

Computational Models for Accurate Estimation of Joint Forces

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Abstract : Computational modelling is a method used to investigate joint forces during a movement. It can get high accuracy in the joint forces via subject-specific models. However, the construction of subject-specific models remains time-consuming and expensive. The purpose of this paper was to identify what alterations we can make to generic computational models to get a better estimation of the joint forces. It appraised the impact of these alterations on the accuracy of the estimated joint forces. It found different strategies of alterations: joint model, muscle model, and an optimisation problem. All these alterations affected joint contact force accuracy, so showing the potential for improving the model predictions without involving costly and time-consuming medical images.

Keywords : joint force, joint model, optimisation problem, validation

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