Robotergestütztes System für ein verbessertes neuromuskuläres Aufbautraining der Beinstrecker

Abstract

Neuromuscular strength training of the leg extensors is an important part in rehabilitation and prevention of muskuloskeletal disorders. For an effective training, high muscle forces are required, which also induce high loadings on already impaired structures. To avoid training induced damages, these forces need to be controlled. With current training equipment these goals cannot be achieved. By means of robotics, sensors, a control loop and musculoskeletal models loadings on target structures shall be calculated and controlled to guarantee a safe and effective training. Based on two previous studies with focus on possible manipulated variables, the development of a robotic system is presented. This system can both be used for research and for the development of novel training equipment.