

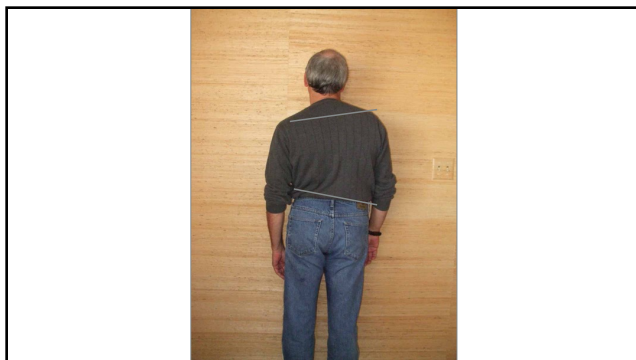


1

THE RIGHTING REFLEX

- ▶ The primary function of the involuntary motor output of the human body...to level the eyes with the horizon.
- ▶ Coordinates the process by which we are able to ambulate and not fall over after every step.

2



3

Optimal upright posture

4

1) Bilateral Asymmetrical Foot Pronation 2) Pelvic Tilt 3) Anterior Translation of Pelvis 4) Anterior Translation of Cervical Spine

4 Postural Distortions

5

The most common subluxation pattern of the foot is EXCESSIVE PRONATION

Nearly all excessive pronation is BILATERAL but ASYMMETRICAL

6

PRONATION

7

WE ALL KNOW WHAT PRONATION LOOKS LIKE

8



9

THE DEFINITION OF PRONATION WITH RESPECT TO THE ANKLE/FOOT:

A COMBINATION OF THREE MOTIONS THAT OCCURS MOSTLY AT THE SUBTALAR JOINT

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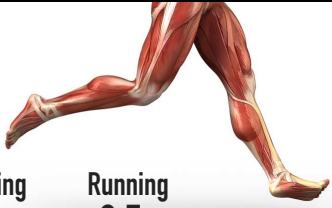
THE 3 MOTIONS:

1. EVERSION (SOLE OUT)
2. DORSIFLEXION (TOE UP)
3. ABDUCTION (TOE OUT)

11

HOW DO THIS HAPPEN ??

12




Body Weight

Walking	2.5x	Running	3.5x
---------	------	---------	------

HEEL STRIKE LOADS

13




The highest relative contribution to arch stability was provided by the plantar fascia, followed by the plantar ligaments and spring ligament. Plantar fascia was a major factor in maintenance of the medial longitudinal arch.

Huang et al: Biomechanical Evaluation of Longitudinal Arch Stability. Foot & Ankle, Vol. 14, No. 6, July/August 1993

ARCH STABILITY

14



"The first line of defense of the arches is ligamentous...
...muscles did not come into play until a force greater than 400 pounds was exerted."

Basmajian JV et al. The Role of Muscles in Arch Support of the Foot: An Electromyographic Study. J of Bone and Joint Surgery, Vol 45, No 6 September 1963.

MUSCLES IN THE FOOT

15

Low intensity forces for prolonged periods of time create **PERMANENT** plastic changes.

PLASTIC DEFORMATION

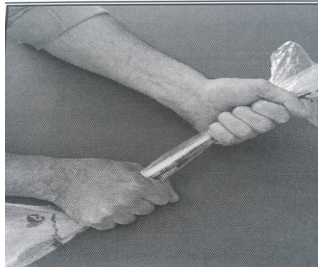
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Plastic Deformation

17

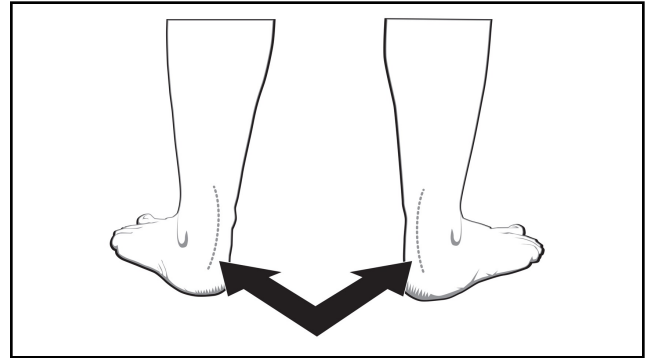
PLASTIC WRAP DEMO



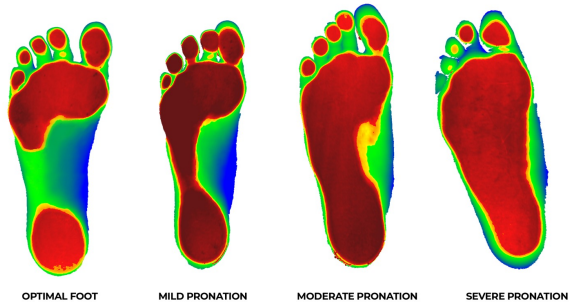
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FOOT EVERTORS VS. FOOT INVERTORS

