

# **Back To Chiropractic CE Seminars**

## **Gentle Technique for the Lower Body ~ 4 Hours**

**Welcome to Back To Chiropractic Online CE exams:**

**This course counts toward your California Board of Chiropractic Examiners CE. (also accepted in other states, check our website or with your Chiropractic State Board)**

**The California Board requires that you complete all of your CE hours BEFORE the end of your Birthday month. We recommend that you send your chiropractic license renewal form and fee in early to avoid any issues.**

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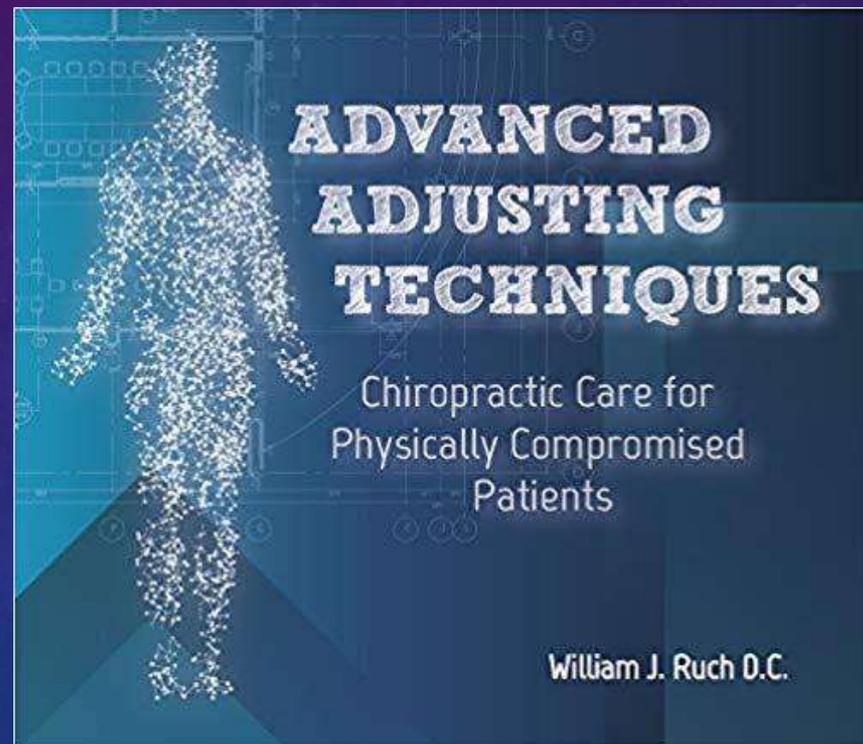
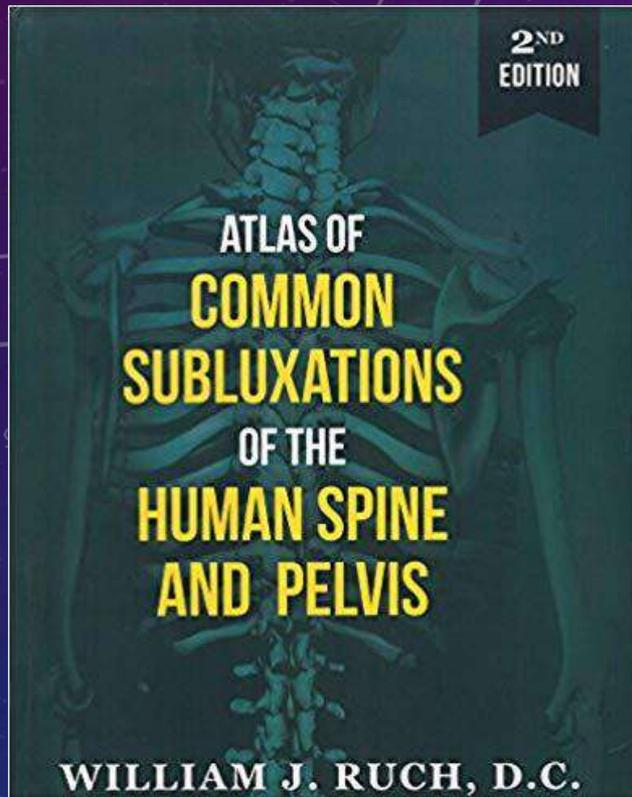
**If you get audited and lose your records, I'll have a copy.**

**I'm always a phone call away... 707.972.0047 or email: [marcusstrutzdc@gmail.com](mailto:marcusstrutzdc@gmail.com)**

**Marcus Strutz, DC**

**Back To Chiropractic CE Seminars**

**THE FOLLOWING PRESENTATION CAN BE FOUND  
IN MORE DETAIL IN THESE BOOKS**



*BOTH TITLES PUBLISHED BY LIFE WEST PRESS*

The background is a dark blue gradient with faint, light blue circular patterns and a scale. The scale is a semi-circle on the left side, with numbers ranging from 150 to 260 in increments of 10. There are also several circular arrows and dashed lines scattered across the background, suggesting movement or adjustment.

# **GENTLE ADJUSTING OF THE LOWER BODY**

This a presentation on chiropractic care for patients with advanced arthritis, hip replacements, knee replacements and spinal implant and other health considerations (special needs)

# GENERAL CONCEPTS FOR EVALUATION, TREATING AND MANAGING PATIENTS WITH SPECIAL NEEDS

*Patients with advanced arthritis and joint replacements have had some kind of traumatic event-- in most cases years earlier. I find most of these patients are victims of Modern Injuries.*

# MODERN INJURIES

- ***“Rapid Deceleration” Events***
- ***Therapy Should not Reproduce Mechanism of Injury***
- ***Manipulation May Not Be Helpful***

100 years ago, what kind of car injuries were we having? Cars didn't travel very fast, and there weren't very many of them. The worst injuries were sustained from lower speed collisions.

Most people that I encounter today as patients, and also as students at the chiropractic college, have been in motor vehicle accidents. Many have been more than one. Most are still suffering from the effects of those accidents despite chiropractic care.

# MODERN INJURIES

- ***Therapy Should not Reproduce Mechanism of Injury***

The crashing mechanism involves a lot of instantaneous overstretching of the spine, shoulder and extremities. The therapy to recover from these events should not reproduce the event.

- ***Manipulation May Not Be Helpful***

A lot of manipulation involves instantaneous overstretching. For joints and ligaments to recover from an injury involving instantaneous overstretching, instantaneous overstretching is not a therapeutic intervention.

# A NEW CHIROPRACTIC MODEL IN TREATMENT

- *Many patients have suffered “modern injuries”*
- *More than 16+ million MVA's a year (2016)*
- *Assume all components have suffered injury*

When evaluating somebody's injuries from motor vehicle accident or other rapid deceleration event assume all components of the patients body has been injured. Do not assume that leg pain is coming from the spine-- it's likely to be an injured leg. Also for shoulder and arm pain, it is likely that the arm and shoulder were injured.

If you don't look for it you will not find it. The same thing can be said of leg pain and arm pain, if you don't evaluate the extremities and assume everything is coming from the spine you will have marginal, if not ineffective, treatment outcomes.

# MORE YOUNG PEOPLE WITH ADVANCED ARTHRITIS

- *Prior surgeries, joint replacement earlier in life*
- *Advanced arthritis in Children or Young Adults*
- *Deconditioned Patients in their Twenties*
- *Functional capacity issues at earlier ages*

I have a number of patients in their 30s that were involved in motor vehicle accidents in their teenage years. Twenty years after the injury, they have advanced arthritis, degenerative discs and other arthritic joints affecting the quality of life. We are also seeing more and more patients that had surgical joint replacement in their 20s and 30s. Add to that the increase in cancer occurring in younger people. We now have a number of cancer survivors in their 30s and 40s with a history of surgery-- in some cases multiple surgeries.

# THE AGING AND INJURED POPULATION:

- *People are living longer with Advanced Arthritis*
- *People are living longer with chronic health problems*
- *Joint replacement and spinal surgeries are becoming common*
- *Prevalence of MVA injuries of all ages*
- *Multiple Injuries or Health Problems*

For some, obesity and heart disease are part of the situation and you have a very tough case to manage. We have more and more patients that are deconditioned and obese in their 20s and 30s. All these conditions can affect functional capacity-- especially the injuries to the lower extremities. Injuries to the knees and ankles in childhood or young adulthood will influence patterns of activity or lack of activity, building influence throughout their lives.

# GENTLE ADJUSTING OF THE INJURED SPINE, RIB CAGE AND PELVIS AND EXTREMITIES WITH USE OF SPRING LOADED INSTRUMENT AND DROP TABLE

- *Avoiding instantaneous over stretching (manipulation)*
- *Avoiding reproducing mechanism of injury*
- *The Spring Loaded Instrument (SLI)*
- *The Drop table*
- *The Drop Piece*

# CHIROPRACTIC CARE FOR PATIENTS WITH ADVANCED ARTHRITIS

- Subluxations cause Osteoarthritis (i.e. Trauma)
- 96% of Occurring Arthritis is OA
- Huge problem: 85% of Medicare claims
- Most common cause of disability in the US
- Manipulation versus adjusting

## X-RAY IMAGE OF A 72 YEAR OLD AVID TENNIS PLAYER

Patient complained of sudden onset of right lower back pain. I left the spine alone and corrected his pelvis. He was playing the next day, and continues to play 20+ yrs later



## BROKEN LEFT ISHIAL TUBEROSITY

This patient had an industrial accident 30 yrs ago,

Chief complaint was lt leg pain, it was a subluxated fibula. Patient has high level of function despite history.



# CHIROPRACTIC CARE AND PATIENTS WITH PRIOR SURGERIES

- ***More than a Million Joint Replacements a year in the US-- most are Hip Replacements***  
There is always a subluxated pelvis with hip replacements
- ***244,000 Knee Replacements in 2010***  
In every case I've treated I've found of a subluxated joint involved with the problem.
- ***Most patients have additional joint dysfunction in the region of the surgery that has been ignored***

# SURGERY AND THE ELDERLY

- 2004 Study on 354 patients 60 and older having orthopedic surgeries
- 59% suffered cognitive declines, 42% still suffering 2 years later
- Recommend use of brain wave machine and titrate the anesthesia to the patient just below reduced brain wave activity.
- Avoid surgery by maintaining alignment with chiropractic care

# CHIROPRACTIC CARE FOR PATIENTS WITH PRIOR SURGERIES

- Spinal Surgeries
- Hip Replacements
- Knee Replacements
- Open Heart Surgeries
- Other Surgeries (Usually Cancer)

# SURGERIES

- there are multiple subluxations left unaddressed or created by the improper biomechanics created by a surgical procedure. Every patient that I've treated with a history of spinal surgery had a traumatic event that affected the whole body. A lot of the soft tissue, like discs and some ligamentous structures, have been removed at the time of surgery. These are no longer causing pain. The pain patterns are being generated by the guarding mechanisms of the structures that haven't infused but are still misaligned or subluxated.
- Open-heart surgeries disturbed the integrity and alignment of the rib cage. Pain patterns post surgery can be throughout the torso, shoulder and neck and head due to the subluxation of the costosternal joints and the costotransverse and costovertebral joints that occurred during the surgical procedure. If there was a history of motor vehicle accident or other rib cage trauma the post surgery pain pattern can be severe. Neck pain, headaches and significant loss of shoulder range of motion can be the result of an unresolved rib cage injury.
- cancer surgeries especially breast cancer surgeries can cause multiple problems post surgery. This is especially true if there's been any history of motor vehicle accident or other trauma to the chest. Procedure in breast cancer surgery is to have the patient under general anesthesia with the arm on the surgery side dropped off the table. The weight of the arm, under general anesthesia, can pull the rib joints apart leaving the patient, post surgery, with tingling and numbness of the upper extremity, severe neck pain and headaches from the neglected subluxated costosternal and sternoclavicular joint subluxations.

# FAILED BACK SURGERY

*This is one of many examples of surgery being performed on the spine for relief of radiating pain. There was no attempt to examine the leg. The assumption was leg pain meant joint dysfunction of the lumbar spine.*

*This patient presented with severe antalgia, an inability to stand or walk very far. She was 48 at the time this x-ray and 18 years post surgery. She was on disability for pain. No one ever examined her leg.*

*After three months of care this patient was able to start a walking regimen, 1 year later she was walking 5 miles a day and had no pain.*



## 82 YR OLD WHO DENIES SURGERY

*She came into our office after a fall. She denied a history of surgery. We took an x-ray of her back. It wasn't until after we showed the films to her that she remembered that she had back surgery 20 years earlier. I found her pelvis was subluxated at the pubic symphysis and the SI joints. She had no pain on the spine, she had pain over the right SI joint, right groin and Pubic symphysis. Using the drop table with a gentle, repetitive approach changed her posture, her gait and eliminated her pain.*





## **X-RAY OF PATIENT WITH SHATTERED HIP BONE**

*This patient was thrown from a horse when she was 32 years old. Her right femur went through the back of the acetabulum, shattering the hipbone. She had chronic low back pain, and stated five years after the accident, no one would adjust her low back. She also stated that she was no longer riding a horse. After three months of care she was back to riding and had full activity. The gentle adjusting with a drop table gave back her pelvic alignment and therefore increased functional capacity.*



## PELVIC X-RAY OF A PATIENT WHO NEEDED A HIP REPLACEMENT SURGERY

Her injured pelvis was a major factor in her low back pain and hip pain. An aligned pelvis reduced a significant part of her discomfort.

