

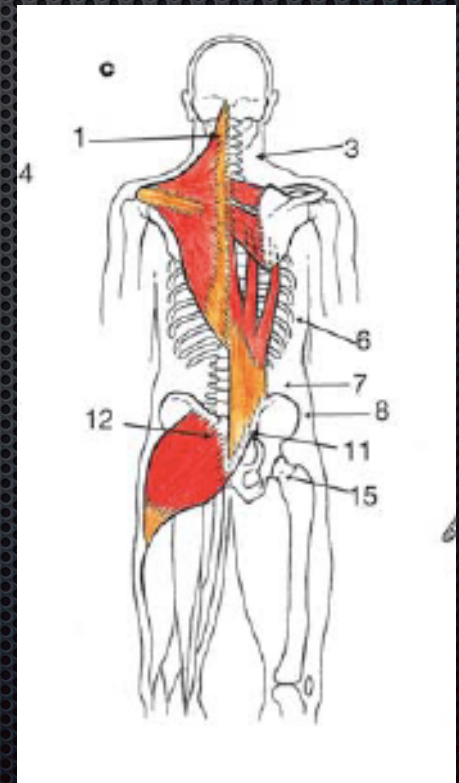
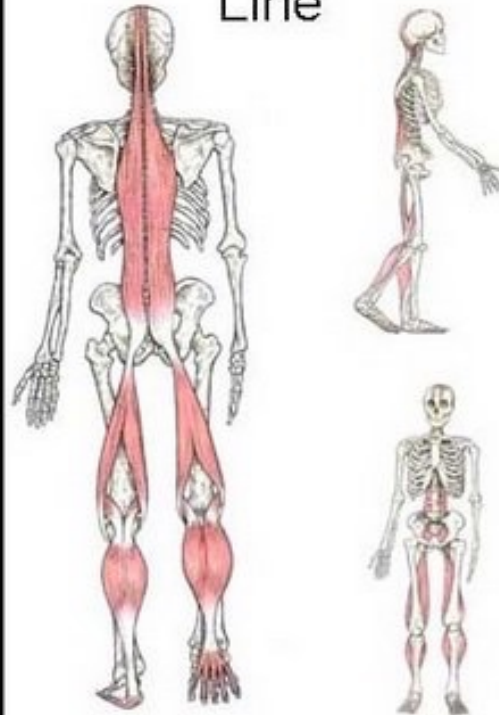
VIII) The Posterior Chain

LA SPORTS & SPINE

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Superficial Back Line



Glute Bridge Menu

1. 2L Bridge
2. 1L Bridge (w/ Cook regression)
3. Bridge w/ band
4. 2L Bridge w/ DB
5. 1L Bridge w/ DB
6. 1L Bridge w/ Heavy Band
7. 1 L Bridge w/ Manual Resistance
8. 1L Bridge w/ Band Resistance - Frontal Plane
9. 1L Bridge w/ Slider - Isometric
10. 1L Bridge w/ Slider - Lengthener

