Myofascial Decompression: Where Are We in the Literature??

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Conflicts of Interest


Financial Disclosures

Learning Objectives

1. Describe the foundational concepted related to fascial anatomy and histology

2. Describe the foundational concepts of myofascial decompression as a modailty to manipulate fascia

3. Evaluate the evidence on myofascial decompression techniques to use on musculoskeletal pathologies

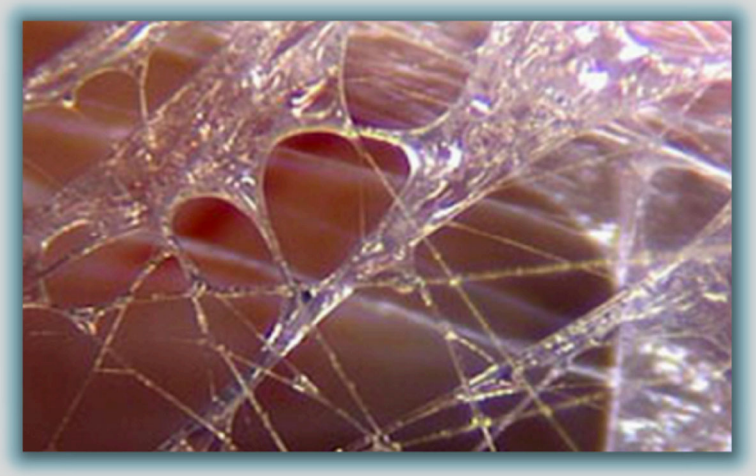
Describe the foundational concepted related to fascial anatomy and histology

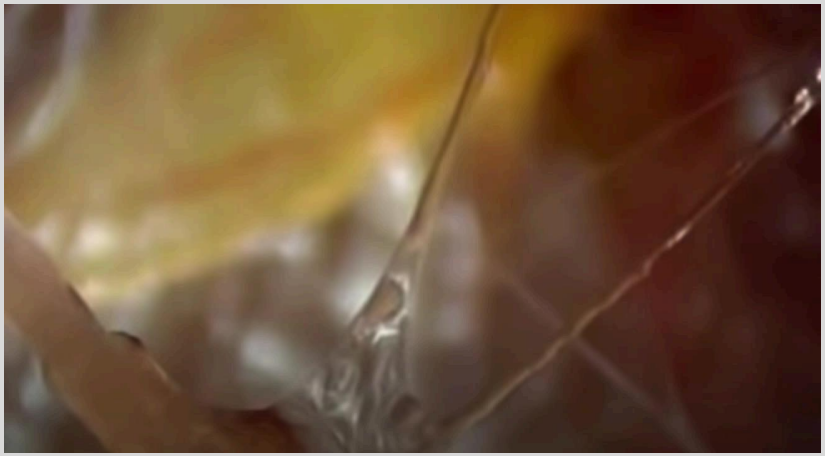
What is Fascia...and More Importantly, What is it Not??

Fascia is **all** the collagenous based soft tissues in the body, including the cells that create and maintain that network of extra-cellular matrix (ECM)

It is not simply the "stuff around muscles and organs" like we may have originally thought

It is a three-dimensional, intricate web of connective tissue that layers in and around organs, bones, muscles, blood vessels and nerves and pretty much every surface in the human body.





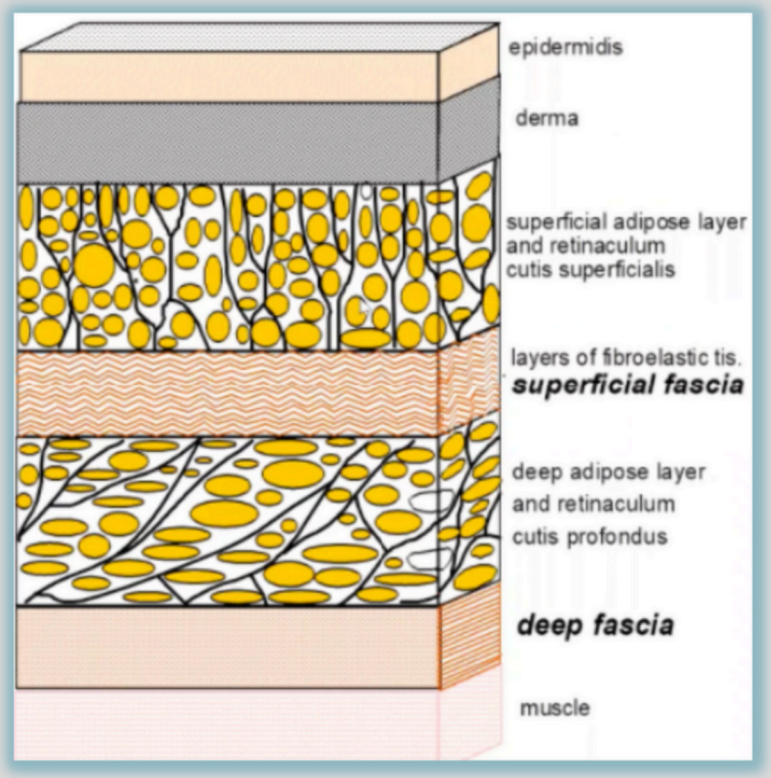
More on This "Fascia Stuff"