19



20



21

VISUAL INDICATORS ARE
VERY RELIABLE IN
CATEGORIZING
PRONATION VS. SUPINATION

22

“BIG 2” VISUAL INDICATORS

23

#1 FOOT FLARE OR TOE-OUT

24

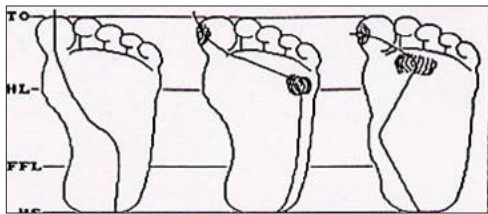
#2 ANTERIOR TRANSLATION OF CERVICAL SPINE

25

- 1. Foot Flare/Toe Out
- 2. Posterior/Lateral Heel Wear
- 3. Patellar Approximation – “Knock Kneed”
- 4. Achilles Tendon Bowing
- 5. Dropped Navicular/ Flat Arch/ Pes Planus
- 6. Callouses on 2-3-4 Metatarsal Heads

VISUAL INDICATORS OF EXCESSIVE PRONATION

26



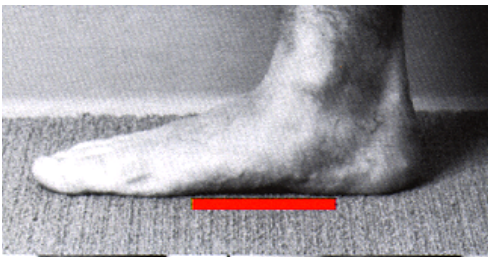
PLANTAR GAIT PATTERNS

27



ACHILLES
TENDON
BOWING

28

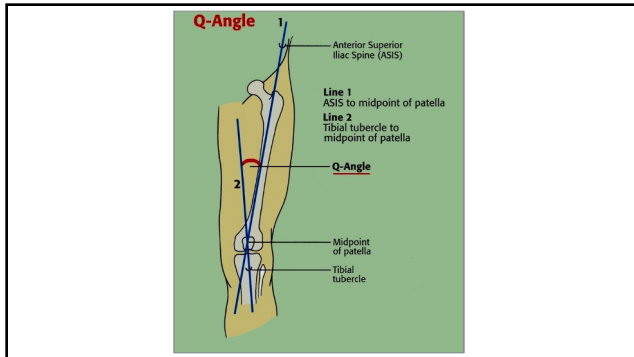


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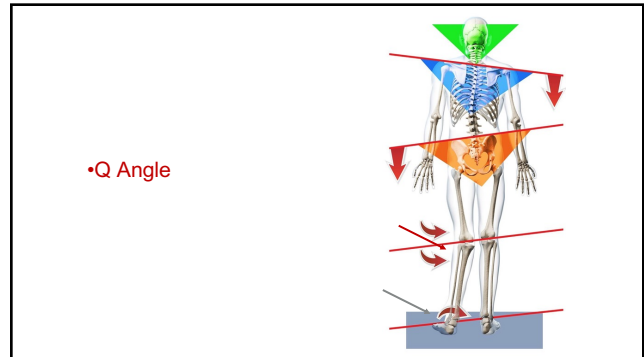


Q-ANGLE
OF THE KNEES

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31



32

THE UNHAPPY TRIAD

Anterior Cruciate Ligament
 Medial Collateral Ligament
 Medial Meniscus

33

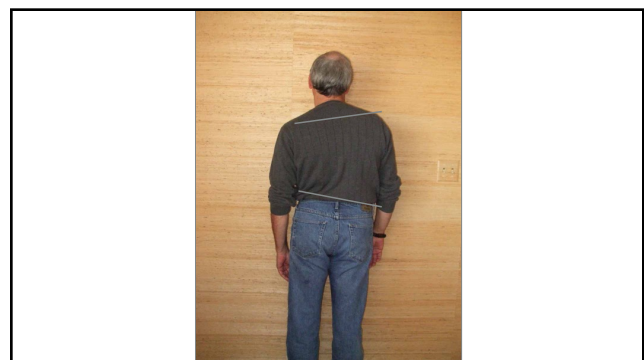
THE NEUROLOGICAL ASPECT.....

34

THE RIGHTING REFLEX

- ▶ The primary function of the involuntary motor output of the human body...to level the eyes with the horizon.
- ▶ Coordinates the process by which we are able to ambulate and not fall over after every step.

35



36

PROPRIOCEPTION

37

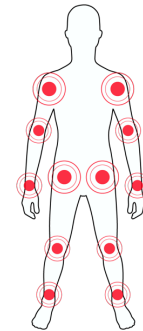
MECHANORECEPTORS



38

THE "NOISY JOINT"

39



40

PROPRIOCEPTION

41

MECHANORECEPTORS

Provide continuous feedback about where the body is in space

- Position sensitive
- Motion sensitive
- Vibration sensitive
- Pressure sensitive
- Thermo sensitive
- Chemo sensitive
- Inhibit perception of pain

42

TYPES 1,2,3 MECHANORECEPTORS ADAPT

43

TYPE 4 MECHANORECEPTORS DO NOT ADAPT

44

NOCICEPTORS

45

NOCICEPTORS

- ▶ "A continuous tridimensional plexus of unmyelinated nerve fibers.....and weaves (Like chicken-wire) in all directions."

