

HOW TO STRENGTHEN YOUR ANKLES

BY THOMAS YAMAN



INTRO

First of all, thank you for taking the time to read my e-book and I'm guessing that if you are, you have had or are currently treating an ankle injury and would like to know how you can reduce the chances of it happening again.

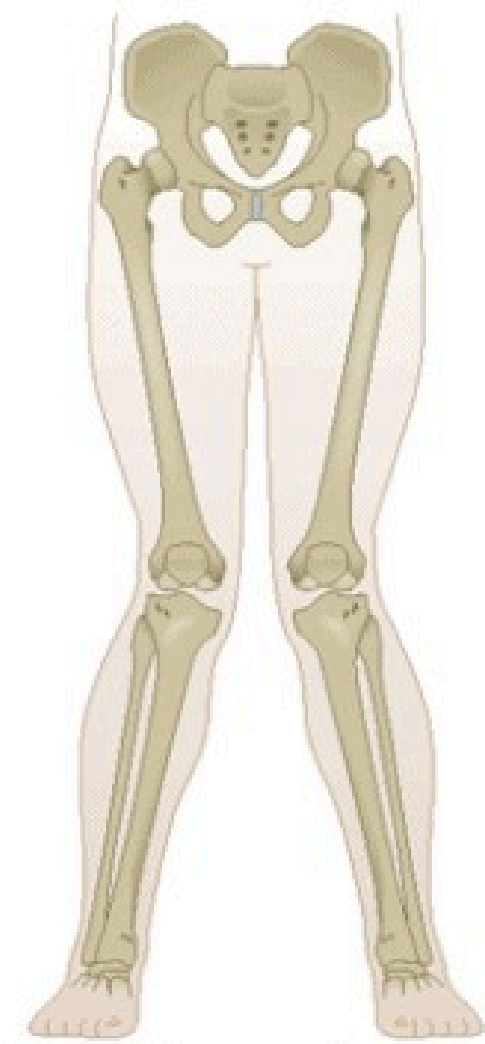
What's important to note from this e-book is that it is simply giving you a general guide on how you can help reduce your chances of another sprain based on the muscles that mobilize your ankle. This is important because "the more leg, ankle and foot strength the athlete has, the less chances of injury he will also have." (Osberg et al. 1998, Kyle et al. 2002) - 1 Performing isolated exercises are important within your routine, but not as important as you perfecting your sports specific movements like a squat or a lunge or any exercise that incorporates multiple muscle groups, also known as "compound movements". This is, purely because you wouldn't be doing a single leg calf raise on your board, you'll be more likely balancing on one leg to push or performing a squat jump to jump and execute a trick.

Hence why getting a feel for the muscles you are going to be using in this e-book during an activation phase of your workout, is a great way to get a feel for which muscles you need to work on to better your sports specific movements in the gym and get stronger. This will then help you strengthen your movement patterns and the areas that you are less likely to use when skateboarding and aren't aware that you weren't using due to your unique style or skating stance. So basically strength training is a great way to complement your skateboarding and help you withstand "impact forces consistently in the 9-17 x BW range" -2 which is the amount of force that skateboarders can place on their limbs whilst attempting an 8 stair handrail.

What isolated movements do i need to work on for my ankle and to perfect sports specific movement patterns.

One size does not fit all and depending on how you move, you might need to work on a number of muscles. In this picture you will see how having flat feet that turn out can cause a domino effect on the knees and therefore hips. The knees cave in and pressure is placed on the corner of the hip (the tensor fascia latae).

Depending on where the problem originally came from before you sprained your ankle, which could have been from your ankles, knees, hips, back, shoulders, neck, this would have had an impact on the connected joint and because each joint (the kinetic chain) plays a huge part on how the next one moves. Stretching the ones you use all the time when skating or during your day by day activities and also strengthening the ones you don't use is a good start to your strength training jouney.



How do i know which muscles i need to stretch and which ones I need to strengthen ?