"The fascia is any tissue that contains features capable of responding to mechanical stimuli. The fascial continuum is the result of the evolution of the perfect synergy among different tissues, liquids and solids, capable of supporting, dividing, penetrating, feeding and connecting all the districts of the body, from the epidermis to the bone, involving all the functions and organic structures. The continuum constantly transmits and receives mechano-metabolic information that can influence the shape and function of the entire body".

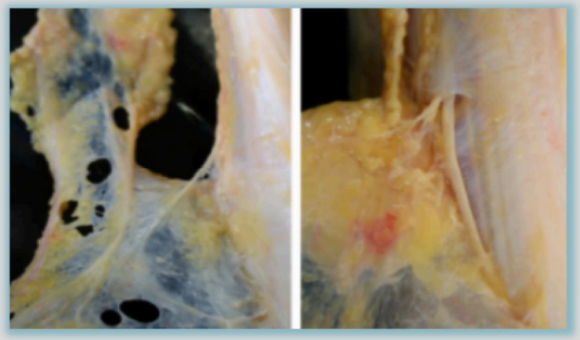
Fascial Planes

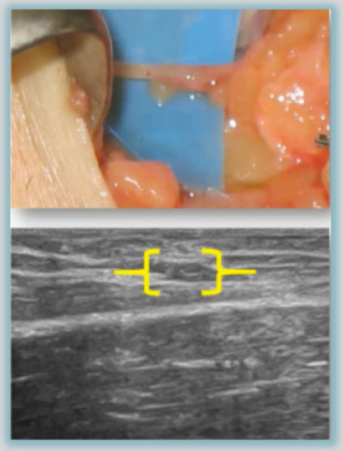
Between the skin and muscles, we can recognize two membranous layers of connective tissue of variable thickness: superficial fascia and the deep fascia.

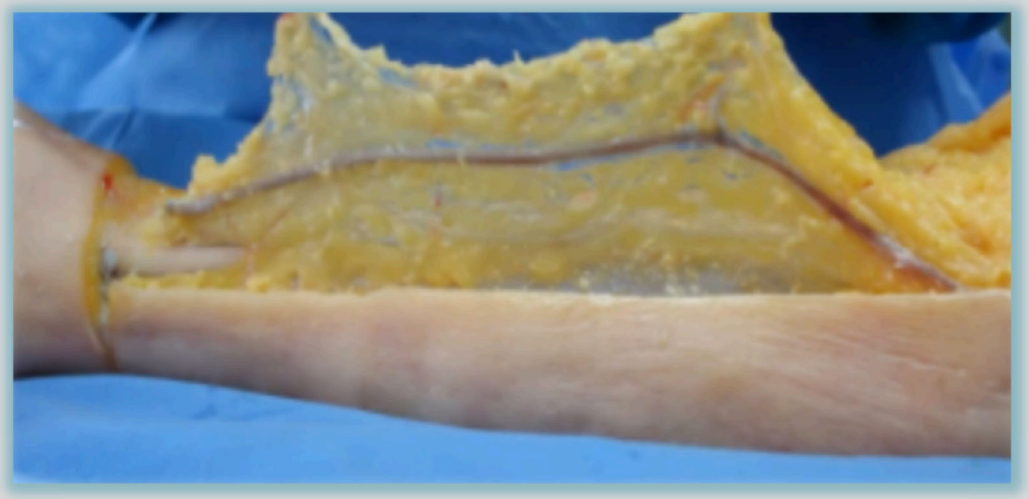
- The superficial fascia divides the subcutaneous tissue into superficial and deep adipose tissue layers.
- Retinacula connect the membranous layer to the skin and the deep fascia which forms a three-dimensional network between the fat lobules.
- The deep fascia has at least three distinct layers with collagen fibers each oriented in a different direction.

