

Outpatient Total Knee Arthroplasty Rehabilitation

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Total Knee Rehabilitation Manual Therapy Approach

Typical activity recommendations by for knee and hip total joint replacement patients, as approved by total joint replacement surgeons:

ALLOWED	ALLOWED WITH EXPERIENCE	NO CONSENSUS	NOT RECOMMENDED
Stationary cycling	Aerobics	Squash/racquetball	Jogging
Road cycling	Yoga/Pilates	Single tennis	Basketball
Golf	Ice skating	Weight machines	Football
Swimming	Cross-country skiing	Roller skating	Soccer
Normal walking	Stationary skiing	Weight lifting	Volleyball
Speed walking	Doubles tennis	Baseball	*some of these activities will
Hiking	Horseback riding	Gymnastics	need to be discussed on a one-on-
Canoeing	Rowing	Handball	one basis with your surgeon
Square dancing	Treadmill/elliptical	Hockey	before participation. Some
Ballroom dancing		Rock climbing	exercises may vary for hip vs.
Bowling		Fencing	knee replacement.
Shuffleboard			

Total Knee Rehabilitation Manual Therapy Approach

Typical knee joint loads to our normal or replaced knee joint during exercise:

ACTIVITY	FORCE ON YOUR KNEE	FORCE ON YOUR KNEE JOINT IF YOU WEIGH 150 LBS	FORCE ON YOUR KNEE IF YOU WEIGH 200 LBS
Walking-regular pace	2.8 times your body weight	420 pounds	560 pounds
Walking – fast pace	4.3 times your body weight	645 pounds	860 pounds
Fast downhill walking	8 times your body weight	1200 pounds	1600 pounds
Fast downhill walking using ski poles	6.4 times your body weight	960 pounds	1280 pounds
Cycling*	1.2 times your body weight	180 pounds	240 pounds
Running (7 mph)	6 times your body weight	900 pounds	1200 pounds
Downhill skiing medium slopes	10 times your body weight if you are a beginner 3.5 times your body weight if you are skilled	1500 pounds 525 pounds	2000 pounds 700 pounds

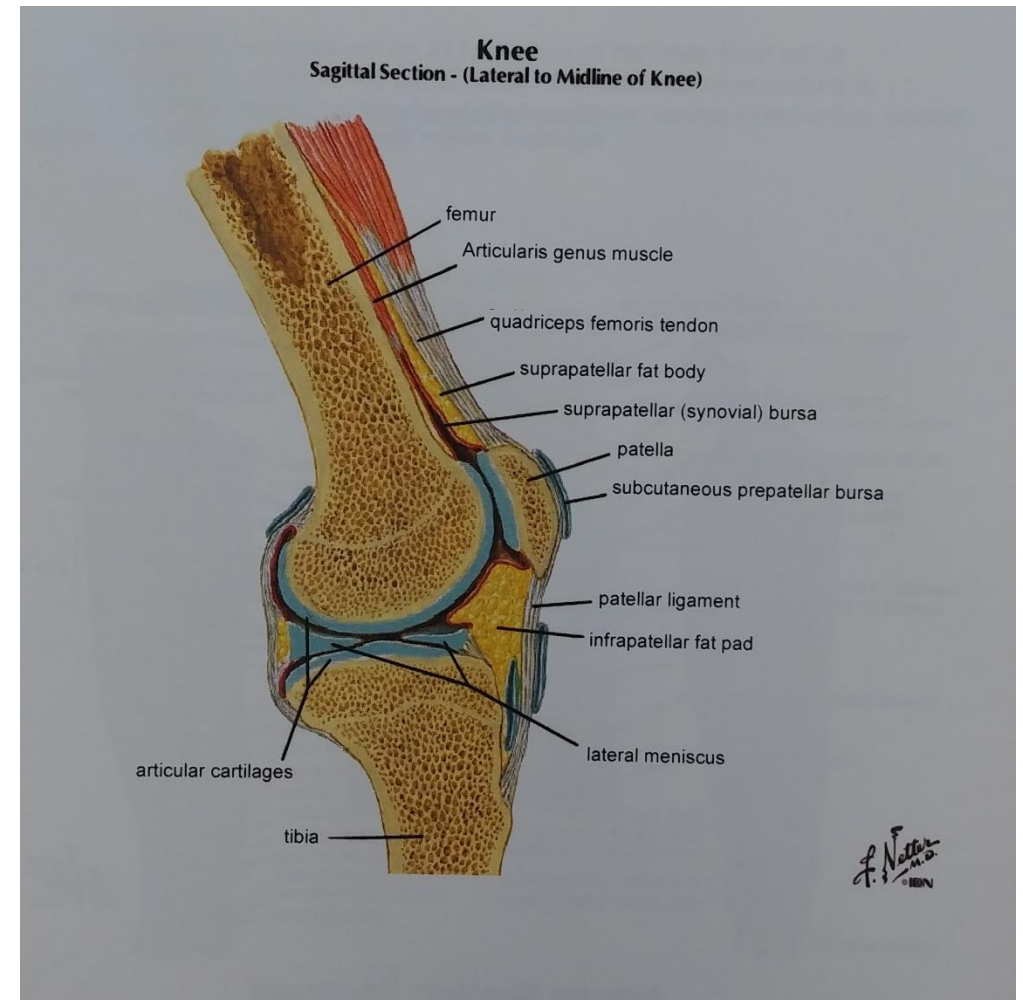
Cycling – increasing the resistance increases the force on your knee joint. Increasing the speed results in little to no change in the force on your knee joint. Raising the seat height on your bike will decrease the force on your knee.