▶ Wyke B. *Neurological Aspects of Pain Therapy*. In: Swerdlow M, Editor. *The Therapy of Pain*. Philadelphia: JB Lippencott: 1980

46

NOCICEPTOR LOCATION

- Skin
- Subcutaneous tissue
- Adipose
- Joint capsules
- All spinal segments
- Blood Vessels
- Cancellous bone
- Periosteum
- Muscles
- Tendon
- Fascia
- Aponeurosis
- Dura Matter
- Epidural Tissue

▶ Grieve G. *Common Vertebral Joint Problems*

47

WHAT ARE THE NOCICEPTORS IN YOUR
WRIST/FOOT DOING RIGHT NOW THAT THEY
WEREN'T DOING WHEN YOUR WRIST/FOOT WAS
IN A MORE NEUTRAL POSITION?

EXCESSIVELY FIRING

48

WHAT IS THE FINAL DESTINATION OF THE NOCICEPTIVE IMPULSES, CREATED IN YOUR WRIST/FOOT, IF THEY ARE NOT INHIBITED?

SENSORY CORTEX

49

IF THE NOCICEPTIVE IMPULSES FROM YOUR WRIST/FOOT WERE NOT INHIBITED AND THE IMPULSES ELICITED AN ACTION POTENTIAL IN THE SENSORY CORTEX, WHAT IS THE CONSCIOUS SENSATION THAT ONE WOULD FEEL CALLED?

PAIN

50

WHAT INHIBITS NOCICEPTIVE IMPULSES?

THE FIRING OF TYPE 1,2,3 MECHANORECEPTORS

51

“RESTRICTED JOINT MOTION CAUSES AN INCREASE FIRING IN NOCICEPTIVE AXONS...AND A DECREASE IN FIRING OF LARGE DIAMETER MECHANORECEPTOR AXONS.”

• Hooshmand H. Chronic pain: reflex sympathetic dystrophy, prevention and management.

52

WHERE DOES THE INHIBITION OF NOCICEPTORS BY TYPES 1,2,3 MECHANORECEPTORS OCCUR?

AT A LEVEL OF THE SPINAL COLUMN

53

HOW MANY IMPULSES REACH THE SENSORY CORTEX EVERY SECOND?

3 TRILLION

54

HOW MANY OF THE SENSORY IMPULSES THAT BOMBARD THE SENSORY CORTEX EVERY SECOND ARE CONSCIOUS IMPULSES? PAIN IS A CONSCIOUS SENSATION.

50

▸ Furman and Gallo, 2000. *The Neurophysics of Human Behavior*.

55

“A CLEAR INDICATION THAT USING CONSCIOUS PERCEPTION OF PAIN TO DETERMINE THE NEED FOR CARE IS HUGELY INADEQUATE AND INACCURATE.”

▸ Chestnut, James L., *The 14 Foundational Premises For the Scientific and Philosophical Validation of the Chiropractic. Wellness Paradigm. P. 58, 2001.*

56

NOCICEPTOR ACTIVITY REFLEXIVELY ACTIVATES THE SYMPATHETIC NERVOUS SYSTEM....

▸ Kabell J. *Sympathetically maintained pain. In: Willis W.ed. Hyperalgesia and Allodynia. Raven Press. NY: 1992*

57

“...NOCICEPTIVE INPUT...CAN CAUSE SYMPTOMS SUCH AS SWEATING, PALOR, NAUSEA, VOMITING, ABDOMINAL PAIN, SINUS CONGESTIONS, DYSPNEA, CARDIAC PALPIATIONS, AND CHEST PAIN...”

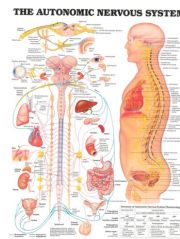
▸ Nansel D, Szlazak M. *Somatic Dysfunction and the phenomena of visceral disease stimulation: A probable explanation for the apparent effectiveness of somatic therapy in patients presumes to be suffering from visceral disease. J. Manipulative Physiol There 1995: 118:379-97.*

58

“ADJUSTMENTS TO DECREASE NOCICEPTOR INPUT TO THE SPINAL CORD SEEM TO BE AN EFFECTIVE WAY TO DECREASE “THE HYPEREXCITABLE CENTRAL STATE.”

▸ Patterson M. *The spinal cord: participant in disorder. Manip: 1993; 9(3) 2-11.*

59



“About 1 in 4 (23%) of adult patients...experienced positive *Non-MS* benefits after chiropractic adjustments.”

