

Meniscus Repair Rehabilitation Program

Stable Repair

The Gundersen Sports Medicine Meniscus **Stable Repair** Rehabilitation Program is an evidence-based and soft tissue healing dependent program allowing patients to progress to vocational and sports-related activities as quickly and safely as possible. **WB can be progressed to PWB/WBAT with brace locked starting at week 1 as long as the patient has full extension and adequate quad control and SLR.** Individual variations will occur depending on surgical technique and the patient's response to treatment. **This program is outlined for mid body and posterior horn repairs of the meniscus** (for anterior horn repairs limit excessive extension initially).

If an **ACL Reconstruction and Meniscus Repair** are performed, limit ROM 0-90 for 2 weeks and then progress to full passively. No weightbearing flexion for 6 weeks. No squatting >90 for 4 months. Otherwise follow ACL protocol. Return to play will be 9-12 months.

Please contact us at 1-800-362-9567 ext. 58600 if you have questions or concerns.

Phase I: 0-6 weeks	Immediate post op protection phase
Goals	• Protect anatomic repair • Minimize knee joint effusion • Gently increase ROM, emphasis on extension • Encourage quadriceps function • Prevent negative effects of immobilization
ROM / Brace	• Wk 0-2: 0-90 deg • After 2 weeks, progress ROM as tolerated in NWB position with goal of full by 6-10 weeks but ideally ASAP. Knee flexion motion with WB should be discouraged until after 6 weeks. • Patient will use the post-op brace until wk 7-8.
WB	• wk 0-1: NWB with brace locked into extension • wk 1-6: WBAT brace locked in extension with assistive device as needed as long as extension is full and able to SLR.
Precautions / Guidelines	• Encourage AROM in NWB to promote healing, prevent atrophy of soft tissue and bone, and prevent a decrease in collagen content in the healing meniscus which occurs with immobilization. Early AROM does not affect the tensile properties of the meniscus. • Emphasis on regaining extension ROM ASAP as this is the most stable position for the meniscus and will decrease stress to the PF joint during ambulation. • No isolated resistance to knee flexion for 6 weeks secondary to the semimembranosus attachment to the medial meniscus / popliteus to the lateral meniscus. • At week 4 can progress to light CKC exercises – see next page • Avoid twisting and pivoting motions for 10-12 weeks to minimize shear forces. • Avoid deep squatting (>90 deg) until 4-6 months
Modalities	• Cryotherapy 15 minutes in duration 3x/day • IFC for pain/effusion if needed • NMES quadriceps if needed

Updated 11/2023

Phase I: 0- 6 weeks
Immediate post op protection phase

Treatment Recommendations Guidelines for progression based on tolerance	• Active warm-up • ROM: Gentle stretching to attain full extension and gradual return of flexion. Progress as tolerated. Emphasis on full return of knee extension ASAP. Low-load long duration stretching for extension with heat if needed (1st TERT= Total End Range Time) Manual stretching for extension with overpressure or recurvatum Patellar mobilizations PROM / AAROM / AROM • Scar tissue massage / tissue effleurage to decrease sensitivity • Flexibility exercises for hamstring, gastroc-soleus • Consider Personalized Blood Flow Restriction to decrease muscle atrophy • Therapeutic exercises. Gentle strengthening protecting the healing meniscus. Exercise in a pain-free manner. Encourage quadriceps activation. No isolated resisted knee flexion. Posterior chain extensibility exercises if indicated. Add gentle CKC exercises at week 4 Wk:1-3: QS, SLR Short arc 0-30 quadriceps Gastroc soleus strengthening NWB Hip strengthening: 4 way SLR, sidelye resisted ER Bridging Hip circles for posterior chain extensibility Core stability exercises if desired Hollow holds, hollow holds with rotation, dead bugs Balance exercises with brace locked in extension: Weight shifts/ SLS, lateral step overs wk 4-6: Progress to light CKC exercises in limited ROM (0-45 deg) Leg press 2:2 with light resistance, sit to stand, partial wall squats, body weight partial squat , step-up/step downs partial lunge Balance exercises Core strengthening: Pallof press, dead bug chop/lift • IFC for pain/effusion, NMES for quadriceps activation and control as needed
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Phase II: 6-12 weeks	Strengthening and Neuro-muscular control phase
Goals	- Minimize knee joint effusion - Progress ROM as tolerated - Normalize gait pattern - Gradual progression of therapeutic exercises for stretching, neuro-muscular control, strengthening, and balance - Implement isolated hamstring strengthening.
ROM / Brace / Gait	- Unlock brace for ambulation if good quadriceps control, SLR. Work on normalizing gait pattern. - D/C brace at wk 7-8 - Progress ROM as tolerated with goal of full ROM by 8-10 weeks
Modalities	- Cryotherapy 15 minutes in duration 1-2x/day - IFC for pain/effusion / NMES quadriceps if needed
Precautions / Guidelines	- No WB stretching into flexion until 8 wks - Proximal control (core and hip) to prevent medial collapse/knee valgus - Correct asymmetrical loading patterns: off-set stance, uni-lateral load, 2:1 to single leg progression - Avoid twisting and pivoting motions for 10-12 wks to minimize shear forces. Avoid deep squatting (> 90 degrees) until 4-6 months
Treatment Recommendations Guidelines for progression based on tolerance	- Active warm-up: Bike w/ resistance, wk 7-8: ER - Stretching for full extension and flexion Patellar mobilizations if needed wk 8: WB knee flexion stretch on leg press with light resistance - Flexibility: hamstring, gastoc-soleus, iliopsoas, quadriceps if indicated - Strengthening / N-M control / endurance exercises: Exercise in a pain-free manner. Gradual progression with avoiding medial collapse during strengthening and functional activities (focus on hip abductor and external rotator strengthening and N-M control). Incorporate total leg strengthening and balance / proprioception exercises. Core strengthening exercises CKC knee extension Hip strengthening CKC exercises: squat / lunge / hip hinge/dead lift progression step-ups/step-downs Quadriceps strengthening Hamstring OKC isotonics 0-90 deg in seated position with light resistance (15 reps/set initially) wk 9: prone hamstring curls wk 10: Isokinetic quadriceps / hamstrings VSRP 150-300 deg/sec submax to max, progressing to 90 deg/sec Total leg strengthening - Balance / Proprioception training: SLS progressing to dynamic and reactive activities. - Gait training - Core Strengthening