1. 2L Glute Bridges

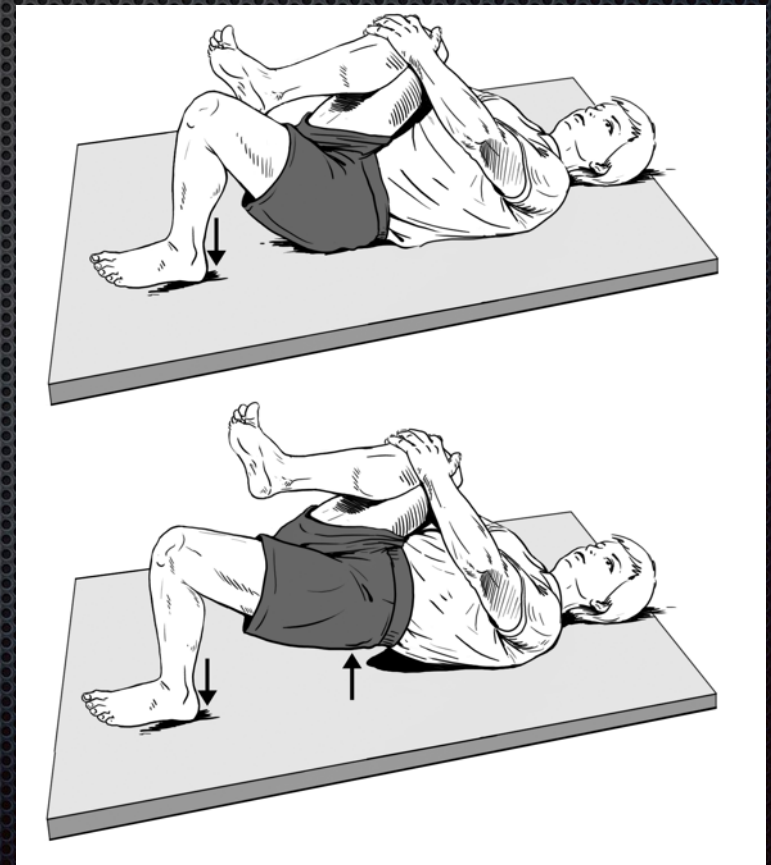
✦ /RM

2. 1L Glute Bridge

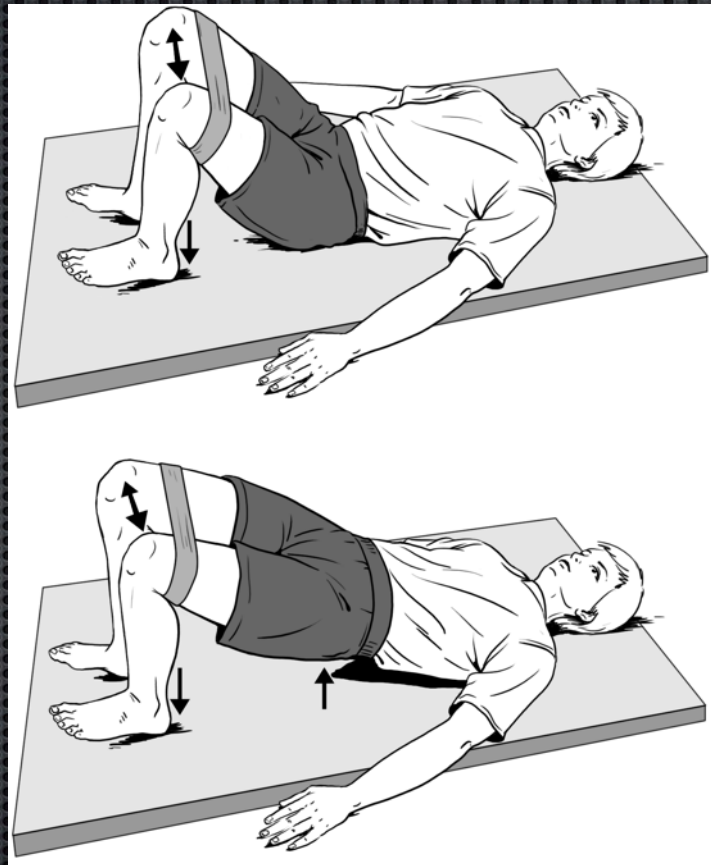
- ✦ 1 Leg Bridge & Kicks
- ✦ /RM



- Peel back from Gray Cook



3. Bridges w/ band



What does
the band
do?

4 & 5) 2/1 Bridge with DB

- ✦ Weight
- ✦ /RM

6. 1L Glute Bridge w/ Heavy Band Resistance

Alternate Band Placement



7. 1L Glute
Bridge w/
Heavy Band
Resistance &
Manual
Resistance

8. 1 Leg Bridge w/ Frontal Plane Resistance

1 Leg Bridge w/ Frontal Plane Resistance



9. 1 Leg Bridge w/ Slider - Isometric



✱ /RM

10. 1 Leg Bridge w/ Slider - Lengthener



✱ /RM

Acute hamstring injuries in Swedish elite football: a prospective randomized controlled clinical trial comparing two rehabilitation protocols.

Askling C, Tengvar M, Thorstensson A
Br J Sports Med. 2013

75 Swedish elite football players included

Askling 2016

Slider



Leg Curl - Slide Board



Distal Dominant

Leg Curl - 1 Leg Slide Board



Distal Dominant

Appendix

1) Bridge with
Sand Bag
Press (pulling
apart for Lat
activation)

2. Monster Walk

- ✦ Start in an athletic posture
- ✦ Band around metatarsals
- ✦ Step forward w/ arm & leg on the same side
- ✦ Alternate sides
- ✦ Perform backwards



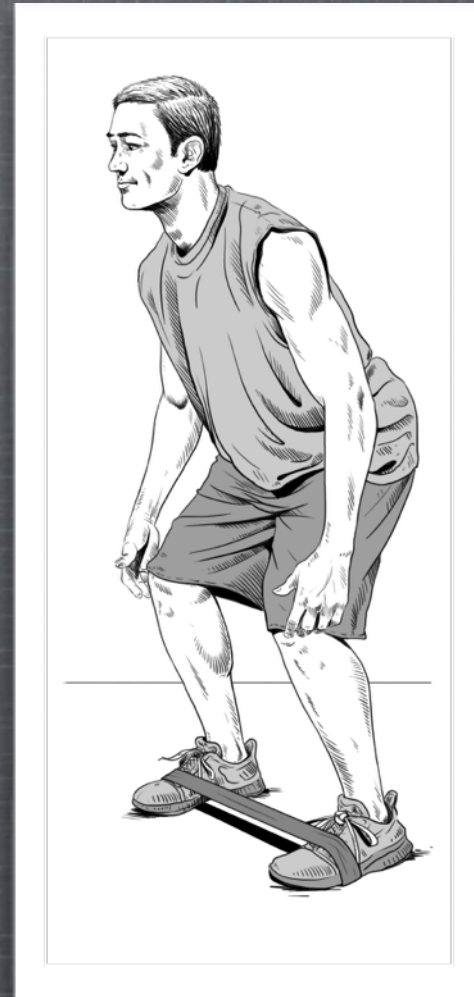


TEXT

- Start in an athletic posture
- Step forward w/ arm & leg on the same side
- Alternate sides
- Perform backwards

