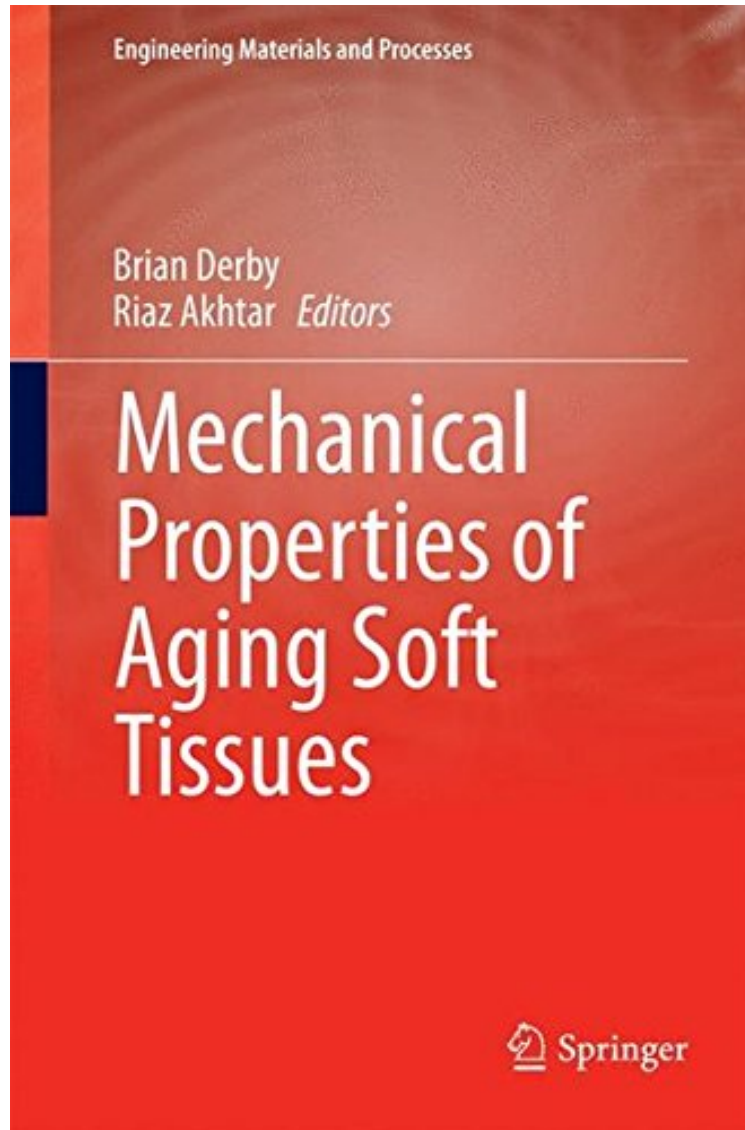


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Mechanical Properties of Aging Soft Tissues (Engineering Materials and Processes)

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Exploring the structure and mechanics of aging soft tissues, this edited volume presents authoritative reviews from leading experts on a range of tissues including skin, tendons, vasculature and plantar soft tissues. It provides an overview of in vivo and in vitro measurement techniques including state-of-the-art methodologies, as well as focusing on the structural changes that occur within the main components of these tissues resulting in detrimental mechanical property changes. It also highlights the current challenges of this field, and offers an insight into future developments. Age-related changes in the mechanical properties of soft tissues have a profound effect on human morbidity and mortality, and with changing global demographics, there is growing interest in this area. There has been increasing interest in robustly characterizing these mechanical changes to develop structure-property relationships, and growing awareness of the need for enhanced predictive models for computational simulations. This book seeks to address the challenges involved in applying these engineering techniques to reliably characterize these tissues. Focusing on a wide range of tissues and presenting cutting-edge techniques, this book provides an invaluable reference to academics and researchers in a range of disciplines including biomechanics, materials science, tissue engineering, life sciences and biomedicine.

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About the Author Dr Riaz Akhtar is a lecturer in Biomedical Engineering at University of Liverpool. His research focuses on the micromechanical behavior of biological tissues, in particular relating mechanical changes with age and disease. Dr Akhtar has a Ph.D in the micromechanical behavior of bone and for a number of years has focused on using novel techniques to characterize soft tissues such as blood vessels and skin. He held a British Heart Foundation research fellowship which addressed clinically relevant cardiovascular problems such as age-related vascular stiffening using materials science tools and techniques.

Professor Brian Derby is a Professor of Materials Science at The University of Manchester. He has led a number of large research programs focused on the mechanical properties of aging tissues including a 1 million grant as part of the major, cross-council initiative supporting multi-disciplinary Lifelong Health and Wellbeing Initiative. His work has pioneered new methods for accurately characterizing the mechanical properties of soft tissues with techniques such as scanning acoustic microscopy and nanoindentation. He is the editor of the Springer Engineering Materials and Processes series.