

Recovery & Rehab Phase 1 for the Runner & Sprinter

Kari Brown Budde, PT, DPT, SCS

www.RefinedRun.com

Endurance Athletes Physical Therapy and Sport Performance
Kari Brown Budde, PT, DPT, SCS

Nothing to Disclose

@SPTSRunningSIG
Tweet At Us!

Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

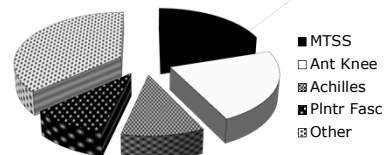
Injuries?



Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

What Injuries?

5k - Ultras

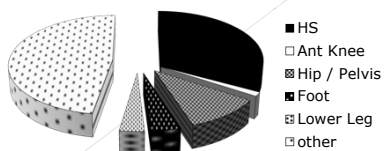


Lopes 2012, Neilson 2014, Taunton 2002

Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

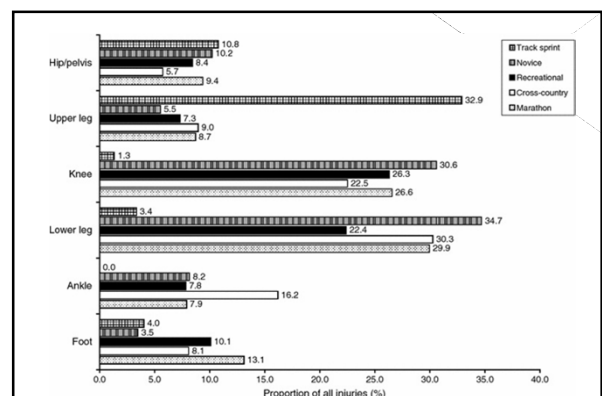
What Injuries?

Short Distance - 3k



Kluitenberg, Bas et al. 2016, Lopes 2012, Neilson 2014, Taunton 2002

Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

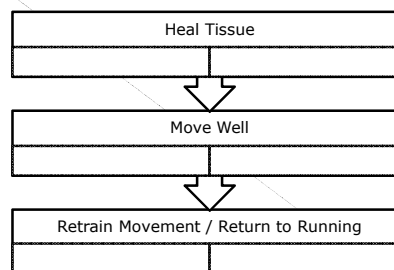


Kluitenberg, Bas et al. 2016

Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

How and When Can We Return to Running?

Endurance Athletes Physical Therapy and Sport Performance
Kari Brown Budde, PT, DPT, SCS



Endurance Athletes Physical Therapy and Sport Performance
Kari Brown Budde, PT, DPT, SCS

Recovery

- 1st Step: Heal The Tissue!
- Time based?
- Time from injury based on what?
 - Severity?
 - Type of strain, tear...
 - Criteria??

Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

Recovery vs Rehab

- Time off? What can go wrong?
- Rehab anytime there's an injury!
- Varying types and timelines of rehab



Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

Recovery

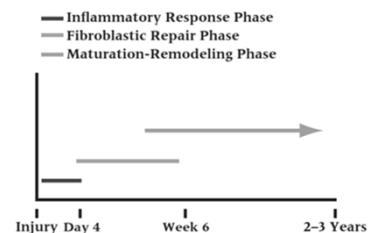


FIGURE 10-1 The three phases of the healing process fall along a continuum.

Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

Muscle Injury Classification

Type / Grade	Classification	Description	Signs	Symptoms	Location
1	Strain				
2	Up to 50% tear				
3	Complete Rupture				

Muscle Injury Classification					
Type	Classification	Description	Signs	Symptoms	Location
1A	Fatigue induced	Increased tone	Aching, firmness	tightness	Focal
1B	DOMS	Generalized pain	Local inflammation, rest pain	Pain w contraction	Entire muscle
2A	Spine-related NM disorder	Inc tone – local, fxml or spine	Aching, firmness, no swelling	Edema btwn ms and fascia	Entire ms length
2B	Ms-related NM disorder	Inc tone, recip inhibition	Aching, cramping	Inc tone, swelling, stretch relief	Entire ms length
3A	Partial tear	Max diameter, local pain, no swelling	Sharp "snapping" pain	Pain, swelling, stretch pain	Mid tendon
3B	Partial tear	tear, ms, local pain, no swelling	Sharp "snapping" pain	Pain, swelling, stretch pain	Mid tendon

