

SHSS6065
Advanced Soft
Tissue
Techniques
**Anatomy
Trains**

www.shss.ac.uk

Traditional Approaches to Fascia

- Biologically inert
- MFR
 - Prolonged stretch
 - minimum 90sec
 - Ideally 2-5mins
 - Longitudinal pulls or Cross Hand technique
- Acknowledgment of 2 Myofascial 'slings'

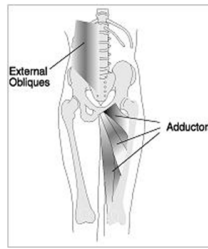
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Anterior Oblique Sling

Anterior Oblique System (AOS)

- 1. External oblique
- 2. Contralateral internal oblique
- 3. Contralateral adductors



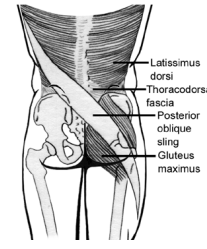
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Posterior Oblique Sling

Posterior Oblique System (POS)

- 1. Latissimus dorsi
- 2. Thoracolumbar fascia
- 3. Contralateral gluteus maximus



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Anatomy Trains

Historically originates from:

Osteopathy, chiropractic, Alexander method,
Feldenkrais technique, Trager technique,
Tom Myers: Founder of Anatomy Trains/KMI

Fascial approach:

previously thought fascia was a passive force
transmitter

Recent research (2006+) states otherwise ...



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What is Fascia?

- Layer of fibrous connective tissue
- Latin 'band'
- Surrounds muscles, groups of muscles, blood vessels, and nerves...
- Binds some structures together
- Permit others to slide smoothly over each other

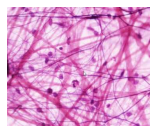
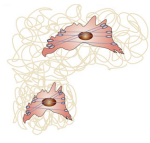


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What is Fascia?

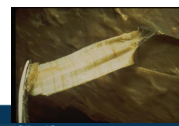
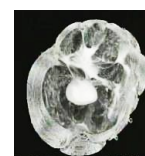
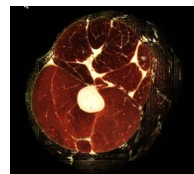
Made of

- Fibrous elements (tropocollagen, collagen, elastin & reticulin, myofibroblasts) which TRANSMIT FORCE
- Ground substance (glycosaminoglycans or GAGs and Mucopolysaccharides) which CARRY and TRANSMIT CHEMISTRY and PROVIDE VISCOELASTICITY (hyaluronic acid)
- Fascia seen in the form of tendons, ligaments, retinaculum, periosteum...



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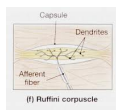
What is Fascia?



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Fascia is Proprioceptive!

- Contains
 - Pacini corpuscles (pressure + vibration)
 - Ruffini corpuscles (heat sensitive)
- Attached to muscles and muscle spindles
 - Muscle spindles at fascial septae (mechanoreceptor – stretch reflex)
 - Muscles directly (pec major and deltoid to brachial fascia)



Fascia is a Sliding/Gliding Interface!

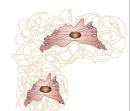
- Contains Hyaluronic Acid
 - Facilitates and lubricates movement between muscle fibres, between fascia and epimysium, perimysium, endomysium...
- Important in MF TrP's
 - Create new lines of tension in myofascia
 - Causing hyperstimulation of mechanoreceptors
 - Stretch – afferent input – pain

Fascia is a Sliding/Gliding Interface!

- Contains Hyaluronic Acid
 - At MFTrPs
 - Treatment that increase temperature to above 40+ °C
 - Increases VISCOSITY of HA
 - Thickening reduces sliding/gliding interface: densification
 - PATHOLOGICAL: INFLAMMATORY
 - Create inflammatory response (? Delayed up to 48hours) if you treat the area of densification directly
 - DON'T treat with heat at MFTrP site: treat AWAY from site
 - Decrease pressure in MFTrP by moving healthy fascia to unhealthy fascia (reduce the local stretch)

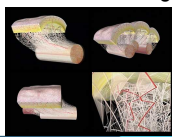
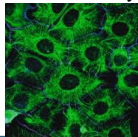
Fascia is Contractile!

- Contains Myofibroblasts
 - Middle ground between smooth muscle cell and traditional fibroblast (build and maintain collagen matrix)
 - Responsible for CHRONIC contractures
 - Density is positively correlated to physical activity
 - NOT stimulated to contract via neural synapse, more likely chemical fluid changes (pH)
 - Long-duration, low-energy contraction
 - Contraction builds over 20-30mins, sustained for hours (2+)
 - Agg: acidity via mechanical tension, histamine, cytokines
 - Ease: nitric oxide



Fascia at a structural level

- Tensegrity
- All elements of a system EQUALLY absorb compressive and tensile force
- Maximal **Stability** and **Mobility**
- Preferential system of construction in biology



Anatomy Trains

- Myofascial way of looking at system stability and mobility
- Lines/tracks
- Stations
- Points (1 – 2, or 2-1)



