

ABSTRACT

This case report details the implementation of a rehabilitation program for an active female with complaints of patellofemoral pain, utilizing a comprehensive anterior knee pain algorithm. The patient was a 59-year-old female, otherwise healthy, presenting with a history of insidious anterior knee pain. At initial evaluation, primary findings included: inadequate pelvic control, crepitus with active knee extension, navicular drop and forefoot abduction of the right foot, and weakness of the right knee flexors, extensors, and abductors. Outcome measures included: the numeric pain rating scale, Kujala scale for patellofemoral pain, and the Lower Extremity Functional Scale. Treatments derived from the algorithm consisted of exercises targeting the hip abductors and external rotators to establish normal pelvic control during dynamic activities. Flexibility enhancement focused on the quadriceps, gastrocnemius and soleus. After 9 visits the patient demonstrated improved dynamic control of the hip, normal strength values for hip musculature, and no pain with activities.

INTRODUCTION

- Patellofemoral pain syndrome (PFPS) is a medical diagnosis associated with pain at the anterior knee, including the patella and surrounding soft tissue structures.
- It is known to afflict females and youth athletes more than other subpopulations.
- The incidence of PFPS has been reported as high as 10% of patients reporting to outpatient physical therapy clinics.
- Physical therapy intervention significantly improves outcomes when treating anterior knee pain associated with patellofemoral pain syndrome.
- In order to integrate current evidence into a successful treatment plan, this author developed an anterior knee pain algorithm. The purpose of this algorithm was to create an easy-to-use visual tool for the efficient and effective treatment of patients presenting with anterior knee pain.

