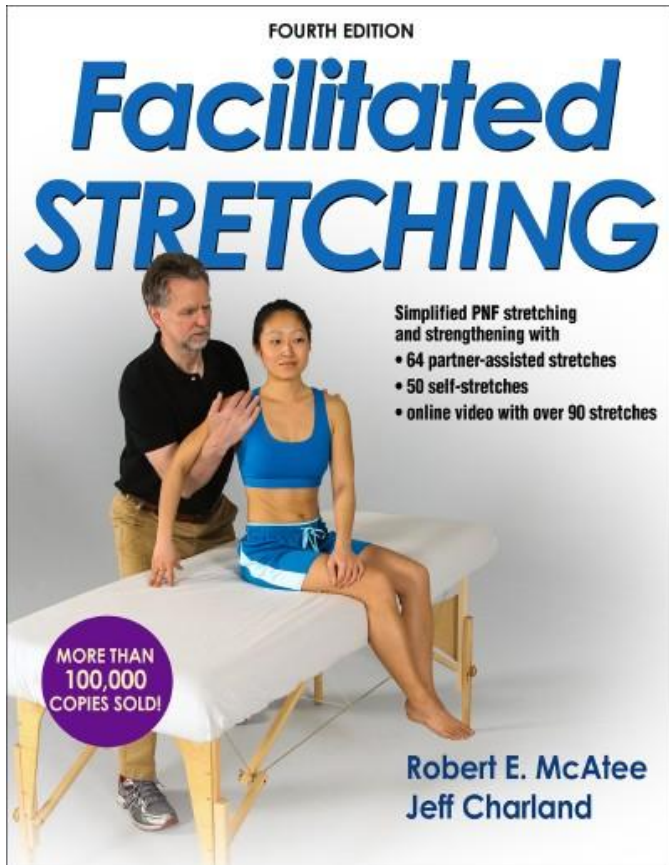


Welcome to the webinar!

Foundations of Facilitated Stretching with Bob McAtee, RMT, CSCS, C-PT

- If you're having problems with the audio, you may call in by clicking on the "use telephone" option in the audio tab and dialing in with the number and audio pin provided.
- Your microphones are muted. Feel free to ask me questions using the question/chat box in the lower right-hand corner of your screen.
- Please submit questions for our presenter throughout the presentation using the questions tab. Questions will be addressed during a Q&A session at the end.
- The webinar will be recorded -- a link to the recording will be e-mailed to you by the end of the week. The recorded webinar will be available at www.HumanKinetics.com/Webinars.
- For additional questions, view the webinar FAQs found at www.HumanKinetics.com/Webinars.

Foundations of Facilitated Stretching



Presented by
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Defining Flexibility

- Flexibility can be defined as the range of motion about a joint or a group of joints.
- Flexibility is specific to the joint and plane of movement.
- Flexibility varies from joint to joint



Flexibility<<< >>>> Stability

- Increased flexibility results in decreased stability.
- A certain minimum range is required to safely and optimally carry out a given activity.
- Training goal: develop flexibility within the needs and abilities of the client.