▸ Leboeuf-Yde C, Axen I et. al. *Types & Frequencies of Improved Non-musculoskeletal Symptoms reported after Chiropractic spinal manipulative therapy. JMPT 1999; 22(9): 559-564.*

60

UNEXPECTED POSITIVE NON-MS BENEFITS

- Easier to breathe
- Asthma better
- Digestion improved
- Less stomach pain
- Improved circulation
- Less Tachycardia
- Sharper Vision
- Better Hearing
- Less ringing in ears
- Improved urination
- Dysmenorrhea better
- Eczema better
- Less Nausea & more....

• Leboeuf-Yde C, Axen I et al. Types & Frequencies of Improved Nonmusculoskeletal Symptoms reported after Chiropractic spinal manipulative therapy. *JMPT* 1999; 22(9): 559-564.

61

LIFE
IS
MOTION

62

2 THINGS NOCICEPTORS DO

1. Initiators of Pain
2. Reflexively activate the sympathetic nervous system

63

“TURN DOWN THE NOISE”

**....THE NOCICEPTIVE OR
PROPRIOCEPTIVE NOISE**

64

EMAIL:

drmarkcharrette@gmail.com

65

**PROPRIOCEPTIVE
TAPING OF THE FOOT**

66



67



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69



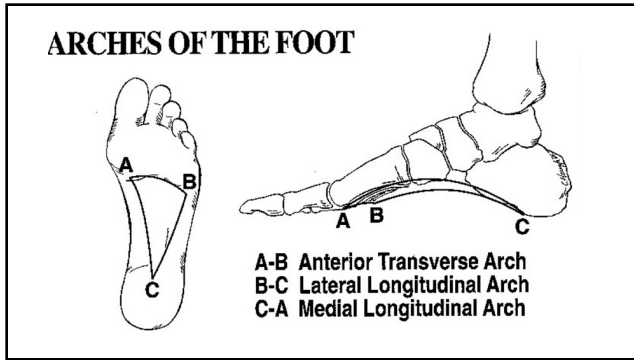
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LOWER EXTREMITY
ADJUSTMENTS

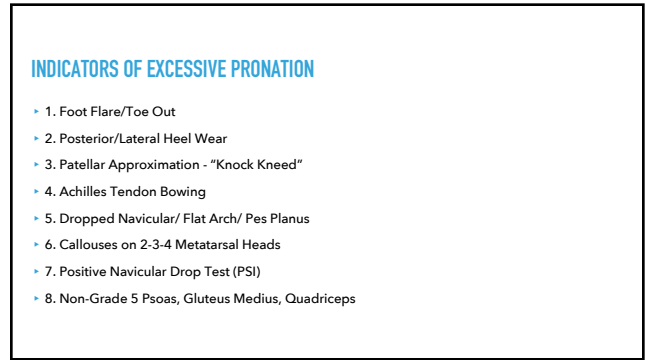
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ANKLE/FOOT

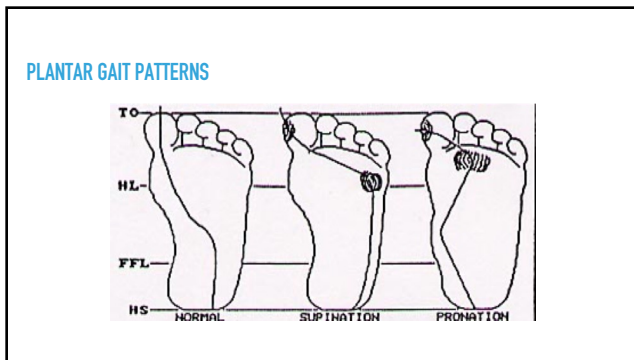
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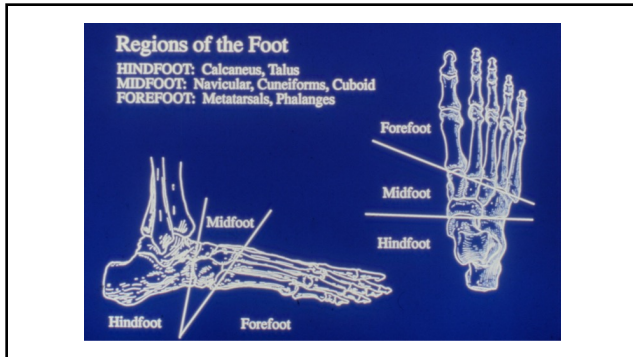
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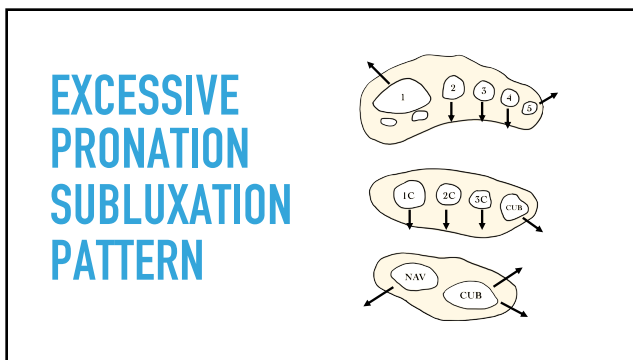


