


TRAINING THE MYOFASCIAL LINES FOR BACK INJURIES

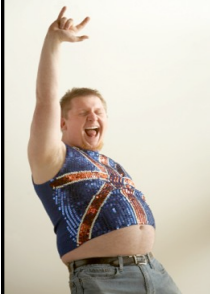


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Seminar Outline

- Look at anatomical lines of force and myofascial action from a different perspective
- Overview of common movement pattern dysfunctions and how they contribute to low back pain
- Develop a plan of action for assessing movement impairments and developing training programs to address them

In Other Words... We're going to:



- Learn some cool anatomy stuff
- See some wicked videos on exercises to make you crazy strong in all directions
- Get some tools to try on our clients for tomorrow
- Party like rock stars!!!

A little about myself...



- BSc. Kinesiology
- CSCS – NSCA
- CEP – CSEP
- MES – AAHFRP
- Medical & Rehabilitation Coordinator; World Health.
- Former competitive athlete with multiple injuries
- Clientele ranges from pre-post surgical, MVA, cancer patients, up to athletes and “weekend warriors”

What We We Know...


- Muscles have defined & specific origins and insertions
- The muscle fibre is the only part of the motor unit that can contract
- The sensory fibres for muscles are the golgi tendon organ and the muscle spindle

WRONG!

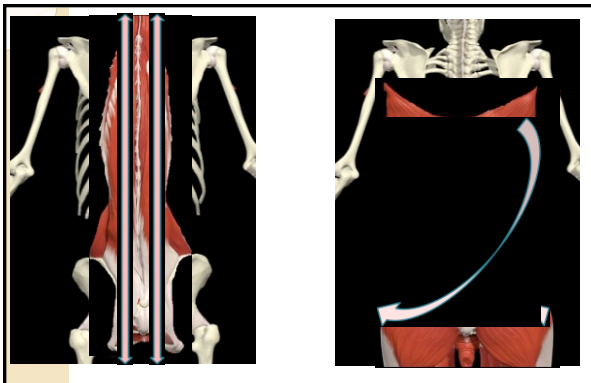
NOPE!

THERE'S MORE!

Anatomical Lines of Force



- Current view of muscular system looks at **linear** forces in *saggital* plane only, occasionally outside into frontal and transverse
- Movements like this rarely happen in nature, unless restricted by a machine
- Most forces applied *by* body to environment require some rotation



Anatomical lines of Force

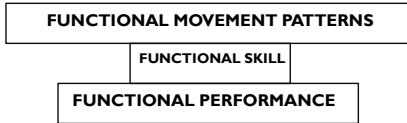
FUNCTIONAL SKILL

FUNCTIONAL PERFORMANCE

FUNCTIONAL MOVEMENT PATTERNS

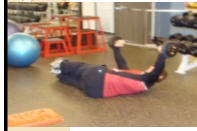
Gray Cook, "Athletic Body In Balance."

Anatomical lines of Force

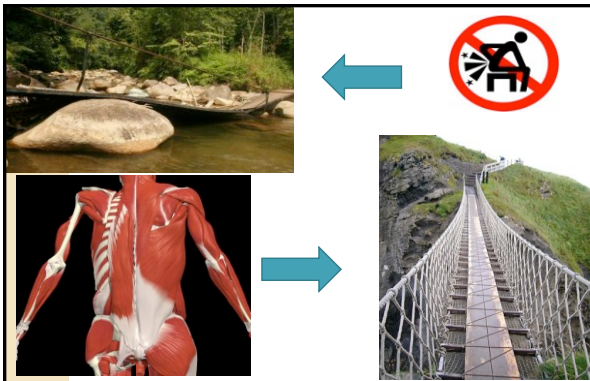


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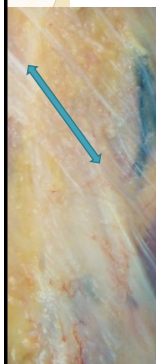
Anatomical Lines of Force



- Isolating one muscle at a time reduces efficiency and potentially results in injury
- Integrating hips & shoulders into movements reduces chances of localized injuries & increases overall performance
- Plus, it's crazy wicked fun!!



