

The materials used for implant manufacture may play an important role in implant fixation. The material choice influences rigidity, corrosion and wear behavior. Stainless steel has been used in implant applications because of its excellent corrosion resistance. This experimental work focuses on wear behaviours in dry friction and simulated body fluid (Hank's solution) conditions as well as mechanical properties such as elastic modulus, hardness, tensile strength and yield strength for AISI 316L austenitic stainless steel. Tensile, hardness, wear tests and worn surface topography analyses were conducted to determine of the specific properties of AISI 316L austenitic stainless steel. Results showed that the tribological performance of AISI 316L austenitic stainless steel increase when Hank's solution is used. However, the friction coefficient and friction force decrease when Hank's solution lubrication is used. Poor tribological behaviour in test material was also found under dry sliding condition and the material exhibited 51.373 % elongation and 165 HV in mechanical tests. The adhesion tendency was found in dry sliding because of its ductile characteristic. The abrasion wear mechanism was also observed in Hank's solution lubrication by means of worn surface examining.