



Ease into it. Effects of mobilization with movement utilizing patients body weight

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BACKGROUND & PURPOSE:

Quadriceps tendon rupture (QTR) is a rare condition in which timely repair and rehabilitation are pivotal to successful outcomes. Early surgical repair is warranted in QTR for best outcomes though, delay in diagnosis or surgical intervention has shown to result in fibrosis, atrophy, and ineffective extensor mechanism.

The purpose of this case report is to utilize mobilization with movement (MWM) to restore knee flexion in a patient with delayed quadriceps tendon repair.

CASE DESCRIPTION:

The patient was a 53-year-old male with a history of heavy weight lifting and a physically demanding job that ruptured his left quadriceps tendon with potential of predisposing degenerative changes to the knee extensor mechanism.

A force transducer was used to determine the difference of force production between manual therapy versus MWM performed by the patient. The patient produced over 2x the amount of force utilizing his bodyweight during the same posterior/anterior glide at the tibia.

FORCE TRANSDUCER



METHODS:

The patient received 12 sessions over 4 weeks consisting of modified MWMs techniques and a progressively loading treatment approach.



MWM – body weight as tolerated



MWM – Squats

Standing -Bent knee on plinth (Fig 1)	Average Force (Newtons)
Session 4	129.67 N
Session 5	220 N
Session 6	350.67 N

Manual Force	Trial 1	Trial 2	Trial 3	Average
A/P Tibial Glide	113 N	180 N	167 N	153 N



MWM – Lunges

RESULTS:

After the patient's first session with MWM, range of motion improved by 13 degrees.

Outcome Metrics		Initial Examination	Began MWM	End MWM
Range of Motion (Degrees)	Knee Flexion	35 degrees	70 degrees	110 degrees
	Knee Extension	WNL	WNL	WNL
Accessory Mobility	AP Tibia on Femur	Hypomobile	Moderate Restriction	Minimal Restriction
	PA Tibia on Femur	Normal	Normal	Normal
	Patellofemoral (Sup/Inf/Med/Lat)	Normal	Normal	Normal
Muscle Strength	Knee Flexion	Deferred	2/5	4/5
	Knee extension	Deferred	2/5	4/5
	Straight Leg Raise	2/5	3/5	4/5
Functional Self Report	Lower Extremity Functional Scale	27/80	32/80	51/80
Objective Measures	Timed Up and Go	Deferred	13 seconds	8.98 seconds
	10 Meter Walk Test	Deferred	11 seconds = 0.54m/s	5.82 seconds = 1.03m/s

CONCLUSION:

A modified approach of MWM used in conjunction with conventional therapeutic exercise proved to be successful with this patient. Restoring left knee range of motion, strength, and education on continued strengthening and progression to function after therapy allowed the patient to return to functional activities. Further research is needed to access the efficacy of this modified treatment approach for this patient population.

REFERENCES:

