

In-vitro-Toxizität und Mutagenität von CoCrMo und TiAl-Abriebpartikeln

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Contact of wear particles with body fluids can result in widespread dissemination of extractable constituents from joint implants. The aim of this in vitro study is to clarify whether there is a mutagenic and/or carcinogenic risk from Co(28)Cr(6)Mo and Ti(6)Al(4)V wear particles. Particles of a representative size were produced by fretting; toxicity and mutagenicity were investigated using the Ames Salmonella/microsome test and the V79-HGPRT Test (Chinese hamster fibroblasts). To obtain the greatest possible elution of all constituents, the metallic wear particles were extracted with DMSO and water and the resulting eluates mixed together. After repeated test series under standardized conditions, neither the bacterial nor the mammalian cell assays produced evidence of toxic or mutagenic effects in the concentration range under study. It is therefore not to be expected that CoCrMo or TiAl alloys initiate carcinogenesis in the human organism.