Ph.D. thesis: Neuromuscular Function in Meniscectomized Patients at High Risk of Knee Osteoarthritis
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SUMMARY
The overall purpose of this thesis was to identify potential impairments in neuromuscular function and self-reported pain and function in middle-aged meniscectomized patients at high risk of knee OA.

In the first study muscle strength, functional performance and patient perceived pain and function were examined in 31 patients 2 years after surgery for a degenerative meniscus tear and 31 population-based controls. Despite patients self-reporting pain and functional limitations no differences were observed in muscle strength and functional performance.

In the second study thigh neuromuscular activity and selected biomechanical variables were investigating in 22 patients and 26 controls during the transition step between stair descent and level walking. No differences were observed between patients and controls. However, modulations in kinematics and neuromuscular activity represented by a shorter stance phase and reduced overall medial vs. lateral thigh muscle activity in the meniscectomized leg compared with the contra-lateral leg in patients was observed.

The third study investigated the hypothesis that changes in muscle strength and functional performance would differ between patients and controls over 2 years time. Twenty-two patients and 25 controls participated in this follow-up study conducted 4 years post meniscectomy. Overall changes from 2 to 4 years post meniscectomy did not differ in maximal muscle strength and functional performance between patients and controls. However, post-hoc analysis revealed a difference in change in knee extensor MVC resulting in a 6% difference between the operated and contra-lateral leg of patients at follow-up 4 years post meniscectomy.

The results of this thesis suggest that impaired muscle strength is not responsible for the perceived functional limitations and indicate that alterations in kinematics and neuromuscular activity may precede muscle strength deficits which seem to evolve over time in patients at high risk of knee OA. The current findings may represent the initial stages in the possible chain of events leading to knee OA in meniscectomized patients.

LIST OF PAPERS IN THESIS

