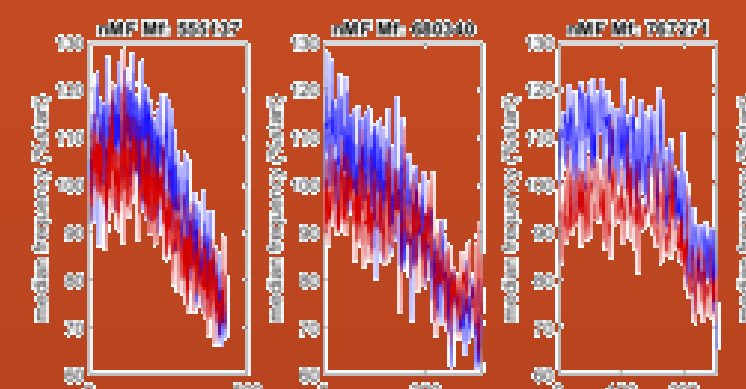
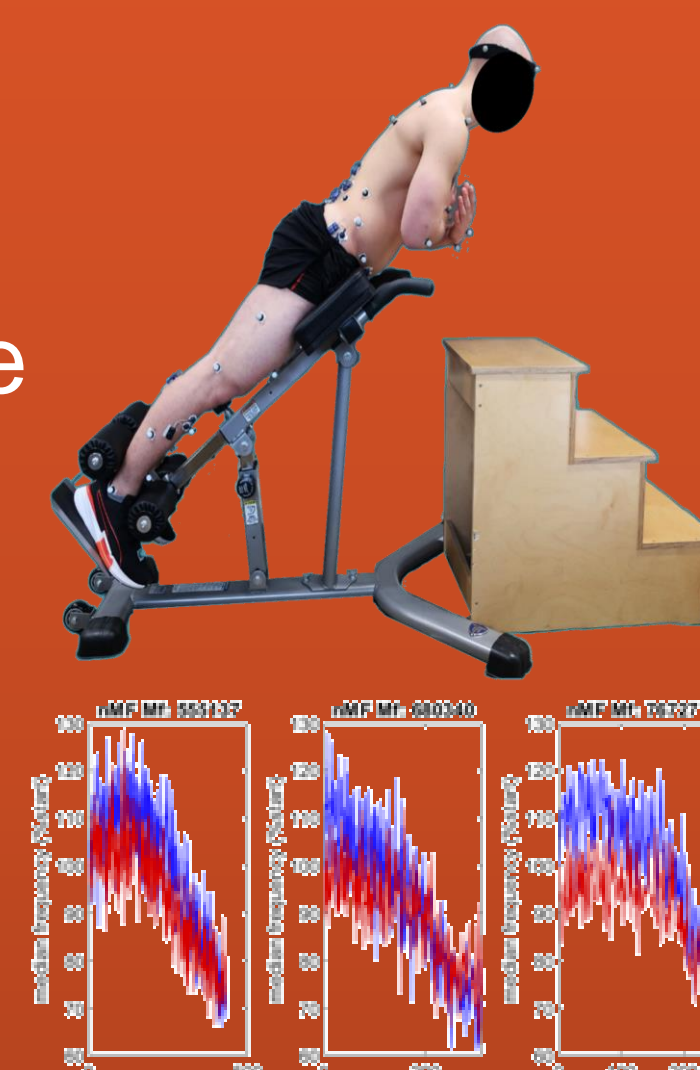
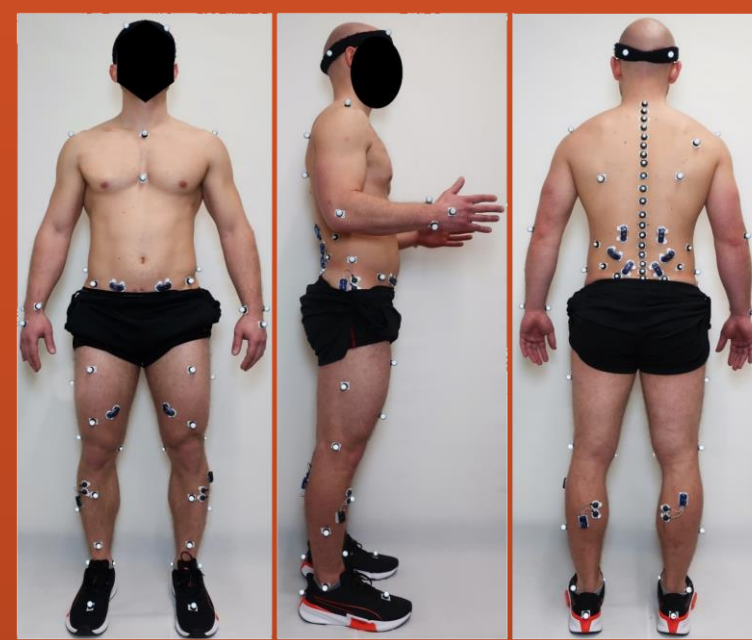
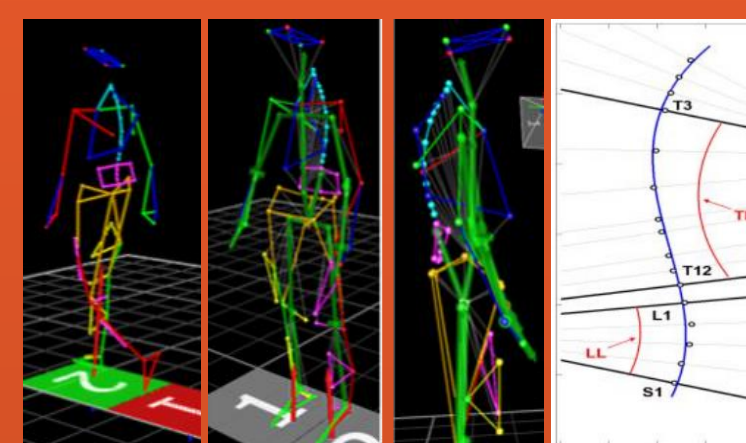


