



TEXAS BONE & JOINT

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Meniscus/Cartilage Knee Surgery

The intent of this protocol is to provide the clinician with a guideline of postoperative rehabilitation course. It is not intended to be a substitute for appropriate clinical decision making regarding the progress of the patient's postoperative course. The actual post-surgical physical therapy management must be based on the surgical approach, physical exam/findings, individual progress, and/or the presence of postoperative complications. If a clinician requests assistance in the progression of a patient post-surgery, they should consult Dr. Payne.

Phase 1-Acute Ambulation

Phase goals:

1. Full knee extension and quadriceps activation
2. Patellar & fatpad mobility
3. Restore balance and gait/walking

| Criteria For Phase Progression | | Measurement Outcomes |
|---|----|---|
| Functions and Symptoms | -> | Pain <= 5/10 (Worst) & IKDC Score >= 30 |
| 0 Deg of Knee Extension ROM or Symmetry | -> | Extension ROM (Goniometer) |
| 110 Deg of Knee Flexion ROM | -> | Passive Flexion ROM (Goniometer) |
| Adequate Single Leg Balance | -> | Balance Error System Scoring System (FIRM)<=5 |
| Good Quadriceps Activation & Endurance | -> | Straight Leg Raise Test |
| Progress to Phase 2 | -> | MD or PT Approval |

Phase 2-Functional Symmetry

The Functional Symmetry Phase is intended to:

1. Progress strength and symmetry with functional movements
2. Normalize balance and proprioception

| Criteria For Phase Progression | | Measurement Outcomes |
|--------------------------------|----|---|
| Functions and Symptoms | -> | Pain <=4/10 (Worst) & IKDC Score >= 40 |
| Near Normal Knee Extension | -> | At least 0 degrees extension |
| Adequate Knee Flexion | -> | See Appendix |
| Symmetrical Double Leg Squat | -> | Overhead Squat (FMS) >=2 |
| Adequate Single Leg Balance | -> | Balance Error System Scoring (Unstable <=5) |
| Progress to Phase 3 | -> | MD or PT Approval |

Phase 3-Strength

The main focus of the Strength Phase is to:

1. Emphasize single leg squat mechanics and balance
2. Promote strength on the involved lower extremity
3. Improve strength of compound movements

| Criteria For Phase Progression | | Measurement Outcomes |
|-------------------------------------|----|--|
| Functions and Symptoms | -> | Pain <=3/10 (Worst) & IKDC Score >= 60 |
| Maintain Knee Extension | -> | At least 0 degrees extension |
| Increase Quad/Hamstring Strength | -> | Isometric Strength:>= 60% Symmetry |
| Good Single-leg Balance & Control | -> | Single-Leg Squat (<= 4 cm) |
| Restore Single-Leg Muscle Endurance | -> | Vail Single Leg Squat Test > 1 minute |
| Progress to Phase 4 | -> | MD or PT Approval |

Jogging Program

1. Full knee extension & no pain > 3/10
2. >= 1 Minute of single leg squats

| Jogging Protocol | Walk Time (minutes) | | Jog Time (minutes) | Total Time (minutes) |
|------------------|--|--|--------------------|----------------------|
| Phase 1 (3 days) | 1 | | 2 | 12 |
| Phase 2 (3 days) | 1 | | 4 | 15 |
| Phase 3 (3 days) | 1 | | 6 | 21 |
| Phase 4 (3 days) | 1 | | 8 | 24 |
| Phase 5 (3 days) | 1 | | 10 | 20+ |
| Phase 6 | Progress as tolerated without walking breaks | | | |

Power and Agility – Phase 4

The main focus of the power and agility phase is to continue gaining strength and introduce plyometric and agility movements

| Criteria For Phase Progression | | Measurement Outcomes |
|------------------------------------|----|---|
| | | |
| Full Range of Motion | -> | Passive and Active ROM (Goniometer) |
| Symmetrical Knee Strength | -> | Ham/Quad Ratio > 55% & 85% Symmetry |
| Neuromuscular Control with Jumping | -> | Landing Error Scoring System (LESS) |
| Demonstrate Single Leg Power | -> | Single Leg Hop for Distance >= 80% Symmetry |
| Progress to Phase 5 | -> | MD or PT Approval |

Return to Sport – Phase 5

The main focus of the Sports Specific phase is to introduce sports specific stimuli, unpredictable movements, and to facilitate a graded return to full competition.