Our stated goal for a patient facing this kind of procedure is to maintain their level of fitness, reduce their pain, for them to walk into the hospital on the day of surgery and their recovery time to be much faster than average. So far we are batting 1000 on this with 14 hip replacement surgeries we've seen over the years.

# GENERAL PRINCIPALS OF ADJUSTING MULTIPLE ISSUE PATIENTS

- *Gentle, Gentle, Gentle*
- *Repetitive Force can Replace Large Force*
- *Isolate the Application of Intervention*
- *Develop Techniques for Different Patient Positions*

# MULTIPLE, GENTLE ADJUSTING TO CORRECT SUBLUXATIONS

## ADVANTAGES

### *Easier on the Doctor*

- More years to practice
- Less down time

### *Easier on the patient*

- Enhances patient retention
- Patients able to self-check and become more involved with their care

# 3 VITAL CAVITIES

- **Spinal Canal**
  - **Rib Cage**
    - **Pelvic Girdle**

*The vital cavities are labeled as such because the disruption of the cavities would be fatal. Luxation is complete disarticulation. Subluxation is less than a complete luxation. In my view, when a subluxation occurs to a component of a vital cavity, the body's response is to an "impending luxation", an impending fatal event. I feel that this is a valid protective mechanism and in all due respect should be accommodated to this programmed response of the central nervous system.*

# SOME NEW CONCEPTS

- *The body has vital cavities*
- *The body will resist changes to these vital cavities*
- *The resistance is hard wired into the spinal cord*
- *The body doesn't randomly misbehave: most signs and symptoms the patients present with are manifestations of valid protective mechanisms*

The body will resist with muscular rigidity any changes to the shape of the vital cavities. A lot of times we misread rigid tight muscles as misbehaving or in need of stretching. Instead they are involved with a spinal cord mediated response to joint distress of a vital cavity. This is a hardwired response of the spinal cord, there are only three ways to get this response to stop: adjust the joints, general anesthesia and death. Those are the rules.

Another rule is that the body doesn't randomly misbehave. Look for what is being protected. A lot of pain patterns are related to a joint that's injured and biomechanically distressed at the opposite end of where the pain is. I term this remote but related pain. I will give you many examples of this in this course.

# ADJUSTING WITH FINGER ASSISTED SPRING LOADED INSTRUMENT

## Considerations for Use

- *Safety*
- *Anxiety*
- *Contraindications For Manipulation*
- *Acute Injury*
- *Multiple Injuries*
- *Limited Positions*

# PRONE ADJUSTING OF A SUPERIOR INNOMINATE



The contact is the crest of the ilium and trochanter (if no hip replacement) with line of drive S to I

# PRONE ADJUSTING FOR AN ANTERIOR INNOMINATE

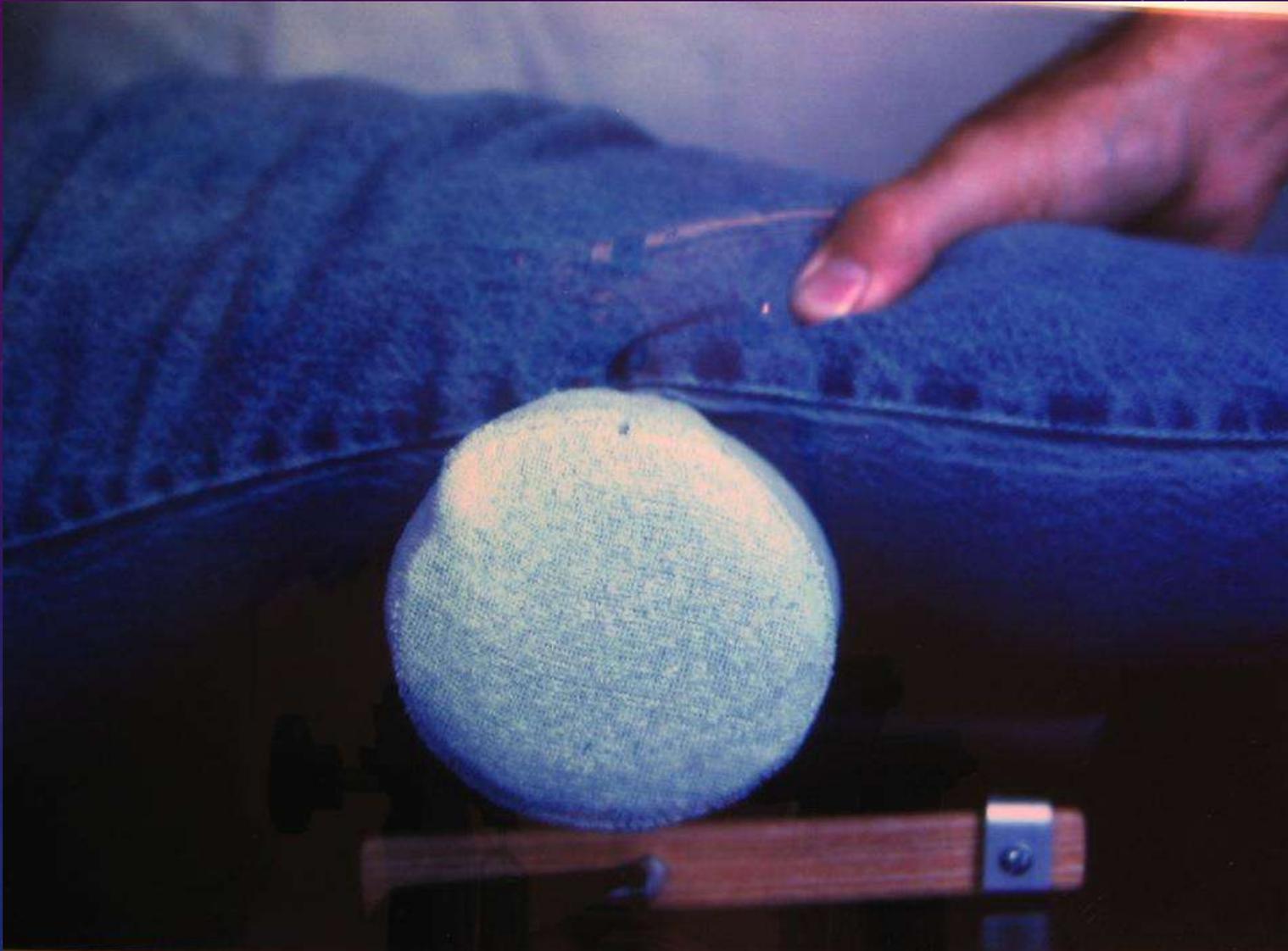


The contact is the posterior innominate, wedge under anterior side, with line drive from lateral to medial, posterior to anterior (obliquely)

## ADJUSTING WITH THE DROP PIECE

- A. Use in upper extremity adjusting
- B. Use in Lower extremity adjusting
- C. use in Upper cervical adjusting

# ADJUSTING OF THE KNEE ON THE DROP PIECE



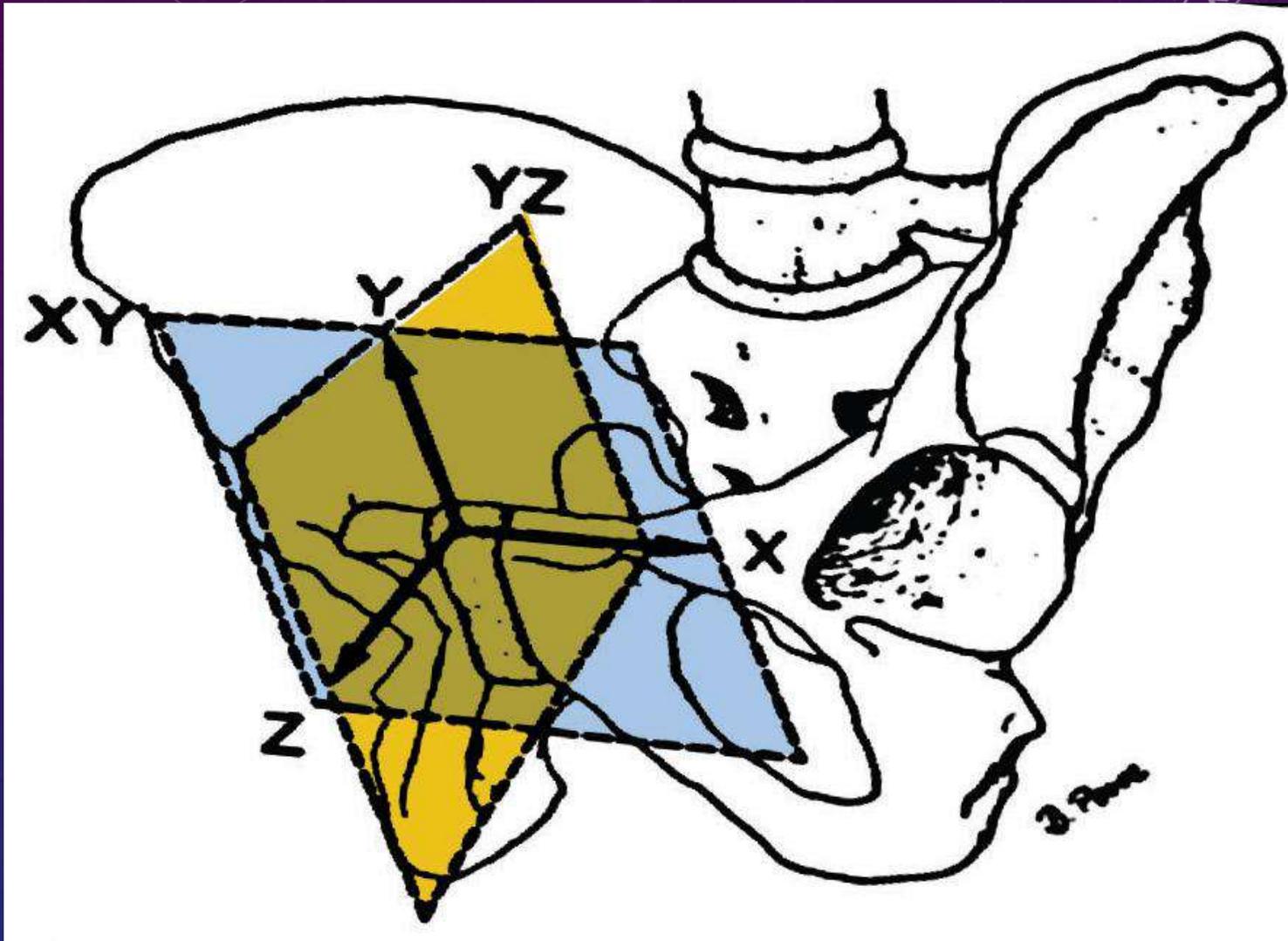
The leg is placed over a firm 4" roll and drop piece for adjusting knees and fibulas

# THE IMPORTANCE OF THE PELVIS

- My experience with Geriatric patients points to it's importance
- Many of my Elderly patients complain of recent onset of problems but imaging shows chronic problems with the Lumbar Spine
- This lead me to look for a new or recent injury, it was usually the pelvis
- Seeing an elderly person return to normal activities with a significantly arthritic spine was an important lesson in what to focus on

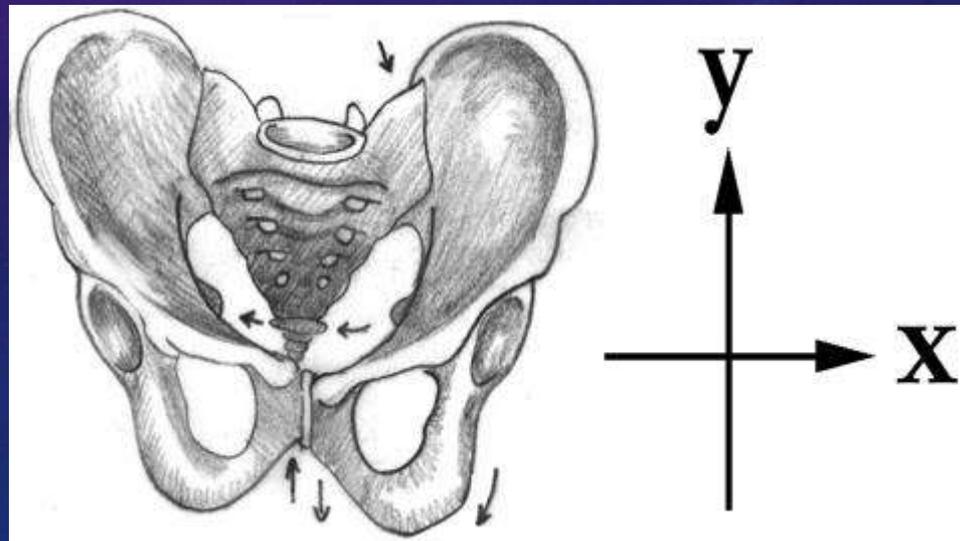
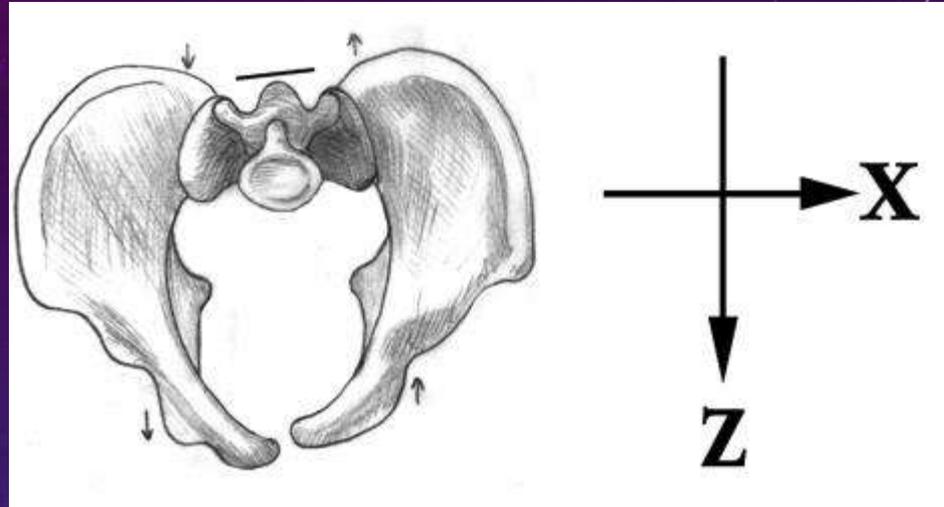
# REVIEW OF RELEVANT ANATOMY

- 3 bones, 3 joints and 3 planes in space
- Different Morphology of Sacroiliac joints (SI joint)
- Anatomy and importance of the Pubic Symphysis
- The musculature that attaches to the 3 Pelvic bones

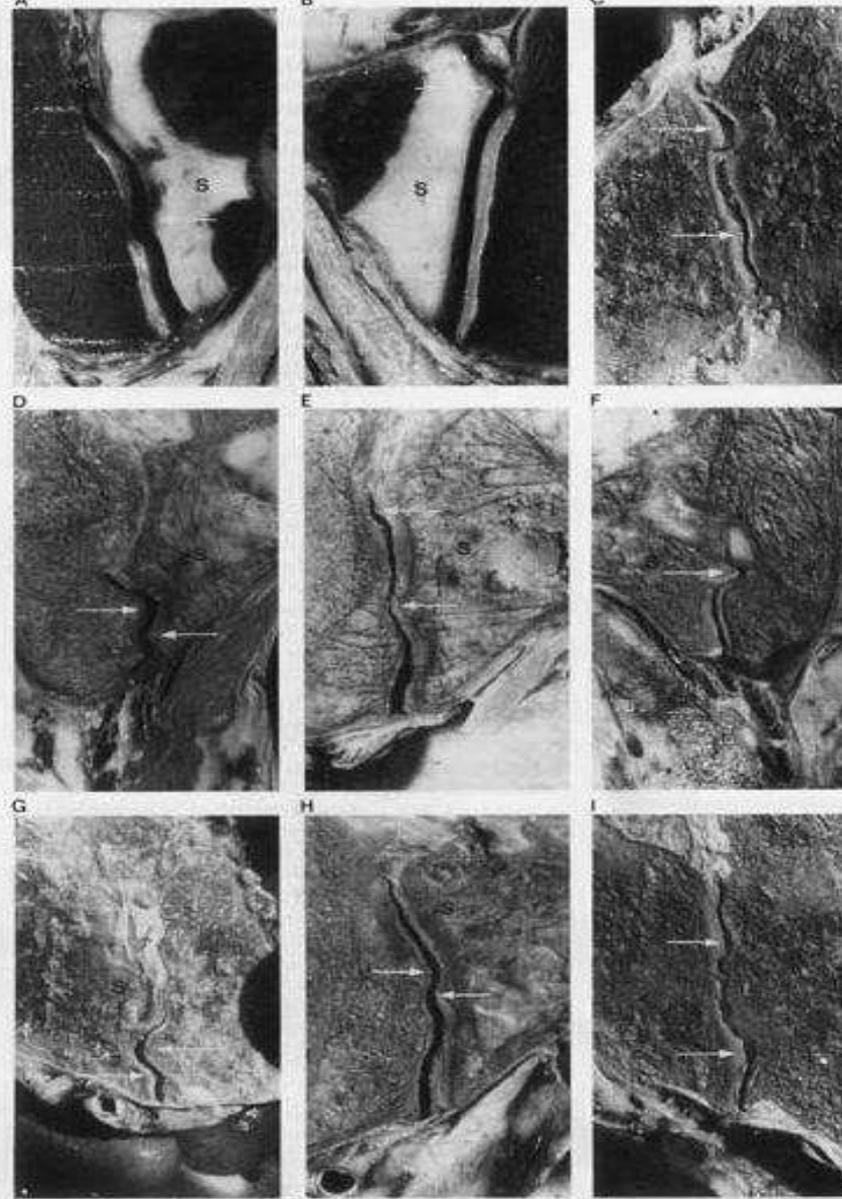


There are 3 bones to the pelvic girdle, 3 joints to the pelvic girdle and 3 planes in space, shouldn't we evaluate all aspects of this structure when injury has occurred?

These indicate the direction of displacement in modern injuries, forward or posterior displacement of the innominate relative the other and sacrum occurs as well as the superior displacement



In my studies in the anatomy lab the sacroiliac joints can be profoundly different between individuals. I feel this can explain the findings most chiropractors will have that patients with the same diagnosis and the same manipulative or adjusting protocols gets different results between different



With permission of  
Dr. A. Vieeming.  
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(European Ed.),  
1990, 2: 130-132

**Figure 6-7**

Frontal sections of the SI joints of embalmed male specimens. S indicates the sacral side of the SI joint. A and B concern a 12-year-old boy. C to I concern male specimens older than 60 years. Arrows are directed at ridges and depressions. The ridges and depressions shown are covered by intact cartilage, which was checked by opening the joints afterwards.

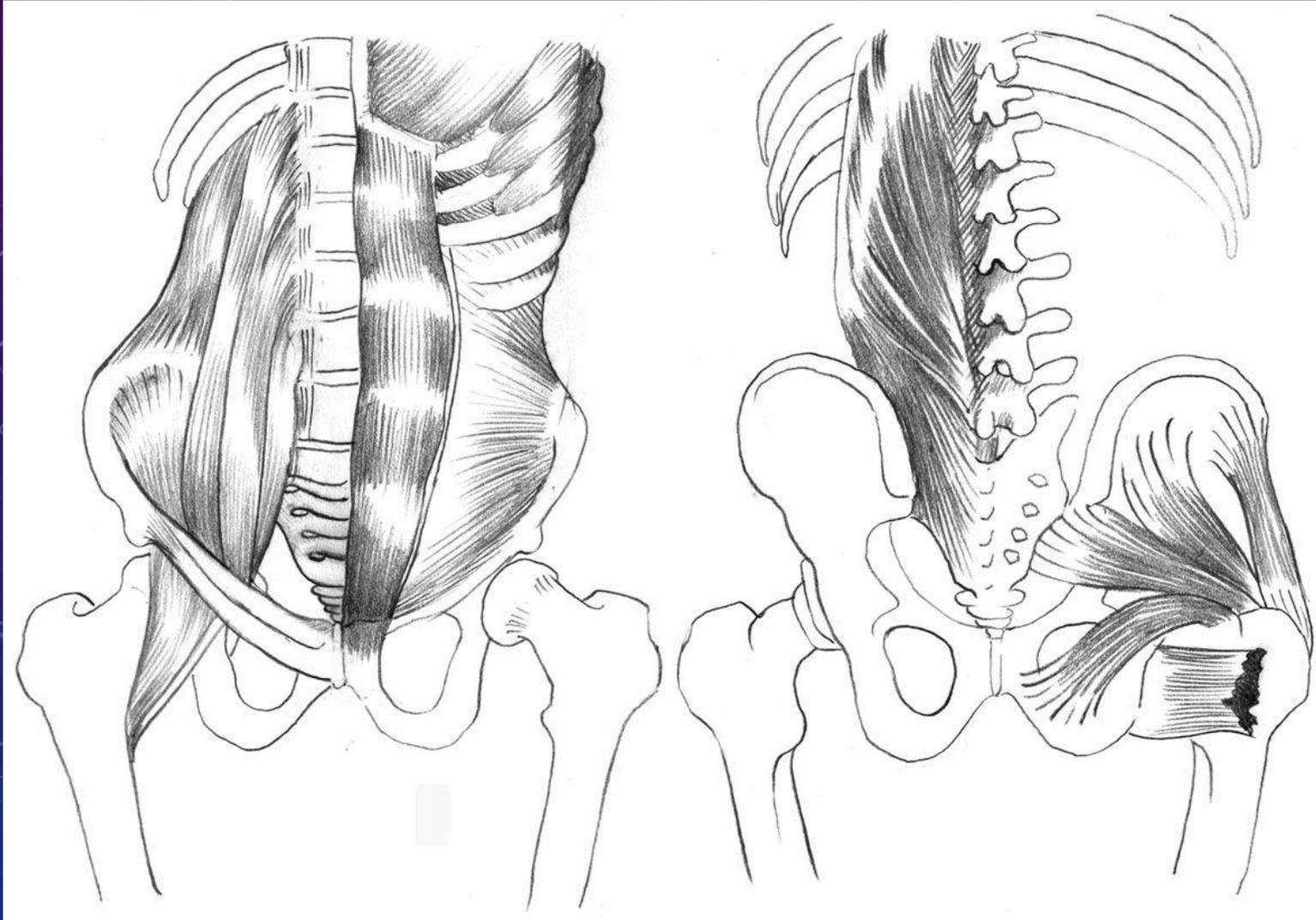
# THE PUBIC SYMPHYSIS

- the pubic symphysis is regarded as an immovable joint. This fibrocartilage disk has annular rings (A) and a pulpy center (B). It is avascular. The physiology and structure would imply that imbibition is the only mechanism for nutrient supply and waste elimination



# THE MUSCLES OF THE UPPER BODY THAT ATTACH TO THE PELVIS

I estimate that 70% of our muscle mass attaches to the pelvis, note the lower muscles are not depicted. Could pelvic girdle subluxation be responsible for some much LBP?



# EVALUATION OF THE PELVIS

- Palpation of the 5 bony land marks: ASIS, Pubic Bones, PSIS, Iliac Crest and Ischial Tuberosity
- Determine Innominate position in the superior/inferior (+/-Y) and anterior/posterior dimensions (+/-Z) and X- Axis rotation: AS/PI
- Determine Sacral position: find Gluteal Crease and the Sacral borders (about 3-4 inches below PSIS, which side has more Sacrum?)
- Appearance on Advanced imaging

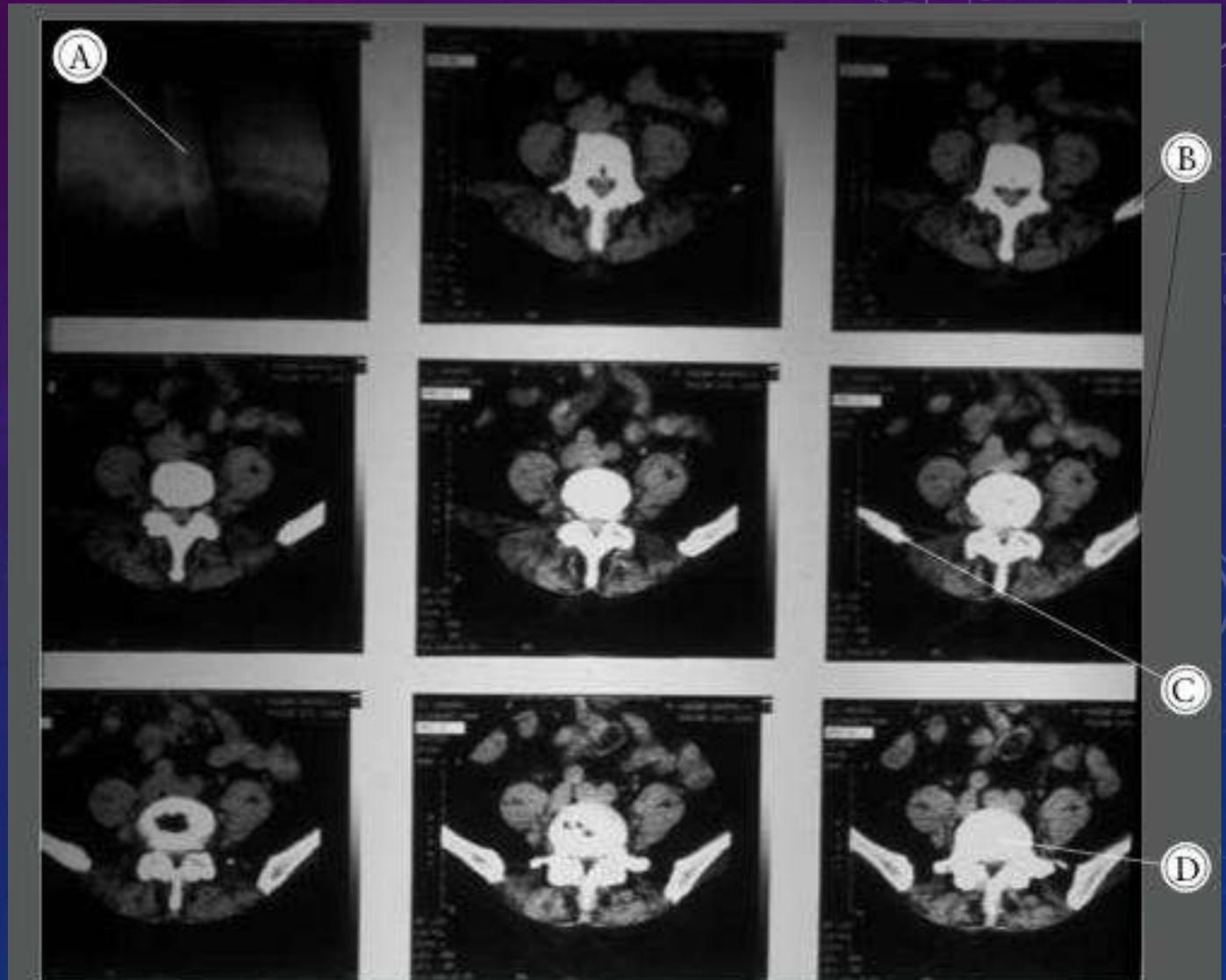
# Palpation of the Pubic Symphysis



The palpation of this anterior joint is very important. If you need use the patients hand to find if there is distress. Pain and misalignment here means the whole pelvis is subluxated.

# CT SCAN OF PELVIS WITH SUPERIOR INNOMINATE

- this CT scan study shows the top of the left iliac crest in the upper right panel. The second far right panel shows the top the right iliac crest. This indicates a 15 mm difference in height. A superior or + Y subluxation of the left innominate is present. Symptoms included severe left buttock, and hip and leg pain, scheduled for spinal fusion.

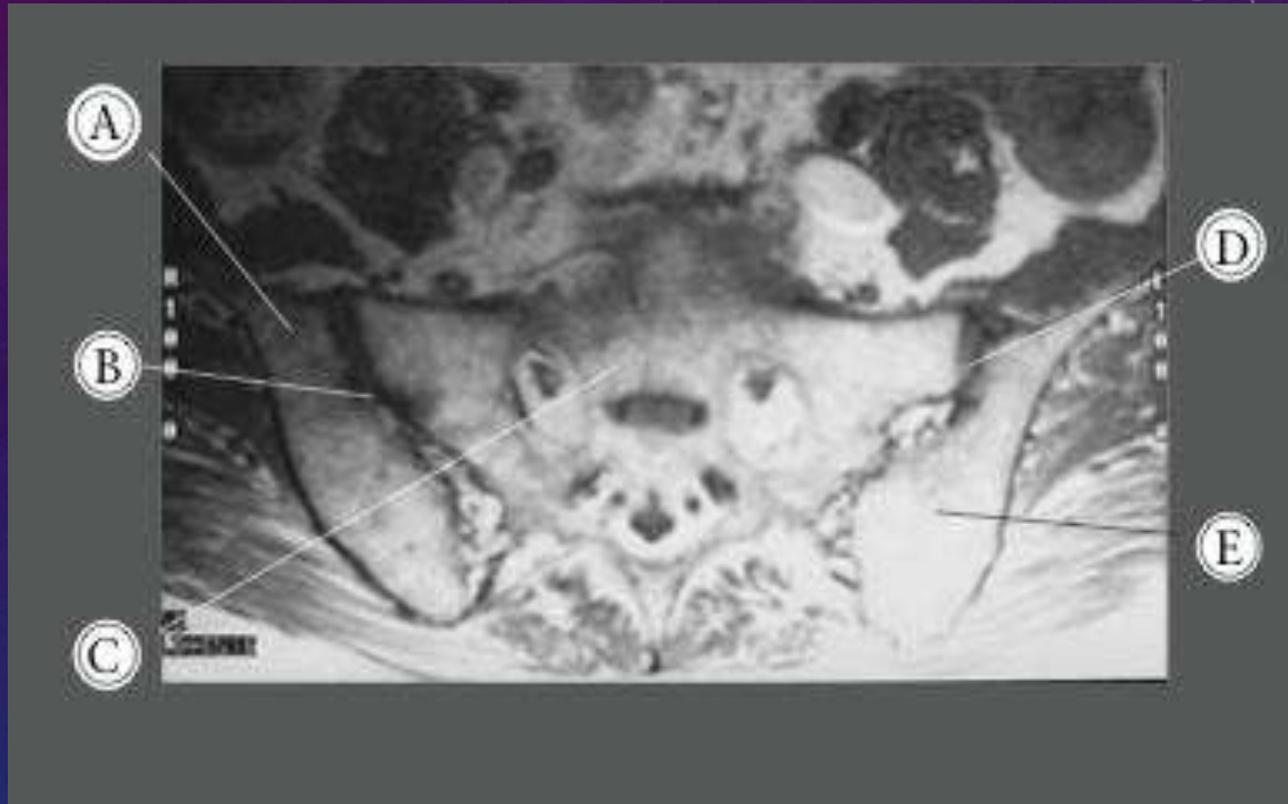


# CT SCAN OF PELVIS WITH ANTERIOR INNOMINATE



This scan of the S2 level shows a subluxation complex of both SI joints. Note the difference in width between the right and left sides of the sacrum. This indicates that the sacrum is tipped. The left side is narrower and therefore a lower level of the sacrum, making the left sacral ala higher and the apex angled towards the left. The left ilium is posterior, larger and at a different angle than the right innominate.

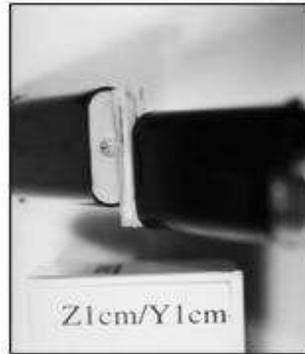
# MRI OF POSTERIOR LEFT INNOMINATE



- this is an MRI of a subluxated pelvis. And left innominate is posterior to the sacrum, the sacrum is rotated. The right side of the sacrum is anterior to the right ilium and in the ilium asymmetrical. This is the appearance of a significant pelvic distortion resulting in neurological deficit, altered gait and muscular atrophy. (A) is the right ilium, (B) is the right SI joint, (C) is the sacrum, (D) is the left SI joint and (E) is the left ilium.

# AN EXPERIMENT WITH IMAGING OF THE PUBIC SYMPHYSIS

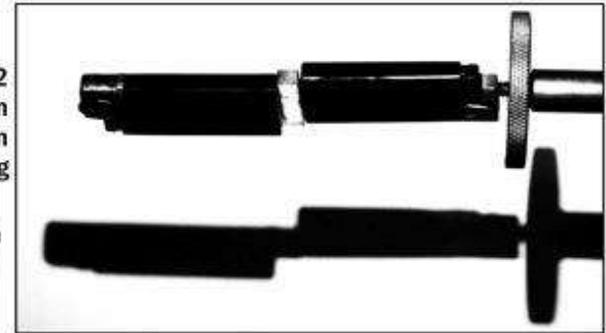
This is the partial presentation of an experiment that I did involving pubic symphysis and its appearance on x-ray. This study was published in JMPT in June 2005. I noticed years ago in the lab that visibly subluxated pubic bones appeared aligned on x-ray. It took me a while to figure out an experiment that would prove that projection error gives a false impression of pubic bone alignment on AP Lumbo-pelvic x-ray studies. The upper left-hand picture shows the plastic model I made depicting subluxated pubic bones. The visual left hand side is anterior (+Z) and superior (+Y) to the component on the right. The bottom two pictures would indicate that the x-ray projection shows level to almost level imaging. In the pictures the bottom image is the shadow imitating the x-ray projection. This is evidence that imaging is not and cannot be our primary diagnostic tool in assessing injury and subluxation patterns to the pelvic girdle.



5.1  
Close-up/detail of Model:  
Z 1.0 cm  
Y 1.0 cm



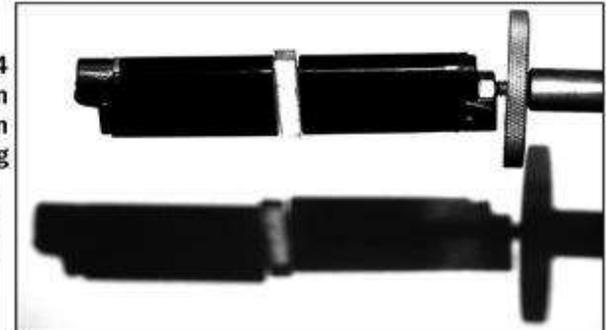
5.2  
Z 1.0 cm  
Y 1.0 cm  
15 deg



5.3  
Z 1.0 cm  
Y 1.0 cm  
30 deg



5.4  
Z 1.0 cm  
Y 1.0 cm  
45 deg



5.5  
Z 1.0 cm  
Y 1.0 cm  
55 deg

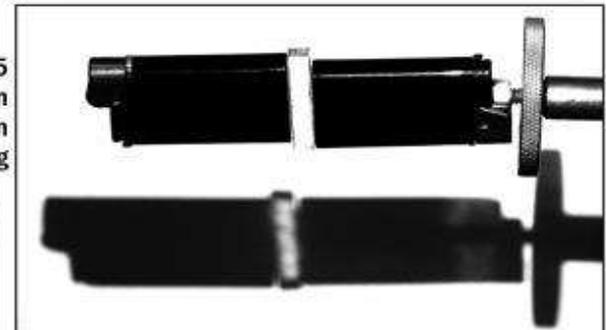


Figure 5

# SOME BASIC TIPS

- Gentle Drop Table adjusting of the Pelvis in either the prone or supine position is safe
- Contact for the Doctor is the Iliac Crest and broad contact of the Anterior or Posterior Innominate
- Segmental Adjusting of the Lumbar Spine with implants is done with the SLI above and below
- Damaged Hips with Subluxated Pelvic joints are very common.
- Sometimes you leave the Lumbar Spine alone
- Decompression Therapy for Herniated Disc should be Done With a Level Pelvis (Little to no Guarding Reflex)

# DROP TABLE ADJUSTING OF THE PELVIS

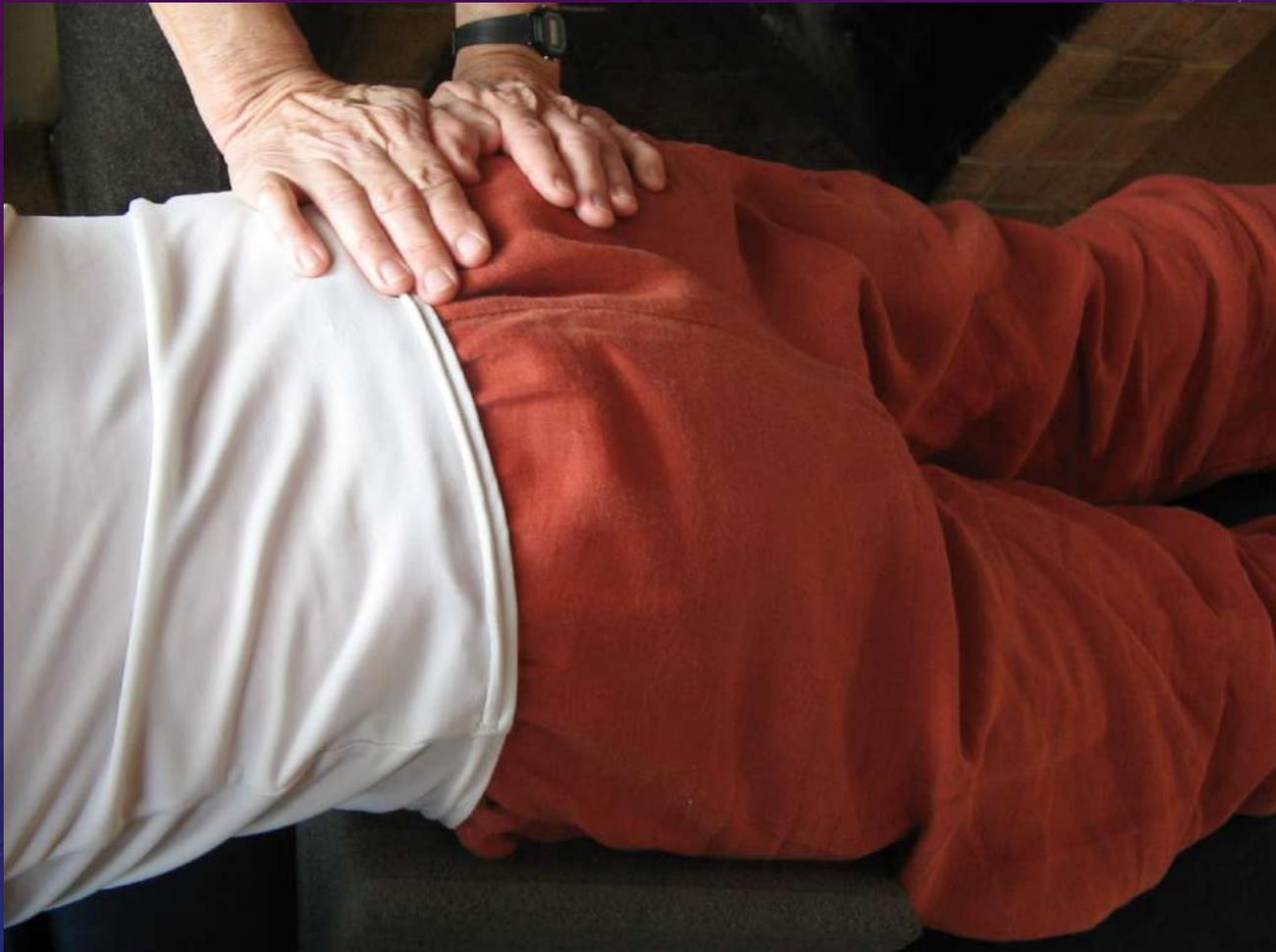
- Adjusting the Superior (+Y) Innominate
- Adjusting the Anterior (+Z) Innominate
- Adjusting the PI Innominate
- Adjusting the AS Innominate

# SET UP FOR ADJUSTING A SUPERIOR (+Y) INNOMINATE



The contact for a superior +Y innominate: iliac crest and trochanter if there is no contra indication for trochanter contact. 6 to 12 drops are not inappropriate.