# RoLSSroice – An interdisciplinary study driving towards a better understanding of lumbar spinal stenosis

David Koch, Alice Caimi, Corina Nüesch, Dominika Ignasiak, Stefan Schären, Stephen Ferguson, Annegret Mündermann, Cordula Netzer

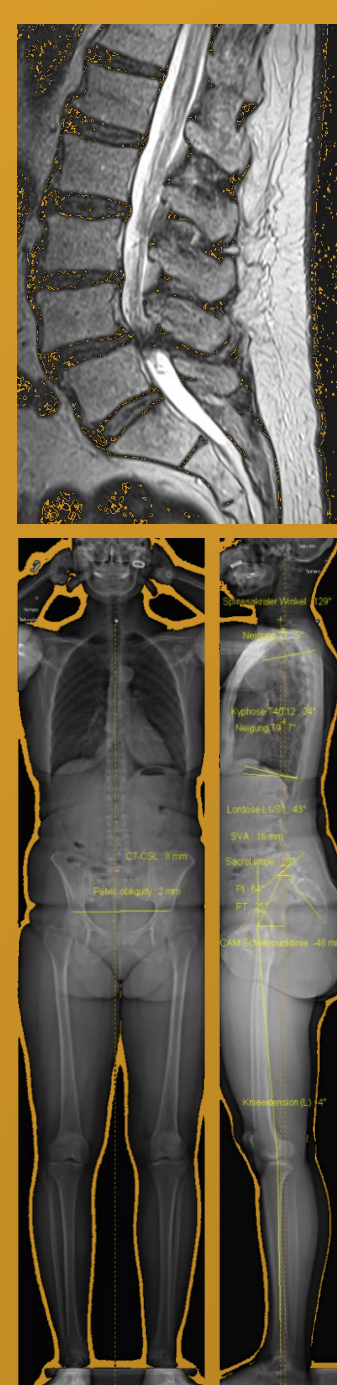
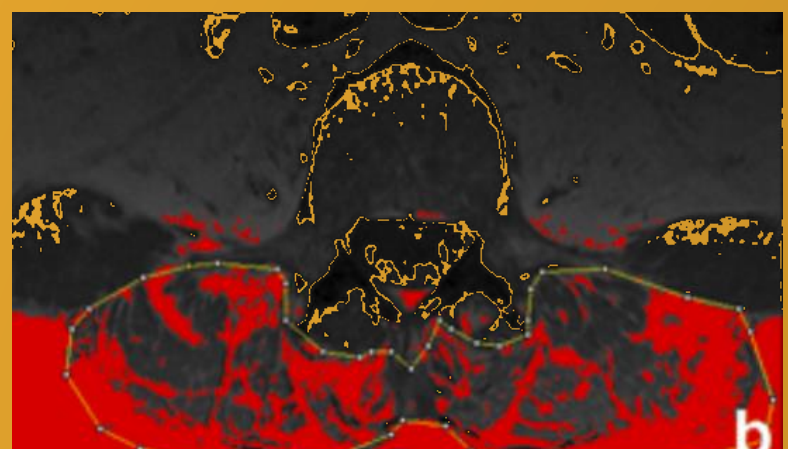
## In vivo experimental data

