is around 17 GPa. This increases the stress shielding effect. To reduce stress shielding effect an implant material should have the stiffness value nearer to human bone. This reduces the effect of stress shielding between the bone and implant.

Keywords: Knee Joint, Femoral and Tibial component, Stress shielding effect

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