< 7 days
< 7 days
Structural 2-3 wks
Structural 4-6 wks

Muscle Injury Classification					
Type	Classification	Description	Signs	Symptoms	Location
4	Subtotal ms	Subtotal or partial tear	Dull, aching, no swelling	Local inflammation, rest pain	Mid tendon or junction
Contusion	Direct injury	Blunt force	Local pain, swelling, stretch pain	Above plus swelling	Any muscle

Structural 4-6 wks
12+ wks

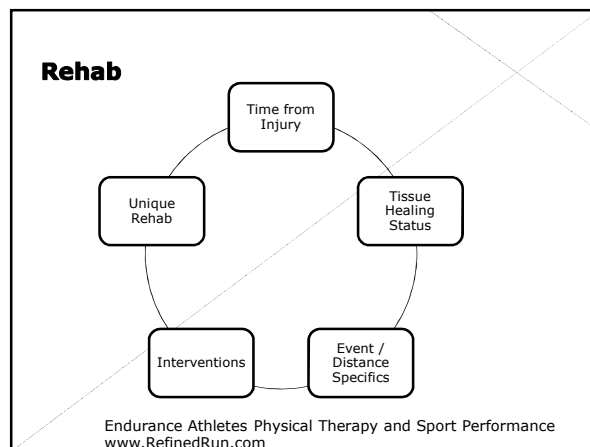
Mueller-Wohlfahrt, et al 2012, Ekstrand 2011, Ueblicher 2013, Bruckner 2014

They Took Time Off..


Started running again and still pain!?!?



Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

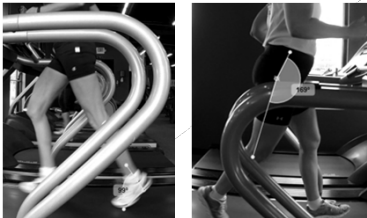


Acute Stages

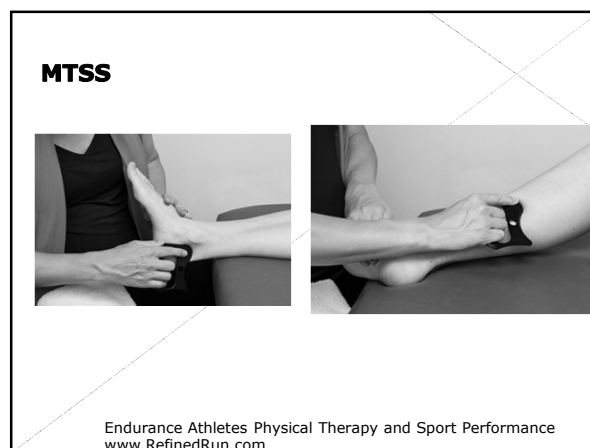
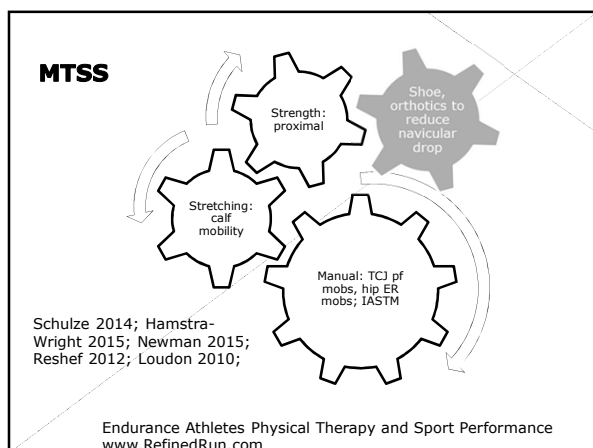