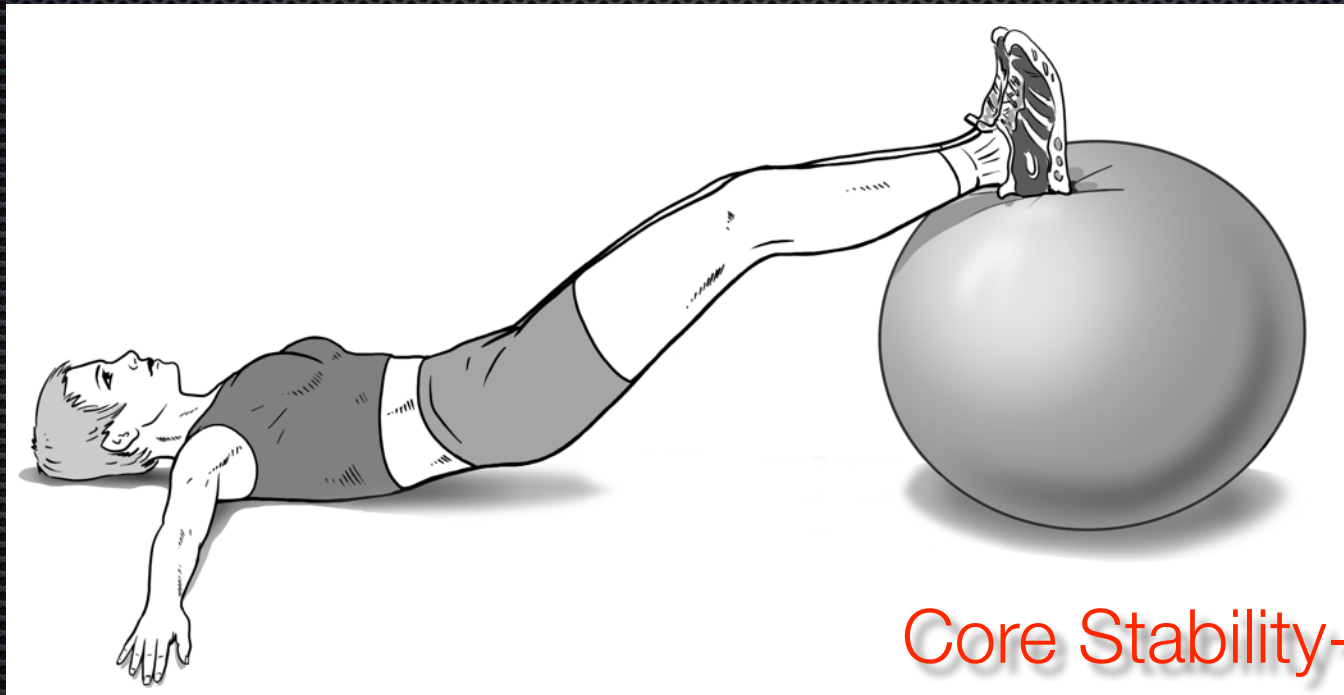
Common Mistakes

- Taking big steps
- Stepping like you are walking w/ arm leading - be sure arm & leg on same side move as a unit



3. Hamtrack

a. 2 leg bridge



Core Stability-
Post Chain
Exercise



“The frustration is in why hamstring injuries seem to hit so randomly and why some linger for weeks or months.”



How is it typically managed?



Arni Arnason, PT, PhD. Oslo Sport Science Research Center

- “If the sport requires high speed running I would be afraid of re-injury if they cannot perform heavy eccentric exercises like for example Nordic hamstring without pain in their hamstring muscles.”
- <http://www.ostrc.no/en/Person-listing/Arni-Arnason/>

Research on Eccentric Training

- <http://ajs.sagepub.com/content/39/11/2296.abstract?etoc>
- http://www.usatoday.com/sports/football/nfl/2006-12-18-hamstring-cover_x.htm
- Arnason A. Scand J Med Sci Sports. 2008 Feb;18(1):40-8. Epub 2007 Mar 12.
- Eccentric strength training with Nordic hamstring lowers combined with warm-up stretching appears to reduce the risk of hamstring strains, while no effect was detected from flexibility training alone.

Eccentric Hamstring Strength and Hamstring Injury Risk in Australian Footballers

August 18, 2014 · Med Sci Sport Exerc

Written by Opar et al.

Is eccentric hamstring strength and between limb imbalance in eccentric strength, measured during the Nordic hamstring exercise, a risk factor for hamstring strain injury (HSI)?

METHODS

STEP 1



Elite Australian footballers (n=210) from 5 teams participated. Eccentric hamstring strength during the Nordic was taken at the commencement & conclusion of preseason training & in season. Injury history & demographic data were also collected.

STEP 2



Reports on prospectively occurring HSIs were completed by team medical staff. Relative risk (RR) was determined for univariate data and logistic regression was employed for multivariate data.

RESULTS

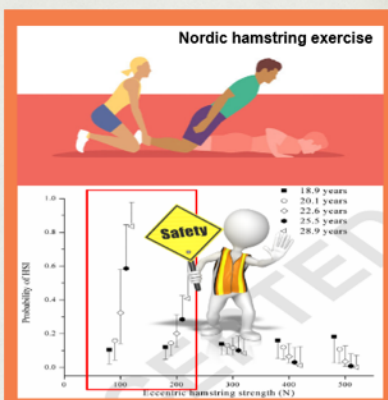
- 28 HSIs were recorded.

- Eccentric hamstring strength below 256N at the start of preseason & 279N at the end of preseason ↑ risk of future HSI 2.7 (relative risk, 2.7; 95% confidence interval, 1.3 to 5.5) and 4.3 fold (relative risk, 4.3; 95% confidence interval, 1.7 to 11.0), respectively.

- Btwn limb imbalance in strength of >10% did not ↑ the risk of future HSI.

- Analysis did not reveal ↑ relative risk for future HSI in athletes who had sustained injury of any kind within the last year.

- Interactions btwn both athlete age & history of HSI with eccentric hamstring strength were revealed. The likelihood of future HSI in older athletes or athletes with a history of HSI was ↓ if an athlete had high levels of eccentric strength.



CONCLUSIONS & PRACTICAL IMPLICATIONS

Low levels of eccentric hamstring strength increased the risk of future HSI. Interaction effects suggest that the additional risk of future HSI associated with advancing age or previous injury was mitigated by higher levels of eccentric hamstring strength.



