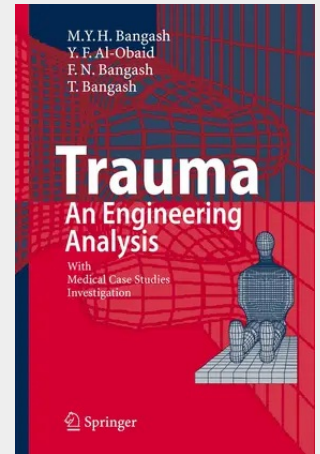


Trauma - An Engineering Analysis

With Medical Case Studies Investigation

A number of books and research papers have been published on trauma and biomechanics. They have so far not been realistically integrated. The basic aim of this book is to present a unified approach between the engineering and medical professions. The available engineering analyses and mathematical models can be interlinked and glued together with the medical findings by means of surgeries and X-rays/scans. They can be translated into vastly developed computer programs predicting effects of plasticity, temperature, cracking, and crushing with and without muscles and other interlocking phenomenon. The available mathematical-cum-engineering model on trauma and bone mechanics are then linked to the finite element analysis and to a computer program in which provisions are made to cater for all possible eventualities and medical parameters. The problem encountered by surgeries can be easily be incorporated into hybrid finite element computer programs such as PROGRAM ISOPAR used in this book. In all case studies the surgical influences have been considered together with the bone material data for both the operational, nonoperational and overloading behaviour of the human body structure. In all circumstances the human body structure and its important elements were treated as composite. The bone-blood interaction has been incorporated in order to obtain realistic solutions. Material properties in three-dimension have always been considered in throughout in various investigations. Engineering analysis of trauma is being continuously developed taking into consideration the ever increasing changes in analytical, design, safety, and manufacturing techniques. The engineering advances in that direction are steadily gaining international acceptance in the wide sense of the medical profession.

A number of books and research papers have been published on trauma and biomechanics. They have so far not been realistically integrated. The basic aim of this book is to present a unified approach between the engineering and medical professions. The available engineering analyses and mathematical models can be interlinked and glued together with the medical findings by means of surgeries and X-rays/scans. They can be translated into vastly developed computer programs predicting effects of plasticity, temperature, cracking, and crushing with and without muscles and other interlocking phenomenon. The available mathematical-cum-engineering model on trauma and bone mechanics are then linked to the finite element analysis and to a computer program in which provisions are made to cater for all possible eventualities and medical parameters. The problem encountered by surgeries can be easily be incorporated into hybrid finite element computer programs such as PROGRAM ISOPAR used in this book. In all case studies the surgical influences have been considered together with the bone material data for both the operational, nonoperational and overloading behaviour of the human body structure. In all circumstances the human body structure and its important elements were treated as composite. The bone-blood interaction has been incorporated in order to obtain realistic solutions. Material properties in three-dimension have always been considered in throughout in various investigations. Engineering analysis of trauma is being continuously developed taking into consideration the ever increasing changes in analytical, design, safety, and manufacturing techniques. The engineering advances in that direction are steadily gaining international acceptance in the wide sense of the medical profession.



213,99 €

199,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783540363057

Medium: Buch

ISBN: 978-3-540-36305-7

Verlag: Springer

Erscheinungstermin: 07.03.2007

Sprache(n): Englisch

Auflage: 1. Auflage 2007

Produktform: Gebunden

Gewicht: 1394 g

Seiten: 843

Format (B x H): 155 x 235 mm

