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Book review

Biomedical Textiles: Introduction and Applications

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The present volume, Biomedical Textiles: Introduction and Applications, extends this traditional field into the rapidly expanding domain of medical science. The book offers a comprehensive introduction to fibrous textile structures—both synthetic and natural—designed for use within biological environments, either internally or externally, as medical or care devices to enhance health, hygiene, and therapeutic outcomes.

A major strength of this volume lies in its clear articulation of how the structural adaptability and mechanical flexibility of textiles can be leveraged for modern healthcare applications. The contributors emphasize that the next generation of biomedical textiles must exhibit not only biocompatibility but also tunable shape-transformation capabilities, allowing them to be inserted through minimally invasive delivery systems such as catheters, and subsequently expand or function effectively within the body. The text presents these advanced concepts with clarity, integrating engineering principles with clinical perspectives.

The book is organized into well-structured sections that progress logically from basic textile science to sophisticated biomedical applications. Early chapters provide a lucid overview of fiber chemistry, surface modification techniques, and structural design for biocompatibility, while later chapters explore applications in wound healing, vascular grafts, drug delivery systems, and tissue engineering scaffolds. Particularly noteworthy are the discussions on the mechanical performance of fibers under physiological conditions and the influence of material properties on tissue response.

What makes this volume especially valuable is its interdisciplinary approach? The editors have succeeded in bringing together research findings from materials science, biotechnology, and clinical medicine, enabling a coherent understanding of how textile innovations are driving advancements in healthcare. The chapters are well referenced and supplemented by recent research data, making the book both authoritative and accessible to graduate students and early-career researchers entering this field.

In addition to its academic merits, Biomedical Textiles: Introduction and Applications provides insight into industrial trends and future research directions. It highlights the importance of developing smart and responsive textiles capable of interacting with biological systems, a topic of great relevance to current scientific and medical innovation.

In addition, this book is hopefully an important contribution to the literature on biomedical materials. It will also serve as an essential reference for scientists, engineers, and clinicians engaged in the development of medical devices and healthcare technologies based on textile structures. For newcomers, it offers a systematic entry point into the complexities of textile-based biomaterials; for experienced professionals, it provides a well-curated overview of contemporary progress and future challenges.

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