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Proximal Femoral Fractures** Fractures of the Proximal Femur: Improving Outcomes E-Book Proximal Femur Fractures Fractures of the Proximal Femur Fracture of the Proximal Femur Personalized Hip and Knee Joint Replacement An Operative Manual of Proximal Femoral Fractures Fractures of the Proximal Femur in Children and Adolescents The Proximal Femur of Australopithecus Pediatric Pelvic and Proximal Femoral Osteotomies Biomechanics of the Proximal Femur Mechanical Properties of the Proximal Femur Fragility of the Proximal Femur Evaluation of the Proximal Femur of the Immature Broiler Fatigue Fracture of the Proximal Femur Participant-specific Modelling of the Proximal Femur During Lateral Falls The Strain Distribution in the Proximal Femur, a Method for Evaluation of a New Femoral Component Radiological Strength Assessment of the Proximal Femur Fracture Toughness of Human Cortical Bone from the Proximal Femur Stress Analysis of the Proximal Femur and the Mechanical Performance of a Femoral Total Hip Replacement Component Finite Element Modeling and Analysis of the Proximal Femur 3D Quantitative Computed Tomography (QCT) of the Proximal Femur Intracapsular Fractures of the Proximal Femur Trabecular Involution of the Proximal Femur as a Means of Estimating Age at Death Photoelastic Analysis of the Proximal Femur Prior to and Following Cementless Femoral Arthroplasty Structural Capacity of the Proximal Femur as Determined by Finite Element Analysis Signal Analysis of Quantitative Ultrasound Measurements at the Proximal Femur Stresses in the Developing Proximal Femur "Three-dimensional Morphology of the Proximal Femur" Prevalence of Low Bone Mass in the Proximal Femur Among World-class Female Triathletes Towards a Reliable Mechanical Simulation of the Proximal Femur The cam-type deformity of the proximal femur arises in childhood in response to vigorous sporting activity Strain Analysis of the Proximal Femur After Total Hip Replacement Fracture Prediction for the Proximal Femur Using Finite Element Models Avascular Necrosis of the Proximal Femur in Developmental Dislocation of the Hip Cortical Thickness Estimation of the Proximal Femur from Multi-view, Dual-energy X-ray Absorptiometry Statistical Shape Analysis of the Proximal Femur Radiological Morphometric Study of the Proximal Femur in Relation to Total Hip Arthroplasty Functional Outcomes Following Displaced Intracapsular Fracture of the Proximal Femur in Elderly People Numerical and Experimental Study of Failure of the Human Proximal Femur

Avascular Necrosis of the Proximal Femur in Developmental Dislocation of the Hip May 27 2020

Statistical Shape Analysis of the Proximal Femur Mar 25 2020

Mechanical Properties of the Proximal Femur May 20 2022

Fractures of the Proximal Femur Jan 28 2023 Match pre-operative assessment, surgical techniques, post-operative management, and more to the specific lifestyle factors of each patient in order to achieve optimal results. Apply state-of-the-art techniques and protocols with the visual help of operative videos as well as more than 500 surgical line drawings and photographs in print. Review surgical techniques such as pinning, plating/intramedulary devices, and total hip replacement implants, and get a greater understanding of deep vein thrombosis and pulmonary embolism prevention. Brush up on related topics including epidemiology, osteoporosis, co-morbidities, evidence-based post-op, and rehabilitation protocols. Get the advice of expert contributors worldwide who detail best practices in prophylaxis, surgical technique, and rehabilitation.

