Amit Gefen (Ed.)

Bioengineering Research of Chronic Wounds

A Multidisciplinary Study Approach
Preface

I am delighted to launch the Book Series Studies in Mechanobiology, Tissue Engineering and Biomaterials with this first thematic volume on Bioengineering Research of Chronic Wounds. Chronic wounds such as pressure ulcers, diabetic foot ulcers and venous leg ulcers are one of the most significant health problems nowadays, as highlighted in many of the chapters in this book. Taken together, these wound types has a socioeconomic impact which is comparable to that of cardiovascular diseases, osteoporosis and cancer.

Populations at risk are multitude, and include for example elderly with neuro-muscular impairments, cognitive disorders and peripheral vascular diseases. However, chronic wounds are not a problem confined to elderly and to patients at the end of their life, as young individuals, with spinal cord injury or lesions (e.g. multiple sclerosis), or diabetic patients are also susceptible. With an ever-growing elderly population (bedfast or chairfast elderly in particular) on the one hand, and the epidemic nature of diabetes in Western countries on the other hand, the impact of chronic wounds on human society is expected to escalate quickly over the next few years.

Unfortunately, the attention that chronic wounds received from the bioengineering community over the last 20 years or so was negligible compared to the attention focused on other major health problems such as cardiovascular, respiratory and orthopaedic disorders. Accordingly, in terms of quantity, bioengineering research in chronic wounds is very much lagging behind. In terms of quality however, research in this field has started to bloom for the last few years, adopting state-of-the-art approaches from the more mature fields, including e.g. sophisticated computer modeling, cellular and tissue engineering for basic research as well as therapy, biomolecular markers and proteomics for early diagnosis, biomaterials for tissue repair and more. This book has captured this flourishing research work, and is reflecting it in full. The 19 chapters in this book, written by well-known experts in the various fields of bioengineering research of chronic wounds who conduct their work in 7 different courtiers, present the frontier of knowledge
in the field, and are an excellent guide to the kind of research that should lead us forward to understanding why and how these wounds happen, how they can be treated, and even better, how they can be avoided.

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Editor, *Bioengineering Research of Chronic Wounds*
Series Editor, *Studies in Mechano-biology, Tissue Engineering and Biomaterials*
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