The following unicompartmental knee arthroplasty guidelines were developed by HSS Rehabilitation. Progression is both criteria-based and patient specific. Phases and time frames are designed to give the clinician a general sense of progression. Following unicompartmental knee arthroplasty, progression through the phases is typically more rapid than following total knee arthroplasty. Progression should not be prioritized over pain and edema control. The rehabilitation program emphasizes early, controlled motion to prevent knee stiffness and to avoid disuse atrophy of musculature. The program should balance the aspects of tissue healing and appropriate interventions to maximize flexibility, strength, and pain-free performance of functional activities.

Follow physician modifications as prescribed.
UNICOMPARTMENTAL KNEE ARTHROPLASTY POST-OPERATIVE GUIDELINES

Pre-Operative Phase

PRECAUTIONS
- Avoid prolonged sitting, standing, and walking if painful
- Avoid severe pain with walking, ROM and strengthening exercises
- Modify or minimize activities that increase pain

ASSESSMENT
- Lower Extremity Functional Scale (LEFS)
- Knee disability and Osteoarthritis Outcome Survey, Junior (KOOS JR)
- Pain
- AROM/ROM
- Single leg stance (SLS)

TREATMENT RECOMMENDATIONS
- ROM/Flexibility of lower extremity
- Lower extremity strengthening
- Core strengthening
- Balance training
- Independent with home exercise program that addresses primary impairments
- Familiarize with post-operative plan of care, mobility and unicompartmental knee microsite

CRITERIA FOR ADVANCEMENT
- ROM/Flexibility of lower extremity
- Lower extremity strengthening
- Core strengthening
- Balance training
- Independent with home exercise program that addresses primary impairments
- Familiarize with post-operative plan of care, mobility and unicompartmental knee microsite

EMPHASIZE
- Familiarize with post-operative plan of care
- Familiarize with HSS Rehabilitation microsite if available
UNICOMPARTIMENTAL KNEE ARTHROPLASTY POST-OPERATIVE GUIDELINES
Acute Care Phase (Week 1)

PRECAUTIONS
• Avoid prolonged sitting, standing, and walking
• Avoid severe pain with strengthening and ROM exercises
• Do not put a pillow under the knee – keep extended when resting
• Some surgeons may initially limit knee flexion to 90° for the first week

ASSESSMENT
• Mental status
• Pain
• Wound status
• Swelling
• AROM/PROM of knee
• Post-anesthesia sensory motor screening
• Functional status

TREATMENT RECOMMENDATIONS
• Transfer training: in and out of bed and sit to stand (chair, toilet)
• Gait training with appropriate device on level surfaces and stairs
• ADL training
• Cryotherapy
• Elevation of lower extremity to prevent swelling
• Promotion of knee extension activities
• Therapeutic exercise with focus on A/AAROM, active quadriceps contraction, and muscle pumping, e.g. ankle pumps
• Initiate and emphasize importance of home exercise program

CRITERIA FOR ADVANCEMENT
• Active flexion ~80° in sitting and extension < 10 ° in supine
• Good pain control
• Ambulates safely with cane or appropriate assistive device on level surfaces and negotiates stairs safely
• Independent with transfers
• Independent with home exercise program
• Discharge home within 0-2 days when goals have been achieved and with MD clearance
EMPHASIZE

- Control swelling
- Independent transfers
- Gait training
- A/AAROM (emphasize extension)
UNICOMPARTIMENTAL KNEE ARTHROPLASTY POST-OPERATIVE GUIDELINES

Post-Operative Phase 1 (Weeks 2-5)

PRECAUTIONS

- If ROM plateaus with hard end feel – contact MD
- Use appropriate assistive device if gait deviation is present during ambulation
- Limit volume of activities that increase pain or swelling
- Avoid prolonged sitting
- Avoid severe pain with therapeutic exercise and functional activities
- Avoid reciprocal stair negotiation until strength and control of the operated limb is restored

ASSESSMENT

- LEFS
- KOOS JR
- Pain
- AROM/PROM
- Strength - MMT
- SLS
- Timed Up and Go (TUG)

