

Preface

Over a million metal-on-metal hip prostheses have been implanted since 1996, according to the Hip Society [1]. Controversy arose with reports of adverse tissue reactions and increased rates of revision associated with some of the implant designs during the 2000s. Today (2013), while many orthopaedists have discontinued using metal-on-metal implants, others continue to implant prostheses with this hard-on-hard bearing. This book will review the current understanding of the history and rationale for the development of metal-on-metal hips, the clinical experience, the basic science, and the future. As an outgrowth of several workshops on the topic, this book represents a collaborative effort between members of the Orthopaedic Research Society, the American Academy of Orthopaedic Surgeons (Biological Implants Committee, Biomedical Engineering Committee, and the Orthopaedic Device Forum), and the Society For Biomaterials.

The book is divided into five sections. Part one provides a historical review of metal-on-metal implants and poses the questions that have been raised concerning their use. The second part focuses on the clinical experience with modern metal-on-metal implants. It discusses the results of registries and outcome studies as well as the significance of testing patients for metal ion levels and hypersensitivity. Part three explores the biological response to metal-on-metal implants. Beginning with a discussion of the basic tenets of wound healing, inflammation, and immune responses, the implications of the adverse reactions seen around metal-on-metal implants are then analyzed by experts in the field. Part four discusses the possible contribution of the materials used in the manufacture of these implants, with special emphasis on wear mechanisms and tribocorrosion. The closing chapter of the book explores future directions.

We hope that this book will become a reference source for orthopaedic residents and fellows, orthopaedists, academics studying joint arthroplasty, and their colleagues in industry.

References

1. Lombardi AV Jr et al (2012) The hip society: algorithmic approach to diagnosis and management of metal-on-metal arthroplasty. *J Bone Joint Surg Br* 94(11 Suppl A):14–18

Metal-on-Metal Bearings

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Jones, L.C.; Haggard, W.O.; Greenwald, A.S. (Eds.)

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