Understanding the Extent, Sources and Nature of Wear Debris in Metal-on-Metal Hip Joint Replacements

Speaker

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A number of hypotheses have been proposed to explain the high failure rates of some metal-on-metal hip joint replacement implants. Analysis of retrieved implant components provides an exceptional opportunity to test these hypotheses and to help understand the underlying phenomena involved during actual clinical use. Investigation of retrieval components involves the measurement of material loss from articular surfaces, the measurement of material loss from modular junctions, and the evaluation of corrosion.

Dr. Ebramzadeh is the Director of the J. Vernon Luck, Sr. Orthopaedic Research Center (JVL), located at the Luskin Orthopaedic Institute for Children (OIC), in alliance with UCLA Health System. The research center is comprised of orthopaedic biomechanics research, biomaterials and implant retrieval analysis, implant tribology, and computational modeling. JVL researchers cover all aspects of orthopaedic research, from biomechanical models for pre-clinical testing of implants, to failure analysis using retrieved implants. Dr Ebramzadeh has published numerous studies using cadaveric and composite anatomical specimens, simulating physiological loads and motions, to test a wide variety of implants, devices, and instrumentation for joint replacement and fracture fixation. He has also been heavily involved with extensive studies of retrieved implants, including metal-on-metal hip replacement implants, and artificial disc retrieved implants, including those with metal-on-metal, metal-on-polyethylene, and metal-onpolycarbonate-urethane bearings, for both the cervical and lumbar spine.



DIPARTIMENTO DI CHIMICA MATERIALI E INGEGNERIA CHIMICA GIULIO NATTA

<u>14 May 2025</u> 11:30 Room Natta

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