# SET UP FOR ADJUSTING A POSTERIOR (-Z) INOMINATE



Use a broad contact on the whole posterior innominate. Note the plane line of the sacroiliac joint, it is oblique from lateral to medial. The Sacrum is wider in the front than it is in the back, so the thrust should be through that plain line. Note wedge under the anterior side.

# ASSESSING THE SUBLUXATED SACRUM



Use one finger to find the patient's gluteal crease

# ASSESSING THE SUBLUXATED SACRUM



Use the other hands fingers to find the lateral edges of the sacrum at the S-2 level. Determine which side has more distance from the crease, if any, that is the side the sacrum has shifted

# SACRAL SUBLUXATION



This what we are trying to determine, has the sacrum shifted? Most of the time the sacrum has shifted to the +y or superior side.

# SET UP FOR CORRECTING SACRAL



The contact is the superior Ala and the lateral Sacral Apex, gentle thrusting is done after the innominate subluxation has been corrected.

# SACRAL ADJUSTING



Gentle, repetitive drops are performed and the re-evaluation

# ADJUSTING THE SACRUM

- Contact the Sacrum on the side of shift at the side and the base, drop
- Please note all procedures are gentle and firm, don't expect the first drop to complete the correction.

# MANAGING THE INJURED PELVIS

- Ergonomics of Ligament injury
- Sleeping positions

Keep legs together, either on sides or back

- Sitting

Avoid sitting, but the higher the seat the better

- Cars: Keep legs together getting in and out  
Avoid "climbing" (either up or down) and bucket seats

# BRACING AND EXERCISE FOR THE INJURED PELVIS

- Lumbosacral bracing
  - Can be very helpful
- No seated exercise, walking is best
  - Gyms can be hazardous, except treadmill
- Waiting to do more complex activities until stable
  - Absence of pain is not a sign of stability

# ***SEGMENTAL ADJUSTING***

- SPECIFIC ADJUSTING ON SINGLE VERTEBRAE
- VERY GENTLE AND REPETITIVE
- CAN BE DONE PRONE, SEATED OR SIDE POSITIONS
- ADJUSTING IS DONE WITH FULL UNDERSTANDING OF OTHER CONDITIONS OR INJURIES

# ***REVIEW OF RELEVANT ANATOMY***

- Vertebral components, primarily, the Spinous Processes and the Transverse processes
- These components are used as levers

# EVALUATING, ADJUSTING AND MANAGING THE LUMBAR SPINE

*The Special needs patient, generally, cannot tolerate long axis manipulation. Some of the rib cage injuries the patients suffer will make prone adjusting contraindicated. Specific vertebral adjusting can be done with the SLI. When a patient can tolerate prone adjusting it needs to be gentle. The repetitive, gentle drop table adjusting for the spine can be very helpful for the arthritic spine. Keeping the arthritic spine mobile and the patient active are some of the major goals to have with Chiropractic care.*

*There are two main approaches to dealing with the arthritic spine. The first is segmental and the second is global.*

# ***SEGMENTAL ADJUSTING***

- SPECIFIC ADJUSTING ON SINGLE VERTEBRAE
- VERY GENTLE AND REPETITIVE
- CAN BE DONE PRONE, SEATED OR SIDE POSITIONS
- ADJUSTING IS DONE WITH FULL UNDERSTANDING OF OTHER CONDITIONS OR INJURIES

# **GLOBAL ADJUSTING**

- ADJUSTING IS DONE TO CHANGE POSTURE
- ADJUSTING IS DONE RESPECTING OTHER INJURIES
- ERGONOMIC EVALUATION IS NECESSARY

The global adjusting is done with a change in the shape of that region the spine as a goal. This approach uses postural analysis and x-ray analysis to make the determinations of the adjusting. For instance if someone has antalgia, we want to reduce lumbar flexion. Quite a few of the advanced arthritic patients will never have full correction of their spines. One of the goals of this approach to chiropractic care is to avoid the severe arthritis from developing. I know and my patients know that the chiropractic care they receive keeps them functional and prolongs their abilities to stay independent. Balance, weight bearing activity and conditioning will all improve with correcting, even marginally, the posture.

# **REVIEW OF RELEVANT ANATOMY**

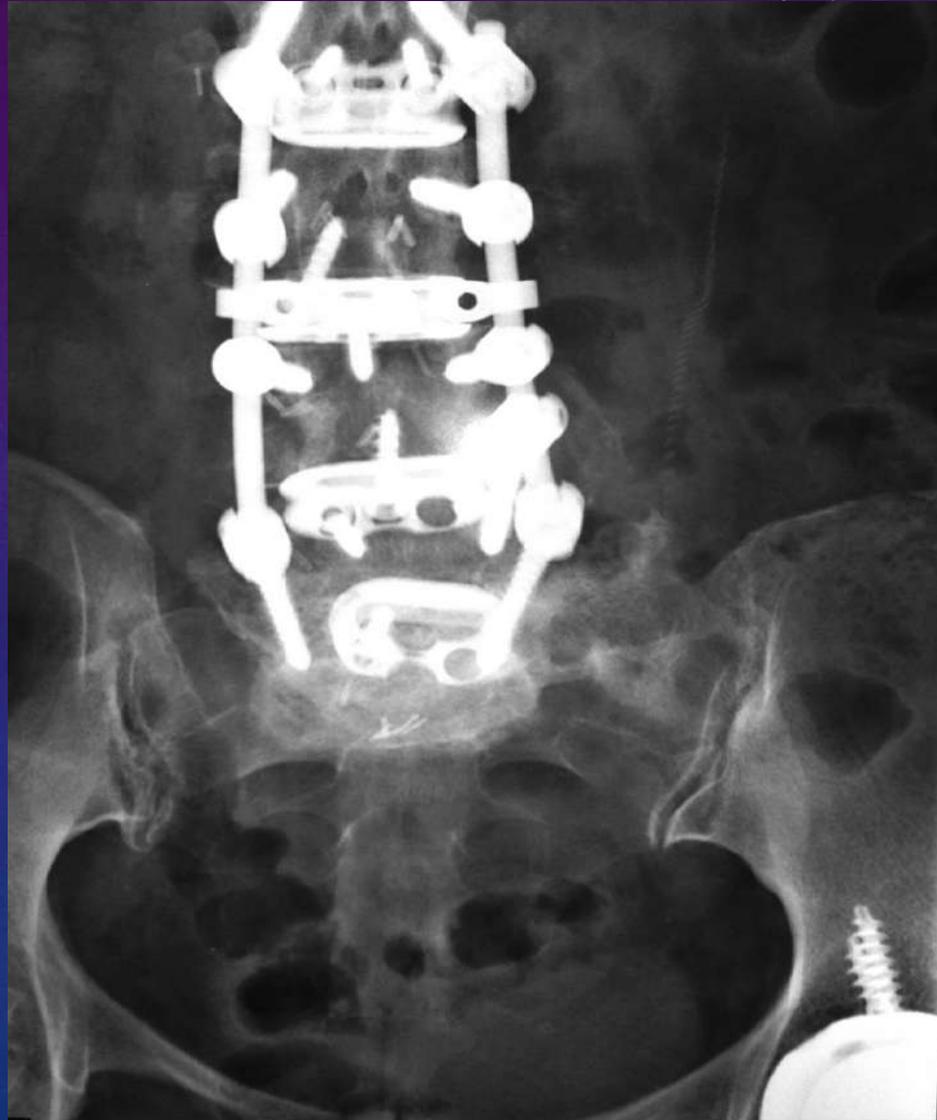
- *Vertebral components, primarily, the Spinous Processes and the Transverse processes*
- *These components are used as levers*

*The relevant anatomy of the spine in special-needs patients has commonly been altered. Osteophytes, lost joint space and altered curvatures are not part of the normal anatomy of a healthy human spine. These are common features of the arthritic patient and some will of course have surgical repairs and hardware installed in their spines as well.*

*Contacting the spinous processes and transfers processes of the vertebra of the arthritic spine for adjusting can be used to keep the joints mobile*

# ARTHRITIC AND SURGICALLY FUSED LUMBAR SPINE WITH HIP REPLACEMENT

This patient has a history of stroke, advanced arthritis, spinal fusion, cancer, hip replacement and suffered a recent concussion in a broadside MVA, can she get Chiropractic care?

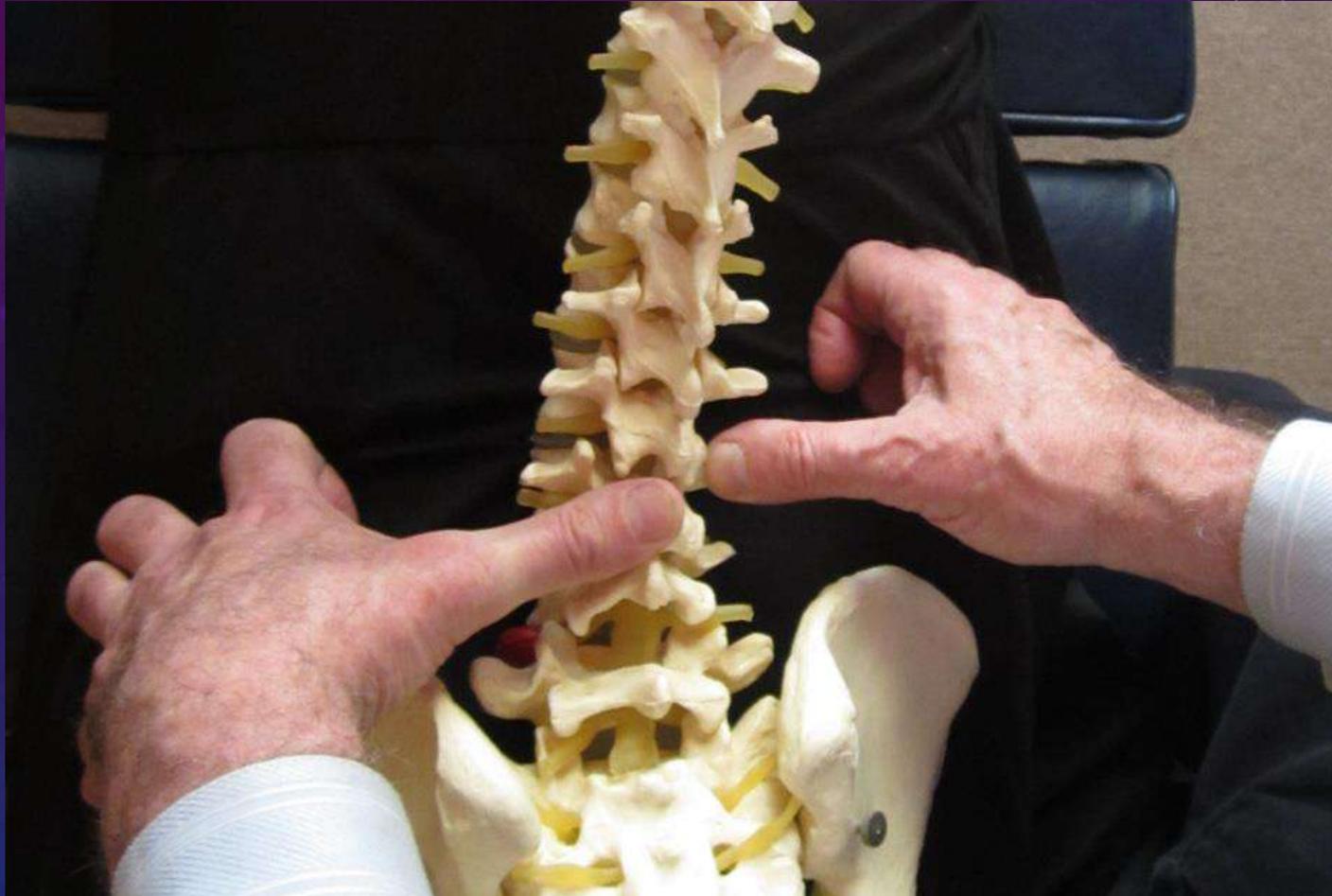


# ARTHRITIC LUMBAR SPINES



Some patients with terrible arthritis have high levels activity. On the right is a very accomplished ballroom dancer.