Because when one muscle works to create force, an opposite muscle will support the muscle creating force, there are certain muscles that aids an athlete's feet to flatten and turn out or heel of foot to rise when performing a squat. These are the overactive muscles that need foam rolling and stretching. Feet that flatten and turn out tends to be a popular problem for a lot of people with ankle problems. The muscles that are overactive in this case are : The Peroneal complex, Lateral Gastrocnemius, Bicep femoris (short head), Tensor Fasciae Latae, Soleus. The muscles that the athlete would need to strengthen, activate and use to improve movement are : The Anterior Tibialis, Posterior Tibialis, Medial Gastrocnemius and Gluteus Medius.

But don't worry I will show you exactly how to stretch and activate these muscles in this e-book.

Do I need a gym membership?

No, However if you don't have one it's best to purchase a foam roller and some resistance bands and you can purchase these items by clicking on the links below.



Medium density foam roller



Fitness mad resistance bands

The Scientific Rationale Behind Self-Myofascial Release. (Also Known As Foam Rolling)



“SMR can be used for two primary reasons:

1. To alleviate the side effects of active or latent trigger points.
2. To influence the autonomic nervous system” -3

“SMR is believed to stimulate the receptors through sustained pressure at a specific intensity, amount, and duration to produce an inhibitory response to the muscle spindle and decrease gamma loop activity. This concept has been supported in a randomized controlled trial study by Hou and colleagues, who reported that ischemic compression (pressure from an object) at a high intensity (maximal pain tolerance) for a low duration (30 seconds) or at a low intensity (minimal pain threshold) for a longer duration (90 seconds) significantly reduced pain and trigger point sensitivity. Furthermore, when applied in conjunction with stretching techniques, it was shown to significantly increase range of motion.” -4

SELF MYOFASCIAL RELEASE

KEY APPLICATION POINTS FOR SELF-MYOFASCIAL RELEASE

- 1. Make sure you maintain proper postural alignment while performing SMR.
- 2. Maintain the drawing-in maneuver (pulling the navel in toward the spine) at all times to provide stability to the lumbo-pelvic-hip complex during treatment.
- 3. You may use your extremities to alter the amount of weight on the treatment area to decrease or increase pressure on the soft tissue. For example, when foam rolling the calves, you may cross the free leg over the treated leg to increase pressure or keep the legs uncrossed to decrease pressure.
- 4. Roll the device slowly over the treatment area. Do not roll the device over the area quickly to decrease the risk of further tissue excitation. Remember, the goal is to inhibit the overactive tissue.
- 5. Relax and do not tighten up while working on an area. Tension in the tissue being treated will prevent the roller from penetrating into the deeper layers of soft tissue.
- 6. Pause the rolling action over painful areas until a “release” is felt in the area or the pain subsides and the tissue softens (roughly 30 seconds with maximal pain tolerance and 90 seconds for lower pain tolerance).
- 7. Areas that have myofascial restrictions will be more painful to mobilize. As soft tissue restrictions break down with subsequent sessions, treatment will become less painful. -5

SELF MYOFASCIAL RELEASE

PRECAUTIONS AND CONTRAINDICATIONS

- Anyone using SMR techniques should follow the same precautionary measures as those established for massage or myofascial release. As is the case with any form of exercise, an appropriately licensed medical professional should be consulted for further information and direction. SMR should be cautioned or avoided by people with congestive heart failure, kidney failure, or any organ failure such as the liver and pancreas, bleeding disorders, and contagious skin conditions (28). If a person has cancer, they should consult with the physician before using SMR because under certain circumstances such treatments should not be applied. For example, sometimes massage, pressure, or tension can damage tissue that is fragile from chemotherapy or radiation treatments (28). Other contraindications for SMR are shown in the following table. Make sure you maintain proper postural alignment while performing SMR. -6

✔ CONTRAINDICATIONS FOR SELF-MYOFASCIAL RELEASE	
Malignancy	Goiter (enlarged thyroid)
Osteoporosis	Eczema and other skin lesions
Osteomyelitis (infection of bone tissue)	Hypersensitive skin conditions
Phlebitis (infection of superficial veins)	Open wounds
Cellulitis (infection of soft tissue)	Healing fractures
Acute rheumatoid arthritis	Obstructive edema
Blood clot	Advanced diabetes
Aneurysm	Hematoma or systemic or localized infection
Anticoagulant therapy	Febrile state
Bursitis	Advanced degenerative changes
Sutures	Organ failure
Congestive heart failure	
Bleeding disorders	

Now Let's Get To Work

Aim for the right side of the right calf and left side of the left calf as it's the lateral aspect that you really want to be aiming for.



