

ECCENTRON CASE STUDY

National Meeting 2006

CASE DESCRIPTION

Patient

Patient is a 13-year-old male with a history of 2 stress fractures on the left proximal tibia. His most recent injury was a right tibial stress fracture the end of August 2005. His MRI of the right knee in October 2005 revealed the healed stress fracture and a “hot spot” on the pes anserine area. His symptom of pain within the medial aspect of the right tibia is exacerbated only with running activities. He has tried to play sports such as football and basketball but his medial knee pain limits him. His orthopedist ordered strengthening to eliminate symptoms so patient could play sports injury-free.

Examination and Evaluation

Muscle deficits of the hip rotators, abductors, and extensors were noted. A hand held dynamometer was used to determine objective torque outputs noted below.

	Right Hip	Left Hip
Abductor	40	51
Adductor	40	28
Extensors	37.5	42
Seated IR	22.5	24
Seated ER	20.5	22.5

A Functional valgus of the knee bilaterally was noted with the single leg squat. He had poor control of each knee. He was unable to hold the leg loading position longer than 5 seconds on each side. He had difficulty with the side bridge position and was unable to hold longer than 10 seconds.

Intervention

Treatment consisted primarily of strengthening exercises and neuromuscular training for a 10- week period (goal is 12 weeks). He came to the clinic twice a week. His primary mode of strengthening was the use of the Eccentron. The neuromuscular training consisted of perturbation exercises on Shuttle balance, lateral movements on an unstable surface using Dynamic Edge, Shuttle Plyometric device, and strengthening exercises using the Steen pulley system.

Outcomes

Visit 1

Average force of 39 lbs on left and 47 lbs on right

Visit 6

Complaints of soreness have ceased at this point. Improved average force of 105 lbs on left and 107 lbs on right

Visit 11

Improved average force of 154 lbs on left and 149 lbs on right

Visit 14

Improved average force of 329 on left and 269 on right. Was allowed to return to running as long as pain-free.

Visit 15

Had increase soreness at this point with eccentric and running along medial aspect of knee. We changed protocol and reduced resistance, increased speed
Average force on 34 lbs on left and 45 lbs on right pain-free

Visit 19

No pain with eccentric or running and increased average force, although only doing approximately 50% of maximum. His average force was about 150 lbs bilateral

Visit 20

Continues to be pain-free with running and increased submax effort. Average force on left 210 lbs and 196 lbs on right

He is currently at 10 weeks and needs two more weeks to complete the training session. He will return to orthopedist and MRI will be repeated.