# SET UP FOR LUMBAR VERTEBRAE ADJUSTING



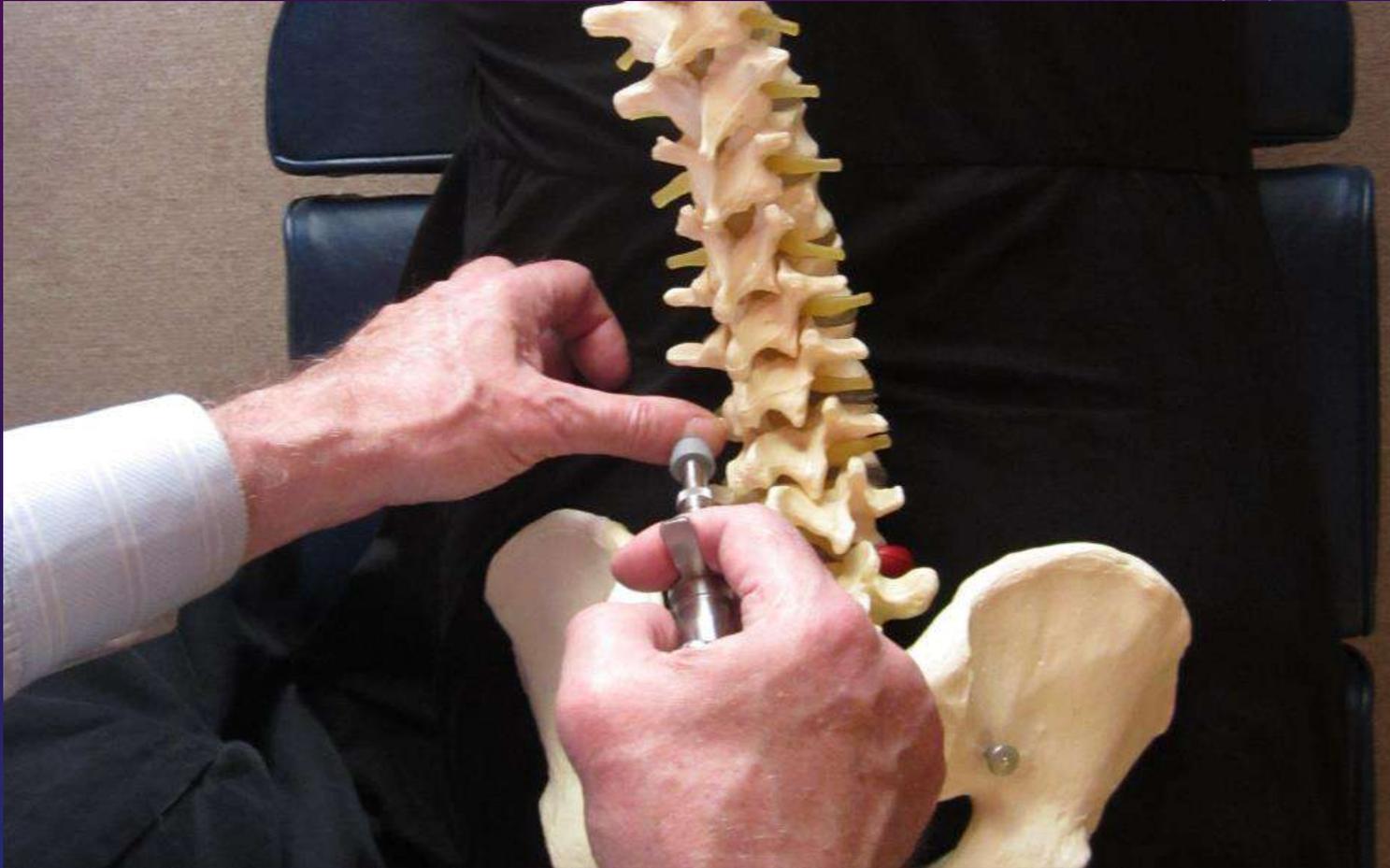
SET UP TO ADJUST AN L2 WITH SPINOUS PROCESS AND TRANSVERSE PROCESS CONTACT ON THE DROP TABLE

# LUMBAR VERTEBRAE ADJUSTING



DROP TABLE ON PRONE PATIENT, CONTACTING A TRANSVERSE PROCESS AND SPINOUS PROCESS

# SLI ADJUSTING OF LUMBAR VERTEBRAE



USE OF SLI ON LUMBER TRANSVERSE PROCESS

# SLI ADJUSTING OF LUMBAR VERTEBRAE



SLI BEING USED ON A PRONE PATIENT

# SLI ADJUSTING OF LUMBAR VERTEBRAE



SEATED SLI USE ON LUMBAR SPINE

# SLI ADJUSTING OF LUMBAR VERTEBRAE



SLI USED ON PATIENT ON THEIR SIDE

# ***MANAGING THE INJURED LUMBAR SPINE***

- Get your patients moving, reduce sitting
- Develop a “buddy” system for exercise
- Hydrotherapy for those with gait or balance problems
- Dancing to the music of their youth
- Do not neglect the pelvis

# EVALUATING, ADJUSTING AND MANAGING THE INJURED KNEE



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*The knee is a critical structure in the human. I've had more than one patient contemplating suicide because of knee pain and dysfunction. The mobility of a patient can be intimately tied to knee function.*

# ANATOMY OF THE KNEE

- The Femur and Tibia

Alignment is critical, all arthritis is related to altered weight bearing (subluxation)

- The Cruciate Ligaments

These structures will be damaged with subluxation

- The Meniscus

This will be stressed and erode with persistent subluxation

- The Musculature

All involved muscles will be in reflex guard mode with subluxation of the Tibia

# THE SUBLUXATED KNEE

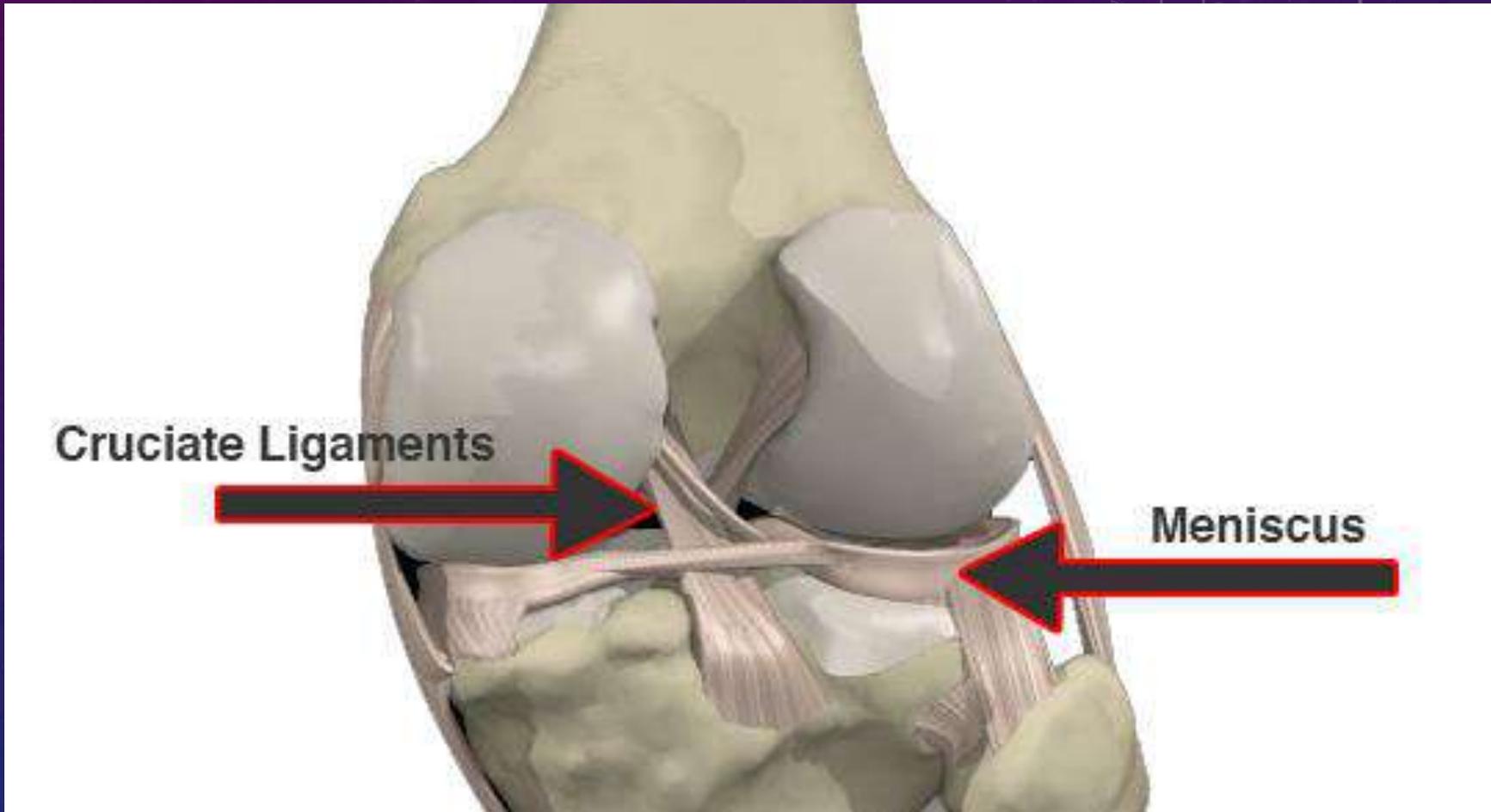
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The Tibia has a proper position under the Femur. Any change in this relationship will affect the soft tissue and will result in degenerative changes. Loss of joint space and Wolf's Law changing the shape of the Distal Femur and Proximal Tibia is the expected outcome.

# STRESSED INTRINSIC STRUCTURES

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The intrinsic joint structures of the knee have to have damage when translation of the tibia occurs. Optimal recovery is only possible when realignment has occurred. If the patient knows the words "meniscus, cruciate or collateral" the tibia has subluxated.

# MUSCULATURE



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All these muscles will guard for misalignment. Trigger points, contracture and distortion of the leg are the result of chronic subluxation

# EVALUATION OF THE KNEE

- Palpation of the Knee, in extension, looking for Femoral Condyles. Palpation of the Condyles indicates Tibial displacement.
- Palpation of the Tibial Plateau, with knee in extension. Finding the Plateau indicates Tibial displacement
- Ortho testing, takes seconds to perform, usually negative (Adjust even if tests are positive)

# EVALUATION OF THE KNEE, CONTINUED

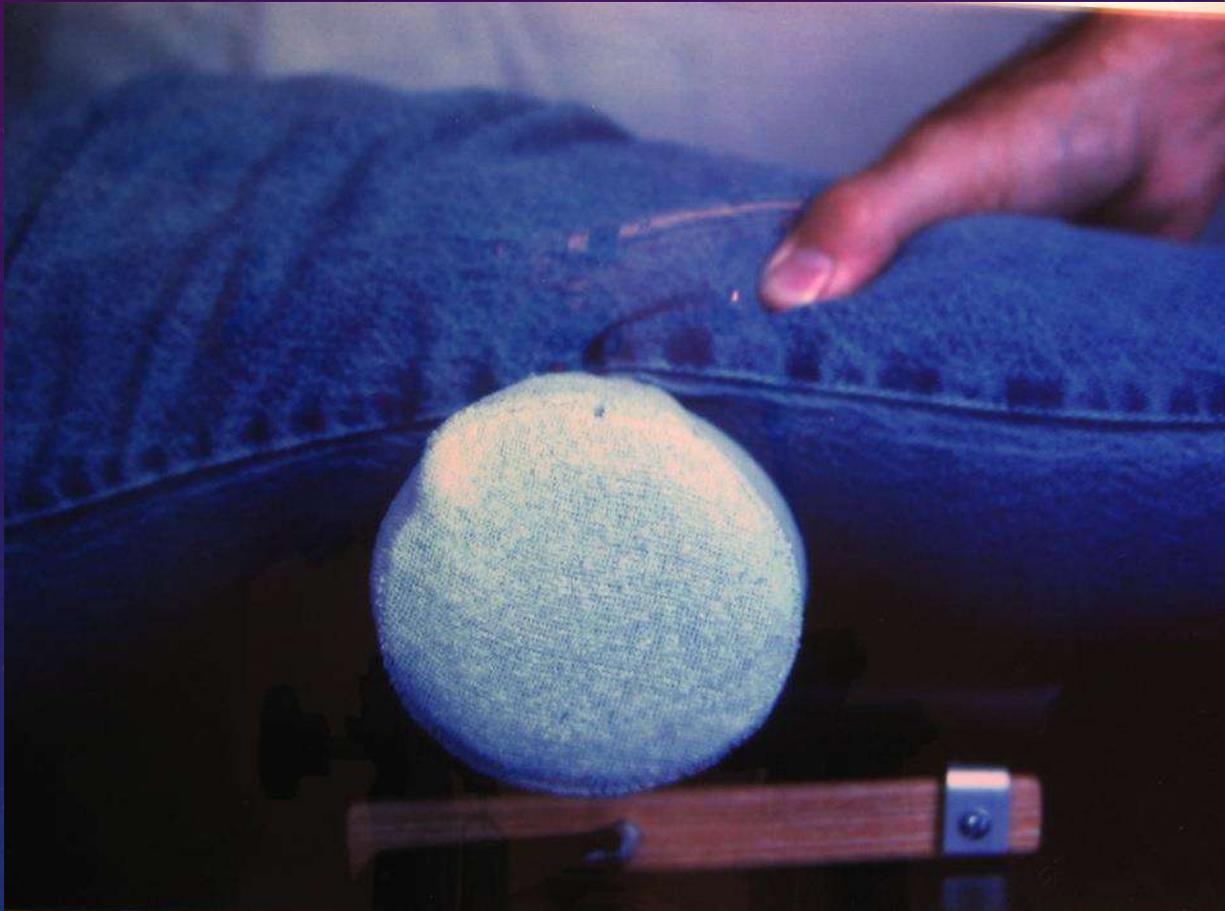
- “Structural Testing”: Press Tibia in direction of correction to see if muscled soften and reduce tenderness
- Patterns of Knee subluxation:  

Anterior Tibia, Posterior Tibia, external rotation, internal rotation, lateral Tibia and medial Tibia. Most common in MVAs and falls: posterior, externally rotated and lateral Tibia

# ADJUSTING THE KNEE WITH A DROP PIECE

1. The tools:
  - a) A portable drop piece
  - b) A firm cervical roll
2. The knee is placed over the roll which is on top of the drop piece
3. All adjusting is done gently with a firm grip and simultaneous distraction

# SET UP FOR KNEE ADJUSTING WITH A PORTABLE DROP PIECE



A firm 4" roll on top of the drop piece is needed to adjust the knee and fibula.