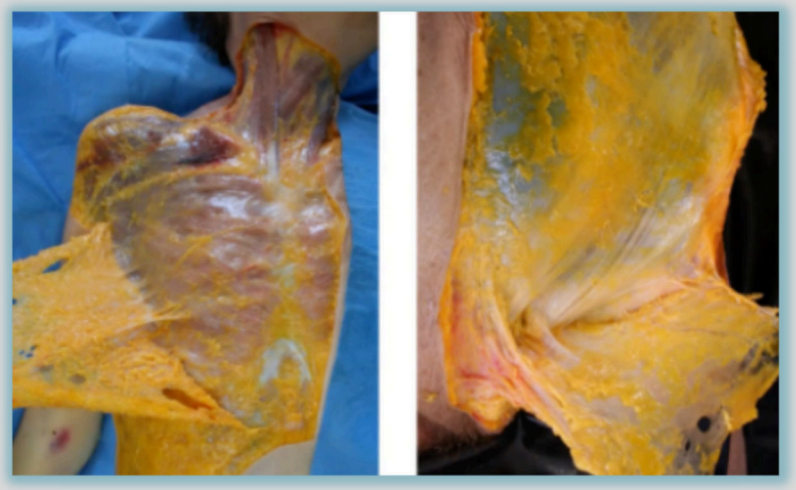


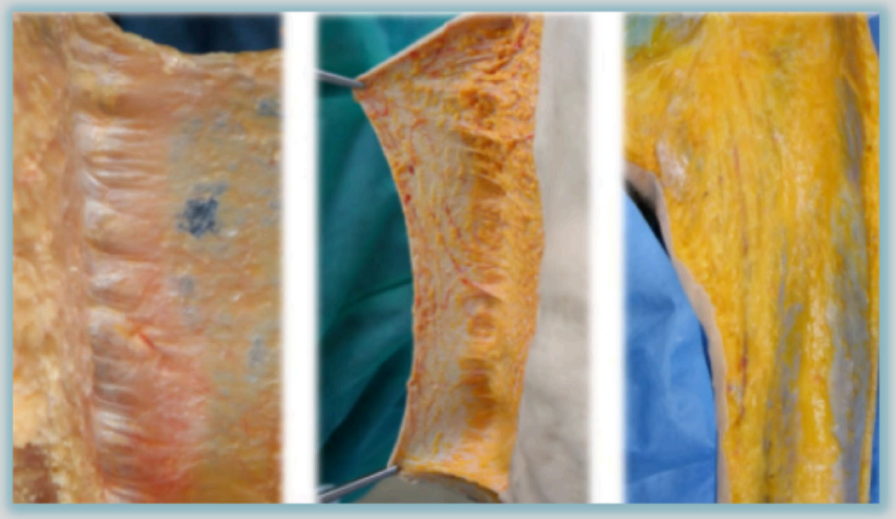
Fascial Planes: Superficial Fascia



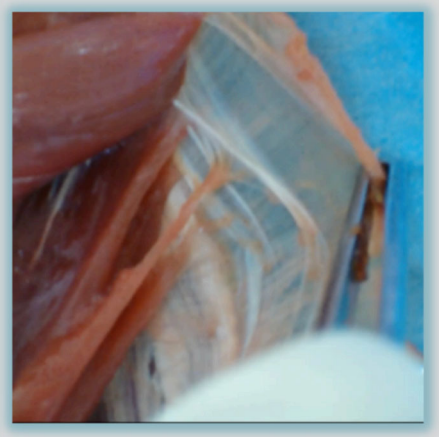


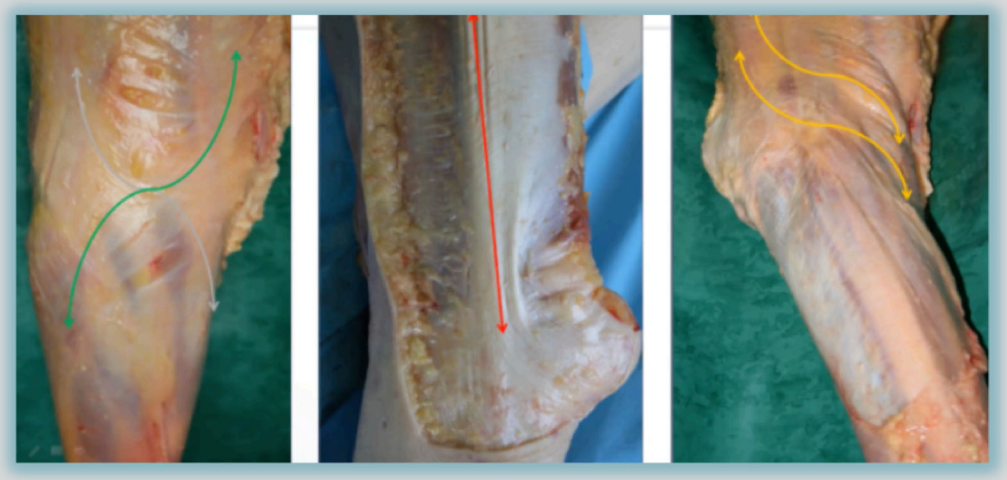






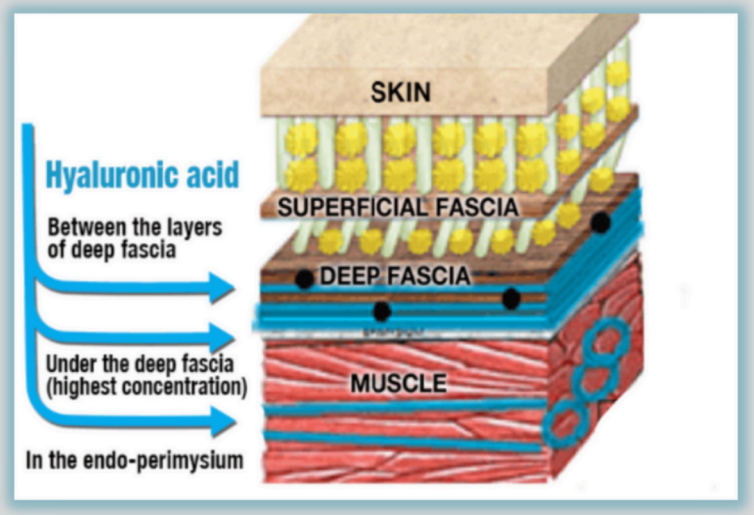
Fascial Planes: Deep Fascia

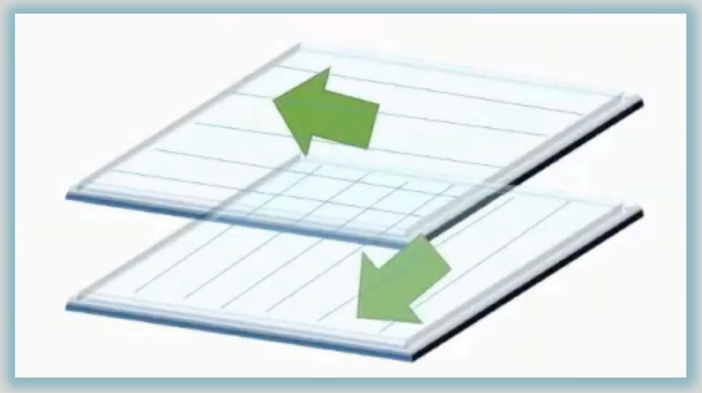




Fascial Planes: Hyaluronan

Fascia, contains a very important fluid type substance called hyaluronic acid (HA)/hyaluronan This fluid is within the ground substance and is a component of the proteoglycans. It serves as a lubricant allowing for appropriate gliding of adjacent tissues and the multilayered structure of the deep fascia. Because HA is within the extracellular matrix it has a unique ability to repair and regenerate itself.





Describe the foundational concepts of myofascial decompression as a modailty to manipulate fascia

There are so many ways that we can manipulate different types of fascia to affect pain patterns, load transmission, proprioception, and movement patterns. Here are some to consider:

Muscle Stretching	Nerve Mobilization	Myofascial Release
Muscle Energy	Myofascial Decompression	Kinesotaping
Dry Needling	Active Release Technique	Rolfing
Fascial Manipulation	Visceral Manipulation	Yoga

Important Properties of Fascia

Thixthrophy: a property of certain gels or fluids that are thick (viscous) under normal conditions but flow (decrease viscosity) over time when shaken, agitated or stressed.

Thixotrophic Effect: we have to put energy (i.e. manual therapy) into tissues in order to change the viscosity and decrease the densification of fascia.

