Model Approaches for Leg Prosthetic Design

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Abstract. Although, prosthetic is a very well researched field, compared to extremities a prosthesis has a lot of deficiencies. With the use of mathematical models, it is possible to determine the needs of prosthesis better and to analyze which improvements and refinements could be built in.
This contribution aims to give an overview about different models to simulate prosthesis and their numerous applications. In combination with biomechanics, using modelling and simulation allows to simulate the effect of different forces and resulting stresses under different loadings. Consequently, the signs of wear of prosthesis which reduce the functionality can be determined earlier and more precise. This established knowledge helps to develop enhanced prosthesis.

Keywords: Prosthesis, biomechanics, modelling and simulation