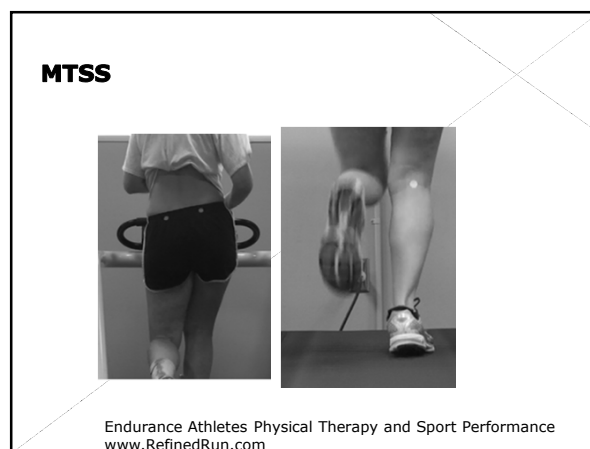
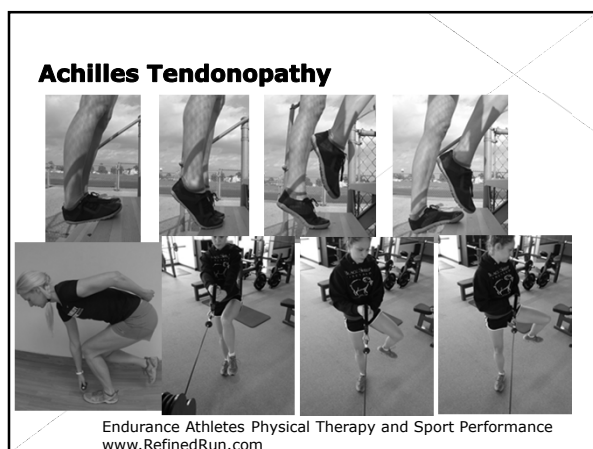
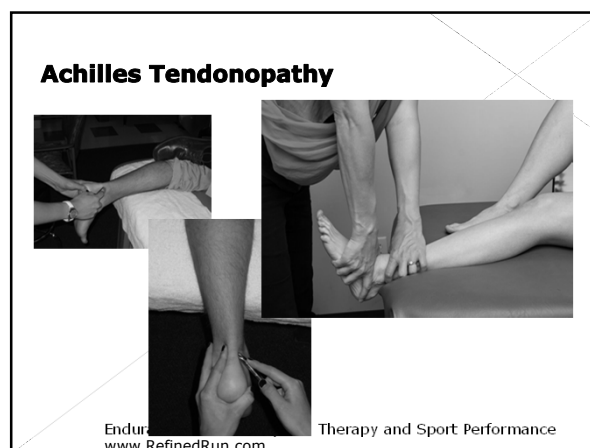
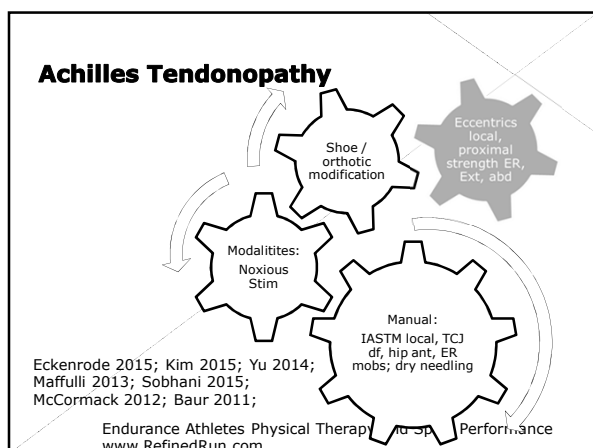


