MCL Grade II Sprain 2+ Instability (Unstable) Rehabilitation Program

(1-5mm laxity at 0 deg valgus testing and 5-10mm laxity at 30 deg valgus with soft end)

The Gundersen Health System Sports Medicine MCL Grade II Sprain 2+ Instability (Unstable) Rehabilitation Program is an evidence-based and soft tissue healing dependent program that allows patients to progress to vocational and sports-related activities as quickly and safely as possible. Individual variations will occur depending on patient tolerance and response to treatment. **Femoral tears** may move along quicker with ROM based on end feel to valgus stress testing as there is a higher tendency for joint stiffness. Patients usually return to full activities in 6-8 wks. Please contact us at 1-800-362-9567 ext. 58600 if you have questions or concerns.

Phase I: 0-3 weeks	**Phase II: 3-6 weeks**	**Phase III: 6 weeks+**
ROM: Drop lock brace wk 0-2: 30-90 wk 2-3: 20-110 wk 3-4: 10-110 Progression may be modified based on end feel and knee alignment.	**ROM:** Drop lock brace wk 3-4 10-110 wk 4-5: 0-120 wk 5-6: Full ROM, Switch to double upright brace with 10 degree extension stop	**ROM:** Double upright brace Full ROM
WB: wk 0-1: NWB wk 1-2: 25% wk 2-3: 50%-75%	**WB:** wk 3-4: 100% with crutches wk4: D/C crutches if good quad control / normal gait pattern	**WB:** Full with no limitations
Modalities: Cryotherapy Pulsed US IFC for pain/effusion NMES quadriceps	**Modalities:** Cryotherapy Pulsed US IFC for pain/effusion NMES quadriceps	**Modalities:** Cryotherapy
RX: <u>Recommendations:</u> PROM / AAROM / AROM to tolerance per ROM guidelines. Encourage ROM to facilitate scar remodeling and allow MCL healing Bike light resistance Cross friction massage Flexibility exercises Biofeedback QS, SLR, CKC knee extension per ROM M<I Quads/Hams 10, 30, 50, 70, 90 deg Hamstrings isotonics per ROM Quadriceps isotonics per ROM Total leg strengthening Hip 4 way SLR (proximal pad placement for Hip Adduction) CKC exercises- leg press, step-ups, FW lunges, squats, heel raises Balance / Proprioception Perturbation training CV conditioning Core stability training Upper body exercises Updated 2/2007	**RX:** <u>Recommendations:</u> PROM / AAROM / AROM Bike with resistance Elliptical Runner / Stairmaster Cross friction massage Flexibility exercise Biofeedback SLR, CKC knee extension Hamstring isotonics Quadriceps isotonics Isokinetic quadriceps/hamstrings Hip 4 way SLR (proximal pad placement for Hip Adduction) Heel raises CKC exercises – leg press, step-ups, FW and lateral lunges, squats Total leg strengthening Functional strengthening Core stability training Balance / Proprioception Perturbation training Lateral movements – sideshuffles, euroglide 3 wks Return to running if 75% strength 4 wks Plyometrics / Agility and Sport-specific exercises if 75% strength	**RX:** <u>Recommendations:</u> Bike with resistance Elliptical Runner / Stairmaster Running program if 75% strength Flexibility exercises Isotonic quadriceps/hamstrings Isokinetic quadriceps/hamstrings Hip strengthening CKC exercises Total leg strengthening Functional strengthening Balance / Proprioception Perturbation training Core stability training Plyometrics / Agility and Sport-specific exercises if 75% strength **Testing** 3-4 wks Linea / Biodex Test FXN Test when appropriate **Return to Work/Sport** No pain or effusion Full ROM Isokinetic Strength- 90% Functional Tests – 90% MD approval Brace for athletic activities

MCL Sprain References

Abdel-Rahman EM, Hefzy MS. Three-dimensional dynamic behaviour of the human knee joint under impact loading. Medical Engineering & Physics, 1998;20:276-290.

Davies GJ, Heiderscheit B, Clark M. Open kinetic chain assessment and rehabilitation. Athletic Training: Sports health care perspectives, 1995; 1(4): 347-370

Gardiner JC, Weiss JA, Rosenberg TD. Strain in the human medial collateral ligament during valgus loading of the knee. Clin Orthop, Oct 2001; 1(391):266-274

Hull ML, Berns GS, Patterson HA. Strain in the medial collateral ligament of the human knee under single and combined loads. J Biomechanics, 1996; 29(2):199-206

Indelicato PA. Nonoperative management of complete tears of the medial collateral ligament. Orthop Rev, 1989; 18(9): 947-952

Jones RE, Henley MB, Francis P. Nonoperative management of isolated grade III collateral ligament injury in high school football players. Clin Orthop; 1986; 213: 137-140

Meislin, RJ. Managing collateral ligament tears of the knee. The Physician and Sportsmedicine, 1996; 24(3): 67-71

Ohno, K, Pomaybo AS, Schmidt CC, Levine RE, Ohland KJ, Woo SL. Healing of the medial collateral ligament after combined medial collateral ligament and anterior cruciate ligament injury and reconstruction of the anterior cruciate ligament: Comparison of repair and nonrepair of medial collateral ligament tears in rabbits. J Orthop Res, 1995; 13: 442-449

Petersen W, Laprell H. Combined injuries of the medial collateral ligament and the anterior cruciate ligament. Early ACL reconstruction vs late ACL reconstruction. Arch Orthop Trauma Surg, 1999; 119(5-6), 258-262

Reider B. Medial collateral ligament injuries in athletes. Sport Med, 1996; 21(2): 147-156

Shelbourne DK, Patel DV. Instructional course lectures, the American Academy of Orthopaedic Surgeons. Management of combined injuries of the anterior cruciate and medial collateral ligaments. J of Bone Joint Surgery, 1995; 77(5): 800-806

Wilk KE, Clancy WG, Andrews JR, Fox GM. Assessment and treatment of medial capsular injuries, in Knee Ligament Rehabilitation, Ellenbecker 2000, 89-105

Woo SL, Debski RE, Withrow JD, Janaushek MA. Biomechanics of knee ligaments. Am J Sports Med, 1999; 27(4): 533-543.

Woo SL, Debski RE, Zeminski J, Abramowitch SD, Chan Saw SS, Fenwick JA. Injury and repair of ligaments and tendons. Annu Rev Biomed Eng, 2000 2:83-118.