PNF Stretching Techniques

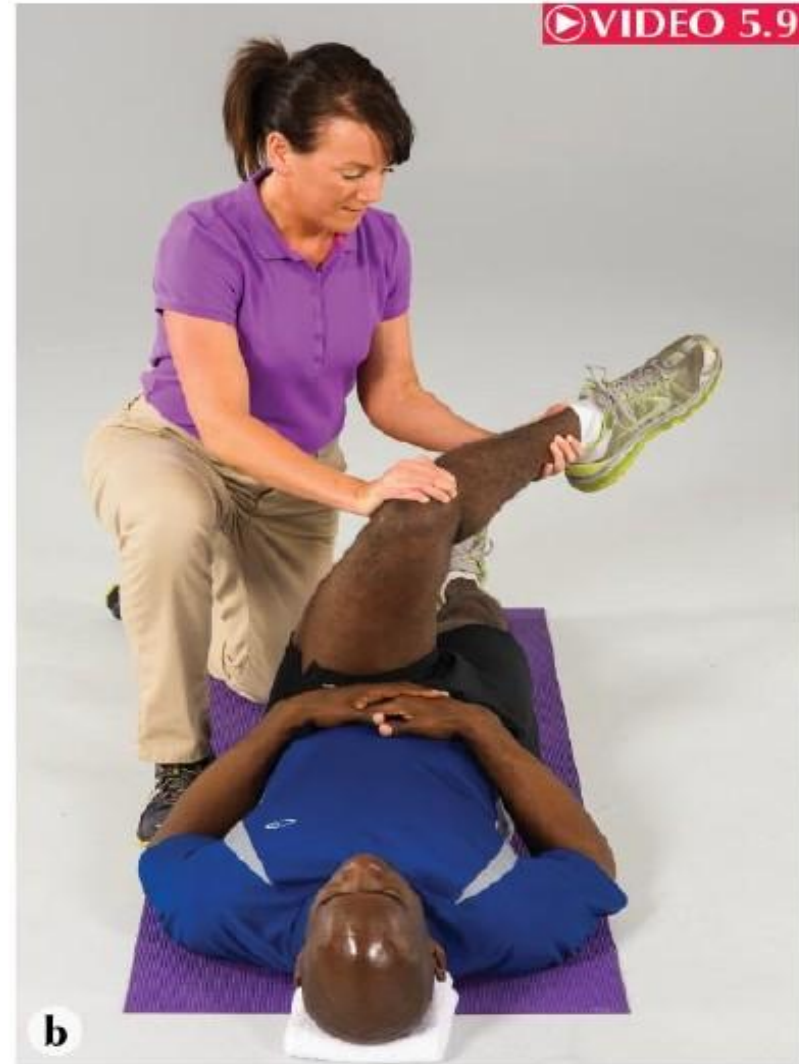
- PNF (proprioceptive neuromuscular facilitation) is a physiotherapy modality that seeks to enhance neuromuscular function by activating proprioceptors through facilitation, inhibition, strengthening, and relaxation of selected muscle groups.
- PNF stretching techniques are a small component of the entire PNF repertoire.

Four Main PNF Stretching Techniques

- Agonist contract (reciprocal inhibition)
- Contract-relax stretching (CR)
- Hold-relax stretching (HR)
- Hold-relax-agonist-contract stretching (HRAC)

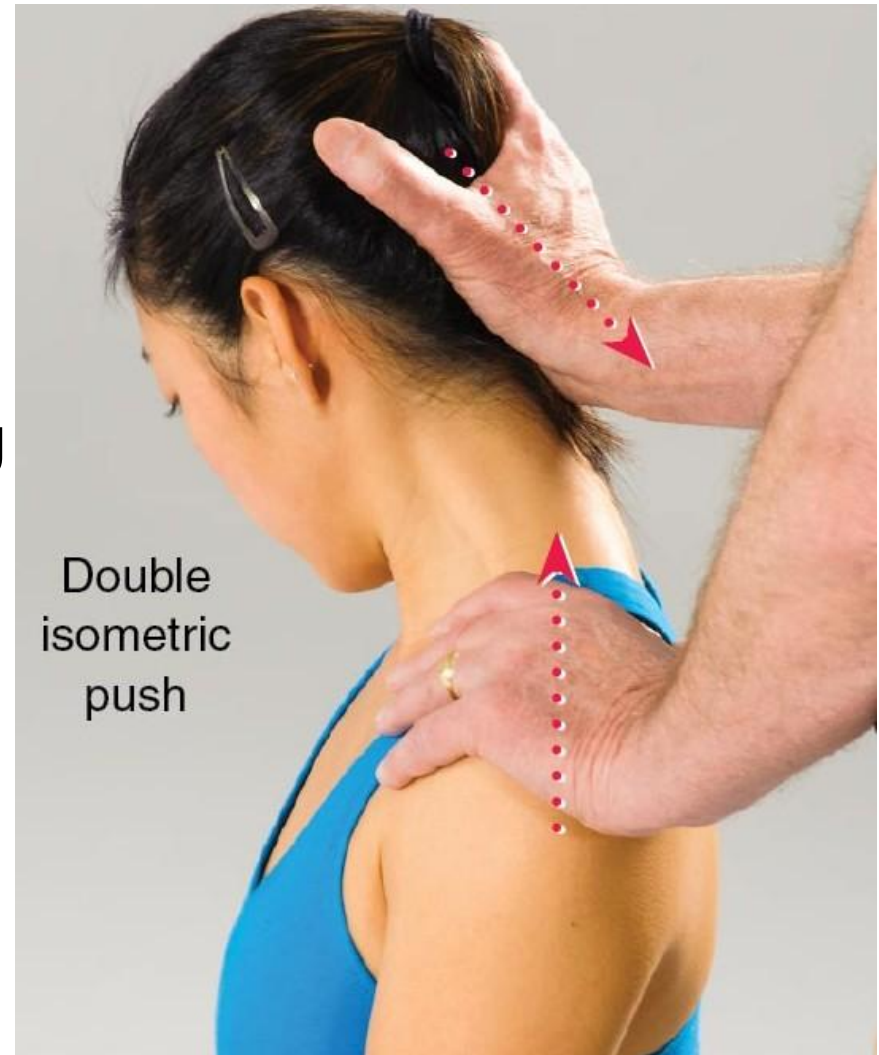
Defining Facilitated Stretching

- Facilitated Stretching is a modified version of HRAC stretching.
- The combination of HR and AC techniques facilitates the greatest possible increase in ROM.



Defining Facilitated Stretching

- Uses an isometric contraction of the target muscle to prepare it to stretch.
- Encourages active stretching on the part of the athlete, avoiding additional passive stretching when possible.
- Can be done with a partner or alone.



Key Differences in Performing Facilitated Stretching

- The stretcher actively moves the limb to the beginning position of the stretch.
- The stretcher initiates the isometric contraction and the partner offers only matching resistance.
- The stretcher actively stretches to the new ROM.

Facilitated Stretching in Three Easy Steps

- Step 1.
Stretcher actively moves the limb to lengthen the target muscle to the end of range.
- Step 2.
Stretcher isometrically contracts the target muscle for 6 seconds.
- Step 3.
Stretcher actively stretches to a new range of motion.



Facilitated Stretching: Three-Step Protocol

- The protocol has evolved over many years of clinical practice.
- In practice, repeat each stretch up to three times.
- Use proper biomechanics for the partner and the stretcher to isolate the target muscles, to avoid injury, and to prevent compensation.

Physiology of Stretching

- In recent years, our understanding of physiology has broadened as a result of research.
- Traditional explanations based on the mechanical effects of stretching (increase in muscle length) have not been supported by research.

Sensory Theory of Stretching

- Sensory theory posits that stretch tolerance improves, that is, sensory perception may diminish, allowing the stretch to go farther before reaching a soft-tissue barrier.
- Stretching may alter the point at which the stretch is perceived as a “threat” by the sympathetic nervous system.
- PNF may influence stretch tolerance to a greater extent than other stretching methods.

Components of Facilitated Stretching

- Single Plane Stretches
- Spiral Diagonal Movement Patterns
- Spiral Diagonal (Tri-Planar) Stretches
- Tri-Planar Strengthening Exercises

Single Plane Stretches

- Use single plane stretches to develop flexibility or awareness in a specific muscle or muscle group.
- Use as an adjunct to soft-tissue therapy

Hamstrings Stretch



Stretcher keeps both hips flat on the surface.

Maintain straight knee during isometric.

Actively stretch pain-free.

