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An Elbow Biomechanical Model and Its Coefficients Adjustment

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Abstract : Through the establishment of the elbow biomechanical model, it can provide theoretical guide for rehabilitation therapy on the upper limb of the human body. A biomechanical model of the elbow joint can be built by the connection of muscle force model and elbow dynamics. But there are many undetermined coefficients in the model like the optimal joint angle and optimal muscle force which are usually specified as the experimental parameters of other workers. Because of the individual differences, there is a certain deviation of the final result. To this end, the RMS value of the deviation between the actual angle and calculated angle is considered. A set of coefficients which lead to the minimum RMS value will be chosen to be the optimal parameters. The direct search method and the conjugacy search method are used to get the optimal parameters, thus the model can be more accurate and mode adaptability.

Keywords : elbow biomechanical model, RMS, direct search, conjugacy search
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