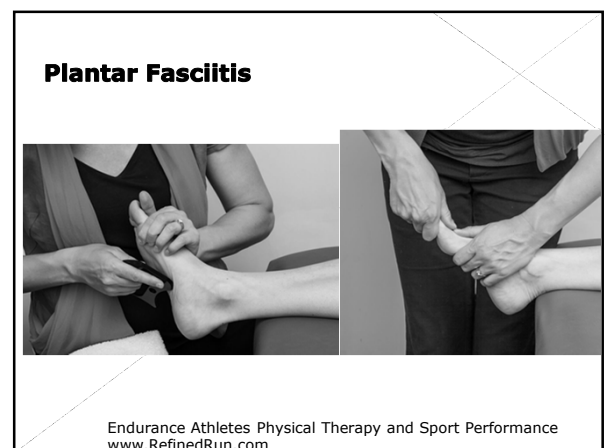
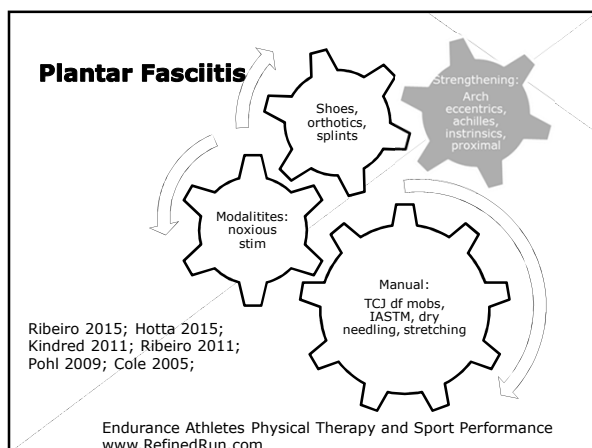
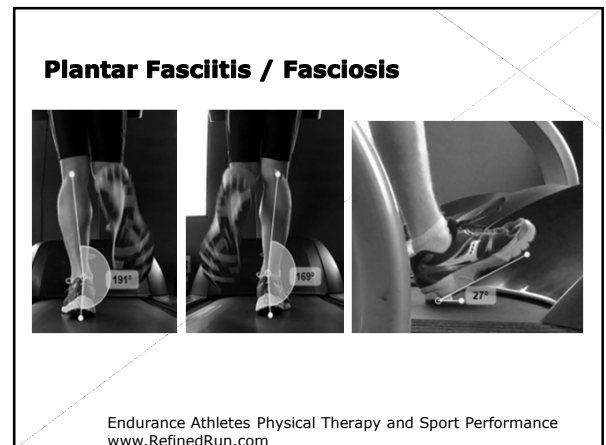
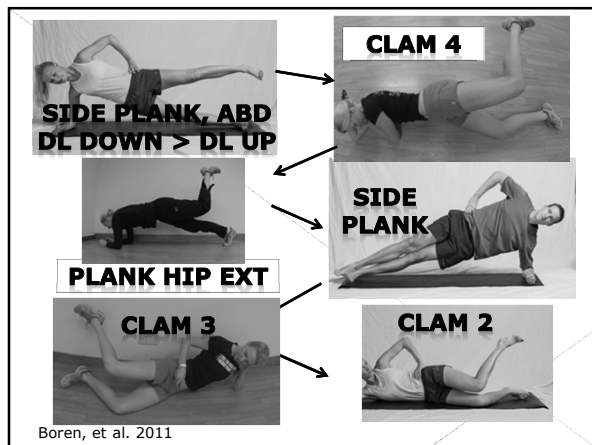
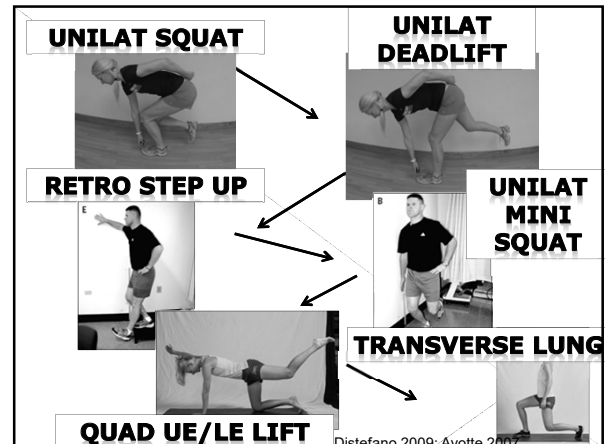
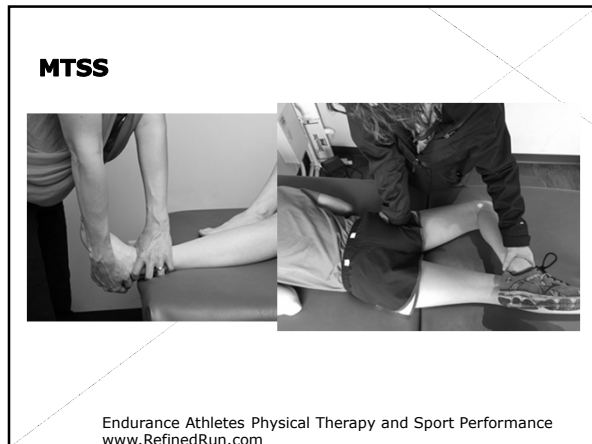
Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