Phase III: 12+ wks	Advanced strengthening and Gradual Return to Activity
Goals	• Progress muscle strength and N-M control, endurance, balance activities. Ideally 3x/wk exercises at a fitness center, step-down, or home program • Progress to higher level activity depending on demands and MD/PT approval • Initiate a return to running program at 4 months if passes criteria and has no compensations with running pattern. • Initiate working on landing mechanics and agility drills at 4-5 months if passes criteria • Return back to vocational, recreational, and sport activities at 6-9 months if passes criteria. Sports progression may take 2-4 weeks for full clearance back to full competition
Brace	Your MD may recommend a knee sleeve or functional brace to be used until 12 months from your surgery for higher level activities
Modalities	• Cryotherapy 15 minutes 1x/day or after strenuous activity
Precautions/ Guidelines	• Correct asymmetrical loading patterns: off-set stance, uni-lateral load, RNT • Address fear avoidance behaviors with graded exercise progression, cuing, positive reinforcement, referral if necessary • No deep squatting until 4-6 months.
Treatment Recommendations <u>Return to Running Benchmarks:</u> 4 months Passes testing criteria - See next page <u>Return to Landing Drills Benchmarks:</u> 4 months Passes testing criteria - See next page <u>During Landing drills: Focus on:</u> 1. Soft landing with knee flexion > 30 deg 2. no medial collapse/knee valgus 3. no hip IR/ pelvic drop 4. Dynamic postural control	• Active warm-up: Bike, Elliptical Runner, Treadmill walking, • Continue with stretching and flexibility exercises as needed ○ Strengthening / N-M control / endurance exercises: Focus on strengthening and N-M control activities. Advance as tolerated with emphasis on functional strengthening. Avoid dynamic valgus during strengthening and functional activities. Progress with balance / proprioception exercises. Progress agility drills and working on landing mechanics. Progress to sports specific activities. - Total leg strengthening: hip/quadriceps/hamstring - Hip strengthening – neuromuscular control to prevent knee valgus - Core strengthening – prevent frontal plane trunk lean during landing - Single leg strengthening - CKC exercises: lunge progression, squat progression, step-up/downs - Hamstring full ROM isotonic. Add in physioball HS curls - Quadriceps isotonic in ROM without chondrosis - Isokinetic quads/ham 0-full flexion if minimal chondrosis - Balance exercises: Single leg, progress to dynamic and reactive • Wk 12-14: if adequate strength scores (quads 75%, hamstrings 75%), add in sub-max foot placement drills, anterior lateral hop to stabilization, skaters to prepare for return to running at 4 months • 4 months: continue with strengthening and dynamic balance. Start running program. progress to the following exercises if clinical appropriate - Landing drills: Low amplitude sub-max drills: - Shallow jump landings, double to single line jumps, hopping - progress to higher level if meets criteria (see sidebar) - Agility drills: low amplitude sub-max drills: - Skipping F/B, jogging F/B, skaters, carioca, agility ladder. • 5 months to 6 months: continue with strength and control drills related to sports specific movements. progress with: - Landing drills/ jump hopping drills - Agility drills: progress to higher level with speed and complexity: - agility ladder drills, cutting/pivoting (changing directions), - changing speeds, anticipated to un-anticipated • 6 months+: possible clearance for return to sport, depending on testing – see next page for testing algorithm

Meniscus Repair Rehabilitation Program Testing and Return to Running/Sports Recommendations

Return to running and return to play depends on:

- Timeframe from surgery
- Test performance
- MD and PT approval

Return to Running Benchmarks:

1. Time: at least 4 months post-op
2. MD / PT clearance
3. No knee joint effusion
4. ROM: limb symmetry: extension within 5 deg
flexion within 10 deg
5. Biodex:
Limb symmetry of PT:
Quad: 75%
Hams: 75%
6. Anterior lateral hop to stabilization drill completed with no apprehension and good movement control
7. Proper running form: treadmill running (sub-max at self selected speed)

Recommendations:

1. Biodex:
Quad PT/BW:
Males: 75%, 50% at 180,300deg/sec
Females: 65%, 35% at 180,300deg/sec
H/Q ratio: 65%, 90% at 180,300deg/sec
Total work at 300 deg/sec:
Quad: limb symmetry 75%
Hams: limb symmetry:75%
2. SL 60 deg stork test:
Limb symmetry: 90%
3. Hip Abduction Side Plank test:
Level II or greater
4. Squat WB symmetry with near equal WB
5. Y balance: Limb symmetry: < 4cm

Testing:

12 weeks (3 months)

SL 60 deg Stork test

Hip strength:

Abduction MMT or dynamometry

Hip Abduction Side plank test

Biodex test:

No block

2 speeds: 180 deg/sec (5 reps) 300 deg/sec (30 reps)

Y balance test

Deep squat WB symmetry: 2D video or force plate

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16 weeks (4 months) – RETURN to RUNNING –

See benchmarks

Repeat previous tests not passed

Anterior lateral hop to stabilization

Trial of running.

Landing assessment

Jump test: no arm swing – submax for apprehension/technique

Single Hop test: no arm swing- submax for apprehension/technique

Return to Landing Drills Benchmarks:

1.Time: at least 4 months

2.MD/ PT clearance

3.No knee joint effusion

4.Biodex: Limb symmetry of PT:

Quadriceps and hamstrings: 80-90% = sub-max landing drills

Quadriceps and hamstrings: 90% = max landing drills

*Minimize the following 4 variables with landing drills:

1. Stiff landing (<30 deg knee flexion)
2. Knee valgus
3. Hip IR / pelvic drop
4. Decreased dynamic balance

Meniscus Repair Rehabilitation Program Testing and Return to Running/Sports Recommendations

24 weeks (6 months)

Repeat previous tests not passed

Biodex test: Full ROM with no ext block
3 speed test: 60 deg/sec (5 reps),
180 deg/sec (5 reps),
300deg/sec (30 reps)

Landing assessment:

Jump test: no arm swing

Single Hop test: no arm swing

Triple hop/Cross over hop test: arm swing

Agility test: LEFT test components or time
FOTO

9 months/ 1 year / 2 years

Knee ROM

Biodex test: Full ROM with no ext block
3 speed test: 60 deg/sec (5 reps),
180 deg/sec (5 reps),
300deg/sec (30 reps)

Hip Strength:

MMT or hand held dynamometry

Abduction Side Plank test

Landing Assessment

Jump test

Single Hop test

Triple Hop test/Cross Over Hop: arm swing

Agility test: LEFT test components or time
FOTO

Return to running and return to play

depends on:

Timeframe from surgery

Test performance

MD and PT approval

Return to Play Benchmarks:

1. Time: at least 6-9 months
2. MD/ PT clearance
3. No knee joint effusion
4. ROM: limb symmetry: extension within 5 deg, flexion within 10 deg
5. Biodex: Limb symmetry of PT 90% quad and hams
6. Landing Assessment: no faulty movement patterns
7. Single Hop test: Limb symmetry: 90%,
8. Triple Hop test or Cross-Over Hop Test Limb symmetry: 90%
9. Agility Testing with no compensation

Recommendations:

1. Biodex:
 - a. *Quad PT/BW: (+/-5%)
 - i. Males: 95%, 75%, 50% at 60, 180, 300 deg/sec
 - ii. Females: 85%, 65%, 35% at 60,180,300 deg/sec
 - b. H/Q ratio: (+/- 5%)
 - i. 65%, 75%, 90% at 60, 180, 300 deg/sec
 - c. Hams PT/BW: (+/- 5%)
 - i. Males: 60%, 35%, 25% at 60, 180, 300 deg/sec
 - ii. Females: 60%, 35%, 25% at 60, 180, 300 deg/sec
 - d. Total work: 300 deg/sec
 - i. Quads: Limb symmetry:90%
 - ii. Hams: Limb symmetry: 90%
2. Hip HHD 90% ABD/ER/extension
3. Y balance: Limb symmetry: < 4cm
4. Jump test:
 - a. Males: 90%-100% height
 - b. Females: 80%-90% height
5. Single hop test:
 - a. Males: 80-90% height
 - b. Females: 70-80% height

Return-to-Sports Progression: (2-4 wk, depends on tolerance)

Step 1:

1-on-1 drills (non-contact) sport specific

Step 2:

1-on-1 drills (contact) full speed sport specific

Step 3:

Team scrimmage (non-contact)

Step 4:

Team scrimmage no restrictions

Step 5:

Game activities with restricted playing time

Step 6:

Game activities with no restrictions

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