Hamstrings Stretch Video



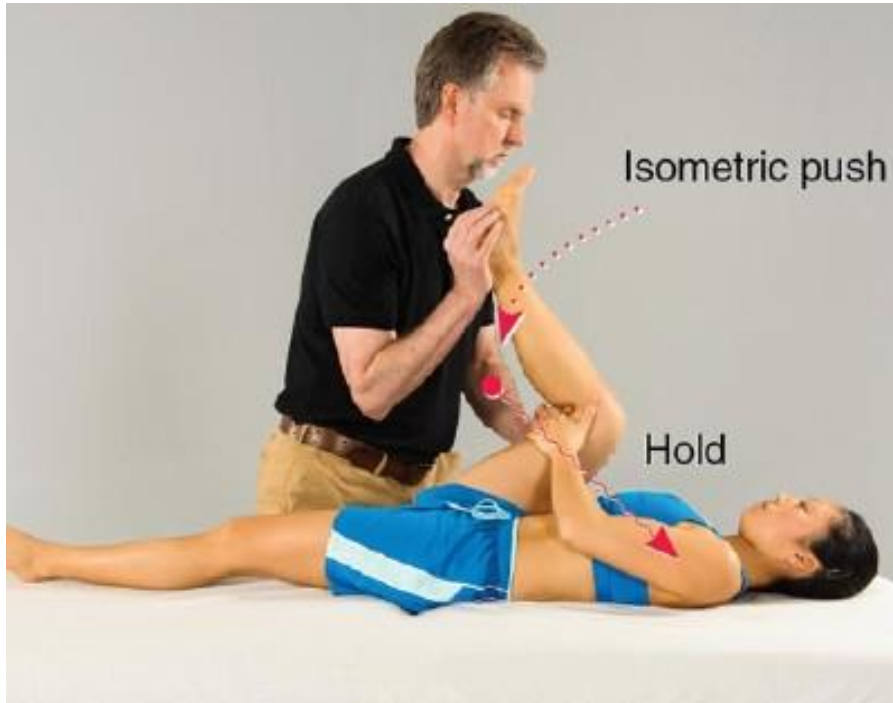
Bent Knee Hamstring 1



Stretcher keeps the thigh vertical throughout the sequence.

During the isometric contraction, stretcher pushes the heel toward the buttocks as if bending the knee.

Bent Knee Hamstring 2



Stretcher holds thigh close to chest throughout the sequence.

During the isometric contraction, stretcher pushes the heel toward the buttocks as if bending the knee.

Bent-Knee Hamstrings Video



Hamstrings, Self-Stretch



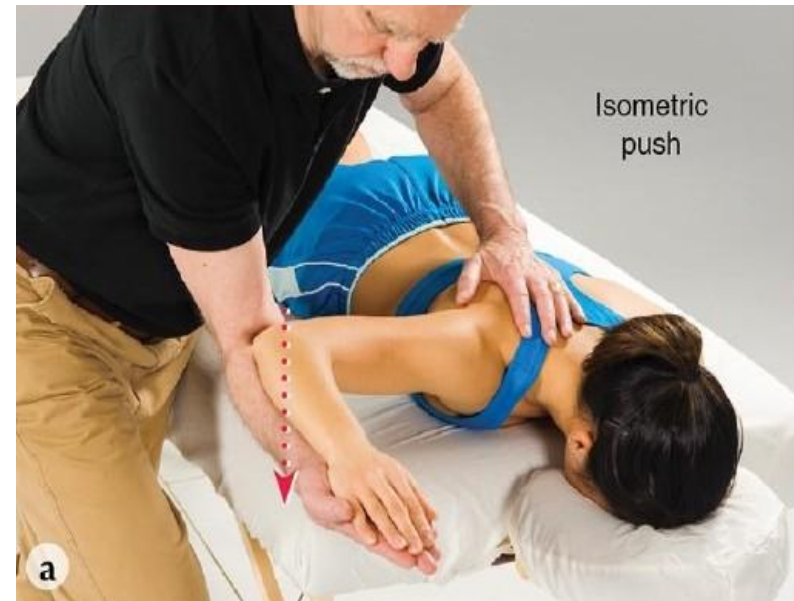
Use the strap only to resist the isometric contraction, never to increase the stretch.

Pectoralis Major

Prevent trunk rotation.

Stretcher contracts pecs, leading from the elbow and relaxes rhomboids.

Changing the angle of abduction of the arm emphasizes different fibers of the pectoralis major.



Pec Major Self-Stretch

Keep low-back flat by using a lunge stance.

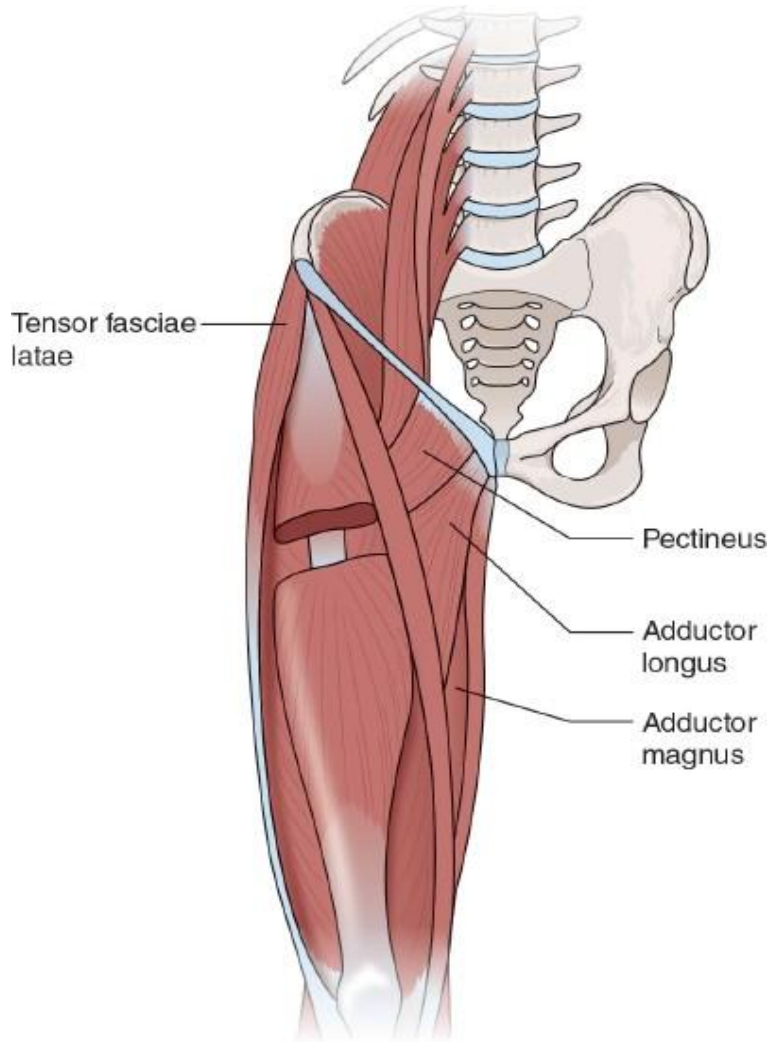
Use the post for resistance during the isometric phase, but stretch the pecs actively.