Infographic by
@YLMsSportScience

Enhancing Movement Efficiency | 33

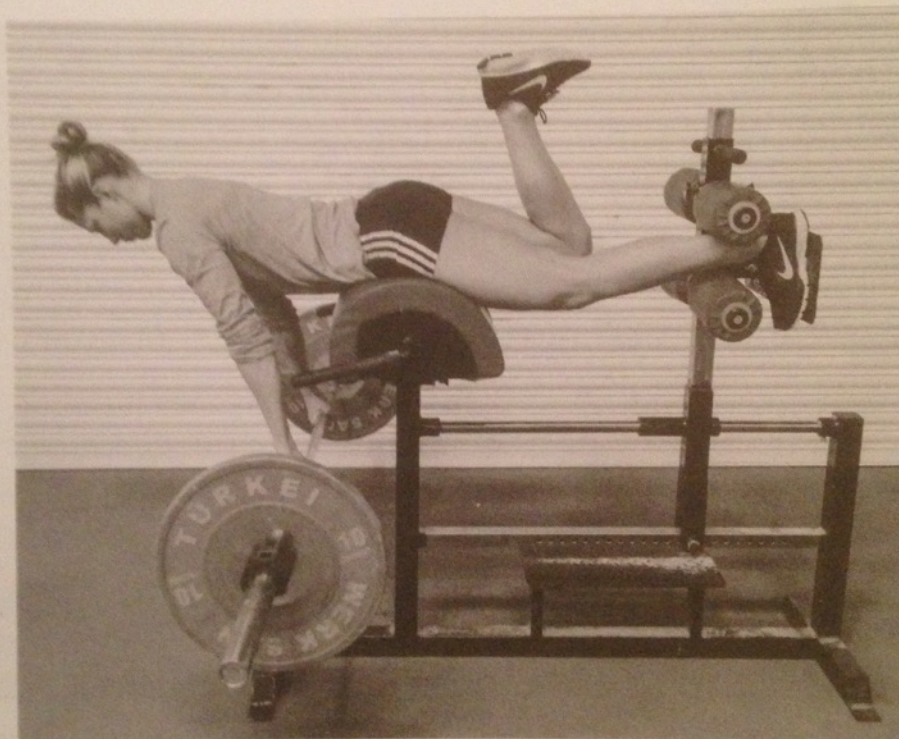


Figure 3.2 Single-leg isometric hip extension with a lower-limb position that reflects the midstance phase of fast running.

D Joyce

Most sports require Repeated Sprint Ability (RSA)

- To increase **anaerobic capacity** perform **High-intensity Training** - repeated 30s all out efforts followed by 10m rest
- To improve the **ability to recover bet. sprints** “**fatigue resistance**” perform **Interval Training** w/ rest periods shorter than the work periods (80-90% VO₂ max)

Designed by
@YLMSportScience



Repeated Sprint Ability: Recommendations for Training

Reference: Bishop, Girard & Mendez-Villanueva, Sports Medicine, 2011

1

A DETERMINANT FACTOR

Repeated sprint ability (RSA) is an important fitness requirement of team-sport athletes, and it is important to better understand training strategies that can improve this fitness component



TWO THEORIES

In the absence of strong scientific evidence, two principal training theories have emerged. One is based on the concept of training specificity and maintains that the best way to train RSA is to perform repeated sprints. The second proposes that training interventions that target the main factors limiting RSA may be a more effective approach

2

3

A COMPLEX COMPONENT

RSA depends on both metabolic (e.g. oxidative capacity, PCr recovery and H⁺ buffering) and neural factors (e.g. muscle activation and recruitment strategies) among others



TRAINING METHODS

4

Different training strategies can be used in order to improve each of these potential limiting factors, and in turn RSA



5

KEY TRAINING PRINCIPLE #1

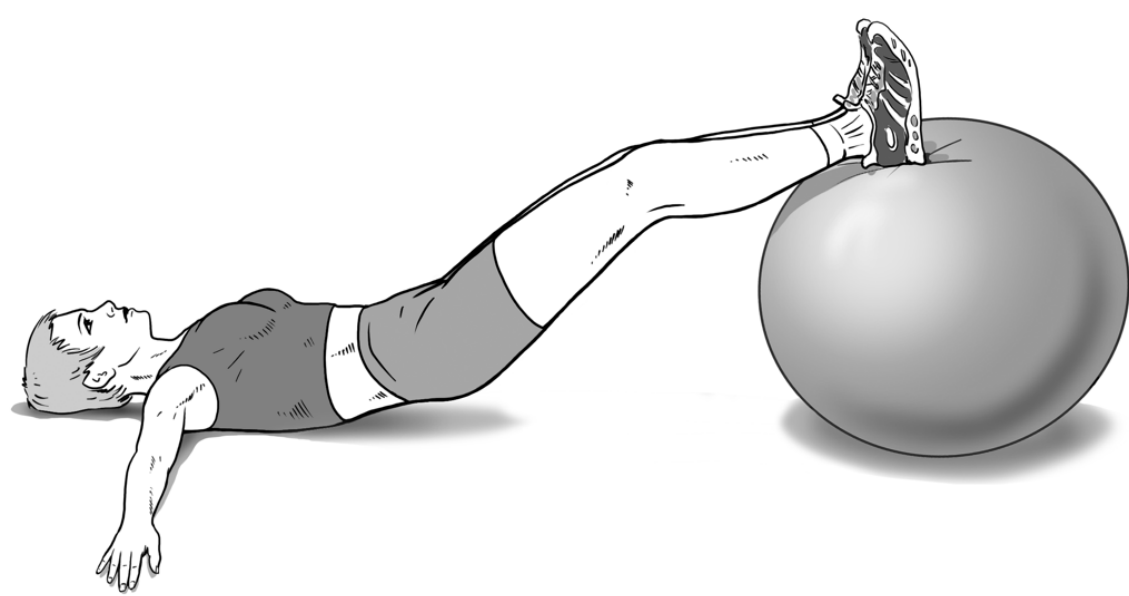
It is important to include some training to improve single-sprint performance. This should include (i) specific sprint training; (ii) strength/power training; and (iii) occasional high-intensity training (e.g. repeated, 30s, all-out efforts separated by ~10 min of recovery) to increase the anaerobic capacity