Anatomical Lines of Force



- Common **lines of force** have increased fascial lines of collagen to reinforce, increase strength & resiliency to injury
- Repetitive strain, detraining and injury breaks up this additional collagen, resulting in adhesions, making the area weaker during future movements

Anatomical Lines of Force



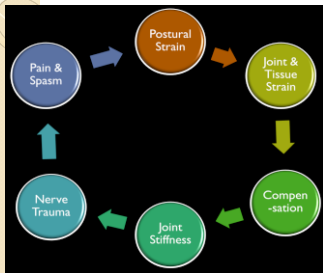
- Fascial adhesions much like pilling on clothes (little balls)
- Microdamage alters the structural strength of entire tissue
- Body can heal this type of damage, or it can be made worse with poor training and nutrition – DRINK LOTS OF WATER!!!

Anatomical Lines of Force

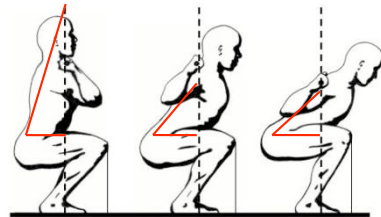


- Injury tends to disrupt not just the tissues affected, but all tissues associated with the *instigating movement*
- Isolation will never repair a bad back
- TRAIN MOVEMENTS, NOT MUSCLES!!!!

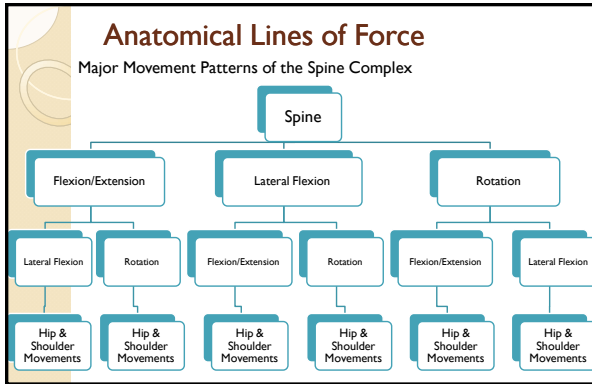
What Actually Happens...



Anatomical Lines of Force



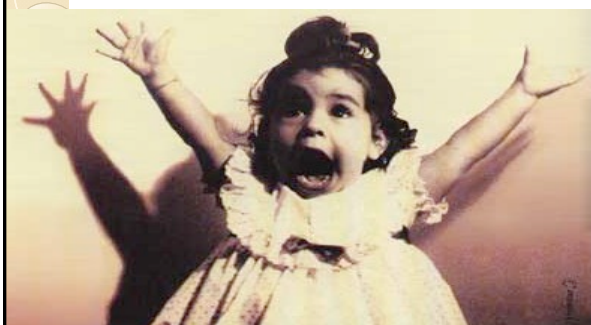
- Longer resistance arms (horizontal line) increases pressure on spine, causing increased fascial strain to keep it all together



Anatomical Lines of Force

- Figuring out which muscles or tissues are damaged or injured would be like finding a needle in a haystack
- **MUSCLES CREATE MOVEMENTS!! TRACK ABERRANT MOVEMENTS TO FIND WEAK MUSCLES!!!!**
- Finding fascial movement pattern disruptions is **way** faster, easier, and typically more accurate than testing individual joints, muscles, etc. Also give more direction on how to design their program effectively
- Physios and doctors are trained to check for these types of things, trainers know how to make people get stronger and move better

HOLY HELL!!!!!!



