AFPA

AMERICAN FITNESS PROFESSIONALS & ASSOCIATES

Rehab Exercise Handbook For The KNEE

THIS HANDBOOK WAS DESIGNED TO IMPROVE THE ABILITY OF INDIVIDUALS TO ENGAGE IN SELF-DIRECTED EXERCISE AND THERAPY PROGRAMS!

EXERCISE LOG:
A complete guide to follow and record your progress, noting the number of repetitions or sets of each exercise completed. Record any additional notes you may wish to discuss with your therapist or physician.

KNEE EXERCISES:
Level I: Initial Ranging
Level II: Isometric Exercises
Level III: Isotonoic Exercises

INTRODUCTION

This book was designed to improve the ability of individuals to engage in self-directed exercise and therapy programs. Although they can be used in conjunction with a medical physician, physical therapist, personal trainer, or exercise physiologist, they are also adequate for self-study and application. The exercises are illustrated and described in visually appealing detail. They also provide a wide range of stretches and exercises that can be tailored to almost any condition, frequent or rare.

Self-care and rehabilitation are synonymous. Rehabilitation has more medical connotations, but someone does not need a medical condition to begin taking better care of themselves. Many of the conditions seen by physicians can be alleviated or substantially decreased through diligence with a home stretching or exercise program. This is becoming more important as people engage in jobs that overuse only a few muscles, for example, computer operators who maintain static positions of their neck, shoulder and arms for possibly an entire work day. Likewise, weekend warriors—whether they are doing battle on the ball field or the front lawn—frequently suffer from pain generated by strained muscles or ligaments that have been dormant the remaining six days of the week.

As with any exercise program, the input of a physician is necessary if an individual suffers from any type of chronic condition, e.g. heart disease, osteoporosis, diabetes, or chronic obstructive pulmonary disease. This is especially important if someone is just beginning a program after many years of sedentary activity. If there is any type of heart condition, you need to consult a physician before engaging in even the simplest of activities. Never underestimate the damage done by years of neglect or lack of activity.

The goal of this book, as with any approach to human health, is to promote a balance between the external environment and the internal body. Life is an interaction between mind, body and soul, that is shaped and influenced by job, family, and lifestyle. The latter has been sadly influenced to a large degree by television, time restraints, and commodities designed for a fast-paced existence. However, there is no short-cut to health. The good news is that very little time is required to maintain long term and cumulative gains. All that is needed is dedication, encouragement and the realization that everything that is done, no matter how minimal an effort, can add up to years of energy, relaxation, and improved health. I hope this book can contribute in some way to that path and outcome.

KNEE

STRETCHING & STRENGTHENING EXERCISE PROGRAMS

LEVEL I:
INITIAL RANGING

The first phase of treatment involves range-of-motion stretches in which the leg is progressively straightened. The goal is to maintain as much range of motion as possible during the initial stages of healing so that muscle spasms are gently dissipated and contractures do not develop. Full extension is only possible if there is no fluid collection within the knee. Any persistent swelling needs to be evaluated by the therapist or physician as it may require draining. This phase of rehabilitation should cause some discomfort that may be felt the next day. If you are still in pain the third day, you have done too much. It is sometimes helpful to use cold packs before and during extension stretching—ask the therapist for guidance.

BREATHING

Breathing is a natural pattern that can be utilized to provide additional comfort during the exercise program. Learning to breathe deeply and slowly helps you relax during exercises and stretches. Following is a script to help you breathe more appropriately.

"Begin by first noticing your breathing pattern before you start your program. Take in a deep breath, relax, and exhale all the air you possibly can. Do not force yourself to over-breathe on your inhaled breaths, but do try to empty your lungs as much as possible when you exhale. Do this in a rhythmic pattern before, during, and after either stretching or strengthening. This pattern of breathing will soon become more natural and you will find that it not only helps you deal with any discomfort that is part of your exercise program, but can also be used as a relaxation aid during the day, before sleep, or in periods of high stress."

Knee Exercise 1

Figure 1. ***Extension and flexion stretching.*** This stretch is performed ideally while sitting on the edge of a table so that your legs can dangle over the side. If you do not have a sufficiently strong table then try to use as high a chair as possible. If you cannot use your uninvolved leg to move your injured leg you will need someone to duplicate this motion. Have them kneel in front of you and slowly move your injured leg by grabbing it at the ankle. If there is no one to help you, this stretch can be duplicated using a rocking chair by gently and slowly rocking forward and backward. Starting with your injured leg at different distances from the rocking chair can accentuate the stretching. Both stretches begin with your legs hanging in a neutral position.

Figure A

*PERFORM THIS EXERCISE FOR:*____ Sets
____ Times per day
____ Days per week

EXERCISE LOG:

Record your progress in the log below, noting the number of repetitions or sets of each exercise completed. Record any additional notes you may wish to discuss with the therapist or physician.