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EXCESSIVE PRONATION - SUBLUXATION PATTERN

BONES	SUBLUXATION DIRECTION
Navicular	Inferior & Medial
Cuboid	*Superior & Lateral (or Inferior & Lateral)
Cuneiforms	Inferior
Metatarsal Heads 2-3-4	Inferior
Metatarsal Heads 1 & 5	Superior & Lateral/Medial
Talus	Mostly Anterior & Slightly Lateral
Calcaneus	Everted & Plantar Flexed
Fibular Head	Posterior & Lateral

80



81

RIGHT FOOT PRONATION PROTOCOL

82

NAVICULAR

83



84

CUBOID

THE "MONEY ADJUSTMENT"

85



86

CUNEIFORMS

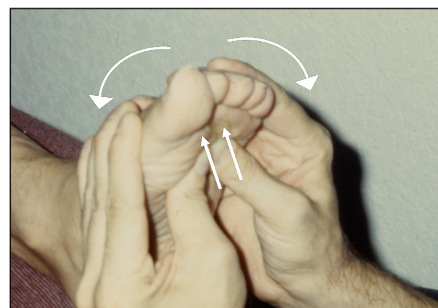
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METATARSAL HEADS

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TALUS

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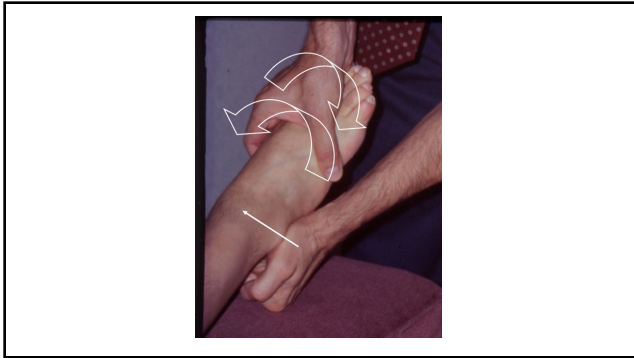
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CALCANEUS

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97

FIBULAR HEAD

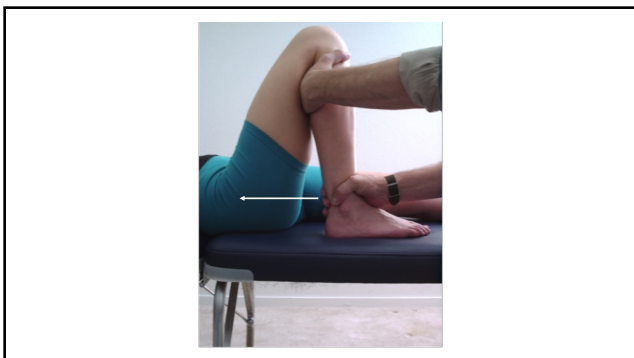
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99



100



101

“GET COMFORTABLE BEING UNCOMFORTABLE. THAT’S HOW YOU BREAK THE PLATEAU AND REACH THE NEXT LEVEL.”

- CHALENE JOHNSON

102

DRILL - RIGHT FOOT PRONATION PROTOCOL

103



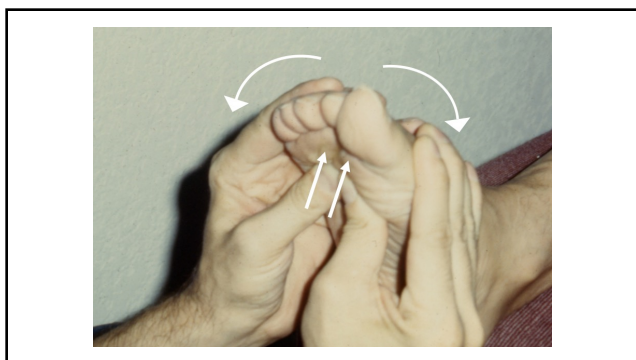
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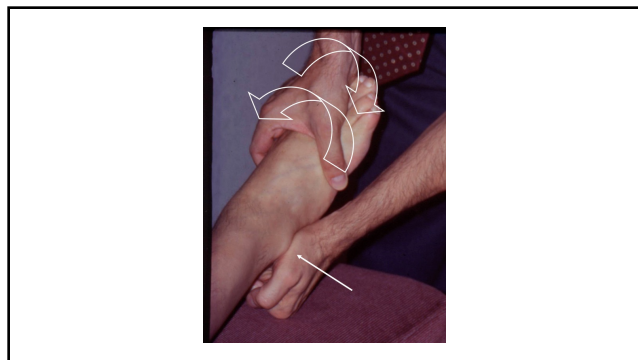
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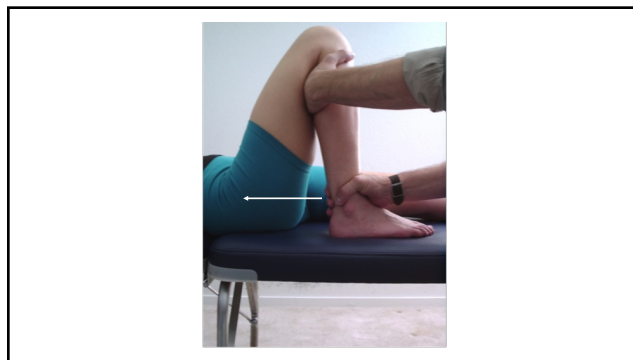
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LEFT FOOT PRONATION PROTOCOL

