

TABLE E-1 Distribution of Meniscal Tears*

	No. of Patients			
No. of Tears per Patient	Overall	Study Group	Control Group	No. of Tears
One	147	83	64	147
Two				
Bilateral tear	6	4	2	12
Primary tear plus new injury to same knee	1*	1	1	2
Three	1*	2	1	3
Total	155			164

*Two patients underwent surgical treatment for separate tears over time and were included in both the study group and the control group.

TABLE E-2 Therapy Request Form

DATE OF ORDER: 03/06/2011

THERAPY REQUEST TYPE: PHYSICAL THERAPY

CLINIC LOCATION: PHYSICAL THERAPY ASSOCIATES 555-555-5500

Re: Bob Bogus

Claim #: 01020304

Acct. #: 4141

DOI: 12/12/2010

DOB: 09/27/1961

Diagnosis: 836.0 - Knee Meniscus Medial

Procedure: 29881 - MENISCECTOMY medial or lateral

Date of Surgery: 03/02/2011

Weeks to Full Functionality:

Twelve to sixteen

Treatment Goals: Independent home exercise program with kit, active exercise, strengthen/condition to meet job requirements

Treatment Plan: Restorative Exercise

Frequency: 2 times per week for 3 weeks

Protocol: Knee Protocol 1

This treatment plan has been formulated by the attending physician and has been provided to the injured worker, the claims adjuster, and the therapy clinic. No further visits shall be authorized unless specifically requested by us at the time of the patient's next appointment on 03/25/2011.

Thank you for assisting us in our efforts to restore Mr. Bogus to his fullest capability.

Regards,

Joe Orthopaedist, MD

Joe Orthopaedist, MD

Tax ID:

TABLE E-3 Physical Medicine Treatment Plan

This treatment plan outlines the specific therapeutic methods and treatment goals for the protocol noted below. It is to be implemented by the therapeutic provider. It should serve as a step-by-step guide to the rehabilitation of this injured worker. The therapists should use their own judgment in applying adaptations and modifications consistent with the patient's condition and progress as the treatment plan is implemented.

Significant deviations from the following protocol should not be implemented without consultation with the attending physician whose signature appears at the bottom of this document.

KNEE – Protocol I: Stable injury or postoperative weight-bearing as tolerated.

Treatment Goals

- Short-Term: Full, active range of motion, full weight-bearing normal walking within one to three weeks.
- Long-Term: Training completed in comprehensive independent strengthening and conditioning program.

Anticipated residual pain: 0-2/10 after six to eight weeks.

Anticipated functional capabilities: Full function at eight weeks.

The patient will demonstrate an understanding of treatment objectives and an ability to perform independent exercises at the conclusion of therapy.

The therapist shall inquire and incorporate the teaching of biomechanical principles relevant to the patient's workplace activities.

Specific Treatment Plan – Week One

Range-of-motion exercises, passive and active. Mastery of exercises 1, 2, 3, and 4 from the knee exercise kit.

Stretching to restore joint mobility and balance. Patient will be able to independently perform exercises 5, 6, and 7 and other stretches as necessary.

Strengthening – Patient instructed in independent quad sets, straight leg raises, toe raises, and calf-strengthening exercises 8, 9, 10, 11, and 12.

Increase weight-bearing as tolerated.

Specific Treatment Plan – Week Two

Continue prior range of motion and stretching protocol.

Add strengthening exercises 13, 14, 15, and 16 as tolerated.

Increase weight-bearing as tolerated.

Specific Treatment Plan – Week Three

Monitor the range-of-motion and stretching exercise mastery.

All time to be spent on strengthening using appropriate clinical facilities and instruction in additional exercises 17, 18, 19, and 20 as required.

Increase weight-bearing as tolerated.

Specific Treatment Plan – Week Four

Focus on range-of-motion and stretching exercises only if the goal of full range of motion has not been achieved.

Most of the therapist's time should be spent in gym protocol exercises and instruction in functional exercises 21, 22, 23, 24, and 25.

Fig. E-1

The booklet illustrating the exercises. (Reproduced with permission of Top Shelf Orthopedics, Tracy, California).