- Optoelectronic 3D gait & motion analysis (Vicon)
- Instrumented force plates
- Electromyography
- Modified Biering-Sorensen test to investigate the effect of paraspinal muscle fatigue

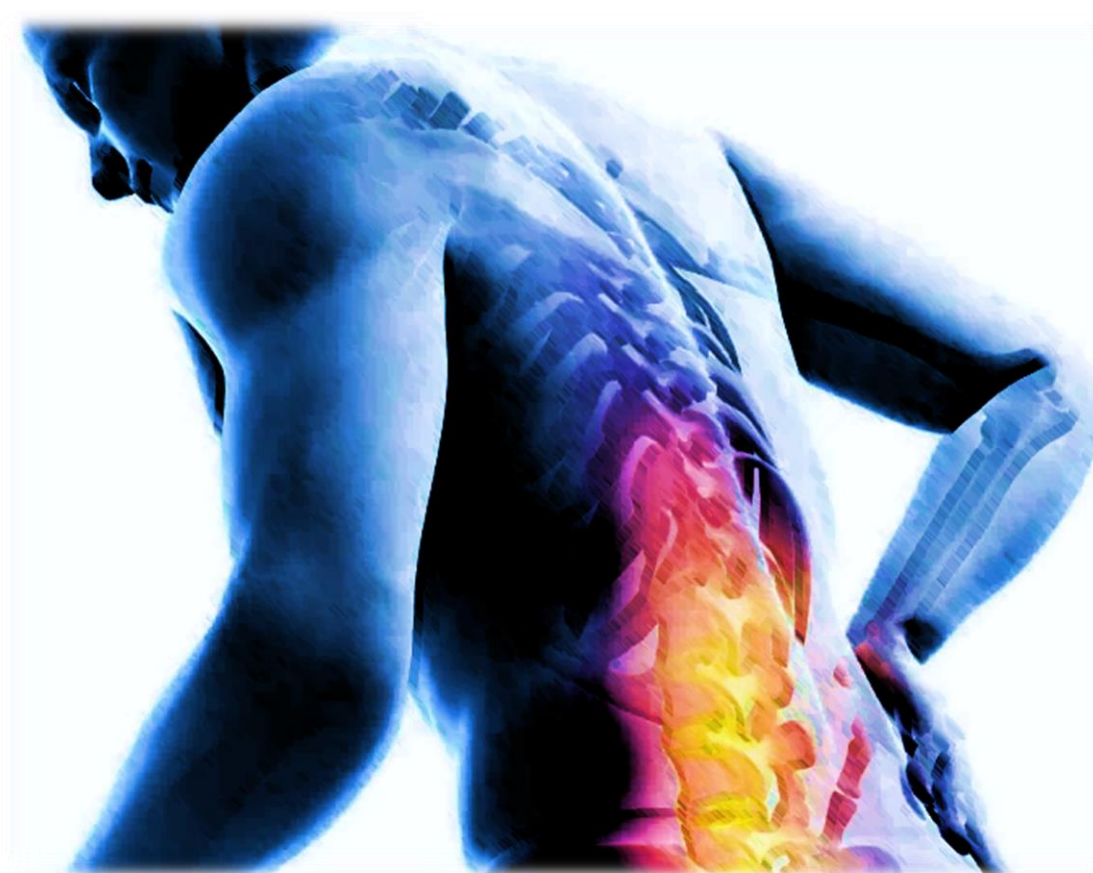


## Radiological data

- Lumbar spine MRI
  - Severity of stenosis
  - Cross-sectional area and fatty degeneration of paraspinal muscles
- EOS radiography
  - Sagittal spinal balance
  - Spinopelvic alignment

