

Muncie method improves function and reduces pain in patients with anterior knee pain

Clinical Bottom Line(s):

1. For patients with anterior knee pain, the Muncie method reduces pain, decreases impairment, and increases knee flexion peak torque, more than traditional home rehabilitation and formal physical therapy. The Muncie method is more cost effective than formal PT.

Citations(s):

Roush, M.B., et al., *Anterior knee pain: a clinical comparison of rehabilitation methods*. Clin J Sport Med, 2000. **10**(1): p. 22-8.

Three/four part clinical question.

Does quad strengthening reduce pain in adult females with patellofemoral syndrome?

The study:

Prospective, randomized, blinded

The study patients:

Diagnosis of anterior knee pain (patellar tendonitis, quadriceps tendonitis, PFPS, chondromalacia patella, idiopathic knee pain, Osgood-Schlatter disease, plica syndrome)

Home Group: (N = 20): "T" straight leg raise, pillow squeeze exercise, twice daily

PT Group: (N = 21): 6 weeks PT, 3 times per week, aerobic activity, flexibility exercises, strengthening exercises, patellar mobilization, McConnell taping, orthotics

Muncie Group: (N = 23): Muncie straight leg raise, 2 sets of 10 reps, twice daily, holding 5 seconds each rep

Muncie method – The uninjured knee is bent up with the heel of the foot at 2 inches proximal to the joint line of the injured knee (beginners), at the joint line of the injured knee (intermediates), or at 2 inches distal to the joint line of the injured knee (advanced). Patient sits forward and hugs the bent knee. Patient externally rotates affected leg and maintains the big toe at 10 o'clock position (left leg) or 2 o'clock position (right leg). The foot on the injured leg should be dorsiflexed as much as possible and the quadriceps of the straight leg contracted until the heel lifts off the ground. The patient lifts the entire straight leg 2.5 cm off the ground, holds the leg off the table for 5 seconds, and lowers the straight leg slowly.

The evidence (boxes with dashed line indicates there was no significant difference for that outcome):

	Home	PT	Muncie
Percent improvement of pain during activity	6 / 12 wks (p=0.05) 0 / 12 wks (p=0.01)	-----	0 / 6 wks (p=0.001) 0 / 12 wks (p=0.001) 6 / 12 wks (p=0.001)
Percent improvement on impairment scale	6 / 12 wks (p=0.001) 0 / 12 wks (p=0.001)	0 / 6 wks (p=0.001) 0 / 12 wks (p=0.001)	0 / 6 wks (p=0.001) 0 / 12 wks (p=0.001) 6 / 12 wks (p=0.001)
Percent improvement of pain after activity	-----	-----	0 / 6 wks (p=0.001) 0 / 12 wks (p=0.001) 6 / 12 wks (p=0.001)
Cybex range of motion	-----	-----	-----
Cybex peak torque for knee ext	-----	-----	-----
Cybex peak torque for knee flexion	-----	-----	1.4% more improvement than home group 8.9% more improvement than PT group
Cost	\$291	\$1261-\$1711	\$291

Comments:

1. Recommend at least 6 weeks of home therapy before formal PT.
2. Complicated study with many outcomes and time points. No hard data was given and results are difficult to compare.
3. Speculation about whether Muncie method isolates VMO more effectively than other exercises.
4. This study lumped together many types of knee pathology – not specifically PFPS.

Appraised by: Elissa Ballas

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Kill or update by: August 2006