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NEWS AND NOTES

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Physical Therapy Treatment Effectiveness for Osteoarthritis of the Knee:

October 2007

Deyle et al. performed a randomized comparison of supervised clinical exercise and manual therapy procedures to a home exercise program for 134 subjects with diagnosed knee OA (osteoarthritis). The purpose of the study was to compare outcomes between a home based physical therapy program and a clinically based physical therapy program.

Subjects in the clinic treatment group were treated for a total of 8 visits over the 4 week treatment period.

The supervised clinical exercise/manual therapy group received a standardized knee exercise program at each session. The program consisted of active ROM exercises, muscle strengthening exercises, muscle stretching exercises, and riding a stationary bicycle. In addition to exercises the group received manual therapy techniques consisting of passive physiological and accessory movements, muscle stretching, and soft tissue mobilization primarily to the knee and surrounding structures. The manual therapy techniques were chosen based on the examination and clinical decisions of the treating Physical Therapist.

The home exercise group received the same home exercise program initially, reinforced by a clinic visit 2 weeks later for program review and modification.

The primary outcomes measured were the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). Secondary outcomes measured were a timed 6 minute walk test, overall patient satisfaction with the treatment delivered, and medication usage for knee OA.

The outcomes were re assessed at 4 weeks (post treatment), 8 weeks, and 1 year.

At 4 weeks (post treatment) the clinic treatment group showed 50% more improvement in the WOMAC score than the home exercise group, though both groups showed clinically significant improvement (52% increase in clinical group WOMAC, 26% improvement in home exercise group WOMAC). Average 6 minute walk test had improved by 10% in both groups. At 1 year, both groups were substantially and about equally improved over baseline measurements. At 1 year subjects in the clinic treatment group were more satisfied with the overall outcome of their rehabilitation program, and were less likely to be taking medication for arthritis.

The results of this study suggest that clinical intervention consisting of manual therapy and supervised exercise was more effective than a home exercise program for increasing function and decreasing pain and stiffness over an 8 week period. The cost difference for 8 clinic visits for the supervised group and 2 visits for the home exercise group was estimated to range from $498-$774 dollars. This additional cost is comparable to the cost of other interventions such as the cost of a series of injections. The level of functional improvement with this clinical treatment program of manual therapy and supervised exercise is greater than what has been reported for other conservative treatments and has been compared with improvements seen after total knee arthroplasty.

Deyle et al (2005), Physical Therapy Treatment Effectiveness for Osteoarthritis of the Knee: A Randomized Comparison of Supervised Clinical Exercise and manual Therapy Procedures Versus a Home Exercise Program, Physical Therapy, Volume 85 1301-1317.

STOVER PT CLINICAL PEARLS

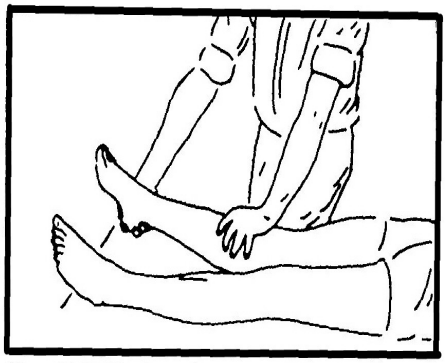

Figure 11.30 Tibiofemoral extension abduction, grade IV+

The above picture is a manual therapy technique we commonly use to restore terminal knee extension ROM and to abolish mechanical knee pain associated with this movement loss. The technique is performed by a small amplitude oscillatory movement into end range at varying degrees of vigor and speed based on the symptomatic and mechanical response of the patient. The hand placement can be altered depending on the response of the patient.
The following are possible modifactions:
A. the cupped left hand over the anterior surface of the distal femur adjacent to the superior border of the patella,
B. the cupped left hand placed over the anterior surface of the tibia just superior to its tuberosity.
C. the left hand placement can be shifted on the femur anterolaterally to produce a combination of extension/abduction,
D. the left hand placement can be shifted on the femur anteromedially to produce a combination of extension/adduction

The above diagram is a frequently utilized self mobilization exercise we prescribe for patients to restore terminal extension and abolish mechanical pain associated with this movement loss. As with the manual technique modifications, the direction of force can be altered to achieve the desired symptomatic and/or mechanical response. usually this movement will be prescribed several times daily until it has been restored and pain is no longer produced with this movement. After restoration of motion has been achieved the frequency of the exercise will be lowered to 1-2 times daily to maintain function and ROM.

Our Results

Each patient with knee pain referred to physical therapy must complete a Lower Extremity Functional Scale (LEFS) during his/her initial evaluation and at any subsequent re-evaluation. The Lower Extremity Functional Scale is a 20-item self-report questionnaire that asks the patient to rate his/her level of difficulty on a 0-4 scale during various daily activities. The score ranges from 0 (extremely low function) to 80 (extremely high function). The minimal detectable change for the LEFS is 9 points (Binkley, et al., 1999).

We have documented outcomes on 51 patients with non-specific knee pain. The average number of visits for this group of patients was 9 over a 4-week period. See Table 1 for outcomes.

Table 1 LEFS Results

Initial LEFS	Discharge LEFS
44/80	61/80

Reference

Binkley, J.M., Stratford, P.W., & Lott, S.A. (1999). The lower extremity functional scale (LEFS): Scale development, measurement properties, and clinical application. *Physical Therapy, 79,* 371-383.