Participant-specific Modelling of the Proximal Femur During Lateral Falls Jan 16 2022 Falls among older adults are a common occurrence with the potential to result in substantial injury. Hip fractures are among the most frequent and devastating fall induced injuries, resulting in increased morbidity and mortality, as well as significant socioeconomic costs. From a mechanistic perspective, the risk of a hip fracture during a fall is dictated by the ratio between the impact loading and the ability of the femur to withstand such loads. Investigations of clinical fracture risk factors have generally focused on the latter, neglecting the influence of these factors on impact dynamics. Experimental fall simulations provide a means to investigate factors modulating impact dynamics; however, these studies are limited to the skin surface with limited ability to draw

conclusions on femoral loading and fracture risk. Investigations into the mechanical basis of clinical risk factors (sensitive to both loading and femur morphology) could provide insights to inform the development of protective devices and increase the accuracy of screening tools. Therefore, the purpose of this thesis was to evaluate the influence of previously identified hip fracture risk factors on impact characteristics during lateral falls and how the application of these loading conditions influence femoral neck stresses and fracture risk. Specifically, the influence of fall simulation paradigm (FSP: a surrogate for fall type), sex, and trochanteric soft tissue thickness (TSTT) were evaluated through coupling of experimental impact dynamics with participant-specific proximal femur models. Healthy young males and females, encompassing a wide range of body compositions underwent a series of fall simulation paradigms. These paradigms varied in fall trajectory and impact configuration, ranging from highly controlled vertical drops (pelvis release) to releases more representative of falls observed in older adults (kneeling and squat releases). Peak impact force magnitude and localization over the proximal femur, as well as orientation and point of application with respect to the femur were extracted (Chapters 3 and 4). A subset of the participants subsequently underwent dual energy X-ray absorptiometry (DXA) imaging, enabling participant-specific modelling and tissue level analysis - driven by experimental loading conditions (reginal force magnitude, orientation, and point of application; Chapter 5). FSP significantly influenced skin surface loading conditions, as well as femoral neck stresses and fracture risk. Compared to kneeling and squat, pelvis release elicited lower peak force magnitude; however, this force was applied closer to and was more concentrated over the greater trochanter. Despite the differences in force distribution, kneeling and squat release still elicited greater force directed over the proximal femur compared to pelvis release. Beyond force magnitude and distribution, these FSP varied significantly in impact vector orientation with respect to the femur. Kneeling release was associated with the most perpendicular loading vector, while squat release elicited the most distally directed vector in the frontal plane. In the anterior-posterior plane, pelvis release was directed posteriorly, while kneeling and squat release were directed anteriorly. Observed difference in skin surface loading conditions across FSP interacted with underlying femoral geometry to influence stress generation and fracture risk. Compressive stress at the superior-lateral femoral neck was greatest in kneeling release, while tensile stress at the inferior-medial femoral neck was greatest in squat release (driven by proportion of force resulting in axial compression vs. bending stress). While no differences in femoral neck fracture risk were observed between kneeling and squat release, kneeling release may elicit a greater risk of local compressive failure in the superior femoral neck. At the skin surface, sex and TSTT significantly influenced impact dynamics; however, underlying differences in femur morphology influenced the translation of these loading conditions to femoral neck stresses and fracture risk. Compared to females, males exhibited greater impact force magnitude, which was applied closer to and was more concentrated over the greater trochanter of the proximal femur. This increased loading in males was mitigated by differences in femur morphology (greater resistance to bending and shear stress generation, as well as strength), resulting in no differences in femoral neck stresses or fracture risk. The increased risk of hip fracture in females may be explained by age related changes in femur morphology, as well as sex-differences in the circumstances of falls. High-TSTT individuals exhibited greater impact force magnitude; however, these loads were applied further from and less focally over the greater trochanter compared to low-TSTT individuals. Combined, no differences were observed in the amount of force directed over the proximal femur across TSTT. Despite similar loading conditions, low-TSTT individuals elicited greater femoral neck stresses and fracture risk compared to their high-TSTT counterparts, driven by differences in underlying femur morphology (reduced resistance to bending and shear stress generation). The protective influence of TSTT to redistribute impact force peripherally away from the greater trochanter appears to play an important role in fracture risk. When global impact force was utilized instead of local force during modelling, no differences in femoral stresses or fracture risk were observed across TSTT. In summary, this thesis combined two previously exclusive approaches (experimental fall simulations and tissue level modelling) to gain novel insights into the influence of FSP, sex, and TSTT on femoral neck stresses and fracture risk. Through a participant-specific multi-level approach, this analysis was sensitive to both impact dynamics and underlying femoral geometry. FSP influenced fracture risk, as well as the location and magnitude of peak femoral stresses. Inclusion of muscle activation in future versions of the current approach may inform 'safe-falling' strategies, designed to reduce