FLEXION LEG EXTENSION EXERCISES



TopShelf[™]
Manufacturing, LLC

Caution: This product contains natural rubber latex which may cause allergic reactions in some individuals.

THE **FLEX** KNEE THERAPY KIT

Introduction:

This knee management system is designed to help you regain normal use of your knee.

This booklet contains a variety of simple exercises that will aid in strengthening the muscles surrounding your knee. These exercises, when done consistently and properly, will help you rehabilitate your knee and speed your recovery.

By diligently following this conservative home program, you and your physician can more effectively communicate about your injury and further your road to recovery.

Perform exercises slowly and carefully.

Perform exercises only as directed by your Healthcare Professional.

Consult your Health Care Professional if you experience any unusual pain or an increase in discomfort as a result of performing these exercises.

Exercises are illustrated for the Right leg as the affected leg.

INSTRUCTIONS



- A. - Pillow**
- B. - Weight Bag**
- C. - Door Adapter Strap**
- D. - Ankle Strap**
- E. - Resistive Tubing, 2 colors**
Red = Easiest, Black = Hardest
- F. - "Bulldog" Stretching Strap**
- G. - Squat Tubing**

Pillow

Open valve and inflate as fully as possible. close tightly and reinsert into body of pillow. **Do not use compressor to inflate.**



Weight Bag

Fill each half of the bag (both sides) to the desired weight marking. Each marking indicates the weight for that particular half. For example, filling

both halves to 5 lb mark = 10 total lbs.

For appropriate storage, leave plugs open to allow bag to dry out.

RANGE OF MOTION

1. Wall Slides (best to wear socks)

Start position with leg bent at 90° angle. Lying on the floor, slowly slide the affected leg down the wall by bending your knee as far as possible. Hold for 5-10 seconds, then slowly help raise the affected leg back using the unaffected leg.

2. Passive Knee Flexion

Using the “Bulldog” Stretching Strap, put your foot through the loop and position yourself on your stomach on the floor. Grip the handle with your hand, and gently pull until your knee is flexed to the point of tightness. Hold for 5-10 seconds, then relax.

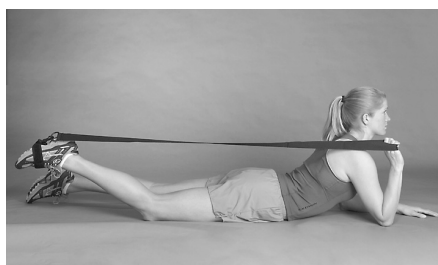
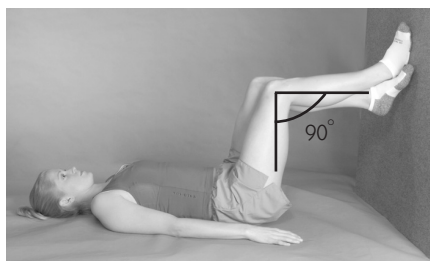
***Refer to attachment instructions on page 18.**

3. Passive Knee Extension

Fill each half of the Weight Bag with water to the desired weight. Sit on the floor with the inflated pillow under your ankle. Place the Weight Bag over your knee. Allow for full extension by relaxing your muscles.

4. Prone Leg Hang

Lie on the floor on stomach with the pillow under your knee to allow your leg to hang freely (This may also be done with having your knee hanging just off the end of the bed). To assist in gaining full extension, the Weight Bag may be hung over you heel.



STRETCHING EXERCISES

5. Calf Stretch

With rear leg straight and heel on the floor, stand against the wall. Lean towards the wall until the calf is tight. Make sure not to bounce. Hold for 10 seconds, then relax.

