SOUTHERN BONE & JOINT SPECIALISTS

TOTAL KNEE ARTHROPLASTY
REHABILITATION PROTOCOL
Chase D. Smith, MD

I.   <u>Immediate Postoperative Phase</u> (Day 1 to 10)

<u>Goals:</u>   1) Active quadriceps muscle contraction
2) Safe (isometric control), independent ambulation
3) Passive knee extension to 0 degrees
4) Knee flexion to 90 degrees or greater
5) Control of swelling, inflammation, bleeding

<u>Day 1 to 2</u>

Weight Bearing - Walker/two crutches WBAT
ROM – 0-70°
Cryotherapy - Commercial unit used continuously or ice 20 min of each hour
Exercises:
* Ankle Pumps with leg elevation
* Passive knee extension exercise
* Electrical stimulation to quads
* Straight leg raises (SLR)
* Quad sets
* Knee extension exercise 90-30 degrees
* Hamstring stretches (gentle)

<u>Day 4 to 10</u>

Weight Bearing - As tolerated
ROM – 0-90°
Exercises:
* Ankle pumps with leg elevation
* Passive knee extension stretch
* Active assistive ROM knee flexion
* Quad Sets
* Straight leg raises
* Hip abduction/adduction
* Knee extension exercise 90-0 degrees
* Continue use of cryotherapy
Gait Training - Continue safe ambulation. Instruct in transfers

II.   <u>Motion Phase</u> (Week 2-6)

<u>Goals:</u>   1) Improve range of motion
2) Enhance muscular strength/endurance
3) Dynamic joint stability
4) Diminish swelling/inflammation
5) Establish return to functional activities
6) Improve general health

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<u>Criteria to enter Phase II</u>

    1) Leg control, able to perform SLR
    2) Active ROM 0-90 degrees
    3) Minimal pain/swelling
    4) Independent ambulation/transfers

<u>Week 2-4</u>

Weight Bearing - WBAT with assisted device
Exercises:

    * Quad Sets
    * Knee extension exercise 90-0 degrees
    * Terminal knee extension 45-0 degrees
    * Straight leg raises (flexion/extension)
    * Hip abduction/adduction
    * Hamstring curls
    * 1/4 Squats
    * Stretching
        - Hamstrings, Gastrocnemius, Soleus, Quads
    * Bicycle ROM Stimulus
    * Continue passive knee extension stretch
    * Continue use of cryotherapy
    * Discontinue use of TEDS hose at 2-3 weeks
     (physician's approval)

<u>Week 4-6</u>

Exercises:

    * Continue all exercises listed previously
    * Initiate:
        - Front and lateral step-ups (minimal height)
        - 1/4 front lunge
        - Pool program
        - Continue compression, ice, elevation for swelling

III.   <u>Intermediate Phase</u> (Week 7-12)

<u>Goals:</u> 1) Progression of ROM (0 to 120 degrees and greater)
       2) Enhancement of strength/endurance
       3) Eccentric/concentric control of the limb
       4) Cardiovascular fitness
       5) Functional activity performance

<u>Criteria to enter Phase III</u>

    1) Range of motion 0-110 degrees
    2) Voluntary quadriceps muscle control
    3) Independent ambulation
    4) Minimal pain/inflammation

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Week 7-10

Exercises:

* Continue all exercises listed in Phase II
* Initiate progressive walking program
* Initiate endurance pool program
* Return to functional activities
* Lunges, 1/2 squats, step ups (2" to start)
* Emphasize eccentric/concentric knee control

IV.   Advanced Activity Phase (Week 14-26)

Goals: 1) Allow selected patients to return to advanced level of function (recreational sports)
        2) Maintain/improve strength and endurance of lower extremity
        3) Return to normal life style

Criteria to enter Phase IV

1) Full non-painful ROM 0-115 degrees
2) Strength of 4+/5 or 85% of contralateral limb
3) Minimal to no pain and swelling
4) Satisfactory clinical examination

Exercises:

* Quad Sets
* Straight Leg Raises (flexion/extension)
* Hip abduction/adduction
* 1/2 squats
* Lateral step ups
* Knee extension exercise 90-0 degrees
* Bicycle for ROM stimulus and endurance
* Stretching
        - Knee extension to 0 degrees
        - Knee flexion to 105 degrees
* Initiate gradual golf, tennis, swimming, bicycle, walking program