Calves



Peroneals



IT-Band



TFL

Bicep femoris (short head)

Aim for the lateral aspect behind your knee, aiming to come only as far as half way up your leg.



Soleus





Hamstrings



Adductors

Static Stretching

“During the last half century static stretching has been the most common flexibility training technique used by health and fitness professionals (1 , 2).

Static stretching is a flexibility technique used to increase the extensibility of muscle and connective tissue (lengthening) and thus ROM at a joint (1 , 2). Although the exact mechanisms responsible for the efficacy of static stretching are not fully understood, it is believed that static stretching may produce both mechanical and neural adaptations that result in increased range of motion” - 7

“Most research studies on static stretching have shown a frequency of five days per week using 1-4 repetitions for the duration of 15-30 seconds to be most beneficial for the apparently healthy population between the ages of 15 and 45 years of age” -8

Precautions	Contraindications
Special populations Seniors Hypertensive patients Neuromuscular disorders Joint replacements	Acute injury or muscle strain or tear of the muscle being stretched Acute rheumatoid arthritis of the affected joint Osteoporosis (NMS)

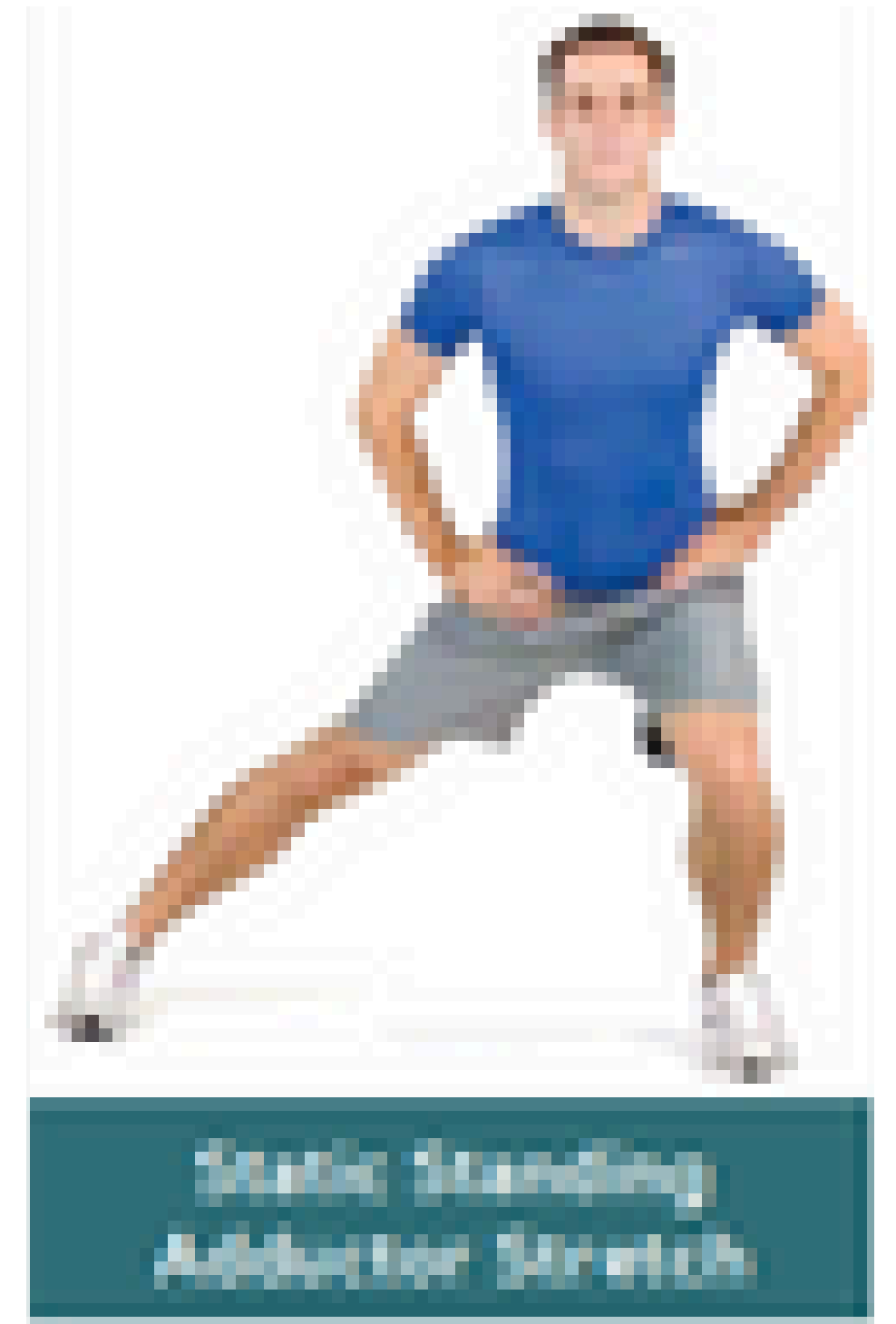
Table 1



For the calf stretch (Lateral gastrocnemius) Internally rotate the back foot and keep the back heel on the floor.



For the soleus keep the back foot straight and keep the back heel on the floor





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TFL Stretch

What isolated movements do i need to work on to strengthen my ankles ?