# THE POSTERIOR TIBIA

the posterior tibia has as its main features the palpable inferior femoral condyles. The capsule and the ligaments can all be very sore and tender to the touch. Gently draw the tibia forward and see if there is any relief. A posterior draw test should aggravate this injury.



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# ADJUSTING THE POSTERIOR TIBIA

- Place drop piece and cushion under the Tibia
- Drop on Femur

# ADJUSTING THE POSTERIOR TIBIA



The firm roll, on top of the drop piece, is placed under the tibia the drop is on the femur

# THE ANTERIOR TIBIA

the anterior tibia is characterized by the edges of the tibial plateau prominent relative to the femur. The gastrocnemius doesn't like this and a chronic anterior tibia can be characterized by a slightly flexed knee. 5 to 15° of flexion without the ability to fully extend the knee will be common. Going downstairs or going downhill can be very painful.



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# ADJUSTING THE ANTERIOR TIBIA

- Place drop piece and cushion under Femur
- Drop on Tibia (not on Patella)

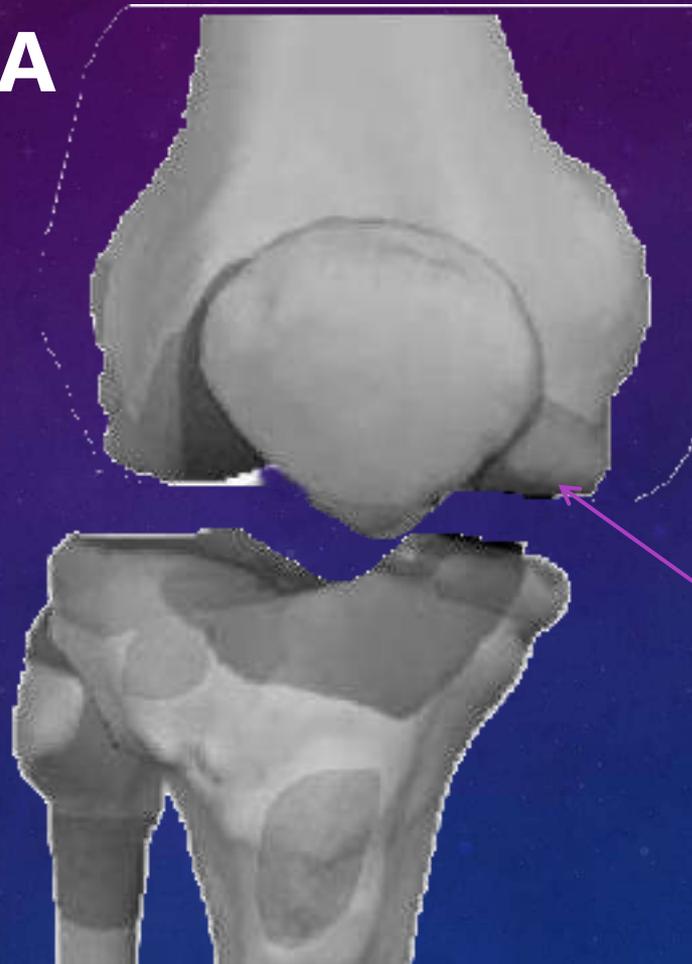
# ADJUSTING THE ANTERIOR TIBIA



Note the firm roll is under the Femur, superior to the Knee joint. The drop is on the Tibia.

# LATERAL TIBIA

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Medial inferior  
condyle

The important feature of the lateral tibia is the medial, inferior femoral condyle will be palpable. It also should be very tender to the touch.

# ADJUSTING THE LATERAL TIBIA

- Place drop piece under Knee joint
- Place firm round roll under the knee
- Contact the inside of Femur and out side of Tibia, grip both, distract and drop with a "scissor move" to bring the Tibia medial

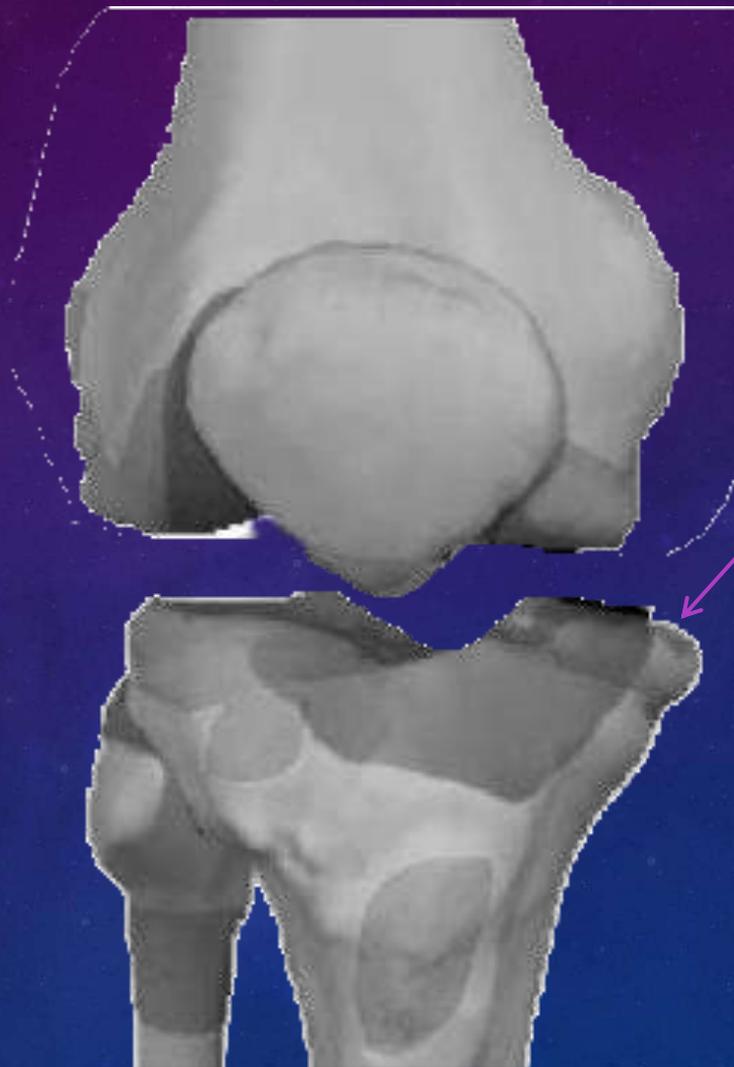
# ADJUSTING THE LATERAL TIBIA



The doctor's hand on the Femur stabilizes the leg while the hand on the Tibia is gently thrusting medially.

# MEDIAL TIBIA

the main characteristic of a medial tibia is the medial tibial plateau is palpable on the medial side of the knee. There will be a lump there in the lump will be very painful to the touch on his superior aspect. Drawing the tibia laterally should give relief in the testing.

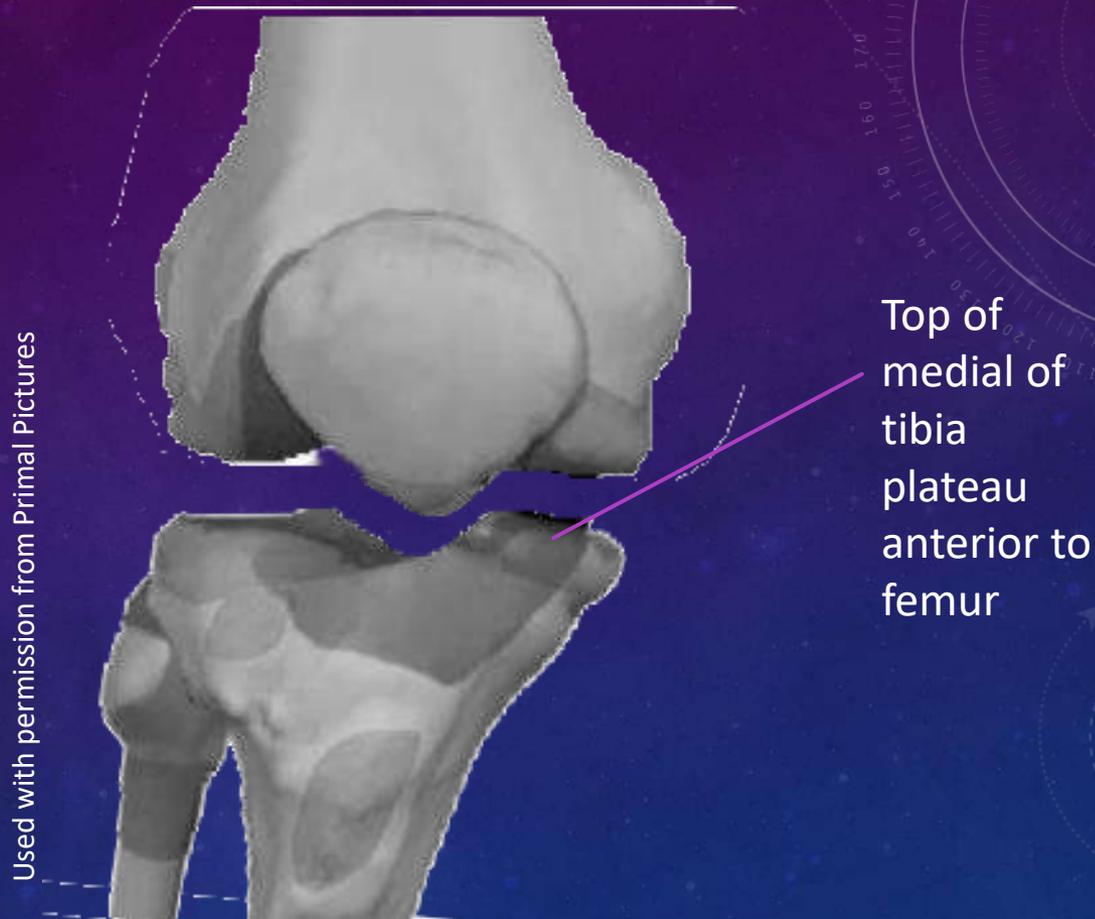


Top of  
medial  
tibial  
plateau

# ADJUSTING THE MEDIAL TIBIA

- *Place drop piece under Knee joint*
- *Contact the outside of Femur and inside of Tibia, grip both, distract and drop with a "scissor move" to bring the Tibia medial*

# EXTERNAL ROTATION OF THE TIBIA



external rotation of the tibia will be characterized by the medial tibial plateau prominently anterior to the femur. Just the medial plateau. If both the lateral and medial plateau can be felt on either side of the patella the tibia has translated anteriorly. But if only the medial plateau is palpable and that's an external rotation of the tibia. Also if you find the tibial tuberosity you will see is not lined up with the femur.

# ADJUSTING THE EXTERNAL ROTATION OF THE KNEE

- Place drop piece under Knee joint
- Internally rotate the Tibia, grip both the Tibia and Femur, distract and drop

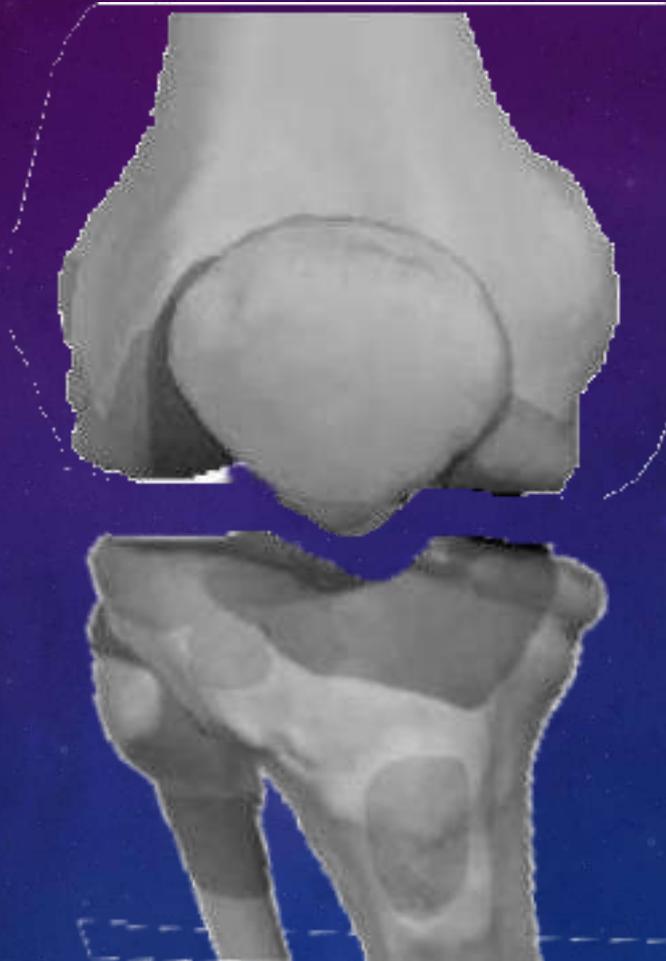
# ADJUSTING THE ROTATED TIBIA



Note the inferior hand of the Doctor, as well as the superior hand, is contacting the lower portion of the leg to affect a rotation of the Tibia relative to the Femur

# INTERNAL ROTATION OF THE TIBIA

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the internal rotation of the tibia will be characterized by the lateral portion of the tibial plateau being prominently interior to the femoral condyle. Again only the lateral tibial plateau is prominent not both sides.