Rules of Anatomy Trains

- Follow the line or grain of the pull
- Note the stations (bony attachments)
- Layers DO NOT change direction or depth
- Expresses (muscles that cross multiple joints) are superficial
- Locals (muscles that are single joint in action) are typically deep

Anatomy Trains is NOT:

- A comprehensive theory of manipulative therapy
- A comprehensive theory of muscle action or movement
- The only way to describe the body

Anatomy Trains IS

- A plausible explanation for postural compensation (chronic contracture; LBP, fibromyalgia, tension headaches, prolonged loss of ROM, chronic instability...)
- An excellent explanation of how one structure can affect a distant structure

Summary: Fascia is

- THE tissue of shape, support, organisation
- Protective: mechanically and chemically
- Visco-Elastic
- An adaptive matrix – self monitoring
- A tension distributor
- Communicating – contacts EVERY cell
- PROPRIOCEPTIVE
- SLIDING/GLIDING interface
- CONTRACTILE

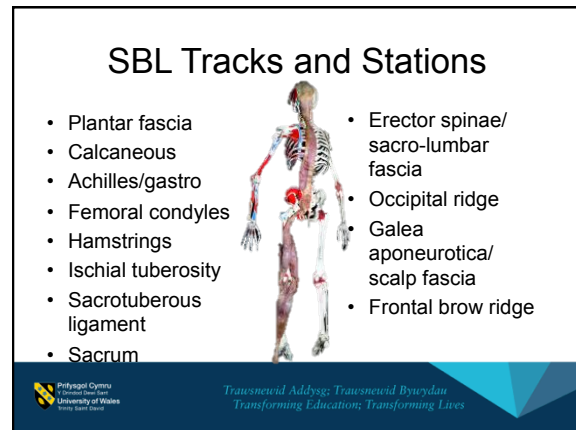
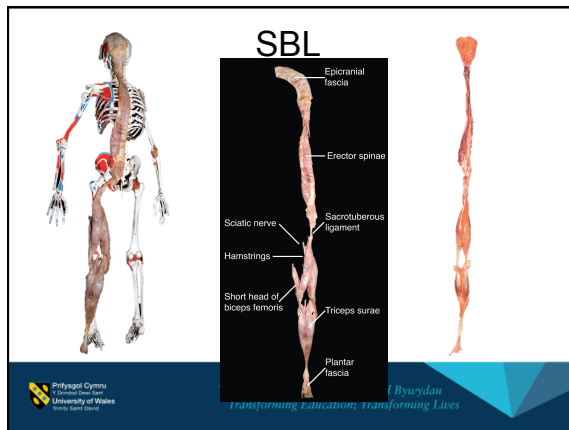
BREAK



The Superficial Back Line (SBL)

- Connects the entire posterior side of the body
- **Slow twitch**
- **Endurance muscles**
- Covered by sheets of fascia
- Creates secondary curves
- Linked to maturity and vision
- Links **bottom of foot to top of head**
- Continuous (previously thought to stop at knee)





Testing and Treating the SBL

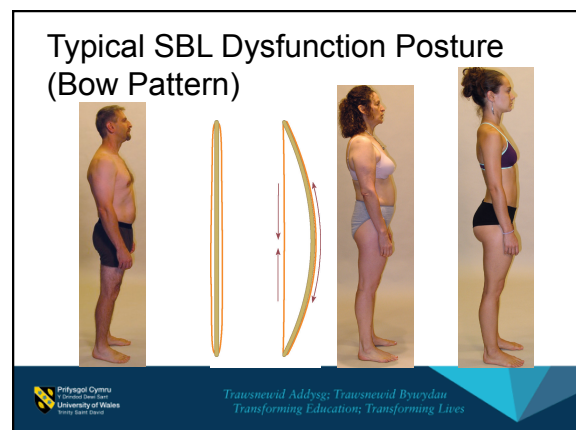
- Maturity
- Born in flexed position
- Trunk flexion patterning may be affected by SBL dysfunction.

1. Assess AROM trunk flexion
 - What moves well, what doesn't?
 - Cx, Tx, Lx, Knees, Ankles, Foot
2. Assess the squat
 - MEASURE Heel to forefoot ratio



- Anatomy Trains Rx Philosophy:
- DO NOT STRETCH dysfunctional fascia: off load it

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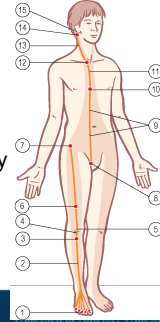
The Superficial Front Line (SFL)

- Connects the entire anterior surface of the body
- Top of the feet to the side of the skull
- 2 parts (unlike continuous SBL)
- Balances the SBL in the sagittal plane
- Protects the ventral cavity-startle response
- Fast twitch!