EXERCISE - 1	DATE	DATE	DATE	DATE	DATE	DATE	DATE

Notes:

Knee Exercise 1

Cross your legs at the ankle with your injured leg **on top** of your uninjured leg. Use your uninvolved leg to slowly raise the injured leg. Do not use any muscles of the injured leg. All the lifting power must come from the uninjured leg. Raise your injured leg as high as possible, hold this position for five seconds, and then slowly lower your leg, again using the uninjured leg to bear all the weight.

Recross your legs so that your injured leg is **underneath** your uninjured leg. Use your uninjured leg to bend or pull your injured leg back under the table as far as possible. Hold this position for five seconds and then slowly allow your uninjured leg to swing back to neutral.

*PERFORM THIS EXERCISE FOR:*____ Sets
_____ Times per day
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EXERCISE - 1B	DATE	DATE	DATE	DATE	DATE	DATE	DATE

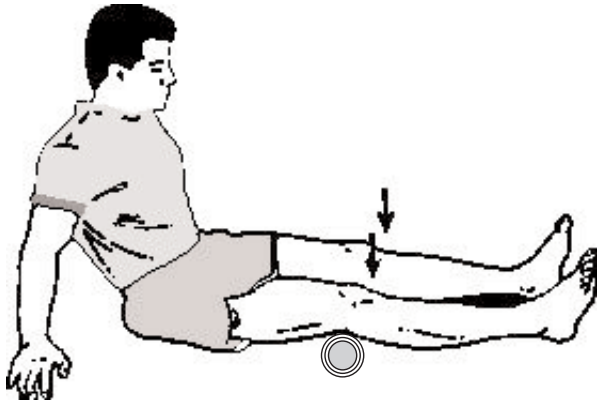
Notes:

LEVEL II: ISOMETRIC EXERCISES

Graded isometric exercises are begun only when the knee can be fully extended. In isometric exercises the muscle does not shorten but it still develops a forceful contraction. Three groups of muscles will be isometrically strengthened in this phase of your program: the quadriceps, hamstrings, and hip adductors.

Knee Exercise 2

Figure 2. ***Quadriceps isometrics.*** Sit on the floor with your legs outstretched. Place a small towel roll under the knee of your injured leg. This should be small enough to raise it only 1-2 inches. Tighten the muscles on the top of your thigh, pulling your kneecap up towards your hip and trying to push your knee into the floor. You should also feel the back of your knee press against the rolled towel. Hold this position for at least 5 seconds.



*PERFORM THIS EXERCISE FOR:*____ Sets
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EXERCISE LOG:

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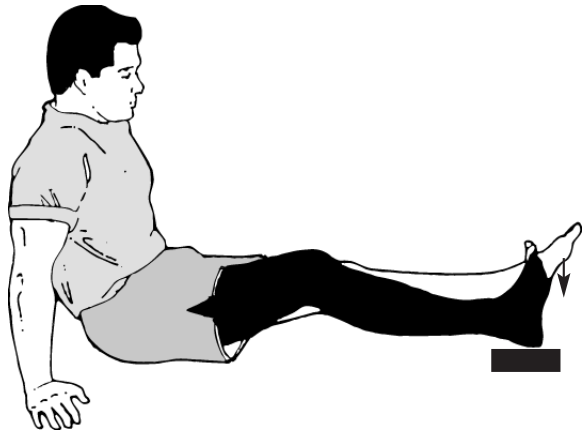
EXERCISE - 2	DATE	DATE	DATE	DATE	DATE	DATE	DATE

Notes:

Knee Exercise 3

Figure 3. ***Hamstring isometrics.*** Sit on the floor with your legs outstretched. Place a flat towel under the heel of your injured leg. This should be small enough to raise it only 1-2 inches. Slightly bend the knee of your injured leg. Attempt to dig the back of your heel onto the floor, pushing down the towel. Hold this position for at least 5 seconds.



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EXERCISE - 3	DATE	DATE	DATE	DATE	DATE	DATE	DATE

Notes:

Knee Exercise 4

Figure 4. ***Hip adductor isometrics.*** Sit on a chair with a pillow or folded towel between your knees. Squeeze your knees together. Hold the point of maximal squeeze for at least 5 seconds.