Total Knee Rehabilitation Manual Therapy Approach

- Anterior Structures

Evaluate and Manual Interventions

- a. Escar
- b. Patellar Tendon and Infrapatellar Fat Pad
- c. Articularis Genus Muscle
- d. Patellar glides mobility medial/lateral, inferior/superior



Total Knee Rehabilitation Manual Therapy Approach

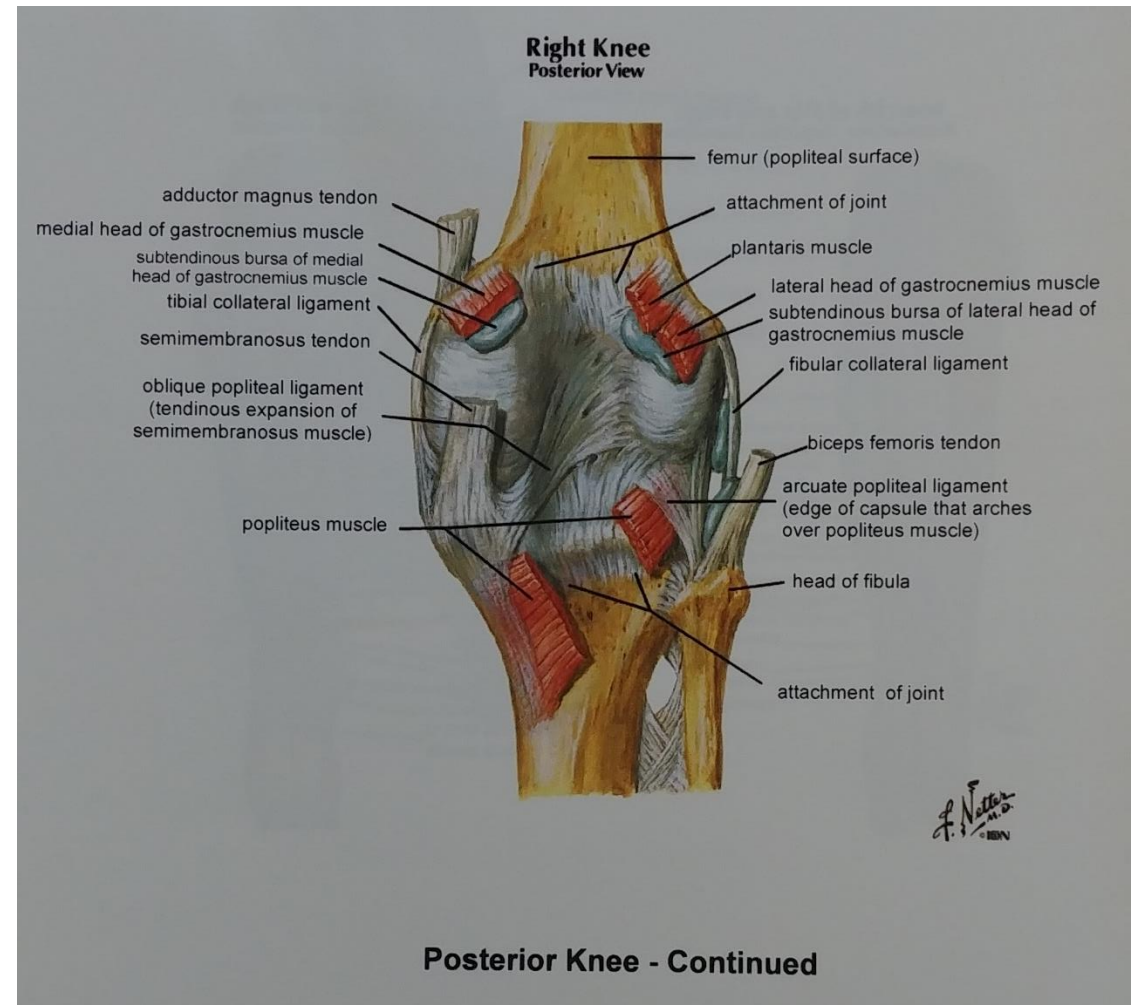
- Posterior Structures

Evaluate and Manual Intervention

a. Popliteus Muscle

b. Distal Hamstrings

c. Gastrocnemius Muscle Heads



Total Knee Rehabilitation Manual Therapy Approach

- Joint Kinematics: Anterior/ Posterior glides
- Muscle Energy/ Contract Relax/ with Sustained over pressure stretch
 - a. Distal- Soleus. Gastroc. (medial/lateral head)
 - b. Hamstring
 - c. Quad
 - d. Quad/ Gastroc (Co Contraction/ Facilitation)

