

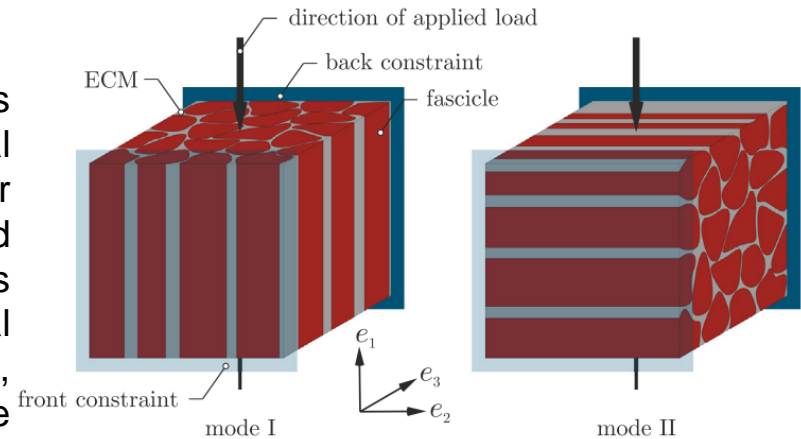
Modelling the passive behavior of skeletal muscles

✓ Bachelor- / Studien- / Masterarbeit

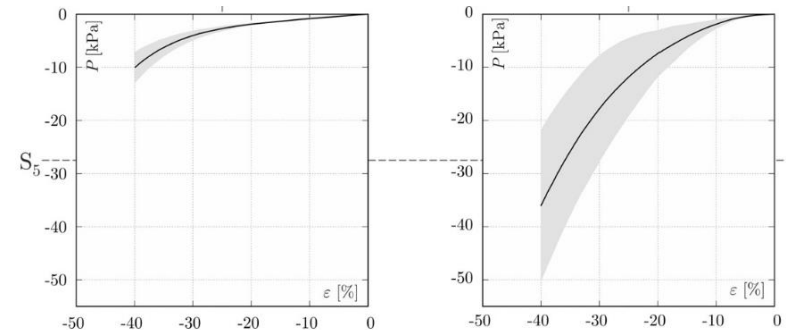
Uniaxial mechanical tension and compression experiments on skeletal muscles reveal the well-known transversal isotropic behavior of muscle tissues, a load bearing behavior of muscle fibres and an asymmetry between tension and compression of the muscle tissues. Numerous studies address the passive and active mechanical behavior of skeletal muscles and similar fibre reinforced biological tissues, adopting some of these characteristics. However, with the objective of a comprehensive passive model, a single three-dimensional continuum formulation, capable to map each characteristic, is still required.

Possible Tasks:

- Learning the basics of continuum mechanics
- Implementation of continuum material formulations with Matlab or Python
- Establishing an enhanced formulation regarding different types of deformation



Leichsenring et. al, „Age-dependent mechanical and microstructural properties of the rabbit soleus muscle“, 2021



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