*Because of these cellular properties, fascia is a VERY dynamic connective tissue network that changes based on the stress placed on it.

Important Properties of Fascia

Viscoelasticity: the ability to stretch and rebound

- Pliability: if subjected to a tangential force, viscous material will modify their consistency
- Malleability: viscosity and fluidity of the GS change when subjected to variations in temperature and deformation from the outside

Piezoelectricity: the ability to generate an electrical current in response to pressure

- Fascia behaves as an electrically conductive medium, which allows this viscoelastic tissue to rehydrate under the LOADED sustained pressures

Therapeutic Modifier: Myofascial Decompression

Myofascial decompression uses negative pressure to lift the soft tissue in order to decompress or reduce pressure in the area. As the body attempts to respond to this negative pressure, there is

- An increase in angiogenesis
- A decrease in the viscosity of the GS
- A neurological response stimulating mechanoreceptors

Therapeutic Modifiers: Myofascial Decompression vs Cupping

Modality	Placement of Decompressors (Cups)	Timing of Treatment	Patient Role	Treatment Targets
Cupping	All Over Body Symmetrical/Bilateral Meridian Points	~20 minutes	Static	Qi Toxin Release Infertility Rheumatism Kidney Disorders GI Disruptions Respiratory Infections
Myofascial Decompression	Specific directed intervention over diagnostic impairments. Commonly Unilateral	~2-8 minutes max	May start static but move to dynamic role (PROM--> AAROM--> AROM)	Mechanical CT change Trigger Point Myofascial Lines Agonist/Antagonist Imbalances Sensory/ neurophysiological changes

Evaluate the evidence on myofascial decompression techniques to use on musculoskeletal pathologies

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Review Article

Evidence-based and adverse-effects analyses of cupping therapy in musculoskeletal and sports rehabilitation: A systematic and evidence-based review

Ayman A. Mohamed[a,b,c,*], Xueyan Zhang[a] and Yih-Kuen Jan[a]
[a]*Department of Kinesiology and Community Health, University of Illinois at Urbana-Champaign, Champaign, IL, USA*
[b]*Department of Basic Sciences, Faculty of Physical Therapy, Beni-Suef University, Beni Suef, Egypt*
[c]*Faculty of Physical Therapy, Nahda University, Beni Suef, Egypt*

Findings:

Low to moderate evidence in rehabilitation, decreasing pain and improves blood flow with low adverse events

Moderate effects:

Pain and threshold
Knee passive and active ROM,
Semitendinosus, biceps femoris EMG
pain level
Skin surface temperature
Chronic neck pain

Low effects:

Severity sensation with pain
Back disability
Foot and ankle function
Pain pressure threshold with plantar fasciitis, calf and heel pain Carpal tunnel syndrome
Neck pain at rest and movement and neck ROM

Very low effects:

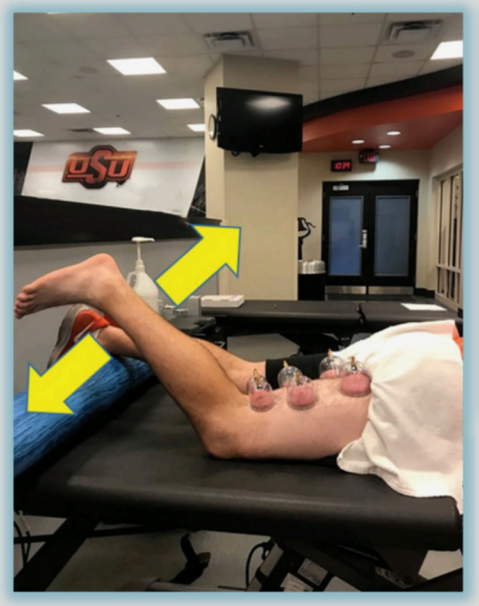
SLR
Neck pain
Non-specific low back pain
Fibromyalgia