| Criteria For Full Participation | | Measurement Outcomes |
|---|----|---|
| | | |
| Restore confidence, reduce fear of Movement | -> | ACL-RSI |
| Full Knee Range of Motion | -> | Passive and Active ROM (Goniometer) |
| Symmetrical Quadriceps and Hamstring Strength | -> | Ham/Quad Ratio >= 55% & >= 90% Symmetry |
| Neuromuscular Endurance & Control | -> | Landing Error Scoring System (LESS) |
| Symmetry on Hop Tests | -> | Single Leg Hop Test >= 90% Symmetry |
| Symmetrical Agility | -> | Figure of 8 test, 5-10-5 Test >= 95% Symmetry |
| Complete Injury Prevention Program | -> | Sports Metrics |
| Full Return to Activity/Sport | -> | MD or PT Approval |

APPENDIX: Range of Motion, Weightbearing, and Functional Restrictions

| Passive ROM Limitations for Meniscus & Chondral Procedures | |
|--|--|
| Meniscal/Chondral Procedures | PROM Limits (Extension-Flexion)* Timeframe Goal(s) |
| Body Repair (Small) | Allow Full ROM Immediately |
| Body Repair (Large) | Weeks 0-2 Allow 0-90 After Week 2 Allow Full ROM |
| Root Repair | Weeks 0-2 Allow 0-60 Weeks 2-4 Allow 0-120 After Week 6 Allow Full ROM |
| Meniscus Transplant | Weeks 0-2 Allow 0-60 Weeks 2-4 Allow 0-120 After Week 6 Allow Full ROM |
| Trochlear MicroFx | Allow Full ROM Immediately |
| Chondral MicroFx/ Carticel/OATS | Weeks 0-2 Allow 0-60 Weeks 2-4 Allow 0-90 Weeks 4-6 Allow 0-120 After Week 6 Allow Full ROM |
| * All Motion and Timelines are for Non-Weight Bearing Activities | |

| Weight Bearing & ROM Limitations for Meniscus and Chondral Procedures | |
|---|---------------------------------------|
| Meniscal/Chondral Procedures | Weight Bearing Timeframe Limitations |
| Body Repair (Small) | Allow Immediate FWB* in Extension |
| | Allow Loaded Flexion > 90 at 4 weeks |
| Body Repair (Large) | Allow Immediate FWB* in Extension |
| | Allow Loaded Flexion > 90 at 6 weeks |
| Root Repair | Weeks 0-4 TTWB* |
| | Allow FWB in Extension at 4 Weeks |
| | Allow Loaded Flexion > 90 at 8 weeks |
| Meniscus Transplant | Weeks 0-4 TTWB |
| | Allow FWB in Extension at 6 Weeks |
| | Allow Loaded Flexion > 90 at 10 weeks |
| Trochlear MicroFx | Allow Immediate FWB in Extension |
| | Allow Loaded Flexion > 90 at 4 weeks |
| Chondral MicroFx/ Carticel/OATS | Weeks 0-4 TTWB |
| | Allow FWB in Extension at 4 Weeks |
| | Allow Loaded Flexion > 90 at 8 weeks |
| * FWB - Full Weight Bearing, TTWB - Toe-touch Weight Bearing | |

| Functional Progression of Meniscus & Chondral Procedures | |
|--|----------------------------------|
| Meniscal/Chondral Procedures | Minimal Timeline for Progression |
| Full Ambulation Without Assistive Device | |
| Body Repair (Small) | 2 Weeks |
| Body Repair (Large) | 4 Weeks |
| Root Repair | 6 Weeks |
| Meniscus Transplant | 6 Weeks |
| Trochlear MicroFx | 2 Weeks |
| Chondral MicroFx/ Carticel/ OATS | 6 Weeks |
| Initiate Jogging | |
| Body Repair (Small) | 3 Months |
| Body Repair (Large) | 4 Months |
| Root Repair | 4 Months |
| Meniscus Transplant | 4 Months |
| Trochlear MicroFx | 3 Months |
| Chondral MicroFx/ Carticel/ OATS | 5 Months |
| Initiate Agility | |
| Body Repair (Small) | 4 Months |
| Body Repair (Large) | 5 Months |
| Root Repair | 5 Months |
| Meniscus Transplant | 6 Months |
| Trochlear MicroFx | 4 Months |
| Chondral MicroFx/ Carticel/ OATS | 6 Months |
| Full Return to Sport | |
| Body Repair (Small) | 6 Months |
| Body Repair (Large) | 7 Months |
| Root Repair | 8 Months |
| Meniscus Transplant | 9 Months |
| Trochlear MicroFx | 6 Months |
| Chondral MicroFx/ Carticel/ OATS | 9 Months |