CASE DESCRIPTION

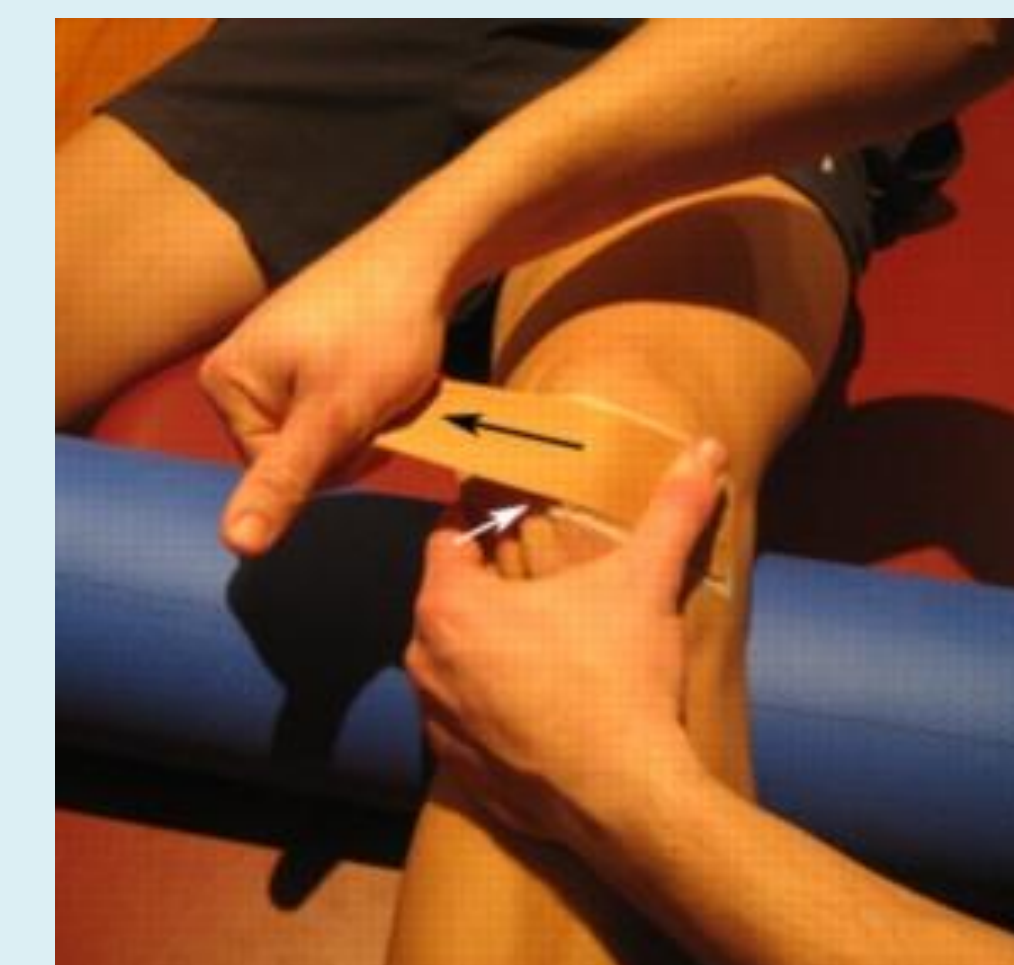
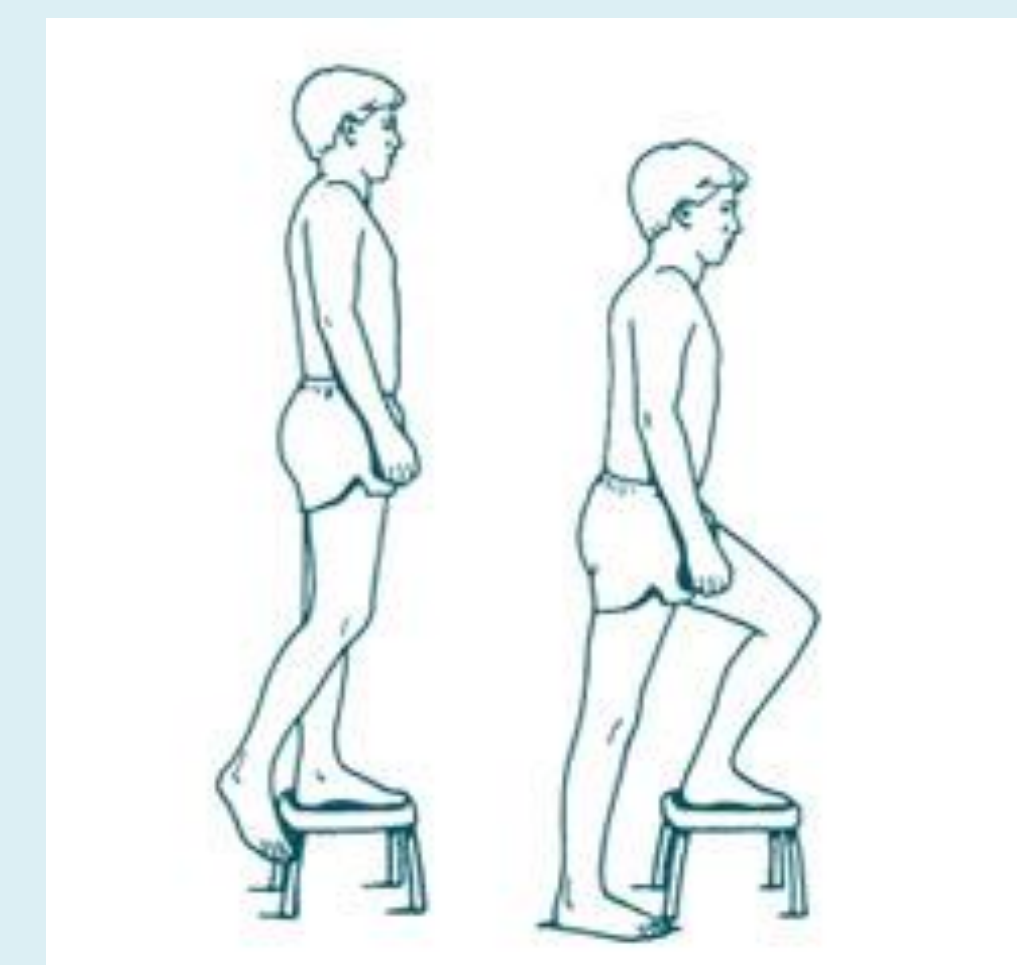
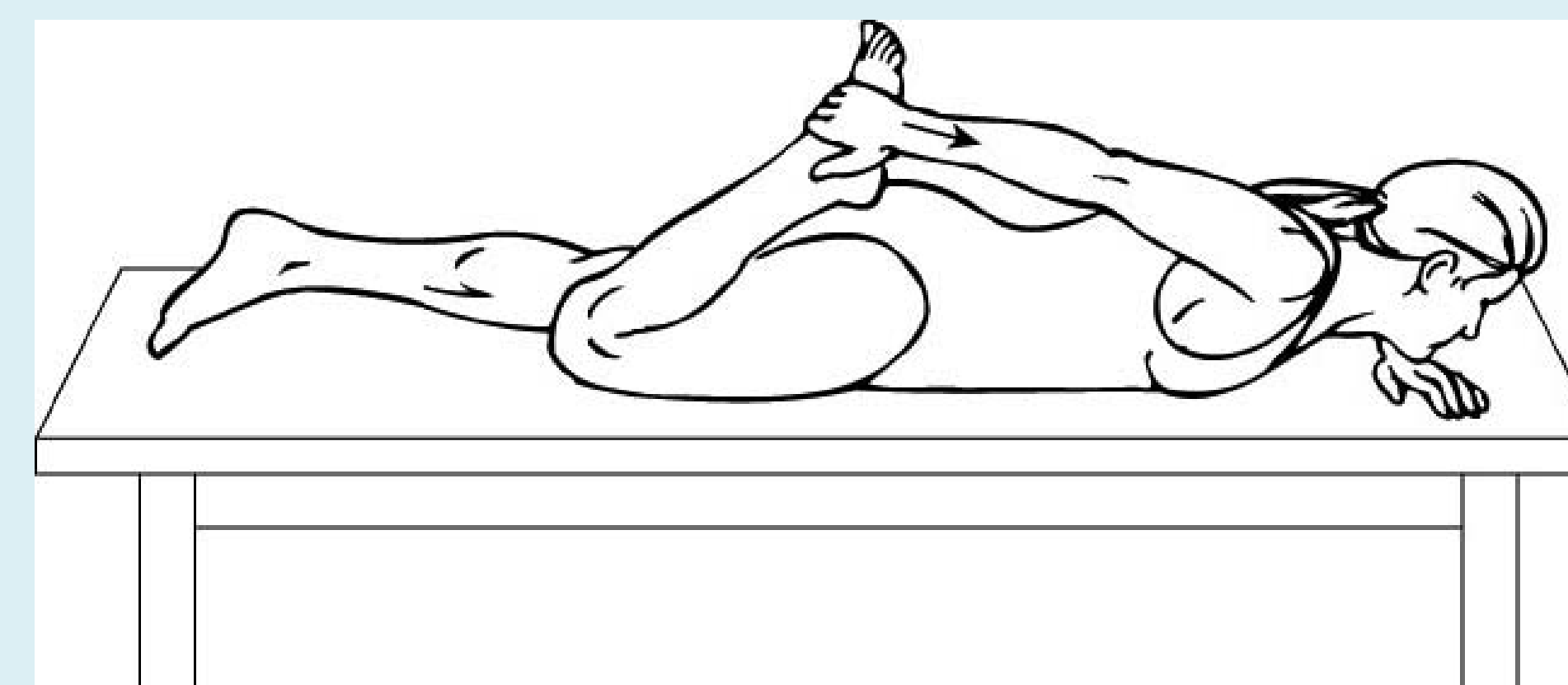
- 59 year-old female presenting to physical therapy with a history of gradually increasing knee pain that began approximately 2 months prior to initial visit
- The patient had been immobilized in a walking boot with strict non weight-bearing precautions for 6 weeks prior to initial evaluation, for treatment of a Jones fracture of the right foot.
- Chief complaints:
 - Intermittent bilateral anterior knee pain
 - Symptoms worse in the morning, with stair climbing, and squatting