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EXERCISE - 4	DATE	DATE	DATE	DATE	DATE	DATE	DATE

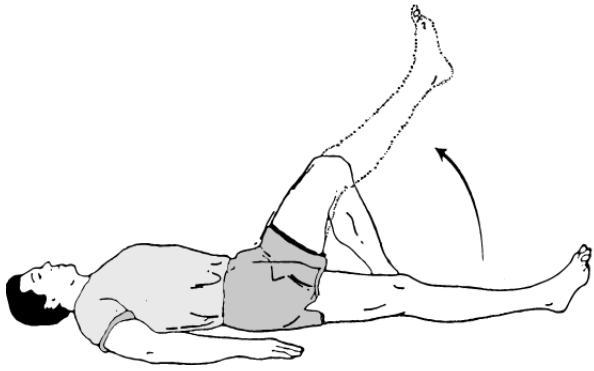
Notes:

LEVEL III: ISOTONIC EXERCISES

These exercises involve muscle shortening and are termed isotonic exercises. At first, the only amount of force generated is that used to move the body part. Later, the therapist may recommend ankle weights to increase the resistance and further strengthen the muscles.

Knee Exercise 5

Figure 5. ***Quadriceps strengthening.*** Lie on the floor with your injured leg straight. Keep the opposite leg bent at the knee with your foot firmly placed on the floor. Tighten your quadriceps muscle and slowly lift up your injured leg. You need to keep the leg straight. Do not let it bend at the knee. Try and bring the injured leg up so that its kneecap is at the same level as your other knee. You should try to take 5 seconds to bring the injured leg up, hold it at this position for 5 seconds, and then take 5 seconds to lower it back to the floor.



*PERFORM THIS EXERCISE FOR:*____ Sets
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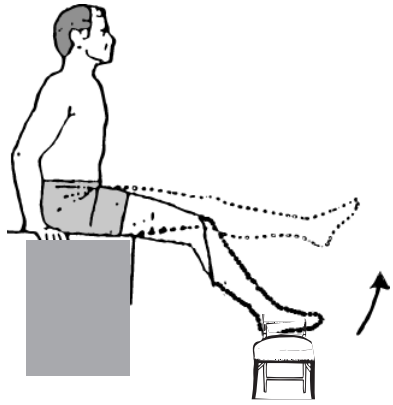
EXERCISE - 5	DATE	DATE	DATE	DATE	DATE	DATE	DATE

Notes:

Knee Exercise 6

Figure 6. ***Quadriceps strengthening in terminal extension.*** This exercise strengthens the quadriceps in its last stages of contraction. Sit on a table with your injured leg supported by a stool so that it is bent approximately half-way at the knee, as shown in the illustration. Take 5 seconds to lift your injured leg up from the stool until it is completely straight and hold it in this position for 5 seconds, then slowly lower it back to the stool over a period of 5 seconds.



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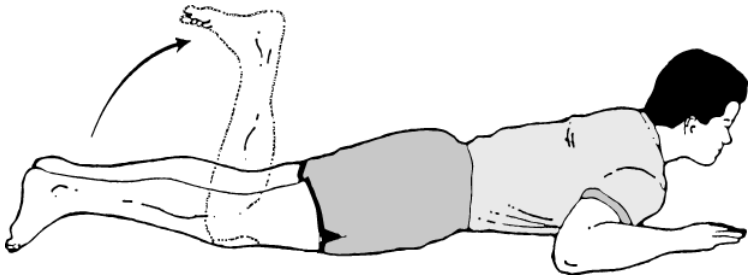
EXERCISE - 6	DATE	DATE	DATE	DATE	DATE	DATE	DATE

Notes:

Knee Exercise 7

Figure 7. ***Hamstrings strengthening.*** Lie on your stomach. Bend your injured leg up as far as you can. You should try to take 5 seconds to bring the injured leg up, hold it at this position for 5 seconds, and then take 5 seconds to lower it back to the floor.



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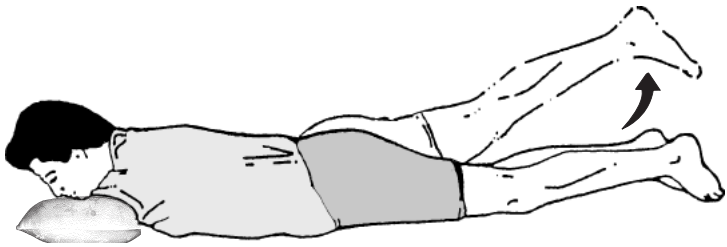
EXERCISE - 7	DATE	DATE	DATE	DATE	DATE	DATE	DATE

Notes:

Knee Exercise 8

Figure 8. ***Back extensor strengthening.*** Remain on the floor after performing the previous hamstring strengthening exercise. Place your hands under your pelvic bones and raise your injured leg, keeping the knee straight. When you begin to feel your pelvic bone start to move away from your hand, stop raising your leg and hold it in this position for at least 5 seconds. Then lower your leg to the floor over a period of 5 seconds.



