University of Basel
Department of Biomedical Engineering

Seminar Series:
Latest Breakthroughs in Biomedical Engineering Research

Location: DBE Science Lounge, Hegenheimermattweg 167C, 4123 Allschwil
Date & Time: Thursday 27.03.2025 | 16:30 – 17:30
Host: PD Dr. Cordula Netzer

Investigating biomechanics of post-surgical complications in adult spinal deformity with musculoskeletal modelling

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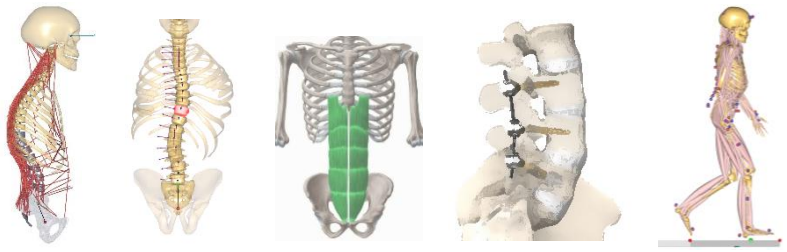
Abstract

Post-surgical complications such as Proximal Junctional Kyphosis (PJK) and Proximal Junctional Failure (PJF) are great challenges in adult spinal deformity (ASD) surgery. Understanding the biomechanical mechanisms driving these complications is critical for improving surgical outcomes. This seminar will explore the use of personalized musculoskeletal modeling to investigate patient-specific factors, such as spinal alignment, body morphology, and abdominal wall adaptation, that influence spinal loads and contribute to PJK/PJF development. The insights gained from this approach offer new perspectives on biomechanical risk factors and may inform future surgical planning and patient management strategies.



Biosketch

Dr. Dominika Ignasiak is the Group Leader for Musculoskeletal Biomechanics at the Institute for Biomechanics, ETH Zurich. Her research focuses on the biomechanics of the ageing spine and spine pathologies, integrating computational methods, clinical data, and functional assessments. Having developed the widely-used AnyBody spine model, she combines her academic expertise with industry experience in innovation to address clinical challenges in spine care for improved patient outcomes.