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Tribology of Short Stem Total Hip Replacement (T.H.R)

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Abstract:

Tribology is a science concerning with friction, lubrication and wear of rubbing surfaces. The basic concepts of Tribology include friction, lubrication, wear, radial clearance, sphericity, head diameter and materials. Friction is the resistance of sliding between two materials in contact with each other; Friction includes surface and bulk friction. Lubrication effectively reduces the wear between bearing surfaces and includes 3 types: boundary, mixed and fluid film lubrication. Lambda ratio is the ratio between fluid film thickness and surface roughness. Wear is a progressive removal of material from prosthesis in the form of particulate debris and measured either as the mass or volume of material per unit time. Materials used in THA offer the best high performance bearing. Knowledge of tribological principles allows surgeon to choose the best performance bearings to optimize the function and maximize the survival ship of the hip prosthesis they applied to different patients .