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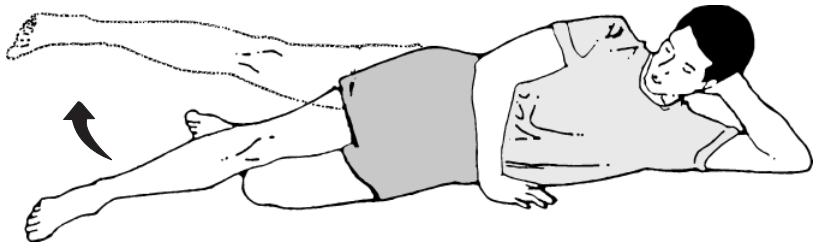
EXERCISE - 8	DATE	DATE	DATE	DATE	DATE	DATE	DATE

Notes:

Knee Exercise 9

Figure 9. ***Abductor strengthening.*** Lie on the floor on your uninjured leg and bend this leg so that your foot is behind you. Keeping your injured leg straight, slowly raise this leg over 5 seconds to the approximate height shown in the illustration, always keeping it in line with your body. Hold it at this height for 5 seconds and then lower it back to the floor over a period of 5 seconds.



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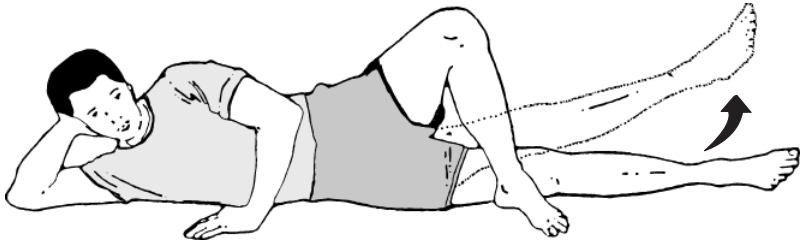
EXERCISE - 9	DATE	DATE	DATE	DATE	DATE	DATE	DATE

Notes:

Knee Exercise 10

Figure 10. ***Adductor strengthening.*** Lie on the floor on the side of your injured leg. Take your uninjured leg and bend it at the knee so that you can put this foot in front of your injured knee. Shift your position to be able to raise your injured leg without hitting your other leg. Keeping your injured leg straight, slowly raise this leg over a period of 5 seconds to the approximate height shown in the illustration, hold it in this position for 5 seconds, and then slowly lower it back to the floor.



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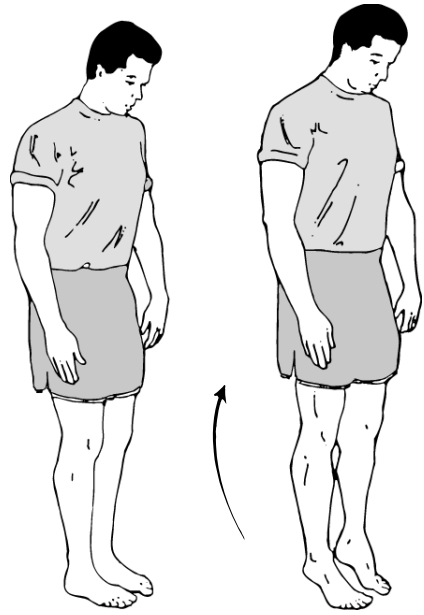
EXERCISE - 10	DATE	DATE	DATE	DATE	DATE	DATE	DATE

Notes:

Knee Exercise 11

Figure 11. ***Toe-heel raises.*** Rise up on your toes over a period of 5 seconds, stay up on your tiptoes for 5 seconds, and then slowly lower yourself over a period of 5 seconds. It is a good idea to do this standing in a corner facing out, so that if you lose your balance you can either lean back or to the side for support.



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EXERCISE - 11	DATE	DATE	DATE	DATE	DATE	DATE	DATE

Notes:

Knee Exercise 12

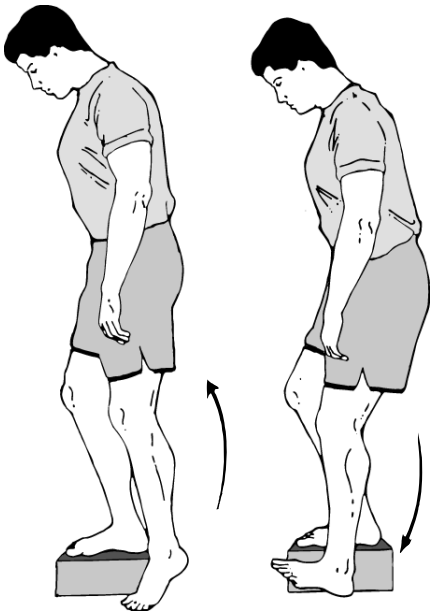

Figure 12. ***Side step-ups.*** Stand sideways with your injured foot on a block. You may also use a step or curb. Lift yourself up by pushing up with the toes and foot of your uninjured leg and transfer your body weight to your injured leg. Step down by first slowly touching the heel of your uninvolved foot to the floor.

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EXERCISE - 12	DATE	DATE	DATE	DATE	DATE	DATE	DATE

Notes:

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