Spiral Patterns of PNF

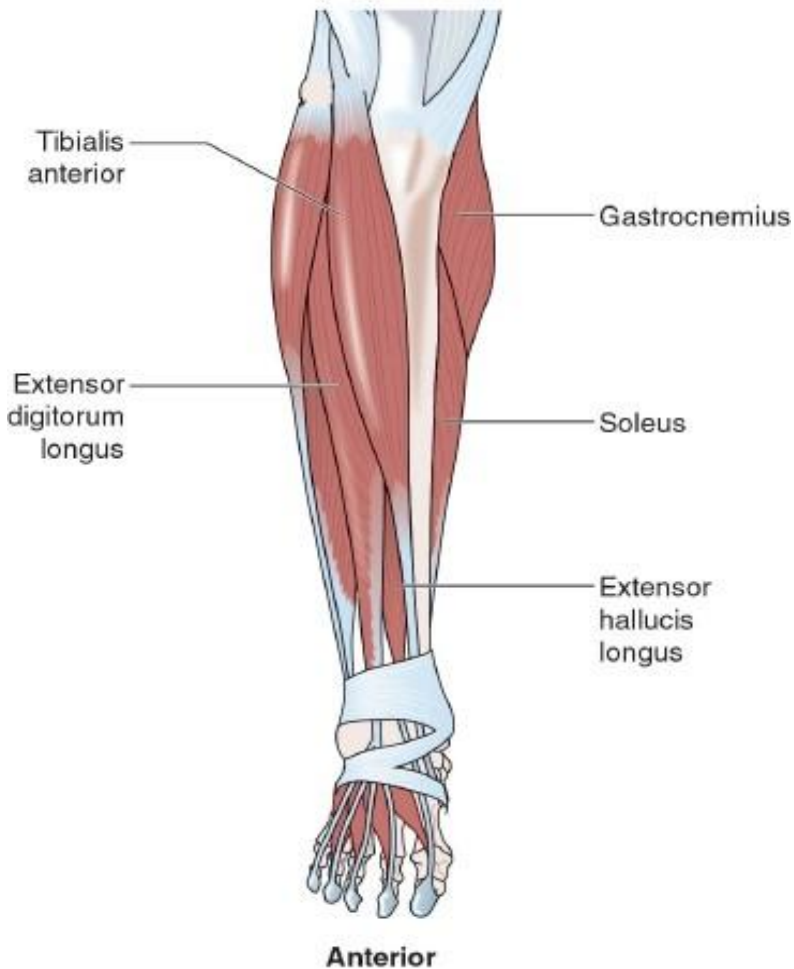
- PNF movement patterns are “tri-planar” and include flexion or extension, adduction or abduction, and medial or lateral rotation.
- They’re designed for rehabilitating function (synergistic muscle groups) rather than individual muscles.
- “Train movements, not muscles.” (Vern Gambetta).
- Use the spiral patterns for dynamic warm-ups, to improve functional flexibility and strength.

