

Dr. Richard Underwood  
Exponent  
Philadelphia, Pennsylvania

Dr Underwood is a mechanical engineer who specializes in the design, testing and failure analysis of complex mechanical systems. He has industrial experience in heavy equipment, automotive products and medical devices. This experience combined with 6 years consulting experience at Exponent, have given Dr. Underwood a unique skillset to investigate and solve complex engineering problems. Dr. Underwood has specific expertise in tribology which is the study of contacting surfaces and includes friction, wear and lubrication, and can be applied to applications as diverse as ball bearings to cosmetics. Dr. Underwood holds Professional Engineer and Chartered Engineer licenses. Dr. Underwood has developed a research interest in the application and associated risks applying of new and developing technologies to medical devices.

Dr. Underwood is a Visiting Research Professor at the Implant Retrieval Centre at Department of Biomedical Engineering and Health Systems at Drexel University and where his research interest is the mechanical performance of medical devices and the effect on the clinical outcome. He has published extensively about metal on metal hip joints and is now researching tribo-corrosion in orthopaedic taper junctions. Dr. Underwood is an active member of the ASTM and was been technical lead for the development of ASTM standard guides for measurement of material loss from hip joints. Dr. Underwood has given guest lectures on subjects including tribology, biotribology, and orthopedic devices at Imperial College, Imperial College School of Medicine, Princeton and University of Pennsylvania. He is a reviewer for several orthopedic and tribology journals and has chaired sessions at international conferences.