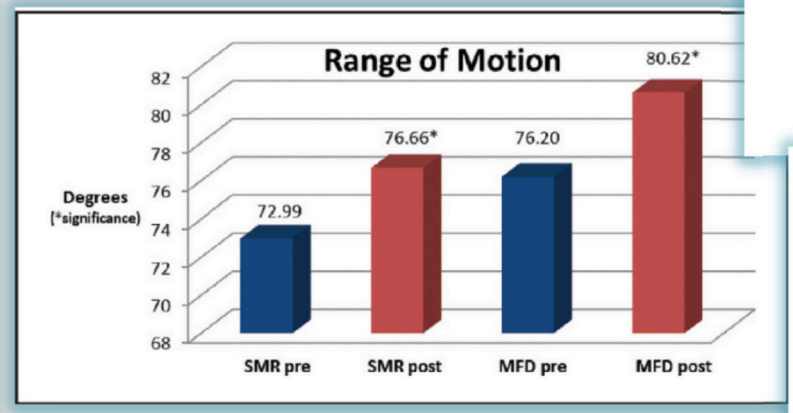
IJSPT

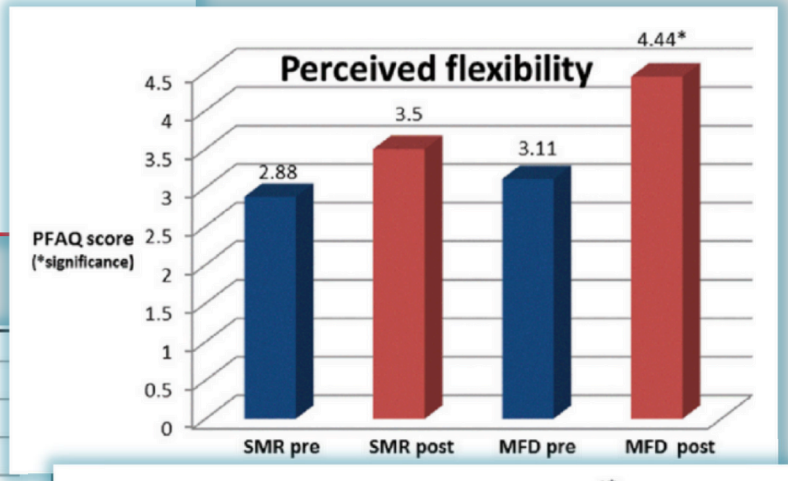
ORIGINAL RESEARCH

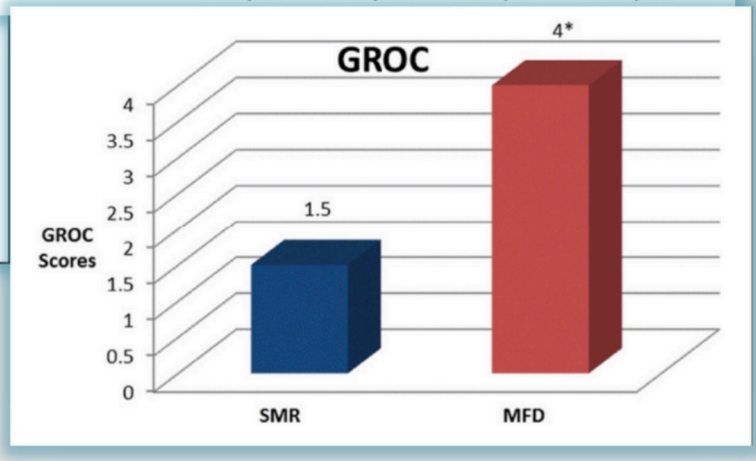
ACUTE OUTCOMES OF MYOFASCIAL DECOMPRESSION (CUPPING THERAPY) COMPARED TO SELF-MYOFASCIAL RELEASE ON HAMSTRING PATHOLOGY AFTER A SINGLE TREATMENT

Aric J. Warren, PhD, ATC[1]
Zach LaCross, MS, ATC[2]
Jennifer L. Volberding, PhD, ATC[1]
Matthew S. O'Brien, PhD, ATC[1]









The Effects of Stretching versus Static and Dynamic Cupping on Lumbar Range of Motion: A Randomized Control Trial

Sophie Cobb, SPT
Olivia Maddox, SPT
Greigory Seitz, SPT
Cathy Arnot, DPT, FAAC

University of South Carolina, Columbia, SC

Findings:

- No group differences
- No statistical or clinically meaningful differences
- Both cupping groups found a loss of lumbar flexion post- treatment