Natural Movement is Spiral-Diagonal



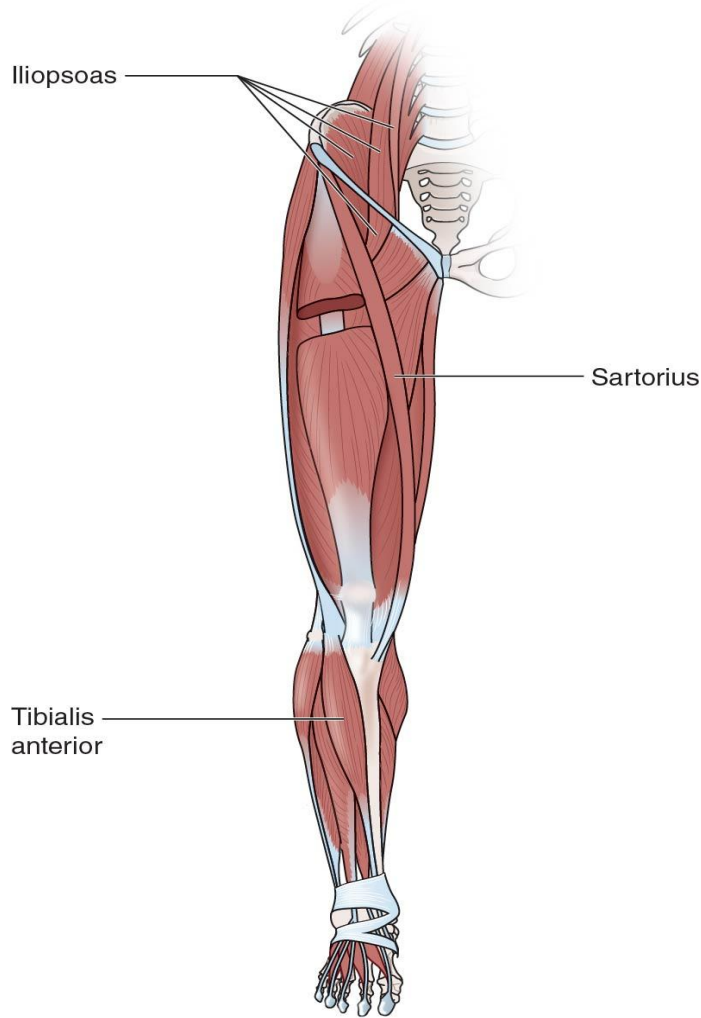
- Spiral–diagonal movements occur naturally from the design of the skeletal system and the placement of the muscles on it.

Natural Movement is Spiral-Diagonal



- Many muscles spiral around the bones from origin to insertion. When these muscles contract, they tend to create that spiral in motion.

Natural Movement is Spiral-Diagonal



- The psoas is primarily a hip flexor, but also assists adduction and external rotation of the femur.

Learning the Patterns

- First learn each pattern through dynamic movement.
- Can be used to help improve your own coordination through multiple planes of motion.
- Mix and match patterns to explore the connections between your brain and your muscles.



D1 Pattern for the Leg

- D1 flexion (“soccer kick”)
- Flexion, adduction and external rotation of femur.