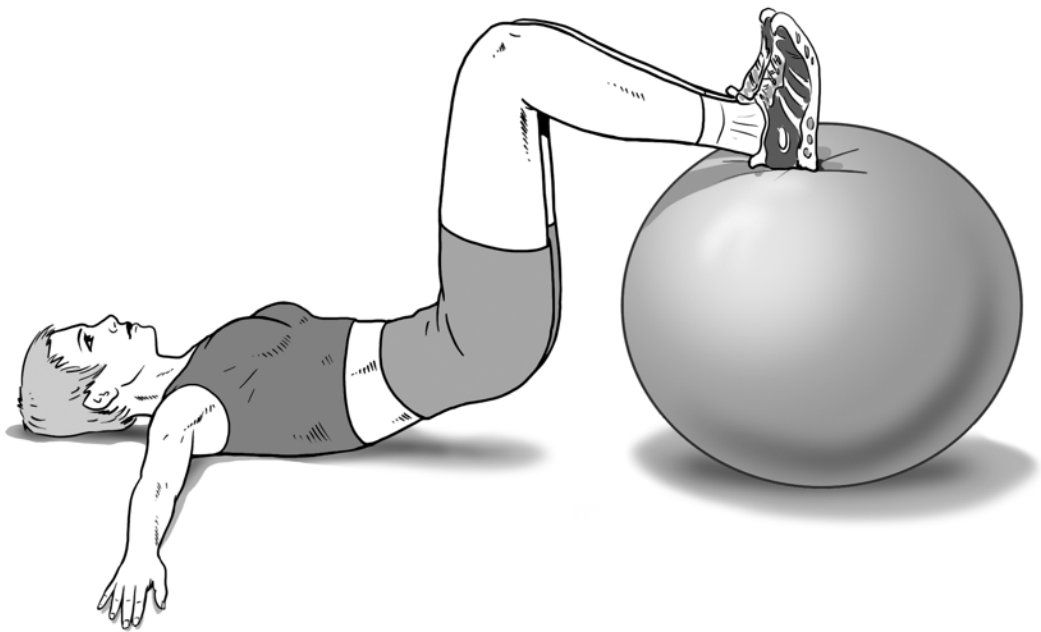
KEY TRAINING PRINCIPLE #2

It is also important to include some interval training to best improve the ability to recover between sprints (if the goal is to improve fatigue resistance). High-intensity (80–90%VO₂max) interval training, interspersed with rest periods that are shorter than the work periods is efficient at improving the ability to recover between sprints by increasing aerobic fitness (VO₂max and the lactate threshold), the rate of PCr resynthesis

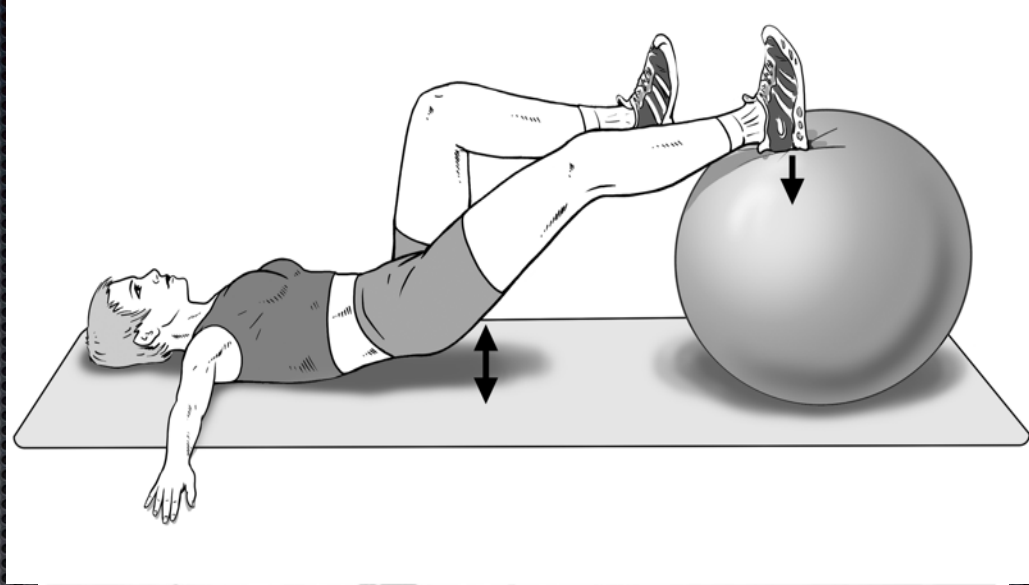
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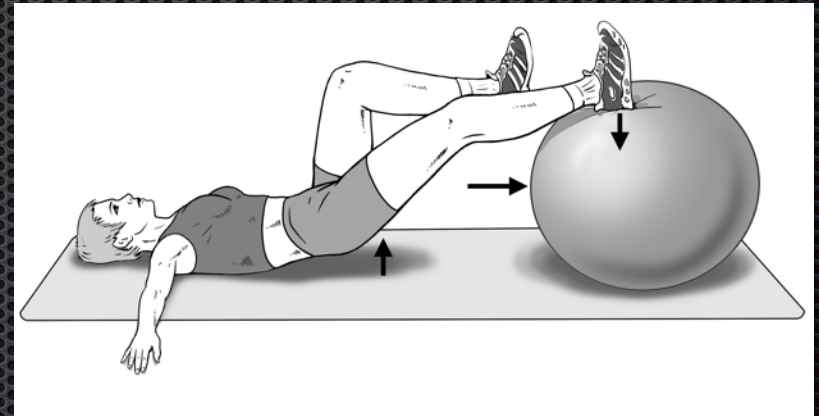
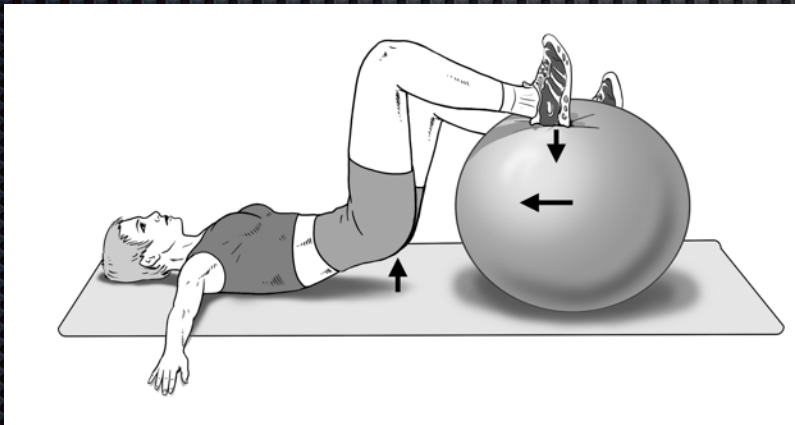
b. Ham
Curls - 2 leg