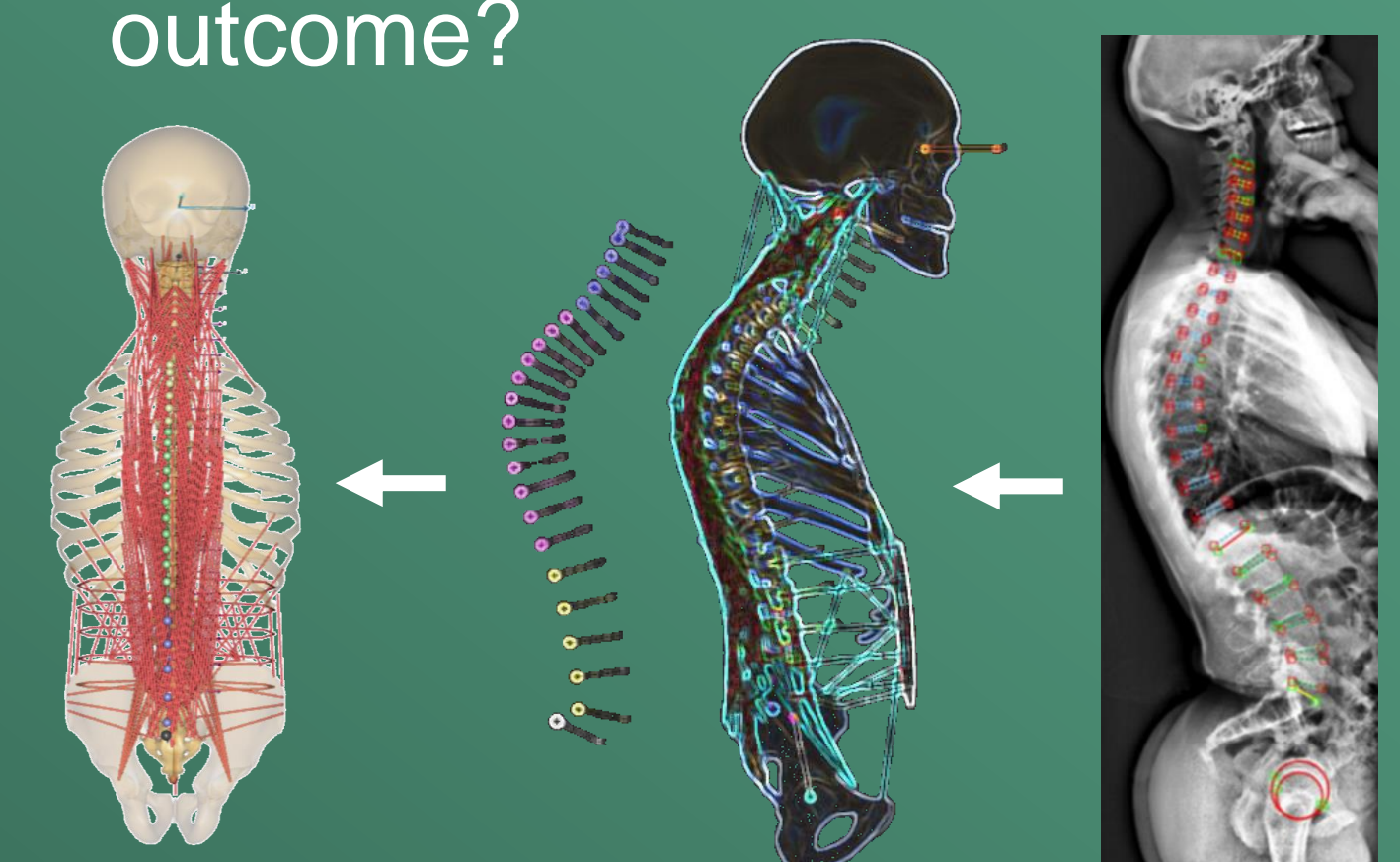


## Combining four approaches to explain



preoperative symptoms and postoperative outcome

- Patient-specific musculoskeletal model
- Can internal spinal loads explain preoperative symptoms and predict postoperative outcome?

