

Methods: GLA:D is a non-surgical treatment program for patients with knee and hip OA. It consists of three 1.5-hour sessions of patient education and 12 sessions of individualized, physiotherapist supervised neuromuscular exercise according to the NeuMuscular Excercise program (NEMEX) (Ageberg 2010). The GLA:D concept is taught to the physiotherapists during a two-day course (first course held in January 2013). Furthermore, GLA:D is a registry holding data from the baseline assessment and from the 3 months and 12 months follow-ups of all patients entering GLA:D.

A pilot study was performed in a physiotherapy clinic in Denmark including 79 patients with knee and/or hip OA (67 women; mean age (SD) 62.4 (7.2); mean pain intensity (VAS 0-100, SD) 42.4 (18.9); mean BMI (SD) 28.4 (7.8)). In the pilot study, Pain (VAS 0-100, primary outcome), Euro-Quality-of-Life - 5 Dimensional form (EQ-5D) and body mass index (BMI) were evaluated at baseline and after 3 and 12 months. Furthermore, compliance was registered as general adherence to the treatment program at the 12 months follow-up on a five-point scale (never, every month, every week, every day, several times a day). Additionally, the participants were asked to rate their opinion of GLA:D on a five-point scale (very bad, bad, neither bad nor good, good, very good).

Results: GLA:D is now (November 2013) offered at 49 units in both primary and secondary care and across all 5 health care regions in Denmark. More than 600 patients have entered data into the registry. Due to a huge interest among patients, health care providers and the media, these numbers are rising exponentially.

In the pilot study, 78 participants (99%) completed the 12 months follow-up. Significant improvements ($p < 0.001$) were found in the primary outcome pain from baseline to the 3 months (-13.0mm) and 12 months (-11.4 mm) follow-ups and in EQ-5D from baseline to the 3 months (0.05) and 12 months (0.05) follow-ups. At the 12 months follow-up, 56 participants (72%) were using what they had learned at least every week and only six (8%) never used it. 72 participants (92%) rated the GLA:D concept as good or very good.

Conclusions: The GLA:D concept is feasible, in terms of health care providers being willing to pay for a two-day education, the program being available across the country, and patients and therapists being able and willing to enter data into the registry. The pilot study demonstrated that the treatment program reduced pain and increased quality of life in patients with knee and hip OA and that the improvements persisted 9 months after the intervention ended confirming long-term effects. Teaching content of clinical guidelines to physiotherapists and providing a free of charge registry for data collection increase the quality of care provided for patients with knee and hip OA.

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MULTI-MODAL PHYSIOTHERAPY AND HIGH TIBIAL OSTEOTOMY CAN MITIGATE RISK FACTORS FOR DISEASE PROGRESSION IN PATIENTS WITH VARUS GONARTHROSIS

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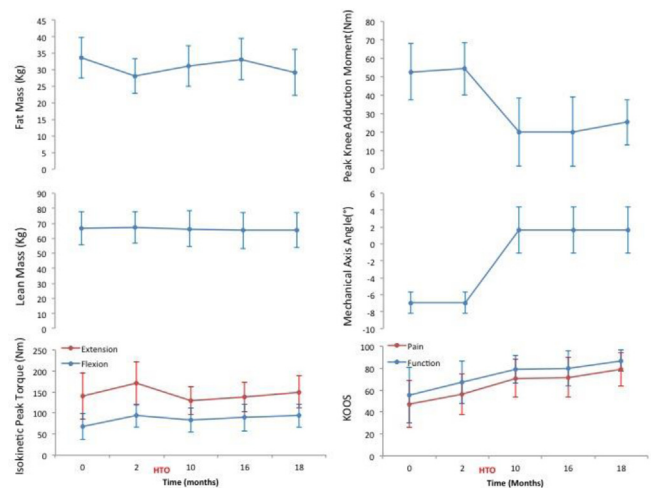
Purpose: Rehabilitative interventions for patients with knee osteoarthritis (OA) can substantially decrease body mass and increase muscular strength, but have limited effects on limb mal-alignment. High tibial osteotomy (HTO) can effectively correct mal-alignment, but can also lead to increased body mass and decreased muscular strength. The primary objective of the present study was to investigate the cumulative effects of combined physiotherapy and medial opening wedge HTO in patients with varus gonarthrosis.

Methods: In this proof of principle study, eight patients with varus mal-alignment and medial compartment knee OA completed a multi-modal intervention consisting of medial opening wedge HTO and 8-weeks of rehabilitation with a focus on reducing fat mass and increasing muscular strength (multi-modal physiotherapy, MPT) repeated approximately 4 months before and 12 months after surgery. Outcomes included measures of body composition, isokinetic strength, radiographic lower limb alignment, the external knee adduction moment during walking, and the Knee injury and Osteoarthritis Outcome Score (KOOS).

Results: Repeated measures analysis of variance indicated significant ($p < 0.05$) changes over time for all outcome measures with the exception

of lean mass. Mean changes (95%CI) from the study baseline to its endpoint indicated that, overall, patients lost substantial fat mass [4.6 kg (-8.0, -1.2)], made modest improvements in isokinetic knee extension peak torque [7.2Nm (-45.0, 59.5)] and knee flexion peak torque [23.0Nm (-1.8, 47.7)], had mal-alignment corrected from substantial varus to approximately neutral [8.6° (6.3, 10.8)], and experienced very large improvements in the peak knee adduction moment during walking [-27.7Nm (-43.1, -11.6)] and in the KOOS [e.g., improvement in pain domain = 31.4 (10.0, 52.8)].

Conclusions: The present findings support the principle of using multi-modal rehabilitative and surgical interventions that target different risk factors to produce overall, cumulative benefits for patients with varus gonarthrosis. Moreover, the MPT was required to produce the improvements in body composition and strength, whereas the HTO was required to produce the improvements in alignment and knee adduction moment.



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IMPORTANCE OF ADHERENCE IN OUTCOME OF EXERCISE THERAPY IN PATIENTS WITH KNEE OSTEOARTHRITIS

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Purpose: This study aims to determine associations of various adherence variables with outcome of exercise therapy in knee osteoarthritis (OA), separately for the treatment and post-treatment period.

Methods: One hundred fifty nine patients with knee OA participated a randomized, controlled trial (STABILITY; NTR1492) in which two 12-week exercise programs were found to be similarly effective. For the present study, adherence during treatment was operationalized as the number of attended sessions (attendance) and the number of days performing home exercises during treatment (home exercise adherence), while adherence post-treatment was operationalized as the number of days performing home exercises post-treatment (post-treatment home exercise adherence) or performing other sports activities (post-treatment sports activity adherence). Finally, a summed overall adherence score which includes all adherence variables was calculated. Outcome measures were WOMAC physical function, NRS pain, the Get up and Go test, isometric upper leg muscle strength, and patient-reported knee instability. Regression analysis was used to determine associations between adherence and outcome, separately for the treatment period (baseline to 12-week follow-up), post-treatment period (12 to 38-week follow-up) and the total period (baseline to 38-week follow-up), adjusting for treatment group and demographics.

Results: Both attendance (but only for WOMAC physical function) and home exercise adherence (for WOMAC physical function, pain, and muscle strength) were significantly associated with outcome in the treatment period. No associations were found between post-treatment home exercise adherence or sports activity adherence with outcome in