fracture risk. The current results support epidemiological findings suggesting TSTT is a protective factor against hip fracture; however, sex differences in fracture risk are likely driven by age related changes in femur morphology not included in this analysis. Based on the apparent importance to fracture risk, future work should aim to quantify the translation of skin surface pressure distributions to impact energy delivered to the proximal femur.

3D Quantitative Computed Tomography (QCT) of the Proximal Femur Jul 10 2021

Photoelastic Analysis of the Proximal Femur Prior to and Following Cementless Femoral Arthroplasty Apr 06 2021

Fracture Prediction for the Proximal Femur Using Finite Element Models Jun 28 2020

Biomechanics of the Proximal Femur Jun 20 2022

Radiological Strength Assessment of the Proximal Femur Nov 13 2021

Pediatric Pelvic and Proximal Femoral Osteotomies Jul 22 2022 This unique, case-based text offers a comprehensive discussion of pelvic and proximal femoral osteotomies in the pediatric population. Beginning with chapters on preoperative planning and radiologic evaluation of the adolescent hip, subsequent chapters are sensibly divided into three thematic sections, which use a consistent chapter format presenting the case history, relevant imaging, treatment goals, the management strategy, and clinical pearls and pitfalls. Part I describes the various pediatric pelvic osteotomies, including the Salter, Pol de Coeur, Tönnis, Pemberton, and San Diego approaches, among others. Pediatric proximal femoral osteotomies comprise part II, presenting the McHale procedure, varus and valgus osteotomies, Morscher osteotomy, and Shepherd's Crook deformity, to name just a few. The final section covers combined and miscellaneous osteotomies and procedures for the pediatric hip, such as osteochondroplasty, hip instability, hip arthrodesis, and SUPERhip and SUPERhip2 procedures for congenital femoral deficiency. Each chapter is generously illustrated and includes a handy table of indications and contraindications for the procedure described. In infancy, childhood and adolescence, the hip joint is very susceptible to abnormalities (congenital or acquired) that may lead to morphological alterations with potential sequelae, specifically pain and difficulty to ambulate, sit and perform daily activities. Restoring normal anatomy and biomechanics of the hip joint by various pelvic and/or proximal femoral osteotomies remains the cornerstone in the management of these conditions. To this end, Pediatric Pelvic and Proximal Femoral Osteotomies will be an invaluable resource for all pediatric orthopedic surgeons, trainees and students both in the medical and paramedical field.

Structural Capacity of the Proximal Femur as Determined by Finite Element Analysis Mar 06 2021

Towards a Reliable Mechanical Simulation of the Proximal Femur Oct 01 2020

Proximal Femoral Fractures Apr 30 2023 A proximal femur fracture is a hip fracture that occurs in the upper part of the thigh bone, next to the hip joint. It is a common condition particularly in elderly females, often related to osteoporosis, and is a major cause of morbidity and mortality in these patients throughout the world. This book is a practical guide to proximal femoral fractures, describing in detail, the treatment modalities and surgical procedures for different types of fracture. Beginning with an introduction to anatomy, epidemiology and the principles of treatment, the following sections describe the management and rehabilitation of fractures in different parts of the upper femur. Enhanced by more than 700 full colour images and illustrations, this concise, practical guide covers proximal femoral fractures in both paediatric and geriatric patients. Key points Practical guide to treatment and rehabilitation of proximal femoral fractures Covers fractures in both paediatric and geriatric patients Includes more than 700 full colour images and illustrations