The good news is that all these exercises are a great way for you to start working on strengthening and getting better and more stable ankles, because creating awareness on how to perfect your movement will only help with you utilizing the muscles you aren't used to using when you skate.

Isolated strengthening

“Isolated strengthening is a technique used to increase intramuscular coordination of specific muscles. This is achieved through a combination of enhanced motor unit activation, synchronization, and firing rate. Each of these parameters is known to increase the strength of a muscle contraction. Intramuscular coordination is known to be developed through traditional resistance exercises focusing on a particular muscle. More importantly, however, is the increased activation of the muscle throughout the full ROM of a joint or joints associated with the particular muscle. This is important to achieve before performing integrated exercises to avoid overcompensation of synergistic muscles (synergistic dominance).

Isolated strengthening exercises can be performed immediately after inhibitory and lengthening techniques. Although there is no specific scientific evidence to support this claim, clinically it has produced favorable results.” -9

Isolated strengthening

PRECAUTIONS AND CONTRAINDICATIONS FOR ISOLATED STRENGTHENING

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Precautions	Contraindications
Special populations Neuromuscular disorders Clients with poor core stabilization strength	Acute injury or muscle strain or tear of the muscle being strengthened Acute rheumatoid arthritis of the affected joint Impaired joint motion Pain produced during the movement

Table 2

Frequency	Sets	Repetitions	Duration of Rep
3-5 days per week	1-2	10-15	2 seconds isometric hold at end-range and 4 seconds eccentric