Assessing Fascial Movement Patterns

- Fascial Movement System disruptions of the Spine
 - Flexion intolerance
 - Extension intolerance
 - Flexion-Rotation Intolerance (direction specific)
 - Extension-Rotation Intolerance
- Secondary movements of the pelvis and scapula create additional forces on the spine (ex. Hip flexion causes spine flexion, shoulder flexion causes spine extension)

Assessing Fascial Movement Patterns

- Major sources of dysfunction
 - Fascial Tightness
 - Fascial Laxity
 - Fascial Weakness
 - Lack of muscular support/stability
- Common Sources of Pain
 - Joint or tissue *instability* due to excessive *mobility*
 - Joint or tissue *immobility* due to excessive *stability*
 - **Root of all imbalances**

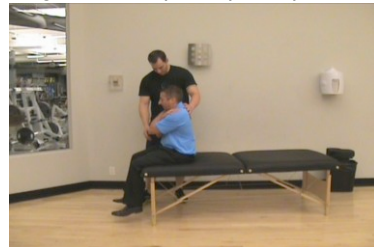
Assessing Fascial Movement Patterns

- Primary Movement Patterns to Assess:
 - Flexion tolerance
 - Extension tolerance
 - Flexion with rotation tolerance
 - Extension with rotation tolerance
- Check for presence of pain, strength, flexibility, and general comfort with movement performance



Assessing Fascial Movement Patterns

- Flexion Intolerance
- Testing unilateral hip and spine capabilities



Assessing Fascial Movement Patterns

- Extension Intolerance
- Testing unilateral and bilateral hip and spine capabilities



Assessing Fascial Movement Patterns

- Flexion with rotation Intolerance
- Testing unilateral and contralateral hip, spine and shoulder movement capabilities



Assessing Fascial Movement Patterns

- Extension with rotation Intolerance
- Testing unilateral and bilateral contralateral hip, spine and shoulder movement capabilities



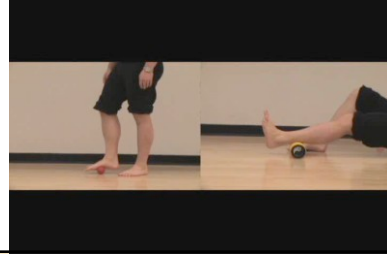
WHAT DOES THIS TELL YOU??

Developing Exercise Programs for Fascial Lines of Force

- Again, FORGET ABOUT MUSCLES!!!
- Train opposing movements to those that are compromised (ex. Flexion intolerance is trained with extension movements) in order to strengthen tissues that **resist** troublesome movements
- Train spine stability during ipsilateral and contralateral arm & leg movements
- Train tri-planar movement patterns using all three joints in *direction* desired and avoiding perturbed patterns

Developing Exercise Programs for Fascial Lines of Force

- Relieve adhesions in tissues that affect perturbed movement patterns with SMR and foam roller work.



Developing Exercise Programs for Fascial Lines of Force

- Flexion Intolerance Program sample



Developing Exercise Programs for Fascial Lines of Force

Flexion Intolerance Program Sample

Exercise	Sets, Reps	% Max	Rest	Frequency
SB back extension side bends	3 sets, 20 reps each way	BW	30 seconds	3x/week
BB deadlifts from supports	3 sets, 6-12 reps descending	50-85% respectively	30 seconds-1 minute respectively	2x/week, min 3 days between
Cable contralateral squat & row	3 sets, 12 reps	70%	30-40 seconds	2x/week
Cable side lunge & press	3 sets, 12 reps	70%	30-40 seconds	2x/week
Unilateral overhead squats	3 sets, 15 reps per arm	BW or 5 pounds	30 seconds	3x/week
Plank leg extensions	3 sets, 15 raises each leg	BW	30 seconds	3x/week