EVALUATION

- Key findings of initial evaluation:
 - Moderate movement abnormality on the left side with functional tasks including single leg squat
 - Inadequate pelvic control during midstance with increased lateral tilt
 - Mildly excessive navicular drop (6 to 10 mm) of the right foot with excessive forefoot abduction
 - Hallux valgus on the left foot
 - Positive Clark's sign for patellofemoral pain
 - Limited ROM in hip extension, knee flexion, and ankle dorsiflexion
 - MMT: knee extension 4/5, knee flexion 4/5, hip abduction 4/5

INTERVENTIONS

- Closed chain strengthening exercises targeting hip abductors/external rotators, knee flexors, and knee extensors
- Passive quadriceps stretching
- Multi-planar squatting and lunging activities with various levels of support to facilitate neuromuscular control of the pelvis
- McConnell taping to stabilize and assist with patellar tracking with movement
- Patient education regarding posture and body mechanics with functional activities



OUTCOMES

- The patient attended a total of 9 physical therapy sessions over the course of 9 weeks.
- Upon discharge, the patient reported no lingering knee symptoms with activities of daily living as well as recreational activities.
- Improved dynamic control of the pelvis during single-leg dynamic balance exercises.
- Grossly 5/5 muscular strength throughout bilateral lower extremities.

Clinical Outcome Measure	Initial	Follow-Up (Visit 6)	Discharge (Visit 9)
NPRS knee	7-8	3	0
Kujala	66	Not assessed	97
LFES	28	Not assessed	Not assessed

DISCUSSION

- The patient described in this case report mirrors global trends of anterior knee pain in females and active individuals.
- Utilizing a global approach for evaluation and intervention strategies, the patient presented in this report was able to return to all previous activities, including recreational dance aerobics.
- The patient's subjective improvements were supported by changes in objective measurements taken at initial evaluation and at discharge.

CONCLUSION

- Despite an abundance of research, there are currently no clinical practice guidelines for treating patellofemoral pain.
- Due to the high incidence of PFPS and the debilitating effects it can cause, it is important for clinicians to comprehend and implement a comprehensive strategy for evaluating and treating anterior knee pain.
- The anterior knee pain algorithm developed for this study is a useful tool in evaluating and treating patients with complaints similar to those of this case patient's.