Table 3

Exercises you can do for your ankles

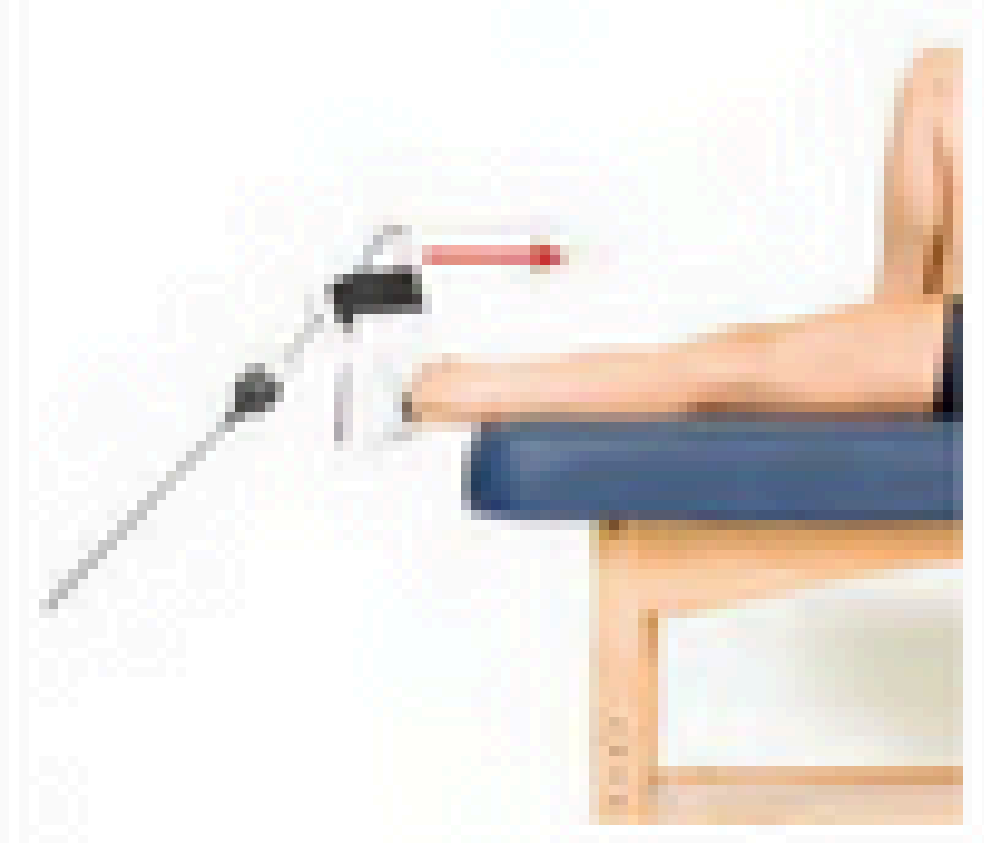
Isolated Strengthening Exercises: Foot and Ankle



Towel Scrunches



Anterior Tibialis, Start



Anterior Tibialis, Finish

If you are using a resistance band you can attach it to somewhere stable and always use a book to place your calf onto it so that the resistance band and your foot may move freely when performing the exercise.

