

Total Knee Arthroplasty Rehabilitation Guidelines

These rehabilitation guidelines are guidelines only and progression through them should be guided by the patient's symptoms and functional ability and/or any specific consultant requirements. All exercises should be performed within the patient's tolerance level.

Phase 1 [0-2 weeks]	
Goals	<ul style="list-style-type: none"> - ROM 0-90+ (aim to increase ROM since post op discharge) - Straight leg raise with minimal quadriceps lag - Safe and independent transfers - Independent with assistive aid - Pain and swelling well controlled - Safe and independent on stairs as per post op instruction
Treatment	<ul style="list-style-type: none"> - Continue pain and swelling management [1] - Gait training to increase weight-bearing and improve mobility with aid [2,4,5,12] - AAROM flexion, extension [2,3,4,5,11,12] - AROM flexion, extension [2,3,4,5,11,12] - Quadriceps activation [2,3,5,12] - Electrical stimulation (NMES) for patients with poor quadriceps recruitment [8]
Precautions	<ul style="list-style-type: none"> - Pre-operative status- a pre-operative reduction in ROM may determine ROM that can be achieved post op - Keep incision strain at a minimum. Watch blanching strain to monitor this - Watch incision for signs of separation and/or infection - Pain should not persist after rehab visits for more than 24hrs and should be within patient's tolerance
Progressions	Improvement in ROM, quadriceps control, muscle function and gait over first two weeks

Phase 2 [2-6 weeks]	
Goals	<ul style="list-style-type: none"> - ROM 0-110+ - Straight leg raise without lag - Safe and independent transfers - Mobilising unaided at home and independent with assistive aid as needed outdoors - Pain and swelling decreased though not fully resolved - Safe and independent on stairs as per post op instruction - Improve balance and proprioception, strength and endurance
Treatment	<ul style="list-style-type: none"> - Short arc quadriceps (knee extension with towel under knee) [2,3,5,12] - Hamstrings isometric and concentric/eccentric exercises [2,3,5,12] - Functional strengthening exercises incorporating kinetic chain (heel raises, sit to stand, mini squat, step up, step down) [2,4,5,12] - Aggressive extension and flexion ROM exercises (open and closed chain) [2,11,12] - Manual therapy as indicated (patellar mobilisations, PROM, scar massage) [12] - Balance and proprioception exercises [6,7,12]
Precautions	<ul style="list-style-type: none"> - Monitor wound healing - Pain should not persist after rehab visits for more than 24hrs and should be within patients tolerance
Progressions	Continuing improvement in ROM, quadriceps and lower limb strength, gait and load tolerance

Phase 3 [6 weeks+]	
Goals	<ul style="list-style-type: none"> - Maximise Knee ROM - Maximise lower limb strength - Normal gait pattern without assistive device - Stairs with reciprocal pattern - Able to negotiate floor to stand with assistance - Graduated return to work depending on profession - Graduated return to individual activities - Independent with ADL's
Treatment	<ul style="list-style-type: none"> - Continue with functional strengthening exercises incorporating kinetic chain (open/closed chain, unilateral/bilateral, increasing resistance with theraband/weights, hip/knee/ankle) [2,3,4,5] - Progress gait re-education without mobility aid - Stairs practice with reciprocal pattern (this should be avoided if pain or deviations persist) [4,5] - Floor to stand practice - Hydrotherapy to reduce pain/swelling, improve ROM and strength and increase exercise endurance [9,10,12] - Stationary bike to increase cardio-vascular fitness and ROM [12] - Lateral and multidirectional movements during strengthening - Optimising recruitment of use of operated leg during functional tasks [2,4,5] - Lifestyle advice e.g. weight management and maintenance exercise programme - Recreational activity re-training and advice
Precautions	<ul style="list-style-type: none"> - Monitor wound healing - Pain should not persist after rehab visits for more than 24hrs and should be within patients tolerance
Activity Timelines	<p>Red Alert (not allowed): running, jogging, contact sports, jumping sport, high impact aerobics</p> <p>Orange Alert (should be avoided): vigorous walking/hiking, singles tennis, repetitive aerobic step climbing, repetitive lifts of greater than 25kg</p> <p>Green Alert (gradual return after 6-8 weeks): driving, recreational walking, light hiking, swimming (front and back crawl advised), recreational cycling, golf, ballroom dancing, sexual activity within comfortable limits</p> <p><i>* Activity timelines are both patient and consultant dependent. Patients should consult their surgeon before partaking in more strenuous activities.</i></p>

* The patient is fit for discharge upon achieving all the goals and functional outcomes of the phase.

References

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