An Operative Manual of Proximal Femoral Fractures Oct 25 2022 The proximal femur is the top part of the thigh, closest to the hip joint. Injury can cause discomfort and mobility problems, making accurate treatment vital. This book is a guide to the diagnosis and management of proximal femoral fractures for orthopaedic trainees. Divided into five sections, each part discusses fractures in a different part of the femur, providing an overview of the fracture, followed by surgical treatment options. Difficult and rare fractures are covered, and the final section examines fractures in children, periprosthetic fractures, and pathological fractures. More than 200 images enhance learning. Key points Guide to the diagnosis and surgical management of proximal femoral fractures Different types of fracture discussed in detail, including difficult and rare fractures Final section dedicated to 'special scenarios' including proximal femoral fractures in children Includes more than

200 images

Finite Element Modeling and Analysis of the Proximal Femur Aug 11 2021

Radiological Morphometric Study of the Proximal Femur in Relation to Total Hip Arthroplasty Feb 23 2020

Fractures of the Proximal Femur: Improving Outcomes E-Book Mar 30 2023 Fractures of the Proximal Femur: Improving Outcomes, by Dr. James P. Waddell, helps you maximize clinical outcomes when addressing the challenges, complications, and treatment of patients with hip fractures. Match pre-operative assessment, surgical techniques, post-operative management, and more to the specific lifestyle factors of each patient in order to achieve optimal results. Apply state-of-the-art techniques and protocols with the visual help of operative videos as well as more than 500 surgical line drawings and photographs in print and online at www.expertconsult.com. See how to perform each technique step by step with operative videos and online access at www.expertconsult.com. Review surgical techniques such as pinning, plating/intramedulary devices, and total hip replacement implants, and get a greater understanding of deep vein thrombosis and pulmonary embolism prevention. Brush up on related topics including epidemiology, osteoporosis, co-morbidities, evidence-based post-op, and rehabilitation protocols. Get the advice of expert contributors worldwide who detail best practices in prophylaxis, surgical technique, and rehabilitation.

Proximal Femur Fractures Feb 26 2023 This timely resource organizes and presents the most up-to-date, evidence-based information on the evaluation and management of all aspects of proximal femur fractures, divided into three succinct sections. Part I discusses basic principles, including anatomy, biomechanics and surgical approaches to the proximal femur. Detailed chapters focusing on individual fracture locations and types comprise part II, such as femoral head and neck fractures, intertrochanteric and subtrochanteric fractures, and nonunions. Optimal perioperative medical management and quality and safety concerns are presented in part III. Each chapter includes a section on evidence-based considerations, and authors present their preferred methods of treatment as well as case examples, where applicable. Providing a quick review of the newest evidence, but also allowing for an in-depth review of the details associated with specific fracture types around the hip, Proximal Femur Fractures provides the orthopedic and trauma surgeon with essential information when preparing for any particular proximal femur fracture procedure.

Stresses in the Developing Proximal Femur Jan 04 2021

Fragility of the Proximal Femur Apr 18 2022

Trabecular Involution of the Proximal Femur as a Means of Estimating Age at Death May 08 2021

The cam-type deformity of the proximal femur arises in childhood in response to vigorous sporting activity Aug 30 2020

Signal Analysis of Quantitative Ultrasound Measurements at the Proximal Femur Feb 02 2021

Numerical and Experimental Study of Failure of the Human Proximal Femur Dec 23 2019 Static and dynamic experiments were conducted to study the failure loads and fracture patterns of human proximal femur bones, that are intact and core drilled. This was done to assist orthopedic surgeons better understand the effects of core drilling into the femoral head to remove osteonecrosis. Unlike pervious studies, where only static tests were conducted, dynamic tests were preformed to better simulate a lateral fall. A Finite Element Analysis (FEA) was also completed to understand stress distributions in the proximal femur when subjected to static and dynamic loads. Previous PEA models of the femur analyzed static loads only with just a core drilled hole at the lesser trochanter. This PEA model examines various sizes of hole diameters and locations on the greater trochanter as well as having the model loaded statically and dynamically.