Exercises you can do for your knees



Posterior Tibialis, Start



Posterior Tibialis, Finish



Medial Gastrocnemius, Start



Medial Gastrocnemius, Finish

Exercises you can do for your hips



Medial Hamstring, Start



Medial Hamstring, Finish

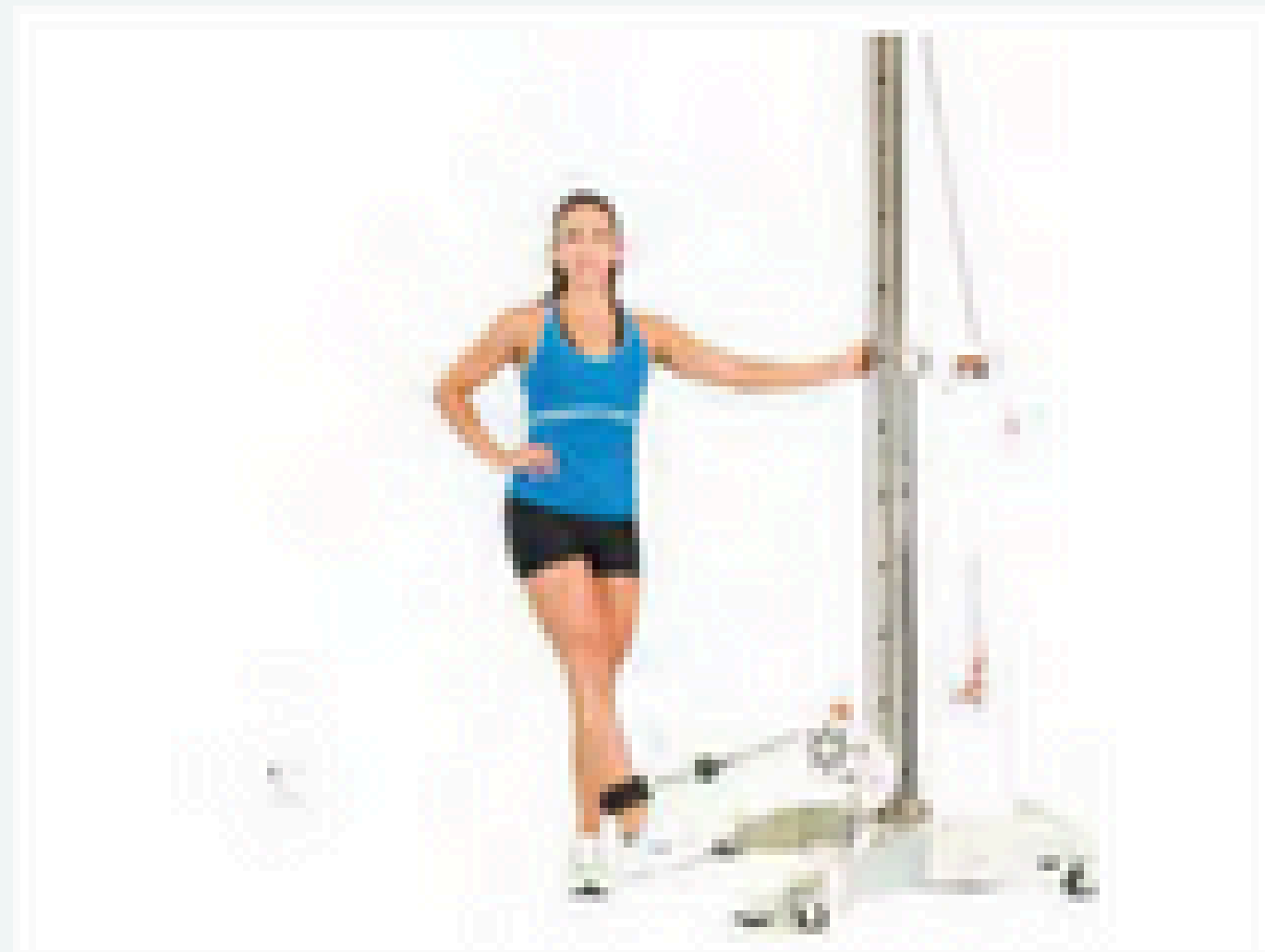


Ball Bridge, Start