111



112



113



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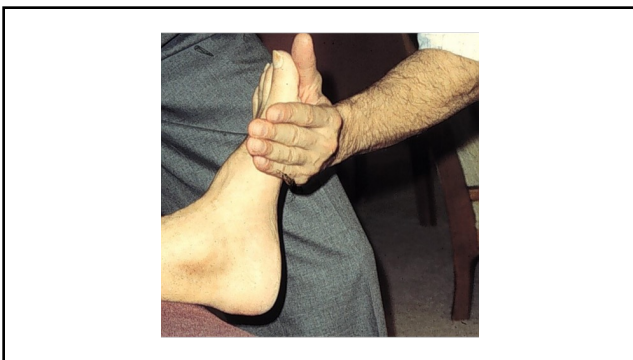
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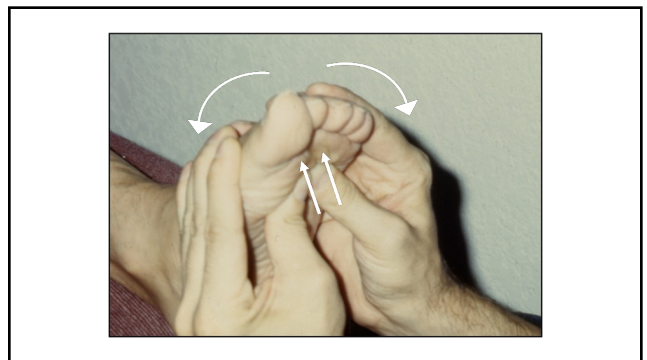
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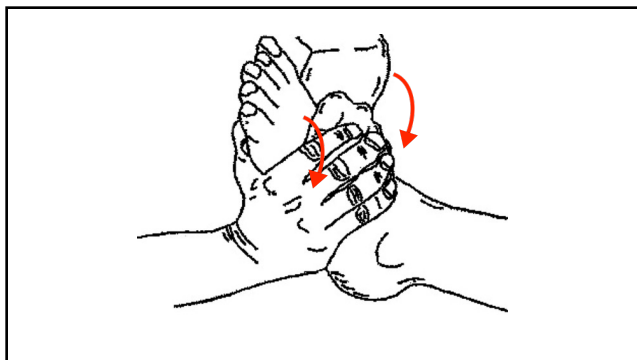
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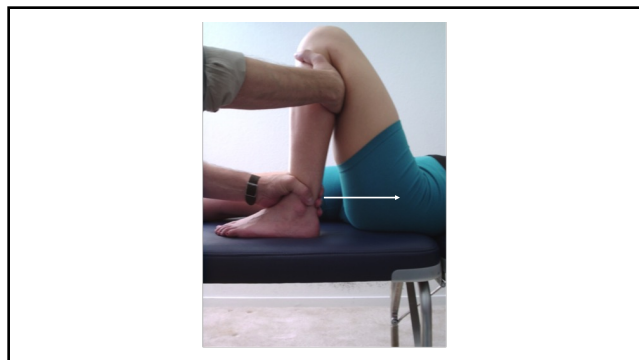
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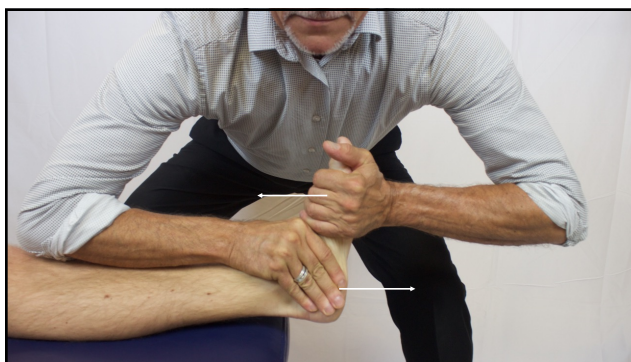
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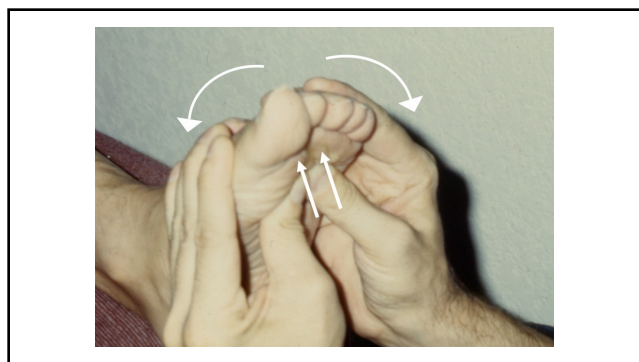
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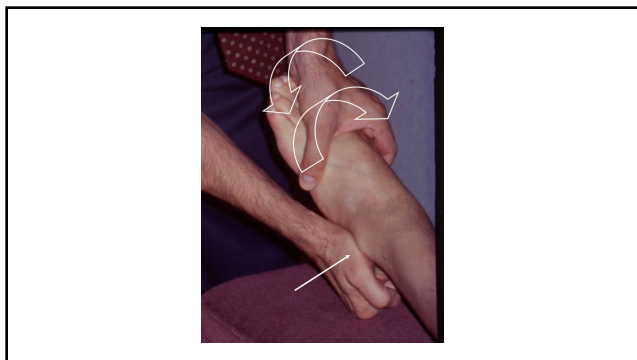
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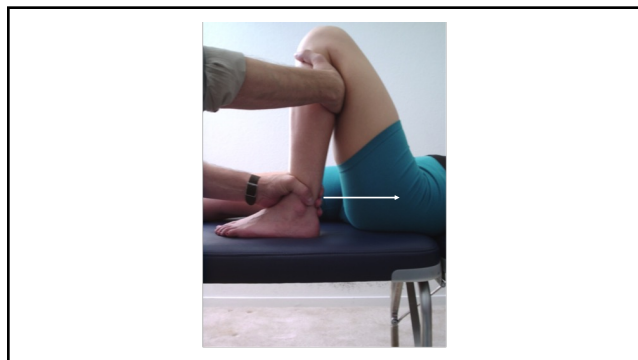
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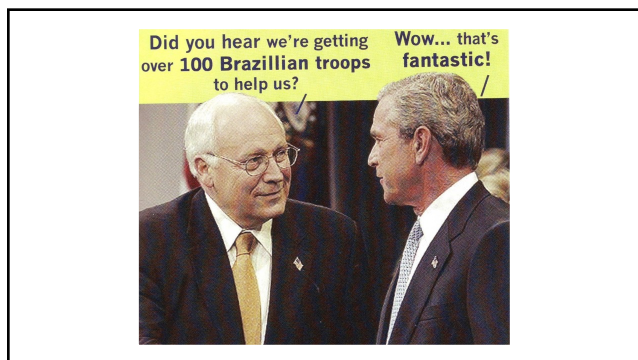
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**THANK YA'LL
VERY MUCH !!!!**