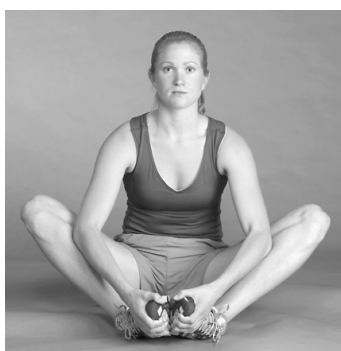
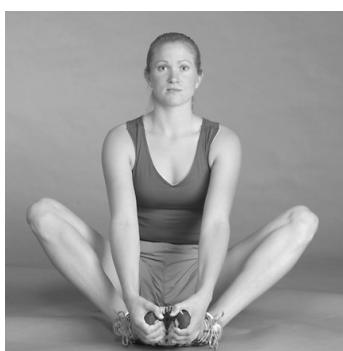
6. Groin Stretch

Sitting on the floor, position your feet together, and firmly push your knees inward against your elbows, hold for 10 seconds, and relax.

7. Hamstring Stretch

Using the “Bulldog” Stretching Strap, put your foot through the loop and grab the other end. Lie on your back and keep your leg straight. Pull the strap until your leg is tight. Hold for 5-10 seconds and relax. Repeat.

***Refer to attachment instructions on page 18.**



STRENGTHENING EXERCISES

8. Quad Set

Sit on the floor with your legs straight out in front of you, keeping your toes pulled back towards you. Tighten your thigh muscle, trying to emphasize the inside part of your quads. Hold for 5-10 seconds, then relax.

9. Straight Leg Raises

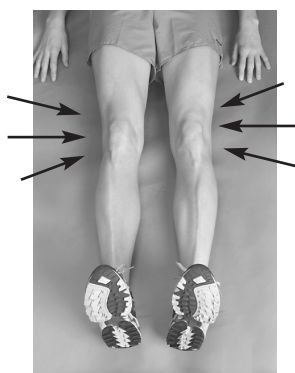
Lie on your back with your unaffected leg bent. Tighten the front thigh muscle of the affected leg as much as possible. Slowly lift the leg as high as the other knee. Bring the leg down slowly and touch the floor.

10. Toe Raises

Stand against the wall and spread your feet shoulder width apart. Raise your toes as high as possible. Hold for 5-10 seconds, then relax.

11. Calf Strengthening

Attach the ankle strap to the desired color resistance tube. Sit on the floor with the ankle strap around your forefoot. Grab the other end of the tube, taking up the slack as necessary. Point your toe away from you while holding the end of the tube.



12. Short Arc Knee Extensions

without Resistance

Lie on the floor with your unaffected knee bent. Place the inflated pillow under your affected knee. Tighten your quad muscles and lift your heel off the ground without lifting your knee off the pillow. Keep your knee straight as possible and hold for 5-10 seconds. Slowly lower your foot down to your heel.

13. Straight Leg Raises with Weight

Fill each half of the Weight Bag with water to the desired weight. Lie on your back with your unaffected leg bent. Place the Weight Bag on your foot with your toes through the hole. Tighten the front thigh muscle of the affected leg as much as possible. Slowly lift your leg as high as the other knee. Relax and bring down slowly, touching your heel to the floor.

14. Short Arc Knee Extensions

with Weight

Fill each half of the Weight Bag with water to the desired weight. Lie on the floor with your unaffected knee bent. Place the inflated pillow under your affected knee. Place the Weight Bag on your foot with your toes through the hole. Tighten your quad muscles and lift your heel off the ground without lifting your knee off the pillow. Keep your knee straight as possible and hold for 5-10 seconds. Slowly lower your foot down to your heel.



STRENGTHENING EXERCISES

15. Resistive Knee Extension

Connect the ankle strap and tubing and attach to your ankle. Sitting in a chair facing **away** from the door, place the pillow under your affected knee. Start with your affected knee bent at 90° , and straighten your leg.

***Refer to attachment instructions on page 18.**

16. Hamstring Strengthening

Connect the ankle strap and tubing and attach to your ankle. Sit in a chair facing **towards** the door. Start with your affected leg straight, then bend your knee to 90° .