Developing Exercise Programs for Fascial Lines of Force

- Sample Extension Intolerant Program



Developing Exercise Programs for Fascial Lines of Force

- Sample Program for Extension Intolerance

Exercise	Sets, Reps	% Max	Rest	Frequency
Foam alt leg lifts	3 sets, 20 reps each way	BW	30 seconds	3x/week
Cable narrow stance 1-arm flye	3 sets, 12 reps	70%	30 seconds	2x/week,
Spine-supported single leg raise	3 sets, 12 reps	BW	30-40 seconds	2x/week
DB front squats	3 sets, 8-12 reps descending	60-80% respectively	30-40 seconds	2x/week, minimum 2 days between
Farmers walk	3 sets 20-30 seconds work set	Enough to challenge	30 seconds	3x/week
Cable/MB woodchop side lunges	3 sets, 12 each side	65%	30 seconds	3x/week

Developing Exercise Programs for Fascial Lines of Force

- Sample Flexion rotation Intolerant Program



Developing Exercise Programs for Fascial Lines of Force

- Sample Program for Flexion Rotation Intolerance

Exercise	Sets, Reps	% Max	Rest	Frequency
Foam alt leg lifts	3 sets, 20 reps each way	BW	30 seconds	3x/week
Cable narrow straight arm pull downs	3 sets, 12 reps	70%	30 seconds	2x/week,
BB deadlifts	3 sets, 8-12 reps descending	60-80% respectively	30-40 seconds	2x/week, minimum 2 days between
DB sumo deadlifts	3 sets, 12 reps	60%	30-40 seconds	2x/week, minimum 2 days between
1-arm overhead squats, heels raised	3 sets 10 reps each	BW or 5 pounds	30 seconds	2x/week
Lateral lunges, square stance	3 sets, 12 each side	BW	30 seconds	3x/week
Reverse crunches	3 sets, 15 reps	BW	30 seconds	3x/week

Developing Exercise Programs for Fascial Lines of Force

- Sample Extension rotation Intolerant Program



Developing Exercise Programs for Fascial Lines of Force

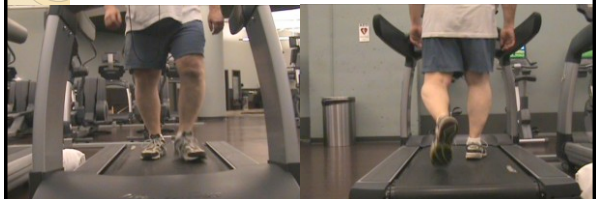
- Sample Program for Extension Rotation Intolerance

Exercise	Sets, Reps	% Max	Rest	Frequency
Foam alt leg lifts	3 sets, 20 reps each way	BW	30 seconds	3x/week
Bird dogs	3 sets, 12 reps	70%	30 seconds	2x/week,
Spine-supported single leg raise	3 sets, 12 reps	BW	30-40 seconds	2x/week
DB sumo deadlifts	3 sets, 12 reps	60%	30-40 seconds	2x/week, minimum 2 days between
Farmers walk	3 sets 20-30 seconds work set	Enough to challenge	30 seconds	3x/week
Lateral lunges, square stance	3 sets, 12 each side	BW	30 seconds	3x/week
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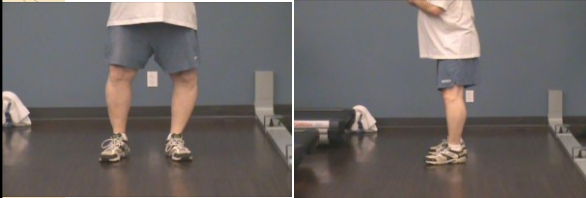
Developing Exercise Programs for Fascial Lines of Force

- Be a technique Nazi
- Reduce ROM or resistance if movement quality fails
- Stop set at onset of poor movement quality, don't try to finish the set.
- DRINK LOTS OF WATER!!!! 3-4 liters each day, more if very hot outside or very active

Unfortunately at this stage, Fascia Isn't the main concern....



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THANK YOU!! 😊

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