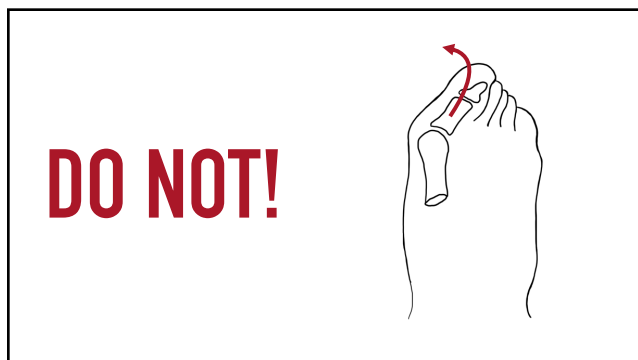
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**ASSOCIATED
ADJUSTMENTS**

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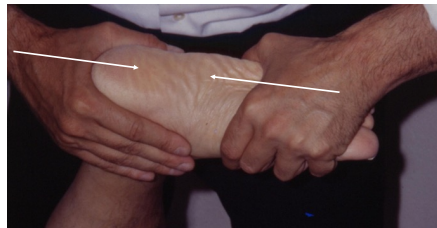
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HALUX VALGUS ADJUSTMENT



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HEEL SPUR ADJUSTMENT



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INTERPHALANGEAL ADJUSTMENT



141

T12-L1

142

CROSS ARMS



143

TUCK CHIN & LEAN FORWARD



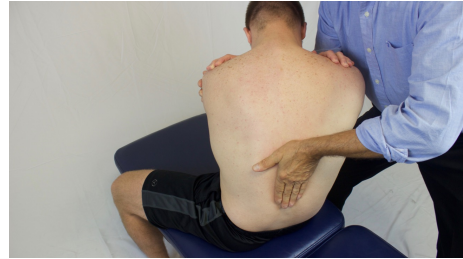
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PALPATE FOR T12-L1 JUNCTION



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PALPATE FOR T12-L1 JUNCTION



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PALPATE FOR T12-L1 JUNCTION



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PALPATE FOR T12-L1 JUNCTION



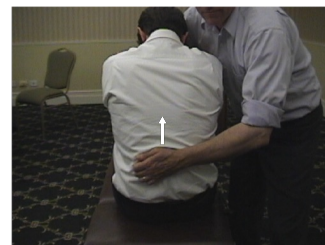
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PALPATE FOR T12-L1 JUNCTION