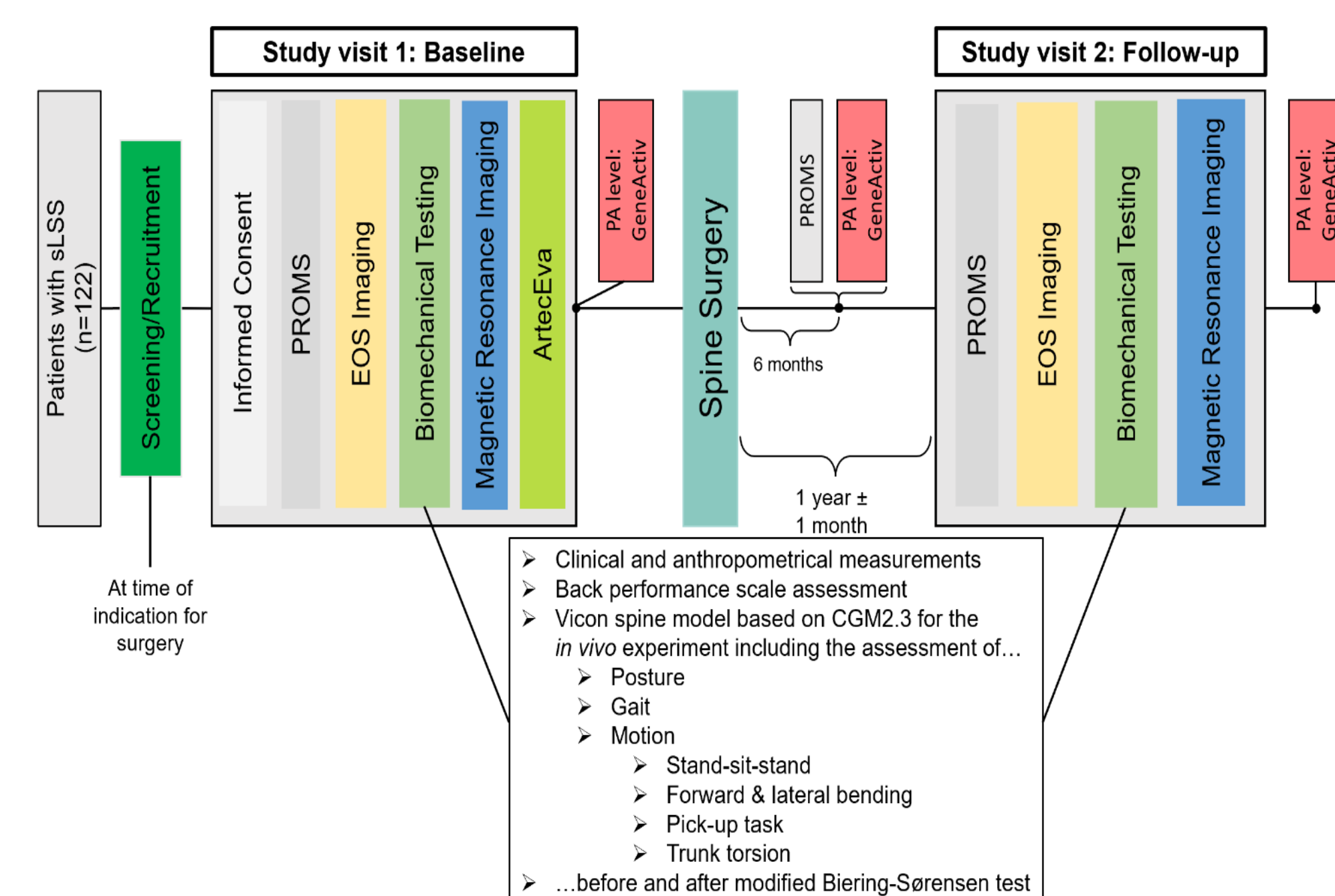


## In silico musculoskeletal modelling

- Oswestry Disability Index
- EQ-5D-5L
- Swiss Spinal Stenosis questionnaire
- Tampa scale of Kinesiophobia
- COMI back



## Patient-reported outcome measures



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University Hospital Basel, Functional Biomechanics Laboratory




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