The Strain Distribution in the Proximal Femur, a Method for Evaluation of a New Femoral Component Dec 15 2021

Evaluation of the Proximal Femur of the Immature Broiler Mar 18 2022

Prevalence of Low Bone Mass in the Proximal Femur Among World-class Female Triathletes Nov 01 2020

Stress Analysis of the Proximal Femur and the Mechanical Performance of a Femoral Total Hip Replacement Component Sep 11 2021

"Three-dimensional Morphology of the Proximal Femur" Dec 03 2020

Fatigue Fracture of the Proximal Femur Feb 14 2022

The Proximal Femur of Australopithecus Aug 23 2022

Intracapsular Fractures of the Proximal Femur Jun 08 2021
Cortical Thickness Estimation of the Proximal Femur from Multi-view, Dual-energy X-ray Absorptiometry Apr 26 2020
Fractures of the Proximal Femur in Children and Adolescents Sep 23 2022
Strain Analysis of the Proximal Femur After Total Hip Replacement Jul 30 2020 Strain analysis of human cadaver femora after cemented total hip arthroplasty (THA) has demonstrated a reduction in stress transfer along the proximal femur. The principal objective of this study was to determine the effect of the cementless application of a pressfit, porous-coated prosthesis on the strain experienced by the proximal femur. Using the photoelastic coating technique (PECT), five human cadaver specimens were subjected to strain analysis before and after cementless arthroplasty with a PCA total hip prosthesis. After total hip replacement, the strain magnitudes were reduced for all points along the medial border when the femur was subjected to loading conditions. A reduction of the level of strain experienced by the calcar ranged from 34.7 to 43.7% under loads ranging from 750 to 2000 N--a considerably smaller reduction than that reported by previous investigators. The region of the greater trochanter was the only area of the lateral surface to demonstrate an increase in strain magnitude after THA; the other, more distal points laterally experienced a reduced level of strain. Increases in strain magnitude, although not statistically significant, were detected along the anterior aspect of the femora. Significant decreases in strain were observed at the two more distal points posteriorly, with no significant change proximally. As this investigation is an evaluation only of the immediate effect of the design of the prosthesis in achieving a press fit, and the specimens are without the benefit of bony ingrowth, additional studies are necessary to determine the effect of biologic ingrowth on the distribution of strain within the proximal femur.
Personalized Hip and Knee Joint Replacement Nov 25 2022 This open access book describes and illustrates the surgical techniques, implants, and technologies used for the purpose of personalized implantation of hip and knee components. This new and flourishing treatment philosophy offers important benefits over conventional systematic techniques, including component positioning appropriate to individual anatomy, improved surgical reproducibility and prosthetic performance, and a reduction in complications. The techniques described in the book aim to reproduce patients' native anatomy and physiological joint laxity, thereby improving the prosthetic hip/knee kinematics and functional outcomes in the quest of the forgotten joint. They include kinematically aligned total knee/total hip arthroplasty, partial knee replacement, and hip resurfacing. The relevance of available and emerging technological tools for these personalized approaches is also explained, with coverage of, for example, robotics, computer-assisted surgery, and augmented reality. Contributions from surgeons who are considered world leaders in diverse fields of this novel surgical philosophy make this open access book will invaluable to a wide readership, from trainees at all levels to consultants practicing lower limb surgery
Fracture of the Proximal Femur Dec 27 2022
Functional Outcomes Following Displaced Intracapsular Fracture of the Proximal Femur in Elderly People Jan 22 2020
Fracture Toughness of Human Cortical Bone from the Proximal Femur Oct 13 2021

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