Outpatient Total Knee Arthroplasty Rehabilitation

- **1-4 weeks prior to surgical date:**
 - a. Physical therapy appointment at East Lake or Cedar Lake rehabilitation for instructions in the following
 - i. Proper use of crutches or walker; walker preferred for patient's over 55 years of age
 - ii. Basic knee exercises for quadriceps, hamstrings, and gastroc-soleus with exercise schedule and documentation calendar
 - iii. Proper use of a recumbent stationary bicycle with gradually increasing duration
 - iv. Proper stretching exercises into extension will be taught by the therapist. You must use your quadriceps muscle to make this exercise effective. This is extremely important in order to prevent a flexion contracture postoperatively.
 - v. Completion of the functional status baseline assessment form.
- **Starting 4 weeks prior surgery:** daily use of a recumbent exercise bike at a minimum of 5 min. per day. I would not recommend going over 15 min. per day as this may inflame your knee.
- **Date of surgical procedure:** Physical therapist or nurse at outpatient surgical facility will ambulate prior to discharge. Unless otherwise indicated you may weight-bear to tolerance but you must use your walker or crutches at all times until cleared by physical therapy was commonly 2-3 weeks.
- **Day following surgery:** You will be assessed by the physical therapist who will evaluate your dressing, go over your ice machine, make sure your stockings are worn appropriately and that you are doing appropriate DVT prophylactic foot exercises, help you with appropriate knee exercises, and insure you can ambulate safely with your crutches or walker. Knee exercises into extension will be checked and stressed. Depending on your condition the therapist may return the following day or you may be given clearance to proceed independently with your exercise program as you have been instructed.

Outpatient Total Knee Arthroplasty Rehabilitation

- **Week 1; postoperative day 1 through 7**
 - a. **Daily exercises** of the quadriceps, hamstrings, and gastroc-soleus muscles as you have been instructed by the physical therapist with documentation on your exercise calendar.
 - b. **Daily use of your recumbent stationary bicycle.** Initially in the first day after going home you may be able to only go back and forth and not go all the way around on the pedals. This is okay; do this at least 2 minutes, 4 times the first day after surgery. As soon as you can make a full rotation on the pedals you should start making the full rotation for 2-3 minutes, 4 times a day. After several days you will be able to gradually increase your exercise time. By 1 week after surgery you should be making full rotation at least 3-5 minutes, 3-4 times per day.
 - c. **Walking daily** is strongly recommended and weight bearing to tolerance is strongly recommended. Initially this should be done for short duration multiple times a day. As you progress in healing your walking distance should gradually increase.
 - d. **Stretching exercise into extension;** these should be done on a Styrofoam roll with you completely supine. It is done by contracting your quadriceps which pushes your knee toward the floor into full extension. This is extremely important to prevent flexion contracture. It should be done 4 times a day for 5 min.
- **7 days after surgery:** You should have an in office visit with the physical therapist on that day. Every other staple should be removed if staples are present. You should be given an assessment of your progress and plans for the next 7 days of therapy with plans for increased exercise instructions.
- **9–11 days after surgery:** You should have a visit with the doctor or his nurse or physician extender (NP or PA) to remove the remaining staples or if no staples are present for an assessment of your progress.

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- **Week two; postoperative day 8 through 14:** You should continue your exercises as updated by your recent physical therapy visit and document your efforts on your exercise calendar. Continued use of the recumbent bicycle, daily walking, and stretching exercises gently into extension are mandatory and should be documented on your exercise calendar.
- **14 days after surgery:** You should have an in office visit with the physical therapist on that day. You should be given an assessment of your progress and plans for the next 7 days of therapy with plans for increased exercise instructions.
- **Week 3; postoperative day 15 through 21:** You should continue your exercises as updated by your recent physical therapy visit and document your efforts on your exercise calendar. Continued use of the recumbent bicycle, daily walking, and stretching exercises gently into extension are mandatory and should be documented on your exercise calendar.
- **21 days after surgery:** You should have an in office visit with the physical therapist on that day. You should be given an assessment of your progress and plans for the next 7 days of therapy with plans for increased exercise instructions.
- **Week 4; postoperative day 22 through 28:** You should continue your exercises as updated by your recent physical therapy visit and document your efforts on your exercise calendar. Continued use of the recumbent bicycle, daily walking, and stretching exercises gently into extension are mandatory and should be documented on your exercise calendar.
- **28 days after surgery:** You should have your last therapy visit and assessment by your physical therapist it. If you are not making the expected progress he will provide additional instructions and therapy recommendations.