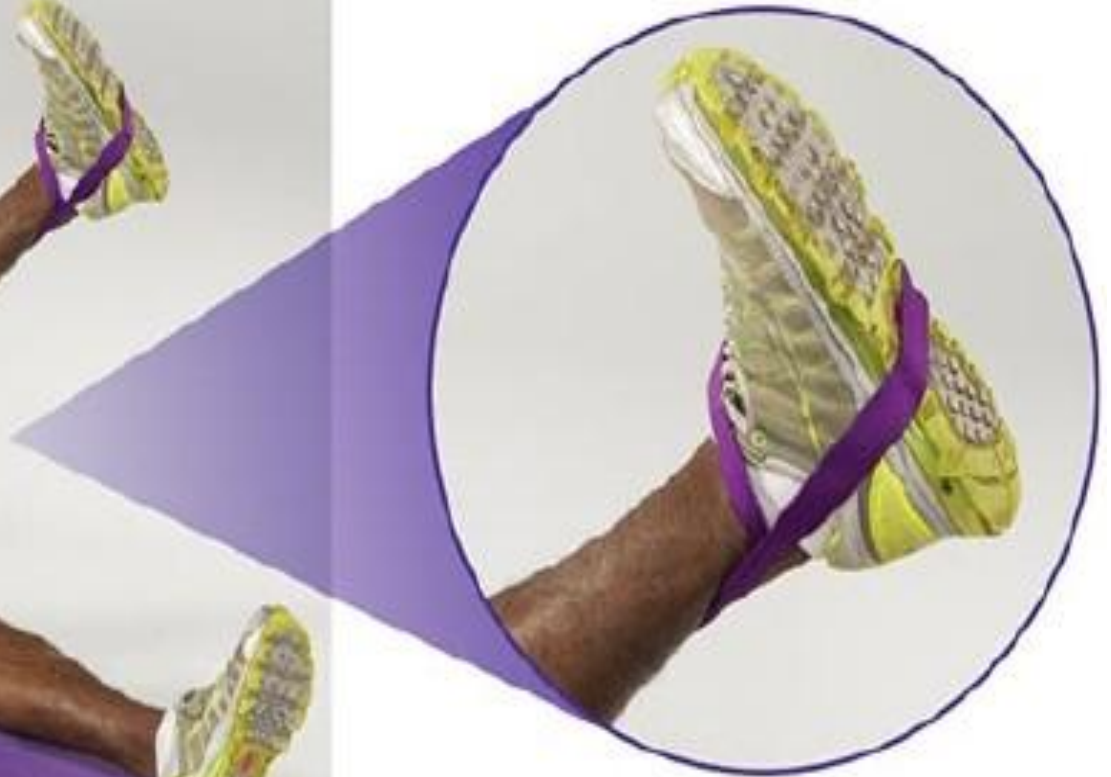
- D1 extension (“toe off”)
- Extension, abduction and internal rotation of femur.

Spiral One Stretch: Hip Flexion

- Wind-up into flexion, adduction and external rotation (FADER position).
- Then, unwind isometrically toward the opposite direction.
- Hips stay flat on the surface.
- Stretch by winding-up again.



Spiral One, Hip Flexion Self-Stretch



D1 Pattern for the Arm

- D1 flexion (“grab seatbelt”)
- Flexion, adduction and external rotation of humerus.



- D1 extension (“fasten seatbelt”)
- Extension, abduction, internal rotation of humerus.

Spiral One Stretch: Shoulder Flexion

- Wind-up into flexion, adduction, external rotation (FADER position).
- Stretcher rotates the head to allow the arm to adduct more.
- Stretcher maintains scapula on the table or does not twist torso.