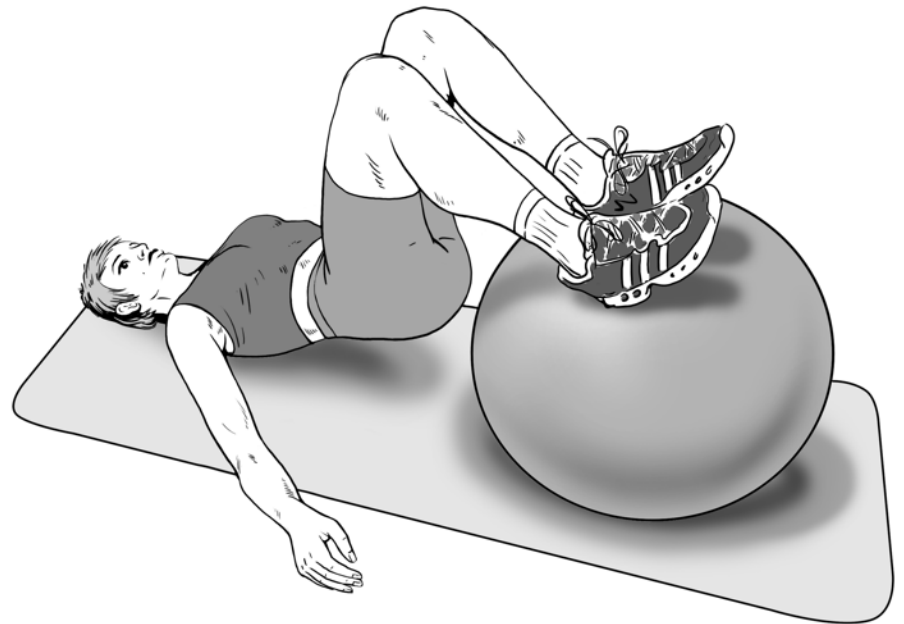
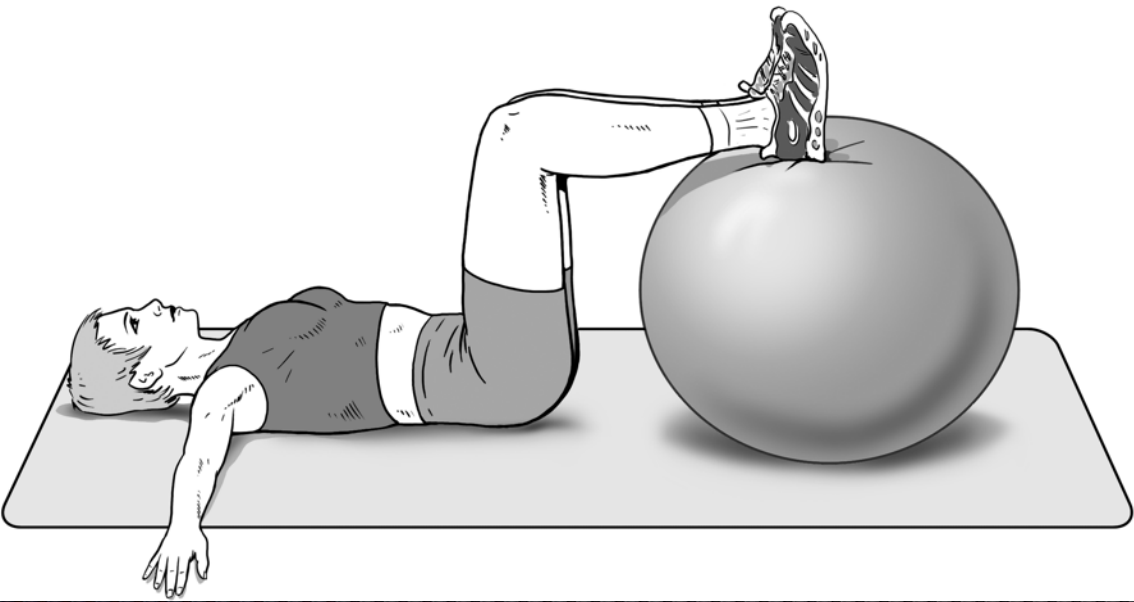
c) Bridge Up/Down - singles