***Refer to attachment instructions on page 18.**

17. Hip Flexion

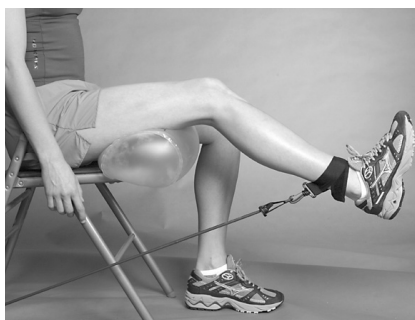
Connect the ankle strap and tubing and attach to your ankle. Stand facing **away** from the door and use a chair to balance yourself. Raise your leg up, making sure to keep it straight. Lower it back to the starting position.

***Refer to attachment instructions on page 18.**

18. Hip Extension

Connect the ankle strap and tubing and attach to your ankle. Stand facing **towards** the door and use a chair to balance yourself. Raise your affected leg backwards, making sure to keep it straight. Lower it back to the starting position.

***Refer to attachment instructions on page 18.**



STRENGTHENING EXERCISES

19. Hip Adduction

Connect the ankle strap and tubing and attach to your ankle. Stand facing **sideways** to the door and use a chair to balance yourself. Pull the affected leg across the other leg, making sure to keep it straight. Lower it back to the starting position.

***Refer to attachment instructions on page 18.**

20. Hip Abduction

Connect the ankle strap and tubing and attach to your ankle. Stand facing **sideways** to the door and use a chair to balance yourself. Pull the affected leg away from the door and your other leg, making sure to keep it straight. Lower it back to the starting position.

***Refer to attachment instructions on page 18.**



FUNCTIONAL EXERCISES

21. Squat to “Knees Cover Toes”

Stand with your feet shoulder width apart. Keeping your feet as straight as possible, bend at your knees until they barely cover your toes when you look down. Make sure to keep your weight mostly on your heels, and your back straight. Return up so your knees are again almost straight, but not “locked”.

22. Squats with Resistance (2 Legs)

Using the squat tubing, place both feet on the foot panel. Hold the handles at your sides until tubing is taut. Squat down to 90°. Hold for a one (1) count and return up.

23. Squats with Resistance (1 Leg)

Using the squat tubing, place one foot on the foot panel. Hold the handles at your sides until tubing is taut. Squat down on one leg to 90° degrees. Hold for a one (1) count and return up.



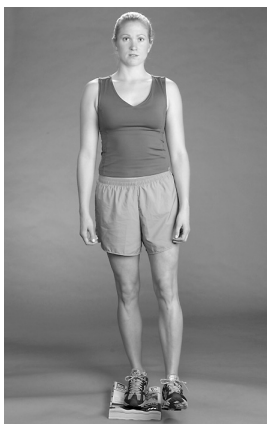
FUNCTIONAL EXERCISES

24. Heel Touchdowns

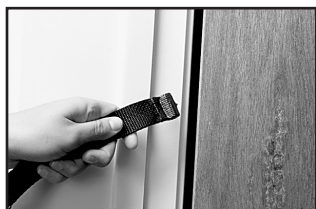
Stand with the affected leg on a phonebook or step, and leave other leg hanging off with toes pointing upward. Bend at the knee and touch the floor with your heel. You may use a chair for balance.

25. Single leg balance

Stand on your affected leg only, and balance for 5-10 seconds.

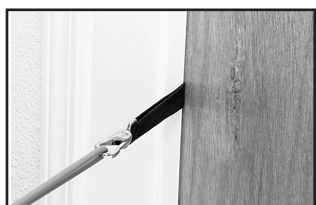


ATTACHMENT INSTRUCTIONS



Door Attachment

Clip the door adapter strap to plastic loop or the appropriate resistive tubing (Red - easiest, black - hardest). Using the adapter strap place between door jamb and door. With the door ajar, push the “knobbed” end of the adapter strap through the opening. Adjust for height.



Completely close door. **Test for security prior to doing any exercises.**

“Bulldog” Stretching Strap to Ankle Strap



When using the “Bull Dog” Stretching Strap, make sure the ankle strap is attached. Clip the ankle strap to the plastic loop on the “Bull Dog” stretching strap. Pull to test for secure fit.



Resistive Tubing to Ankle Strap

Clip the ankle strap to the loop on the resistive tubing. Pull to test for a secure fit.



TopShelf[™]
Manufacturing, LLC

(866) 592-0488