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TOTAL KNEE ARTHROPLASTY
REHABILITATION GUIDELINES

General Treatment Strategies

- Muscle strengthening of the entire operative extremity with emphasis on knee extensor and flexor muscle groups.
- Attention should also be directed toward any weakness present in the operative extremity as well as any generalized weakness in the upper extremities, trunk or contralateral lower extremity.
- Proprioceptive training to improve body/spatial awareness of the operative extremity in functional activities.
- Endurance training to increase cardiovascular fitness.
- Functional training to promote independence in activities of daily living and mobility.
- Gait training: Assistive devices are discontinued when the patient demonstrates adequate lower extremity strength and balance during functional activities (usually 1-4 weeks)
- Decrease inflammation/swelling
- Scar mobilization, Patella-femoral and tibial-femoral joint mobilization as indicated.

Outpatient Physical Therapy – Start at 1 week post-op (Week 1-6)

ROM GOAL:	Achieve knee active/passive range of motion (PROM/AROM) to >/= 0-110 degrees. Emphasize full extension and maximum flexion.
Therapeutic Exercises :	• AA/A/PROM, stretching for flexion (>90 degrees) and extension • Stationary Bicycle for ROM, begin with partial revolutions then progress as tolerated to full revolutions (light resistance). • Continue isometric quad sets, glut sets • Supine heel slides and seated short arc quad (SAQ), Long Arc Quad (LAQ) • SLR in 4 planes (flexion, abduction, adduction, extension) • Neuromuscular electrical stimulation (NMES) for quads if poor quad contraction is present. • Gait training to improve function and quality of involved limb performance during swing through and stance phase. Patients are encouraged to wean off their assistive device at the latest by the end of second week from surgery. • Postural cues/ reeducation during all functional activities as indicated. • Start age-appropriate balance and proprioception exercises • PRE's for lower extremity strengthening: knee extension, knee flexion, leg press, ¼ squats, heel raises, standing terminal extension with tubing, etc. • Initiate eccentric work in open and closed chain.

Intermediate phase (week 7-12):

Goals:	• Maximize post-operative ROM (0-115 degrees plus) • Good patella femoral mobility. • Good strength all lower extremity musculature. • Return to most functional activities and begin light recreational activities (i.e.walking, pool program)
Therapeutic Exercises:	• Continue exercises listed in Phase II with progression including resistance and repetitions. It is recommended to assess hip/knee and trunk stability at this time and provide patients with open/closed chain activities that are appropriate for each patient's individual needs. • Continue patella femoral and tibial femoral joint mobilization as indicated. • Initiate endurance program, walking and/or pool. • Progress age-appropriate balance and proprioception exercises. • Discontinue NMES of quads when appropriate quad activity is present.
Criteria for progression to next phase:	• AROM without pain, or plateaued AROM based on preoperative ROM status. • 4+/5 muscular performance based on MMT of all lower extremity musculature. • Minimal to no pain or swelling.

Advanced strengthening and higher level function stage (week 12-16):

Goals:	• Return to appropriate recreational sports / activities as indicated • Enhance strength, endurance and proprioception as needed for activities of daily living and recreational activities
Therapeutic Exercises:	• Continue previous exercises with progression of resistance and repetitions. • Increased duration of endurance activities. • Initiate return to specific recreational activity: golf, doubles tennis, skiing, progressive walking, hiking or biking program.

Goals for Discharge:

(These are general guidelines as patients may progress differently depending on previous level of function and individual goals.)

- Non-antalgic, independent gait
- Independent step over step ascending and descending stairs
- Pain-free AROM
- At least 4+/5 muscular performance based on MMT of all lower extremity musculature.
- Normal, age appropriate balance and proprioception.
- Patient is independent with home exercise program