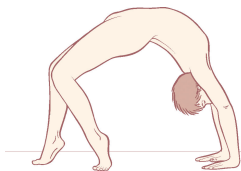
SFL Stations and Tracks

- Dorsal surface of foot
- Toe extensors
- Tib ant/ ant crural compartment
- Tibial tuberosity
- Patella/ quads/ rec fem
- AIIS
- STOP
- Pubic Tubercle
- Rectus Abdominis
- 5th rib
- Sternalis/ sterno-chondral fascia
- Sternum/ manubrium
- SCM
- Mastoid
- Scalp Fascia
- STOP



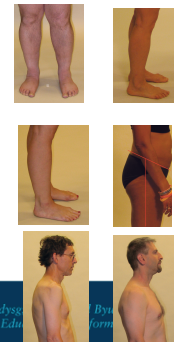
SFL Testing and Treating

- Trunk Extension
- Release
- SCM
- Quads/Rec Fem
- Tib Ant
- MOVE TOWARDS STOP!



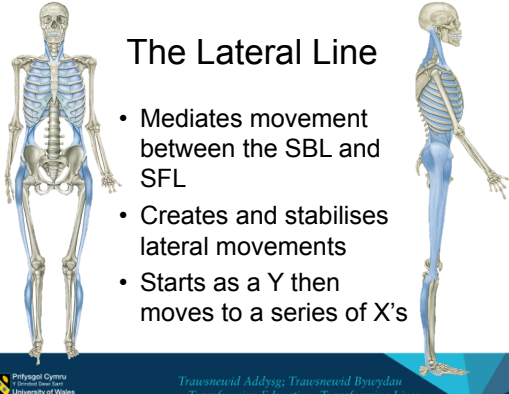
Typical SFL Posture Dysfunction

- Pronation or DF posture (Tib ant weakness or tightness)
- Knee hyperextension (tight quads)
- Anterior tilt pelvis (tight rec fem)
- Short belly with chest pulled down & restricted anterior breathing
- Forward head carriage with decreased Cx rotation (SCM)



The Lateral Line

- Mediates movement between the SBL and SFL
- Creates and stabilises lateral movements
- Starts as a Y then moves to a series of X's



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LL: Tracks and Stations

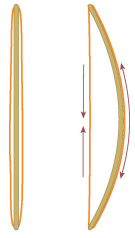
- 1st and 5th MT bases (peroneals)
- Peroneals
- Head of Fibular
- Anterior lig of head of fib
- Lateral tibial condyle
- ITB
- Glute Max, Med & TFL
- Iliac crest, ASIS and PSIS
- Lateral Obliques
- Ribs
- Ext and Int Intercostales
- T4, clavical, manubrium
- Splenius Capitis/ SCM/ 1st & 2nd Ribs
- Occipital Ridge/ Mastoid process



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Typical Lateral Line Postural Dysfunction 1

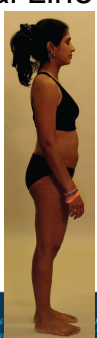




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Typical Lateral Line Posture 2:





Person A is balanced,
Person B has a
shortened sternum to
sacrum line

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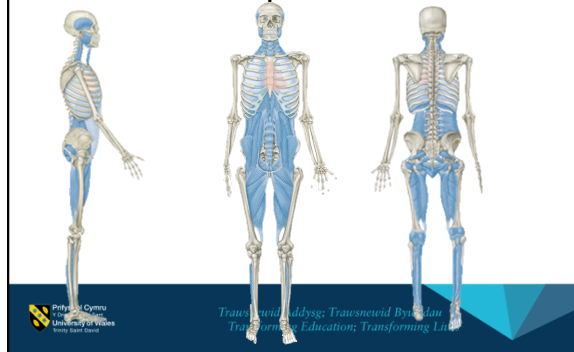
LL: Testing and Treating

- Side of Hip
 - Post from PSIS to ASIS for flexion
 - Ant from ASIS to PSIS for Extension
 - With hip flexion and ext
- ITB
 - Work downwards from hip to knee
 - P to D
- Postural line that functions to balance the front and back.
- Mediates forces from SFL, SBL amongst other lines
- Lateral flexion
- Hip abduction
- Foot Eversion



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The Deep Front Line



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The Deep Front line

Bones

- Plantar Tarsal bones
- Posterior tibia/fibula
- Medial femoral epicondyle
- Less trochanter
- Ischial ramus
- Coccyx
- Lx vertebral bodies
- Posterior cartilage and xyphoid process
- Posterior manubrium
- Hyoid bone
- Mandible



Myofascial structures

- Tibialis posterior, long toe flexors
- Popliteus and knee capsule
- Adductor magnus and minimus
- Adductor longus and brevis
- Pelvic floor
- Anterior sacrum fascia
- Psoas, iliacus, pectineus and femoral triangle
- Diaphragm
- Pericardium
- Scalenes
- Erector spinae/ multifidus



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DFL: Testing and Treating

- No associated movement
- MMT for
 - Tibialis Posterior
 - Adductor Magnus
 - Adductor Brevis
 - Adductor Longus
 - Iliospoas
- How can we facilitate this?
- What positional holds an we add?



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Number of other lines

- Superficial back line
- Superficial front line
- Lateral line
- Spiral line
- Functional lines
- Arm lines
- Deep front line
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