Ball Bridge, Finish

Other exercises you can do for your hips



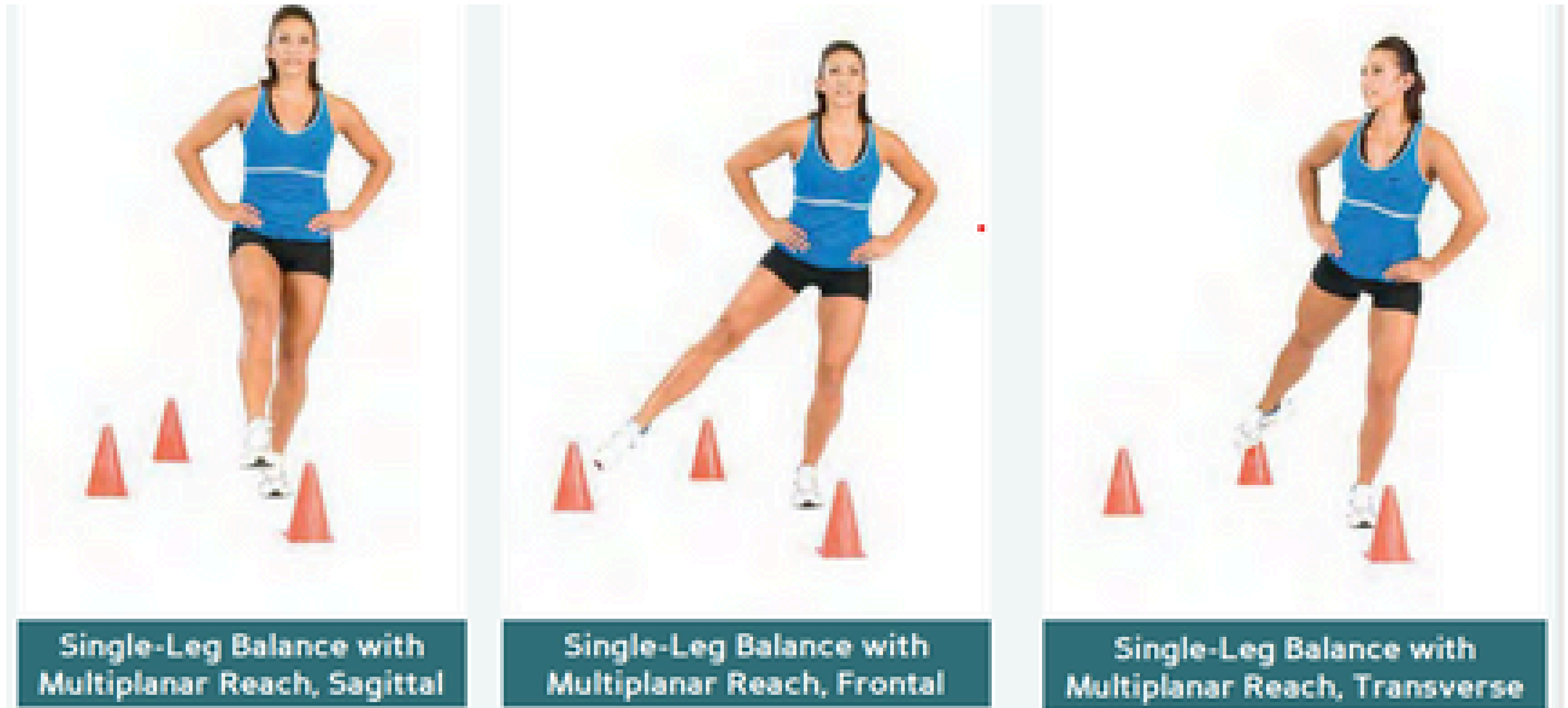
Standing Gluteus
Medius, Start



Standing Gluteus
Medius, Finish

If you are using resistance bands you can attach the resistance band around a stable object or around your other leg and replicate the same movement.