Table 5. Change Scores in Degrees Across Time

Left ASLR:			**MDC=4.53**
	Pre-Intervention to Post-Intervention	Post-Intervention to Follow-up	Pre-Intervention to Follow-up
Dynamic cupping	+1.68	+0.35	+2.15
Static cupping	-1.08	+1.07	-0.01
Stretching	+2.62	+1.07	+3.13
Right ASLR:			**MDC=4.68**
	Pre-Intervention to Post-Intervention	Post-Intervention to Follow-up	Pre-Intervention to Follow-up
Dynamic cupping	+1.83	-0.18	+0.39
Static cupping	-1.02	+2.31	+1.29
Stretching	+2.68	-0.15	+2.51
Lumbar Flexion:			**MDC=2.5**
	Pre-Intervention to Post-Intervention	Post-Intervention to Follow-up	Pre-Intervention to Follow-up
Dynamic cupping	-0.39	-0.95	-1.34
Static cupping	-0.24	-1.26	-1.50
Stretching	+2.13	-2.98	-0.85

Abbreviations: ASLR, active straight leg raise; MDC, minimally detectable change

Original Article

Comparison of Static and Dynamic Myofascial Decompression on Gastrosoleus Muscle Power and Latent Trigger Point Pain in Normal Healthy Women

Gaurang D. Baxi, Keerthana R, Tushar J. Palekar, Divya Gohil, Mayura Deshmukh

Findings:

- All three showed clinical improvement however differences between groups were not statistically significant
- Intergroup analysis for all three groups showed that only the carryover effects in group 2 (i.e. Dynamic myofascial decompression) at day 10 showed significant improvement

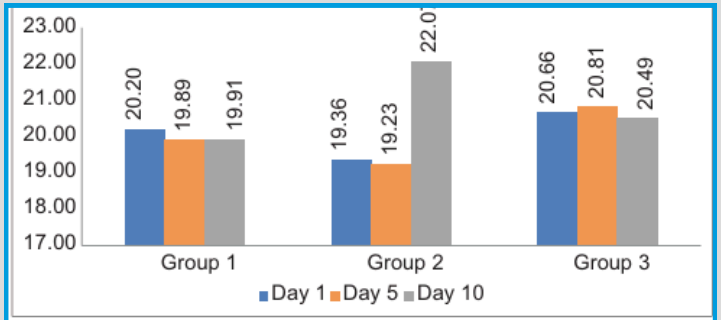


Figure 4: Comparison of Mean Vertical Jump Height Values in all three groups immediately, at day 5 and day 10

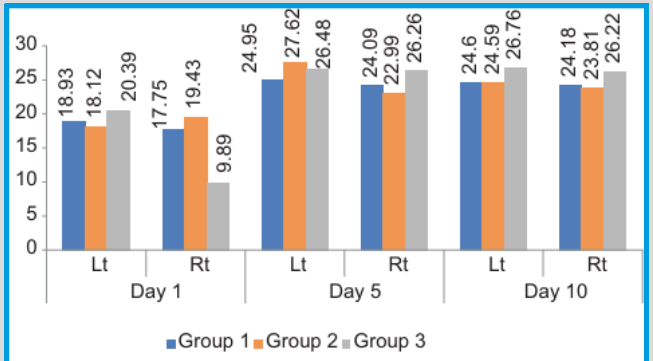


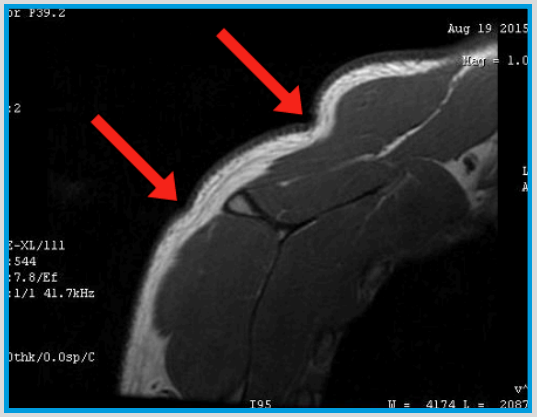
Figure 5: Comparison of Mean pain pressure threshold in all three group on day 1, day 5 and day 10

