Saint Louis University – SSM Health Physical Therapy Orthopedic Residency in Collaboration with SLUCare Physician Group

These guidelines, treatments, and milestones have been established to assist in guiding rehabilitation based on the most current available evidence. They are not intended to be substitute for sound clinical judgement with consideration of the individual contextual features of the patient and the demands of various functions/sports.

### Overview:

Treatment for MTSS is contingent upon both severity of stress injury, relative risk, and stage of injury at diagnosis.

Saint Louis University – SSM Health Physical Therapy Orthopedic Residency in Collaboration with SLUCare Physician Group

**Shock Absorbing Insoles/Vacuum Molded Orthotics:** Limited evidence suggests employing shock absorbing insoles to reduce rate of tibial loading and reduce incidence of developing stress fracture. <sup>16</sup> Men may respond more favorably to orthotic insert. <sup>17</sup>

Pneumatic Leg Brace (PLB): Mixed evidence recommeTw ()Tj0.005 Tcs

**Tibial Stress Fractures / Medial Tibial Stress Syndrome**Saint Louis University – SSM Health Physical Therapy Orthopedic Residency in Collaboration with SLUCare Physician Group

Soreness Rules Adapted from Fees et al. 1998				
Criterion	Action			
Soreness during warm-up that continues	2 days off, drop down 1 step			

2. Soreness during warm-up that goes away

Stay at step that led to soreness

Saint Louis University – SSM Health Physical Therapy Orthopedic Residency in Collaboration with SLUCare Physician Group

- 9. Bolthouse E, Hunt A, Mandrachia K, Monarski L, Lee K. Return to Running After a Tibial Stress Fracture: A Suggested Protocol. *Orthopaedic Physical Therapy Practice*. 2015;27(1):37-45.
- 10. Reinking MF, Austin TM, Richter RR, Krieger MM. Medial Tibial Stress Syndrome in Active Individuals: A Systematic Review and Meta-analysis of Risk Factors. *Sports Health: A Multidisciplinary Approach.* 2017;9(3):252-261.
- 11. Kaeding CC, Yu JR, Wright R, Amendola A, Spindler KP. Management and return to play of stress fractures. *Clinical journal of sport medicine : official journal of the Canadian Academy of Sport Medicine.* 2005;15(6):442-447.
- 12. Hobara H, Sato T, Sakaguchi M, Nakazawa K. Step Frequency and Lower Extremity Loading During Running. *International Journal of Sports Medicine*. 2012;33(4):310-313.
- 13. Meardon SA, Derrick TR. Effect of step width manipulation on tibial stress during running. *Journal of Biomechanics*. 2014;47(11):2738-2744.
- 14. Harrast MA, Colonno D. Stress fractures in runners. *Clinics in sports medicine*. 2010;29(3):399-416.
- 15. Moen MH, Holtslag L, Bakker E, et al. The treatment of medial tibial stress syndrome in athletes; a randomized clinical trial. *Sports Medicine, Arthroscopy, Rehabilitation, Therapy and Technology.* 2012;4(1).
- 16. Gillespie WJ, Grant I. Interventions for preventing and treating stress fractures and stress reactions of bone of the lower limbs in young adults. *The Cochrane database of systematic reviews.* 2000(2):Cd000450.
- 17. Loudon JK, Dolphino MR. Use of Foot Orthoses and Calf Stretching for Individuals With Medial r ( 8 2 ( GPbial)S(rces( Battee M MR 2-8 (r)1(:C-8 ((2-880 :12W(;c:(2-880 322.641 0 Td( )Tj60.0-1 Tc -0.004 Tw -7.728 -Td9 )

Saint Louis University – SSM Health Physical Therapy Orthopedic Residency in Collaboration with SLUCare Physician Group

- 22. Gomez Garcia S, Ramon Rona S, Gomez Tinoco MC, et al. Shockwave treatment for medial tibial stress syndrome in military cadets: A single-blind randomized controlled trial. *International journal of surgery (London, England)*. 2017;46:102-109.
- 23. Griebert MC, Needle AR, McConnell J, Kaminski TW. Lower-leg Kinesio tape reduces rate of loading in participants with medial tibial stress syndrome. *Physical Therapy in Sport.* 2016;18:62-67.
- 24. Kachanathu SJ, Algarni FS, Nuhmani S, Alenazi AM, Hafez AR, Algarni AD. Functional outcomes of kinesio taping versus standard orthotics in the management of shin splint. *The Journal of sports medicine and physical fitness.* 2018;58(11):1666-1670.
- 25. Tolbert TA, Binkley HM. Treatment and prevention of shin splints. *Strength & Conditioning Journal*. 2009;31(5):69-72.
- 26. Fredericson M, Bergman AG, Hoffman KL, Dillingham MS. Tibial stress reaction in runnageth 826 0004 Ti, Tf-028 /