

A New Material for Hip Prosthesis without Considerable Debris Release

[Borruto A, Medical Engineering & Physics, 2010, Oct; 32\(8\): 908-13. Doi: 10.1016/j.medengphy.2010.06.007.](#)

THIS STUDY reveals Carbon Fiber Reinforced PEEK (CFR-PEEK) is an excellent material to use for prosthetic applications in the tribological coupling of CFR-PEEK and Cobalt Chrome (CoCr).

CFR-PEEK was coupled with CoCr in a hip replacement context and demonstrated a “very low wear and extremely low quantity of debris”.

This was despite an extreme load, much higher than real-life conditions, of 20N in pin-on-plate tests (ASTM 99G) and a variety of lubrication regimes, including dry.

The low quantities of CFR-PEEK debris particles had an average dimension of 0.1um, compared to the large quantity of UHMWPE debris (previously reported as ranging from 0.1 to 1,000um).

The finding that it has benefits for prosthetics confirms that earlier observations from pin-on-plate studies using CFR-PEEK and MOTIS by the Unsworth group.



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