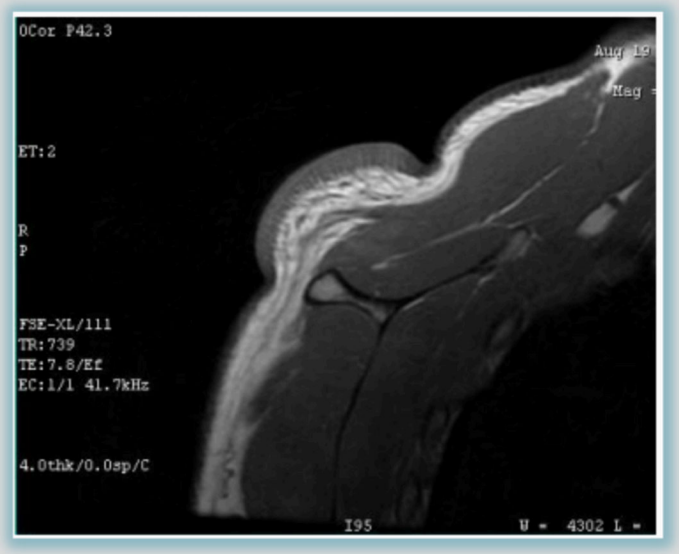
Effects of Soft Tissue Mobilization With Negative Pressure Device on the Shoulder, Using MR Imaging.

Christopher DaPrato, DPT, SCS, Assistant Professor, UCSF

Findings:

Observed distinct changes in skin, fat, fascia, and muscle trajectories of the upper trapezius and supraspinatus fibers





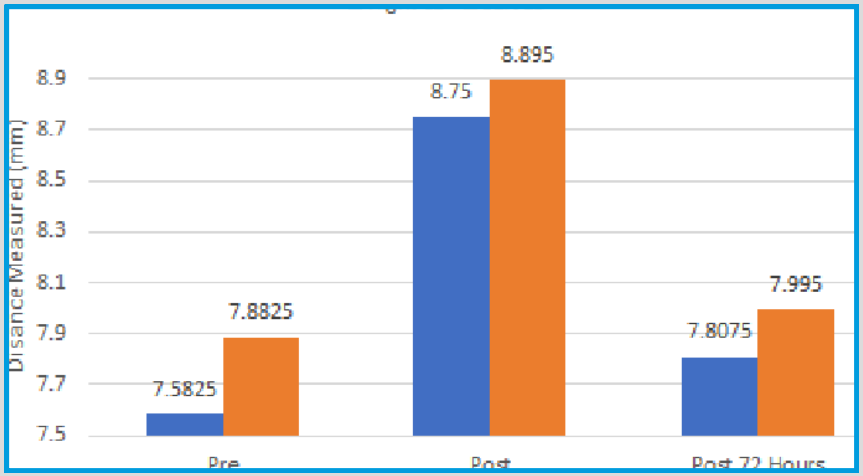
THE IMMEDIATE AND LONG-TERM EFFECTS OF NEGATIVE PRESSURE SOFT TISSUE MOBILIZATION ON THE ILIOTIBIAL BANDS OF RUNNERS USING MAGNETIC RESONANCE IMAGING

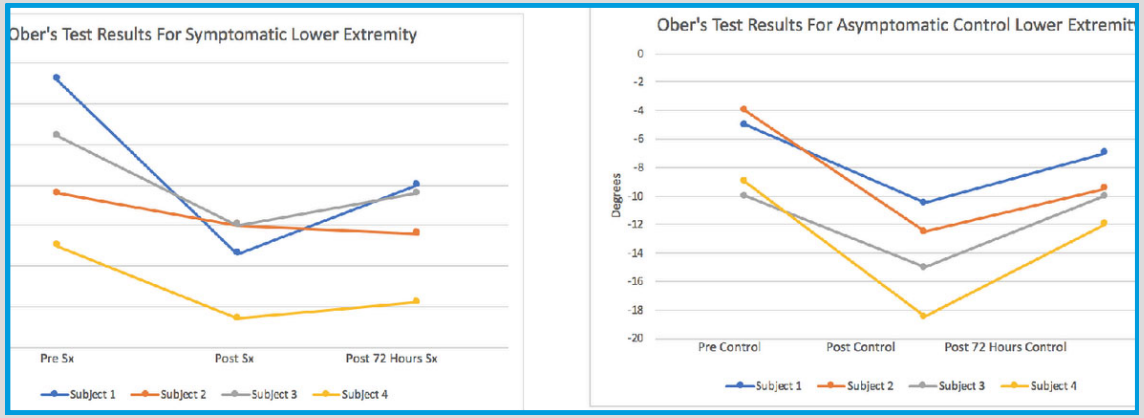
Christopher DaPrato, Roland Krug, Richard Souza, Daria Motamedi. *University of California San Francisco, USA*

Findings:

Increased space with a mean change of 15% immediately post treatment, and 13% 72 hours post treatment

Pain to zero at rest and during SLS





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Questions??? Feel free to reach out to me at jenn@nothingstrongergym.com

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