

## Osteoarthritis of the Hip: Prevalence in Danish chiropractic practice; reproducibility of range of motion and muscle strength; a proof-of-principle randomized clinical trial

This PhD thesis is about the clinical diagnosis and non-pharmacological treatment of patients with hip osteoarthritis. The overall aims were to report on the prevalence of hip osteoarthritis in chiropractic practice, to examine the reproducibility of two clinical examination procedures commonly used in the assessment of hip osteoarthritis, and to investigate the feasibility of a three-arm randomized clinical trial in a Danish setting involving patients with mild to moderate hip osteoarthritis.

Results from the first part of the thesis indicate that hip osteoarthritis is a condition both diagnosed and treated by Danish chiropractors, although the proportion is low. For the patients diagnosed with the condition, approximately half have not previously been diagnosed with hip osteoarthritis.

Besides pain, reduced hip mobility and muscle strength are two important clinical signs associated with the diagnosis of hip osteoarthritis. Therefore, in the second part of the thesis, we found it relevant to examine if clinicians of the same profession (orthopedists and chiropractors) were able to agree on findings when measuring hip range of motion with a goniometer and muscle strength with a dynamometer. For the two orthopedists and the two chiropractors, we found that agreement was in general poor to moderate for all measurements. When using all measurements to decide on the degree of osteoarthritis of the examined hip, both orthopedists and chiropractors were to a moderate level able to differentiate between hips with no, mild or severe osteoarthritis.

Hip osteoarthritis is a chronic debilitating disease with a lifetime risk of 25%, but only 20% of sufferers end up having hip replacement surgery. Therefore, it is important to investigate whether non-surgical treatments can reduce pain, improve function and quality of life for the group of patients not proceeding with surgery. Patient education programs such as the Swedish-based hip school and manual therapy have shown promising results. Therefore, we wanted to see if a Danish set-up with a three-arm randomized clinical trial involving multiple professional disciplines was feasible for measuring significant change in pain severity when patients with hip osteoarthritis received a patient education program, a combined program of patient education and manual therapy or a home exercise program with minimal instruction. The results indicate that the combined treatment program of patient education and manual therapy was superior to the minimal home exercise program as patients experienced greater pain reduction. When patients evaluated the overall effect of the treatment, a majority felt the combined treatment had improved their condition compared with before treatment. When comparing the patient education without the manual therapy with the home exercise program, we found no differences in pain severity between the two treatments. By comparing the group receiving the patient education alone with the group receiving the combined treatment of patient education plus manual therapy, the manual therapy is likely to be responsible for any additional improvement in pain.