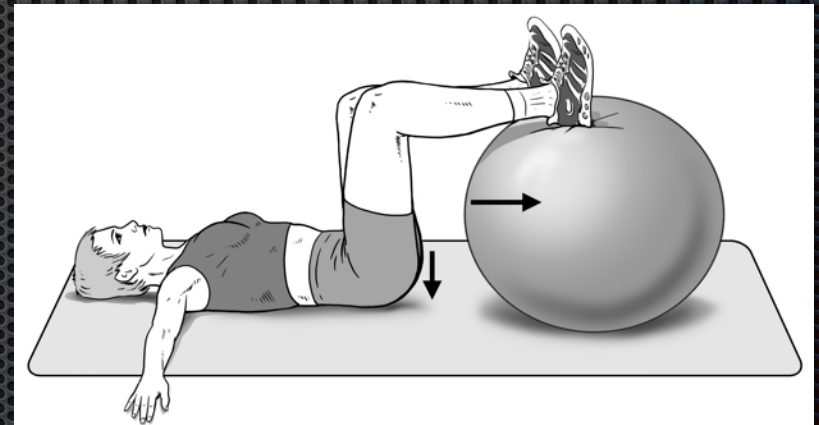
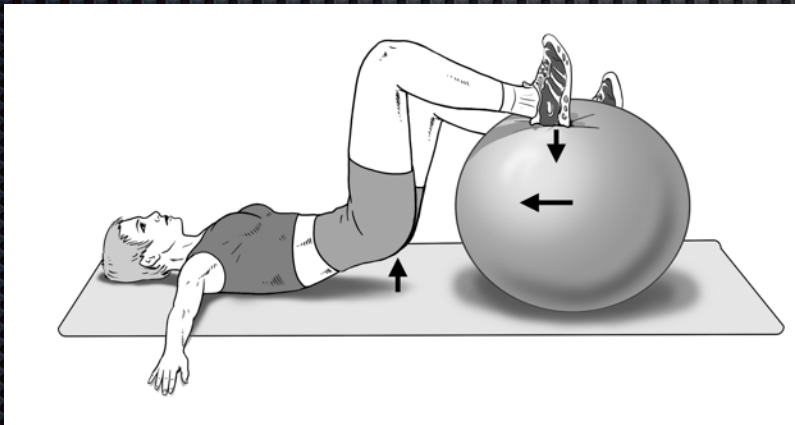
d) Ham Curl - Singles



e) Inner
Range
Ham Curls



f) Inner Range Ham Curl - Singles



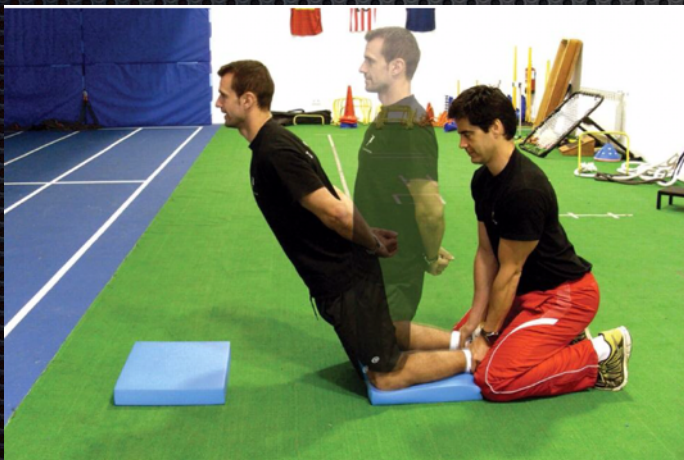
4. Nordic Hamstrings



- Kneel down and lock your feet under a stationary object
- Maintain a tight core and body position throughout entire movement
- Keep trunk upright and arms alongside of the body
- Lower yourself as slowly as possible by producing a powerful hamstring contraction
- If possible pull yourself back up on your own, do so, if not use a slight push off of the ground with your hands to assist you

Key Points

- You can have a partner hold your feet instead
- Do not bend at the waist



Safety Check



Nordic Hamstrings







drjasrandhawa

Altis >

...



► 324 views

drjasrandhawa The sprints and hurdles crew at [@altisworld](#) having been utilizing razor curls this cycle. [@mr._200](#) demonstrates one of the many variations of this exercise which will make it easy to implement when you don't have a GHR or if you work with large groups.



Razor Curl - Ground Based



Integrated

RUSSIAN HAMMIES



Evaluation for Hammie:

Askling H-test

Askling H-test

Askling C, Nilsson J, Thorstensson A
Knee Surg Sports Traumatol Arthrosc. 2010

RAAting 2014

Askling H-test

- clinical examination – no signs of remaining injury
- knee brace to keep the leg in extension
- straps stabilizing the upper body/contralateral leg
- perform SLR as fast as possible to the highest point
- 3 trials per leg/uninjured leg first/no warm-up
- if experienced any insecurity (VAS) – extended rehab.



Additional training for Hammie: L Protocol

Acute hamstring injuries in Swedish elite football: a prospective randomized controlled clinical trial comparing two rehabilitation protocols.