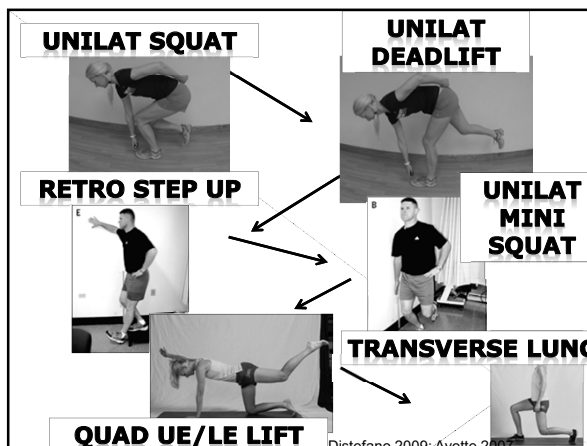
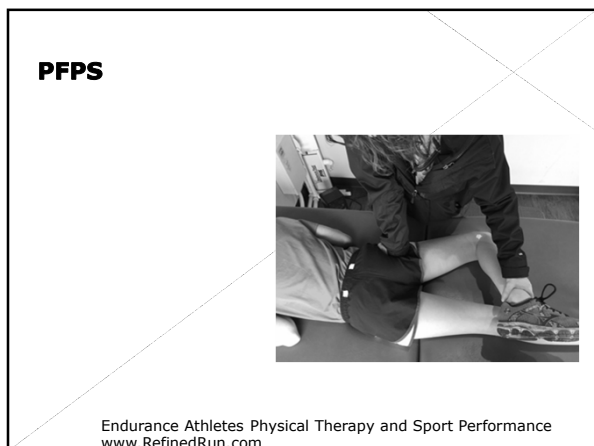
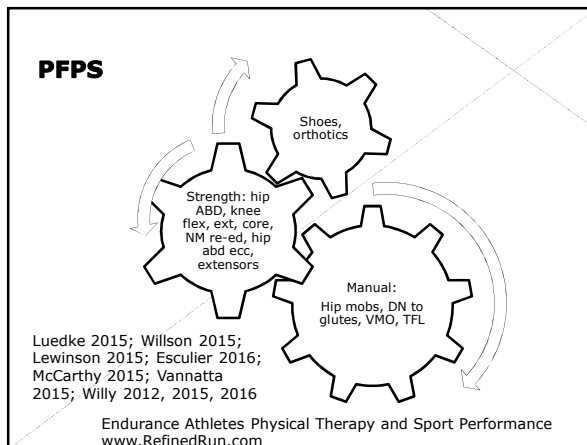
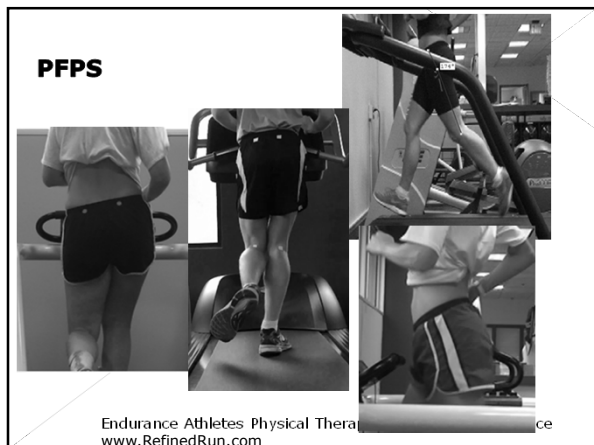
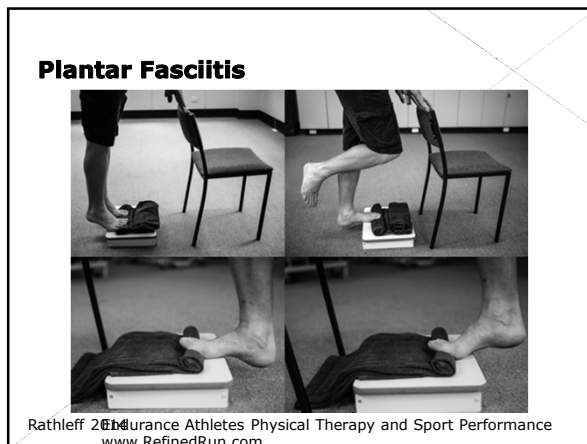
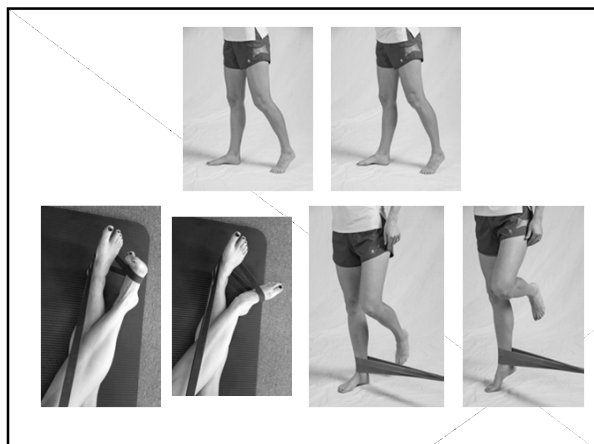
Achilles Tendonopathy

