



Title

WEAR PERFORMANCE OF ULTRA-HIGH MOLECULAR WEIGHT POLYETHYLENE ON OXIDIZED ZIRCONIUM TOTAL KNEE FEMORAL COMPONENTS

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Purpose/Premise

This paper reports on a study comparing the wear performance of Co-Cr alloy femoral components with that of oxidized zirconium femoral components.

Material and Methods

Three femoral components made from each material were articulated with standard, ethylene-oxide-sterilized UHMWPE tibial surfaces. Wear testing was performed on a knee simulator to more than five million cycles. Measurements were taken for UHMWPE weight, number and size of wear particles, and roughness of the femoral component.

Outcomes

After the wear-in period, the aggregate wear rate was $0.69 \pm 0.52 \text{mm}^3/\text{Mcycle}$ for the oxidized zirconium articulations and $4.68 \pm 2.30 \text{mm}^3/\text{Mcycle}$ for the Co-Cr articulations ($P = 0.097$).

Conclusion/Recommendation

The authors concluded that use of an oxidized zirconium femoral component may contribute fewer complications related to wear in TKA.

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