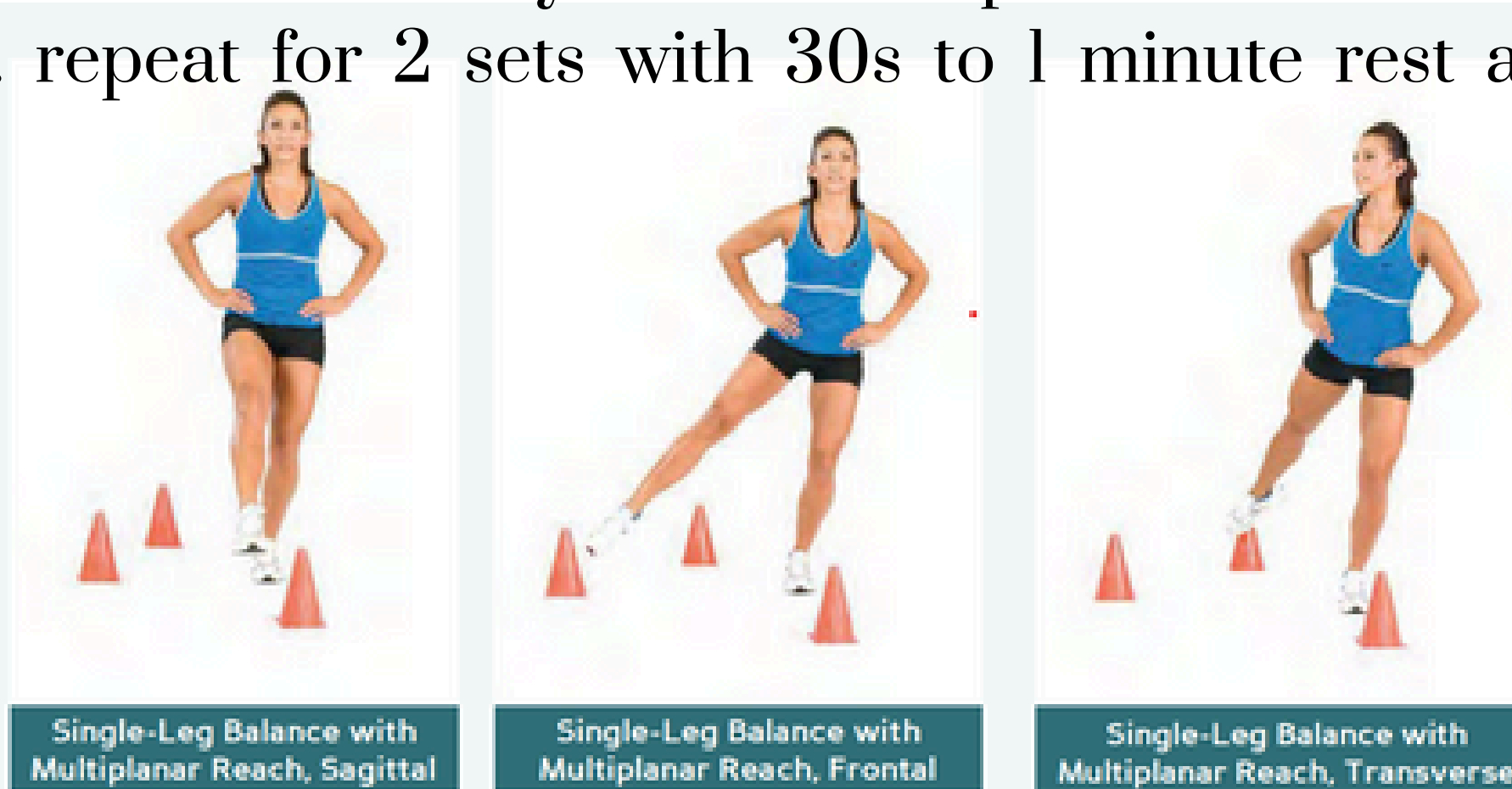
The single leg multiplaner reach



Once you have worked the underactive muscles , it's time to see how you can feel these muscles while performing a multiplaner reach.

Good form, slow and controlled

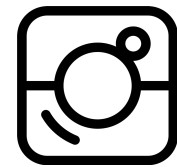
Practice good form and really try to feel your calf, front bit of the ankle (The Tibialis Anterior) and arch working while maintaining the knee of the supporting leg bent and in line with the second and third toe. Avoid knee caving in and leaning forward. Keep your chest up and perform a single leg squat at a comfortable depth and keep that depth stable before moving the other leg to a 12 o'clock (Sagittal plane), then 3 o'clock (Frontal plane) and then 5 o'clock position (Transverse plane). Your knee that is stable should not move and the supporting foot's arch stabilizing the movement should feel active, this can be done by trying to push down your toes towards the ground like an eagle's claws. Aim to complete the circle 3 times and by keeping the toes of the moving foot close to the ground without using it to balance. Once you have completed all 3 circles on one side, try the same thing on the other side. repeat for 2 sets with 30s to 1 minute rest after both sides have been completed.





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🧠 Sports science-driven approach
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www.boardybuildingfitness.com

References

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- 2 - (PDF) Biomechanics of Skateboarding: Kinetics of the Ollie (researchgate.net) Last paragraph of page 33.
- 3 Nasm CES textbook Chapter 9 – Inhibitory Techniques: Self-Myofascial Release 20
- 4 Nasm CES textbook Chapter 9 – Paragraph 3, Inhibitory Techniques: Self-Myofascial Release 20
- 5 Nasm CES textbook Chapter 9 – Paragraph 3, Inhibitory Techniques: Self-Myofascial Release page 213
- 6 Nasm CES textbook Chapter 9 – Middle of page page 214, Section 3 - Inhibitory Techniques: Self-Myofascial Release
- 7 Nasm CES textbook Chapter 10 – Bottom of page 220 Section 3 – The Corrective Exercise Continuum -
- 8 Nasm CES textbook Chapter 10 – Top of page 230 Section 3 – The Corrective Exercise Continuum
- Table 1 - Nasm CES textbook Chapter 10 – Top of page 230 Section 3 – The Corrective Exercise Continuum
- 9 - Nasm CES textbook Chapter 11 – Activation and Integration Techniques page 241– The Corrective Exercise Continuum
- Table 2 - Nasm CES textbook Chapter 11 – Activation and Integration Techniques 243 The Corrective Exercise Continuum
- Table 3 - Nasm CES textbook Chapter 11 – Activation and Integration Techniques 243 The Corrective Exercise Continuum