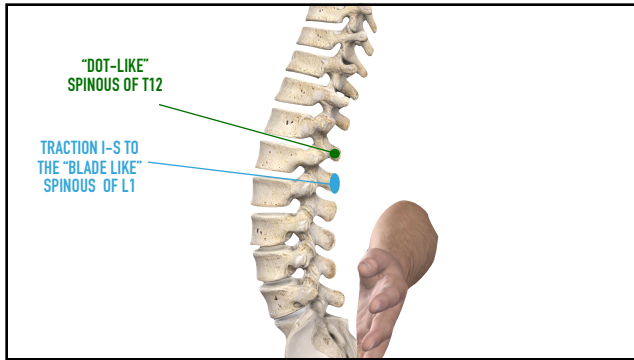


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TISSUE PULL ONTO L1 SPINOUS



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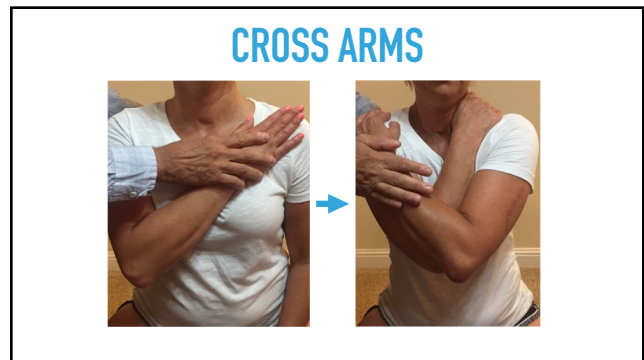
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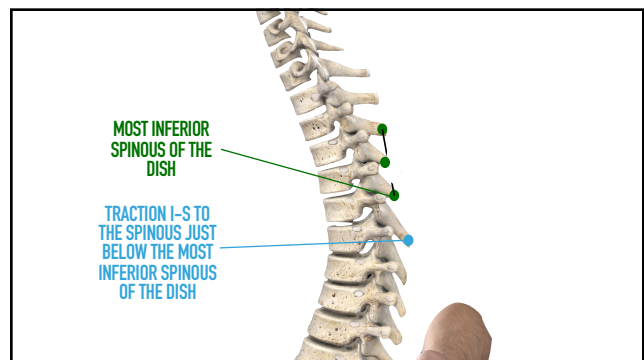
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PALPATE THORACIC SPINOUS PROCESS



157

TISSUE PULL - INFERIOR TO SUPERIOR



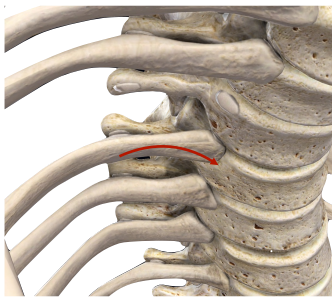
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RIBS

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161

**RIB SUBLUXATES ANTERIOR FROM
TRANSVERSE PROCESS
PALPATE FOR ANTERIORITY**

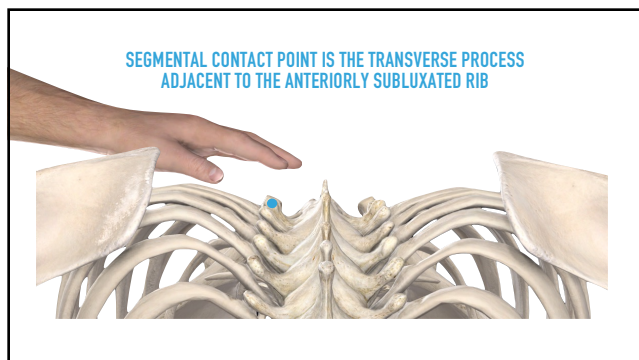
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163

TAKE TISSUE PULL FROM
MEDIAL TO LATERAL OR LATERAL TO MEDIAL
SO THENAR IS OVER TRANSVERSE PROCESS

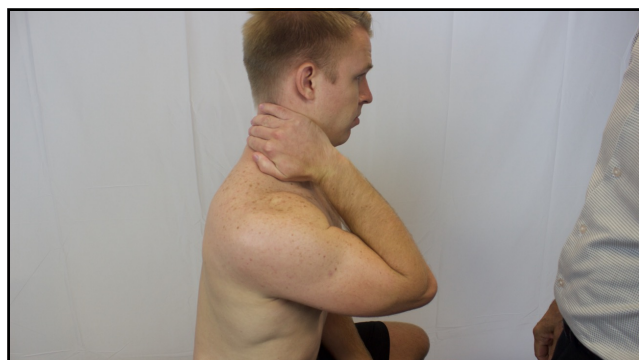
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168

HAVE PATIENT TURN HEAD AWAY

THRUST A-P AND MEDIAL TO LATERAL
TOWARD 1ST CARPAL-METACARPAL JOINT
OF DOCTOR'S HAND

169



170



171