Askling C, Tengvar M, Thorstensson A
Br J Sports Med. 2013

75 Swedish elite football players included

Askling 2018

Hip Ext. w/ Theraband®



Diver



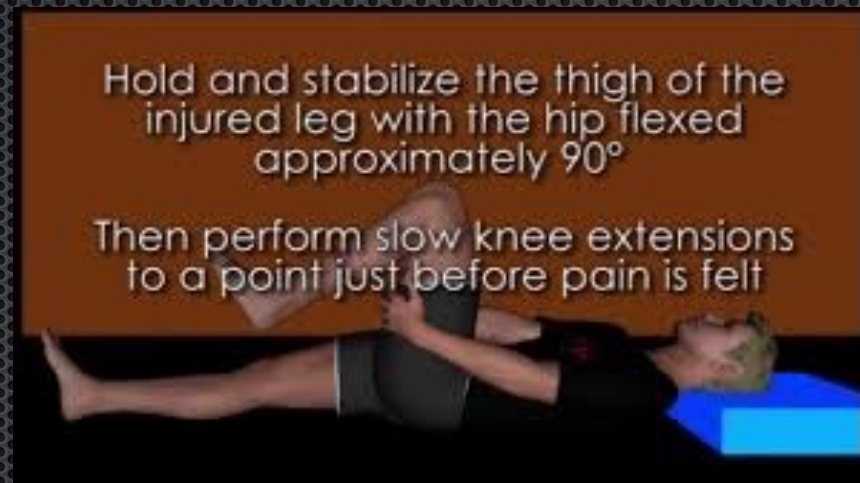
Glider



Slider



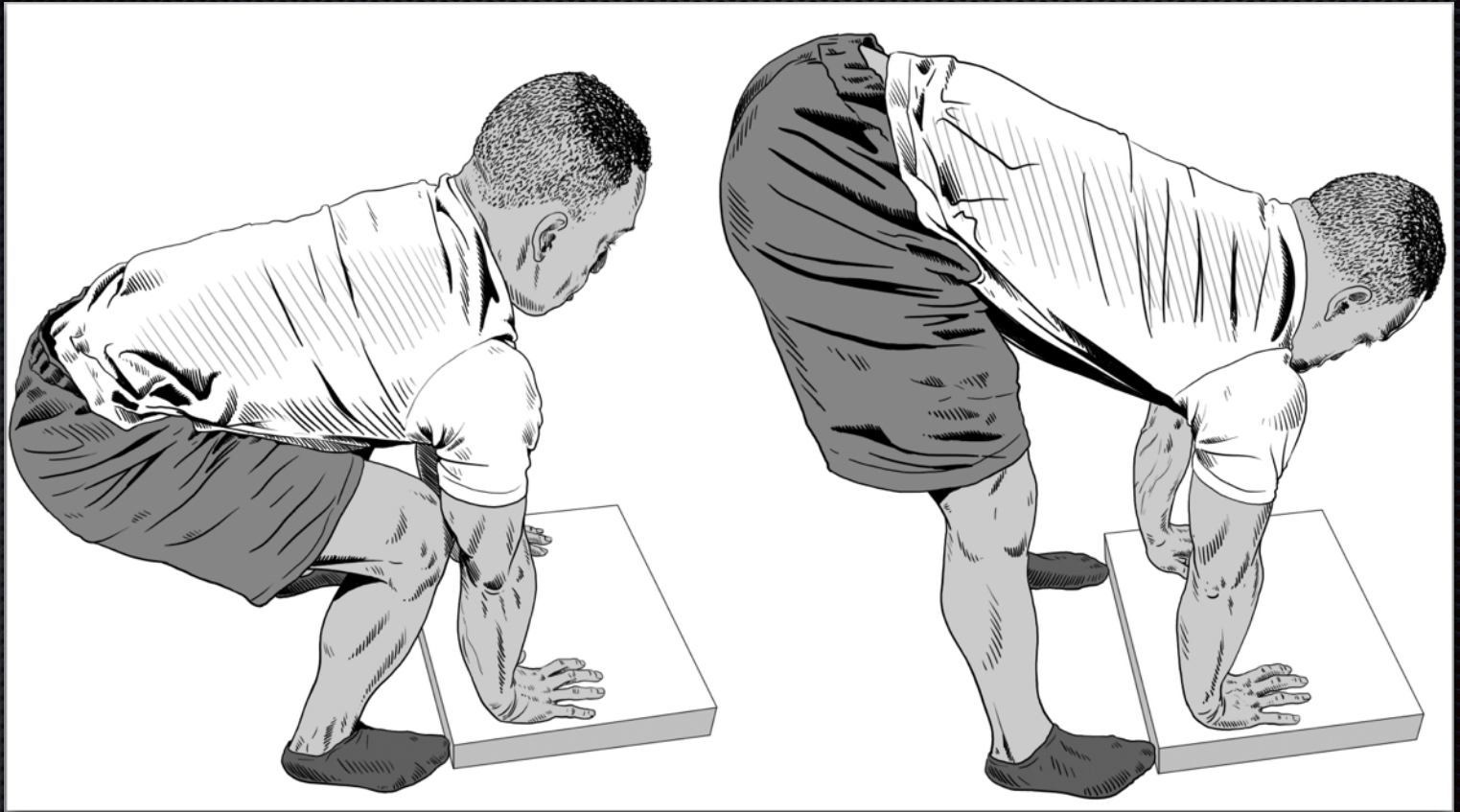
Additional training for Hammie: “The Extender”



FMS ALSR Corrective



5. Modified Bear/Frog





6. Sitting Back

