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Mechanobiology of Fracture Healing

From Basic Science to Clinical Application

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To Gaby, Sven and Paul

Preface

This book describes how biomechanical conditions in fracture fixation affect the bone healing process. The objective is to provide an overview of the state of the art in the biomechanics of fracture fixation, the mechanobiology of fracture healing, numerical simulations of fracture healing processes and specific research methods in experimental fracture healing studies as well as of the conclusions that can be drawn for clinical applications from this scientific knowledge.

This book describes the state of the art of the mechanobiology of fracture healing and is a synopsis of the scientific work of the research group of the Institute of Orthopedic Research and Biomechanics at the University of Ulm over a period of more than 40 years. The intension is to provide a source of knowledge for bio-engineers, biologists and experimental and clinical surgeons active in the field of fracture healing.

Ulm, Germany — Lutz E. Claes

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