Universität Basel

Research Project

Muscle function and dynamic and postural stability in patients receiving hip or knee arthroplasty

Project funded by own resources

Project title Muscle function and dynamic and postural stability in patients receiving hip or knee arthroplasty

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Despite of reported strength deficits and the importance of balance, to date the potential contribution of strength deficits in patients before and after THA or TKA to compromised balance ability is unknown. Furthermore, the role of preoperative muscle function on functional outcome of THA and TKA is poorly understood. A correlation between compromised preoperative muscular function and postoperative outcome would suggest that preoperative physical therapy may be critical for preserving the muscular status and may help explain reported poorer outcome after late treatment when muscular function has already deteriorated.

Answers to these questions are highly relevant for developing and improving preoperative treatment schemes and postoperative rehabilitation programs. In particular, understanding the role of strength deficits of specific muscles on dynamic and postural stability will be critical for defining optimal rehabilitation scheme, specifically targeting the muscles responsible for the balance ability and ultimately reducing the risk of falls.

The project includes two studies differing in design and primary and secondary objectives but with overlapping patient populations.

Keywords knee; hip; arthroplasty; osteoarthritis; gait analysis; muscle strength; balance; wearable sensors

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