TREATMENT RECOMMENDATIONS

- ROM/Stretching: Passive extension exercises, stretching of appropriate muscle groups, knee flexion/extension exercises
- Strengthening: SLR in all planes (when TKE is achieved); prioritize quadriceps, hip, hamstring strength
- Endurance: Cycle ergometry: Short crank if > 90°, Normal crank if > 110° ROM at the knee
- Modalities
  - Cryotherapy/elevation/modalities may be used to help control swelling and pain
  - Electrical stimulation or biofeedback may be used for quadriceps reeducation
- Patella mobilization when incision is stable
- Forward step up and step-down progression starting at 4”
- Balance training progression from bilateral to unilateral
- Gait training with/without cane with emphasis on active knee flexion and extension, heel strike, reciprocal pattern, symmetrical weight bearing
- ADL training to continue such as sit to stand, in/out of tub/shower, car transfer
MINIMUM CRITERIA FOR ADVANCEMENT

- AROM > 110° of knee flexion, 0° of extension
- No quadriceps lag
- Ambulate on level surface with/without assistive device with normal gait pattern
- Ascend 4”-8” steps with good control
- Sit to stand transfers independent with even weight bearing through bilateral lower extremities
- Independent with ADL
- Independent with home exercise program

EMPHASIZE

- Decrease swelling
- Increase flexibility
- Active quadriceps contraction
- Gently restore strength
- Normalize gait
- Stair negotiation
UNICOMPARTMENTAL KNEE ARTHROPLASTY POST-OPERATIVE GUIDELINES
Post-Operative Phase 2 (Weeks 6-11)

PRECAUTIONS
- Avoid reciprocal stair negotiation if severe pain or gait deviation present
- Avoid high impact activities such as running, jumping, plyometric activity and vibration platforms

ASSESSMENT
- LEFS
- KOOS JR
- Pain
- AROM
- Strength - MMT
- SLS
- TUG

TREATMENT RECOMMENDATIONS
- Continuation of phase 1 manual/exercise treatments as needed
- Stretching of quadriceps, hamstring and appropriate muscles groups continued
- Leg press: bilateral, unilateral, eccentric
- Eccentric quadriceps control
- Progressive resistance exercises
- Low impact cardiovascular conditioning, e.g. retro treadmill, forward treadmill, elliptical, cycle ergometry
- Continue step up/step down progression (6-8")
- Ball/wall/functional squats
- Quadruped on soft surfaces for desensitization and functional training for kneeling activities
- Transfer training from floor to stand
- Gait training on flat and uneven surfaces
- Progress unilateral and bilateral balance and low impact agility exercises
- Review patient’s preferred exercise routine for safety/modifications
- Aquatic exercise if accessible when incision healed and cleared by MD
CRITERIA FOR DISCHARGE (OR ADVANCEMENT TO PHASE 3 IF RETURNING TO SPORT)
- Active flexion > 120° in sitting, knee extension = 0°
- Bilateral ankle dorsiflexion > 40°
- Functional test measures within age appropriate parameters including symmetrical squat
- Ability to transfer to and from floor
- Independent with lower extremity ADL such as tying shoelaces and donning/doffing socks
- Independent ambulation with normal gait pattern
- Negotiate 8” steps with reciprocal pattern with minimal pain or deviation
- Lower extremity strength 4+/5, control, and flexibility for high level ADL activities
- Independent with full home exercise program
- Discharge OR move onto Phase 3 if the goal is to return to sport or advanced functional activities (as cleared by MD)

EMPHASIZE
- Increase flexibility
- Restore strength
- Resume uninhibited ADLs
- Normalize gait without cane
UNICOMPARTMENTAL KNEE ARTHROPLASTY POST-OPERATIVE GUIDELINES

Post-Operative Phase 3 (Weeks 12-18)
Begin only if returning to sport with MD clearance

PRECAUTIONS
- Avoid high impact
- Note that expert opinion varies widely on allowable sports – consult with MD

ASSESSMENT
- LEFS
- KOOS JR
- Pain
- ROM
- Flexibility
- Strength including single leg heel raise
- SLS
- Star excursion balance test
- Kinetic chain during sport specific movement

TREATMENT RECOMMENDATIONS
- Activity specific training
- Endurance training, e.g. elliptical, power walking
- Low impact agility drills
- Dynamic balance activities
- Sports specific warm up and activities
- Consider consultation with sports specific professional

CRITERIA FOR DISCHARGE
- No increase in pain or swelling with activity
- Symmetrical LE strength
- Ability to perform repetitive single leg squats without pain or deviation
- Ability to perform 20 single heel raises with good control
- Strength, ROM, flexibility throughout kinetic chain to meet sports specific demands
- Independent with full home exercise program
- Transition plan from Rehabilitation to sports activities, e.g. personal trainer, performance coach, gym
EMPHASIZE

- Progressive return to sport/recreational activity
- Neuromuscular patterning
- Gradual increase of loads to meet sports specific demands
References


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