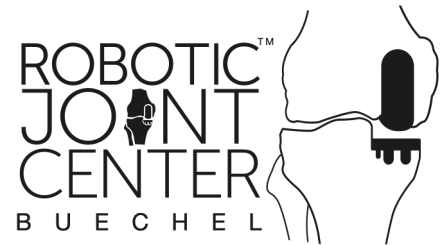


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Post-Operative Rehabilitation Protocol, Total Knee Replacement Mako™ Robotic-Arm Assisted

General Recommendations:

- Full Weight Bearing as tolerated is allowed for all patients with the use of an assistive device such as a walker, crutches or a cane until they achieve proper balance, strength and gait mechanics that allows them to walk safely and independent of their walking aide.
- Progression for each person will vary according to their pre-surgery health condition, strength, and knee function.
- Recommendations for progression of rehabilitation activities are approximate and are provided as a guide only. Each patient will progress at their own pace and according to the effort they put into their rehabilitation.
- Focus on achieving early maximal extension close or equal to the opposite knee.
- Passive flexion of greater than 100 degrees is not necessary in the first two weeks to avoid potential wound healing compromise.
- Patella mobility manual treatment may be conducted once the incision has completely healed, to avoid wound compromise.
- Incision massage may begin once the incision is completely sealed but only after 3 weeks, to regain tissue mobility.
- Avoid any resisted leg extension machines during the first eight weeks of rehabilitation.
- Lower extremity manual lymphatic massage is recommended to reduce leg swelling and improve circulation.
- Cold therapy is to be used at the end of each exercise session.

Therapy Week 1:

- Cold Therapy Sleeve application to knee frequently each day and elevation for edema (swelling) control & pain reduction

Manual Therapy: Soft tissue massage with lymphatic drainage massage and gentle knee mobilization. Gentle active assistive range of motion to avoid contracture and help with progressing motion.

Exercise: Perform quadriceps / gluteal sets, gait training, balance/ proprioception exercises. Straight leg raises exercises with quad sets 3-5 times per day (3 sets of 15). Gentle passive and active range of motion exercises. Upper body conditioning exercises.

Goals: Reduce pain and control leg swelling. Range of motion <10° - 90° degrees for first 2 weeks.

Therapy Weeks 2-4:

Manual Therapy: Continue with soft tissue massage and gentle knee mobilization. Gentle active assistive range of motion. Include mobilization of the patella, and incisions to avoid contractures.

Exercise: Continue with home exercise program daily. Begin to increase flexion motion beyond 100 degrees with passive and active assisted manual therapy. Continue gait training, balance/proprioception exercises. Include functional exercises including hamstring slides, sit to stand sets, core stabilizing exercises and gluteal exercises. May begin aerobic exercise to tolerance including the use of stationary bicycle.

Goals: Decreased pain and swelling. Range of motion < 5° extension, to 100°-110° flexion. Become independent without assistive device. Tolerate short stair climbing.

Therapy Weeks 4-6:

Manual Therapy: Continue with soft tissue massage and knee mobilization. Increase active assistive and passive range of motion. Include more mobilization of the patella, and incisions to avoid contractures and soften scar and increase incisional mobility.

Exercise: Increase the intensity of functional exercises (i.e. increase outside walking, introduce weight machines if possible) Continue balance/proprioception exercises (i.e. heel-to-toe walking, assisted single leg balance). May begin Pool work outs if available if incisions are completely closed.

Goals: Walking without a limp. Range of motion < 5 degrees extension to 110 degrees.

Therapy Weeks 6-8:

Manual Therapy: Continue soft tissue treatment, massage, joint & patellar mobilization to increase range of motion.

Exercise: May begin to include lateral training exercises like lateral steps, lateral step-ups and step overs as tolerated. May Incorporate single leg exercises as able at this time with a focus on eccentrics.

Goals: Walking without a limp. Range of motion Extension 0 to <5° and Flexion beyond 110° degrees.

Therapy Weeks 8-12:

Manual Therapy: Continue soft tissue treatment, joint & patellar mobilization to increase range of motion.

Exercise: May begin return to sports activities with low impact. Avoid jumping, hard twisting and turning activity until 10-12 weeks to allow bone to strengthen sufficiently to support such activities. May begin easy tennis practice. May return to golf with gentle rotation on drives and long shots. May return to full level activity at 12 weeks.

Goals: Walking without a limp. Range of motion that provides full activity and function. Return to sports and active lifestyle. Maintain a regular self-guided exercise program to maintain strength and flexibility after formal therapy has ended. Enjoy a lifestyle with a more comfortable knee than before replacement.

Exercise Weeks 12 and Beyond:

- Patients should return to regular healthy lifestyle exercise program
- Include full body strengthening, stretching and cardio program 3-5 times a week
- Include post exercise knee icing program to reduce swelling after shower
- High level functioning requires maintenance of lower body muscle strength to support the knee replacement's proper function.