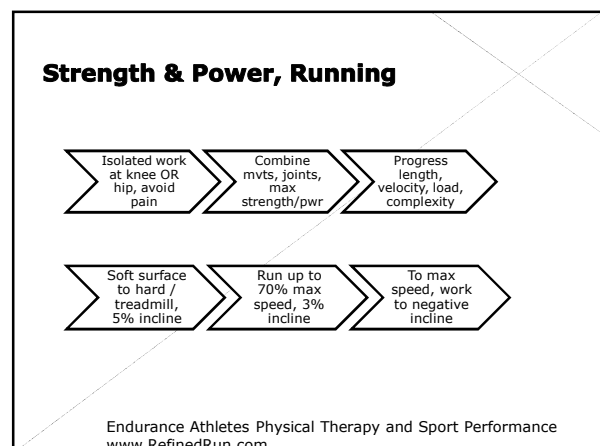
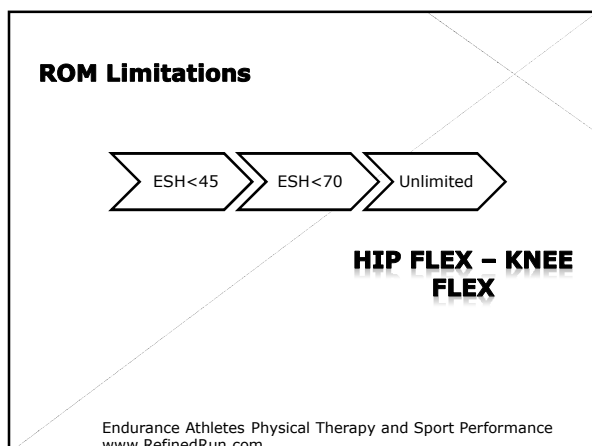
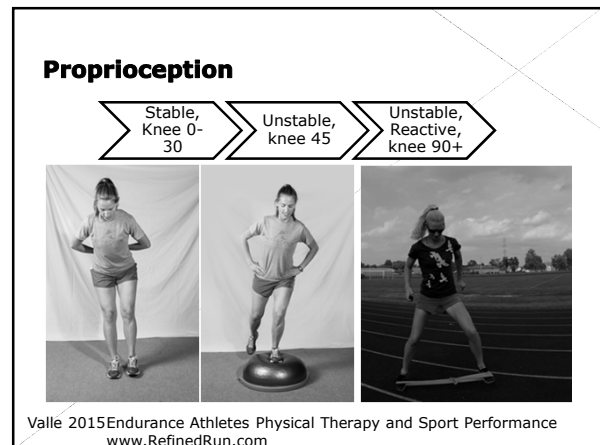
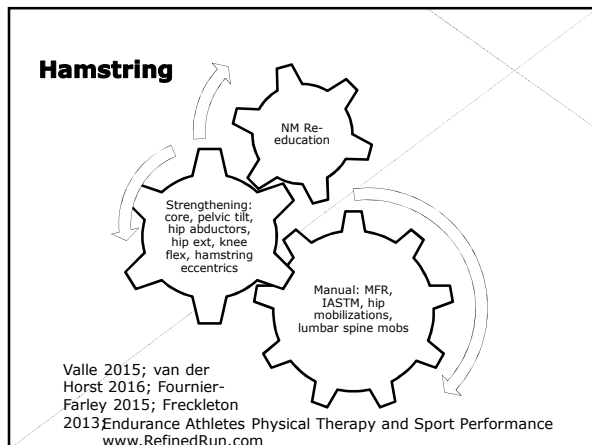
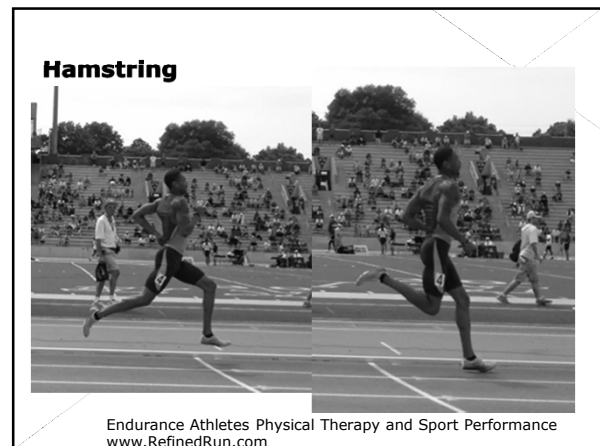
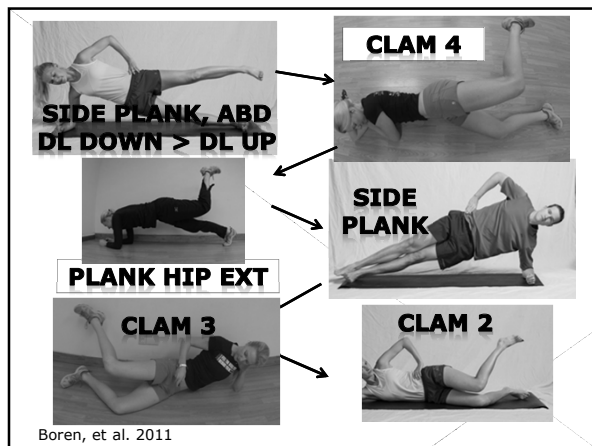


Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

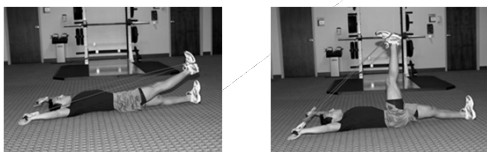






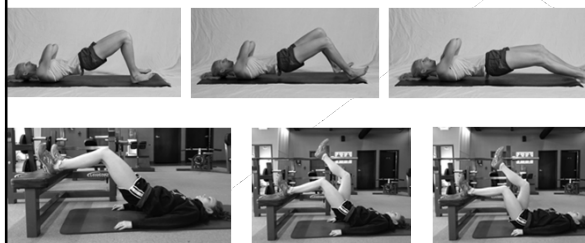


Hamstring



Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

Hamstring



Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

Remember This...

- Distance Runner Injuries: Knee, MTSS, Achilles, PF
- Sprinter Injuries: Hamstrings
- Must Heal Tissue before Retraining Movement
- Rehab based on Criteria and Timeline
- Full rest may be your enemy

Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

Now We're Ready to Test for RTR

Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

Thank You!
Kari@RefinedRun.com
@KariEllynBrown



References

1. Kluitenberg, Bas et al. "What Are the Differences in Injury Proportions Between Different Populations of Runners? A Systematic Review and Meta-Analysis." *Sports Medicine (Auckland, N.z.)* 45.8 (2015): 1143-1161. *PMC*. Web. 9 Feb. 2016.
2. Mueller-Wohlfahrt, et al. Consensus statement: Terminology and classification of muscle injuries in sport: The Munich consensus statement. *Br J Sports Med* bjsports-2012-091448 Published Online First: 18 October 2012 doi:10.1136/bjsports-2012-091448
3. Schwartz, Emily N, and John Su. "Plantar Fasciitis: A Concise Review." *The Permanente Journal* 18.1 (2014): e105-e107. *PMC*. Web. 9 Feb. 2016.
4. Valle, Xavier et al. "Hamstring Muscle Injuries, a Rehabilitation Protocol Purpose." *Asian Journal of Sports Medicine* 6.4 (2015): e25411. *PMC*. Web. 9 Feb. 2016.

Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

References

1. Ekstrand J, Hagglund M and Walden M 2011, 'Epidemiology of muscle injuries in professional football (soccer)', *American Journal of Sports Medicine*, vol. 39, pp. 1226-32.
2. Ueblicher P et al 2013, 'Terminology and classification of muscle injuries in sport: The Munich consensus statement', *British Journal of Sports Medicine*, vol. 47, pp. 342-350.
3. Bruckner P et al 2014, 'Recurrent hamstring muscle injury: applying the limited evidence in the professional football setting with a seven-point programme', *British Journal of Sports Medicine*, vol. 48, pp. 929-938.
4. Rathleff, M. S., Mølgaard, C. M., Fredberg, U., Kaalund, S., Andersen, K. B., Jensen, T. T., Aaskov, S. and Olesen, J. L. (2015), High-load strength training improves outcome in patients with plantar fasciitis: A randomized controlled trial with 12-month follow-up. *Scandinavian Journal of Medicine & Science in Sports*, 25: e292-e300. doi: 10.1111/sms.12313

Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com

References

- Gijon-nogueron G, Fernandez-villarejo M. Risk Factors and Protective Factors for Lower-Extremity Running Injuries A Systematic Review. *J Am Podiatr Med Assoc*. 2015;105(6):532-40.
- Preece SJ, Mason D, Bramah C. The coordinated movement of the spine and pelvis during running. *Hum Mov Sci*. 2016;45:110-8.
- Lopes AD, Hespanhol Júnior LC, Yeung SS, Costa LO. What are the main running-related musculoskeletal injuries? A Systematic Review. *Sports Med*. 2012;42(10):891-905.
- Tenforde AS1, Yin A2, Hunt KJ3. *Phys Med Rehabil Clin N Am*. 2016 Feb;27(1):121-37. doi: 10.1016/j.pmr.2015.08.007. Foot and Ankle Injuries in Runners.
- Lugrin V, Borloz S, Millet GP. *J Strength Cond Res*. 2015 Jul 11. (Epub ahead of print) INFLUENCE ON STRENGTH AND FLEXIBILITY OF A SWING PHASE-SPECIFIC HAMSTRING ECCENTRIC PROGRAM ON K1, Taunton JE, Ryan MB, Clement DB, et al. A retrospective case-control analysis of 2002 running injuries. *Br J Sports Med*. 2002;36(2):95-101.

Endurance Athletes Physical Therapy and Sport Performance
www.RefinedRun.com