Spiral One, Shoulder Self-Stretch



Grab Seat Belt



Fasten Seat Belt

Strengthen Arms: Spiral One



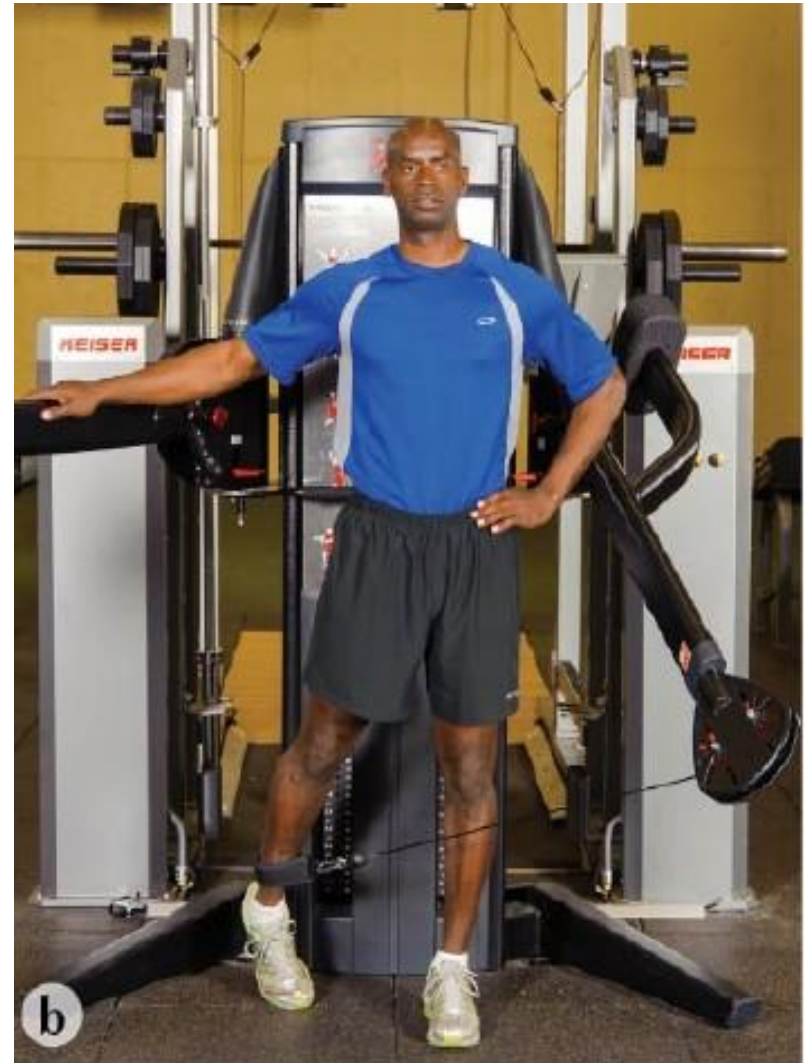
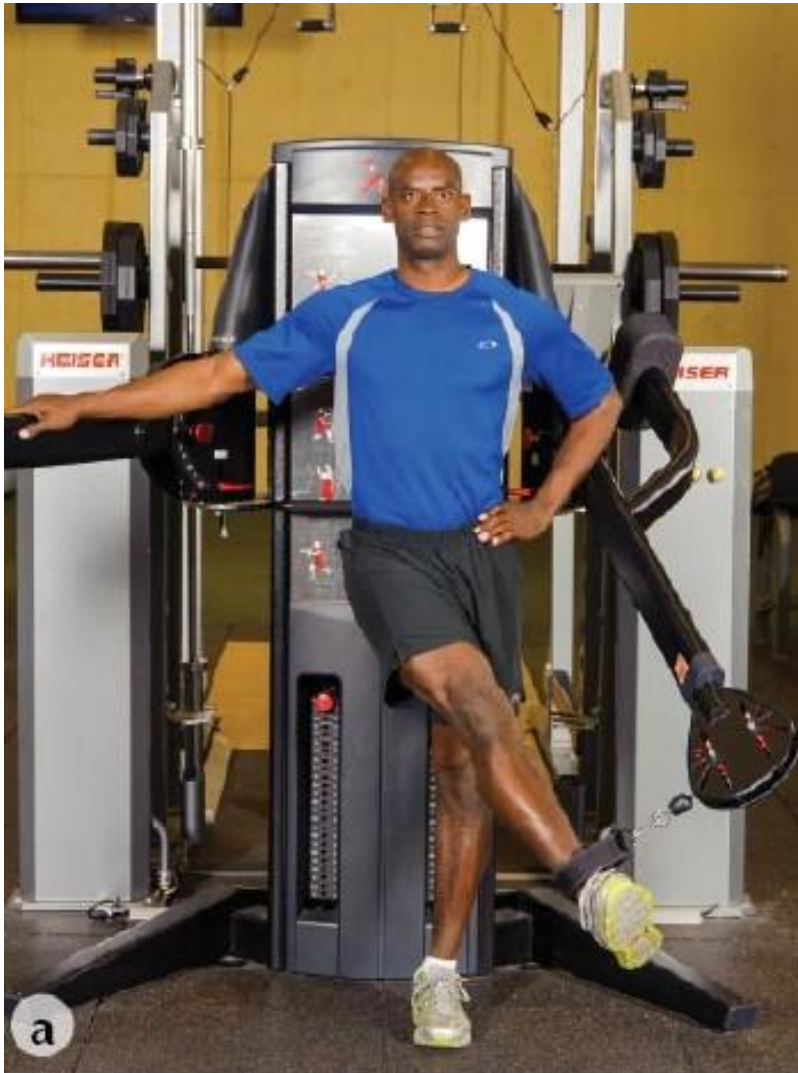
Strengthen Arms: Spiral One



Strengthen Legs: Spiral One



Strengthen Legs: Spiral One



Designing Stretching Programs

- Stretching recommendations are clouded by misconception and conflicting research.
- Program will vary from person to person.
- Influenced by many factors including:
 - previous injury, scar tissue, and genetics
 - compliance with the program
 - type of sport
 - type of stretching used
 - proper technique

Thank you for attending!

- Need CECs/CEUs? This webinar will be part of a complete continuing education course and available for CECs/CEUs in March 2015. Visit www.HumanKinetics.com/Continuing-Education for more information.
- Bob's book, *Facilitated Stretching, Fourth Edition With Online Video*, is available for purchase now at www.HumanKinetics.com.
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