In Vivo Implant Fixation of Carbon Fiber-Reinforced PEEK Hip Prostheses in an Ovine Model


**THIS STUDY** investigates the cemented and cementless fixation of an ENDOLIGN femoral stem and a PEEK-OPTIMA CFR (carbon fiber reinforced) and acetabular cup in an ovine hip replacement model.

All femoral stems showed very positive results with good early to mid-term fixation up to 52 weeks in-vivo. 2nd degree stress shielding was seen around just 2 of 11 cases and no animal exhibited 3rd degree stress shielding. In particular the results indicated that increased physiological loading is experienced by the host bone when a lower stiffness implant, such as the ENDOLIGN femoral stem is used compared to traditional metallic materials. This may be due to a material modulus that is more closely matched to that of the surrounding host bone.

Overall this study demonstrates that ENDOLIGN shows potential for use in total hip arthroplasty with either cemented or cementless fixation.
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