# ADJUSTING THE INTERNAL ROTATION OF THE KNEE

- Place drop piece under Knee joint
- Externally rotate the Tibia, grip both the Tibia and Femur, distract and drop

# ADJUSTING THE KNEE REPLACEMENT

- Two types of Knee replacements: Full and Partial
- The evaluations are the same for each type
- The protocols for adjusting are the same for a “normal Knee” (Normal Knee that’s Subluxated?)

A



Note that the surfaces have been placed with steel and plastic. The knee cap is sometimes removed in some procedures. There is a wide range of prosthetic devices. Despite the new surfaces the soft tissues surrounding them are all still embedded with sensitive neurological structures keyed to altered biomechanics. Altered biomechanics will result in splinting and rigidity tissues with complaints of pain stiffness and lack of mobility.

# AP VIEW OF KNEE REPLACEMENT



You would hope that after the pain and trouble of knee replacement surgery, that you would have everything lined up. But some people will have such rigid tissues from the chronic nature of the condition that a few weeks or months of rehab cannot reverse all the structural remodeling. You also have to do a review of their personal habits. More on that later.

# MANAGING THE INJURED KNEE

- *Review personal habits; Knee crossing, leg sitting*
- *Review employment issues*
- *Review activities: gardening, yoga*

Managing knee injury can be more difficult than adjusting the knee. Reviewing personal habits with the patient is very important. Most personal habits will have developed before a specific injury. In the case of the knee this is really important because we as Americans in Western society sit for prolonged periods of time and deform our legs. This is normal behavior in our population. People sit on their legs, crossed their knees, twist them around chair legs and generally don't think about them if they are not on them. All these habits I characterize as non-weight bearing postures. Non-weight bearing postures that deform an injured knee can be painless at the time. But when the patient becomes weight-bearing then the pain can suddenly strike them "out of nowhere". There is a remoteness in time from the exacerbation and the pain and feeling the knee is coming-out from underneath them.

# EVALUATING, ADJUSTING AND MANAGING THE INJURED LOWER LEG

“Leg pain” is assumed by most providers as a lumbar problem. I have few patients describe evaluation of the leg when “leg pain” is the complaint. We now order an MRI of the spine.

There is a huge rate of failed surgeries of the spine for relief of leg pain. I have treated many over the years.

So, when someone comes to you complaining of leg pain, examine the leg!

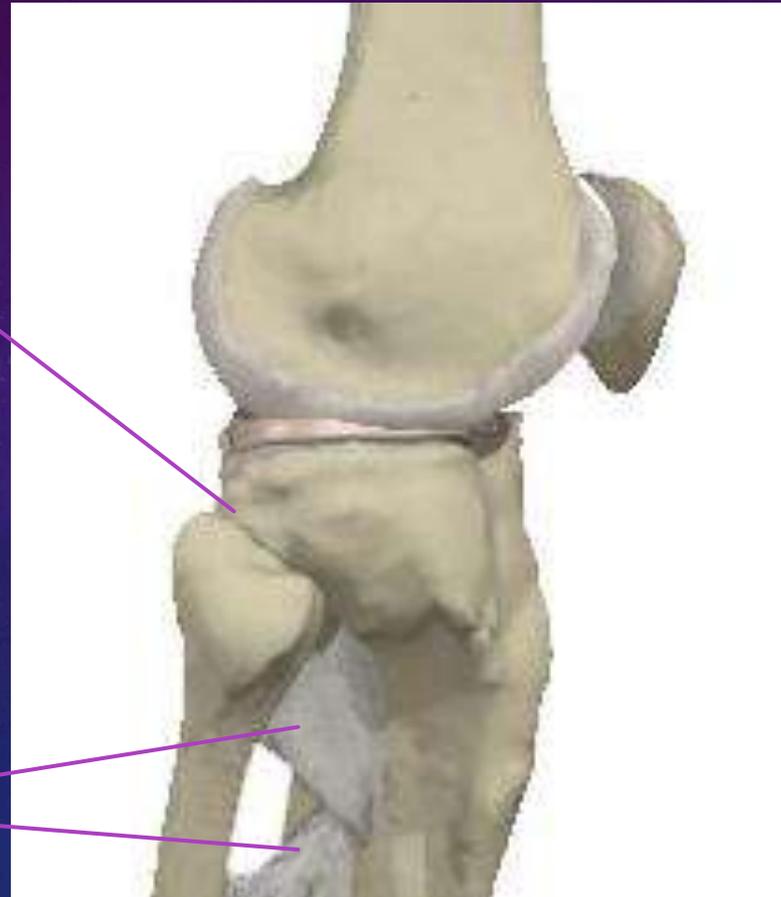
# REVIEW OF RELEVANT ANATOMY

- Proximal and distal Fibula-Tibial joints
- Musculature of the region: Tensor Fascia Lata (TFL or ITB), all the muscles of the leg (most go to the foot)
- Subluxation of the Fibula can cause: "hip" pain (ITB Syndrome), "shin splint pain", "Charlie Horse" cramping, Restless Leg Syndrome, heel pain, big toe pain, arch pain and pain on the top of the foot.

# FIBULA TIBIAL JOINT W/ INTEROSSEOUS LIGAMENT

Proximal fib-tib joint

Interosseous ligament

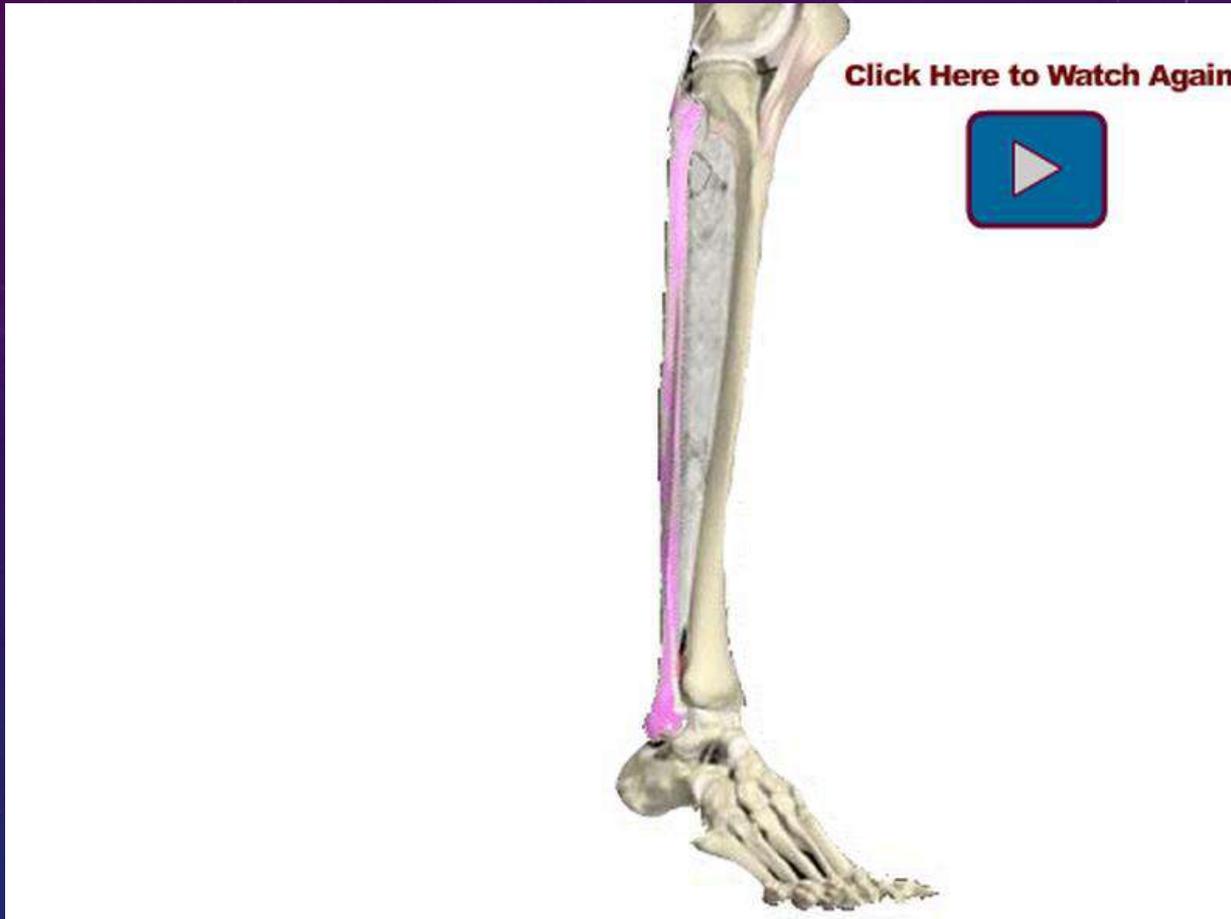


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The proximal Fib-Tib joint is very close to the knee and when certain types of twisting or pivoting activities take place the patient will report a pop with pain. I've had many people that come in and put their hand right on that joint and call that knee pain.

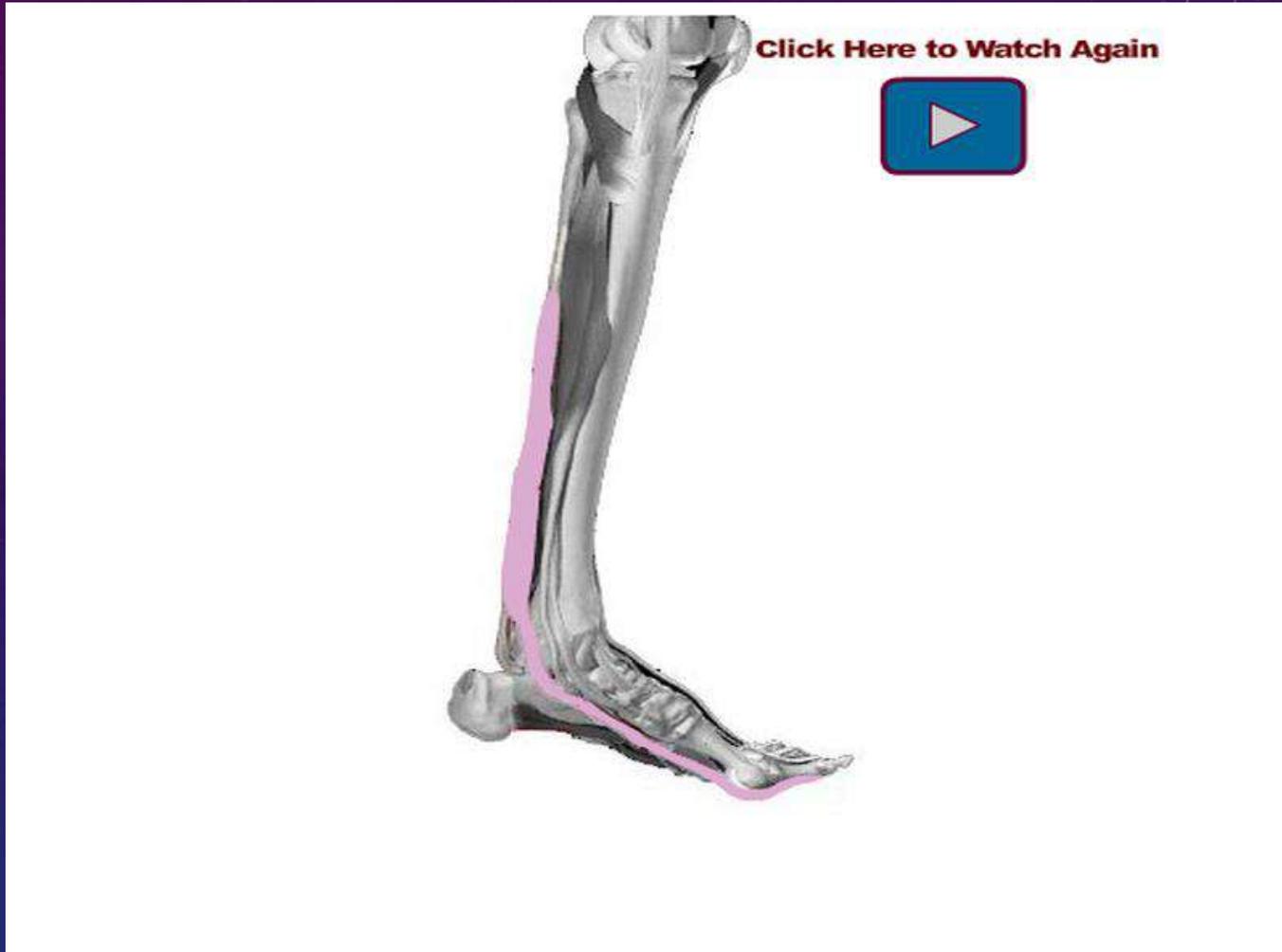
# A COMMON SOURCE OF LEG PAIN

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Note the Interosseous ligament would have to be injured for this kind of subluxation to occur. Most of muscles of the lower leg will be recruited in a reflex guarding pattern to hold this structure together.

# A COMMON SOURCE OF BIG TOE PAIN



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Here is a depiction of Haliculus Longus and its relationship to lower leg dysfunction. Subluxation of the fibula can cause big toe pain or first MP joint pain.

# THE INTEROSSEOUS LIGAMENT OF THE LOWER LEG

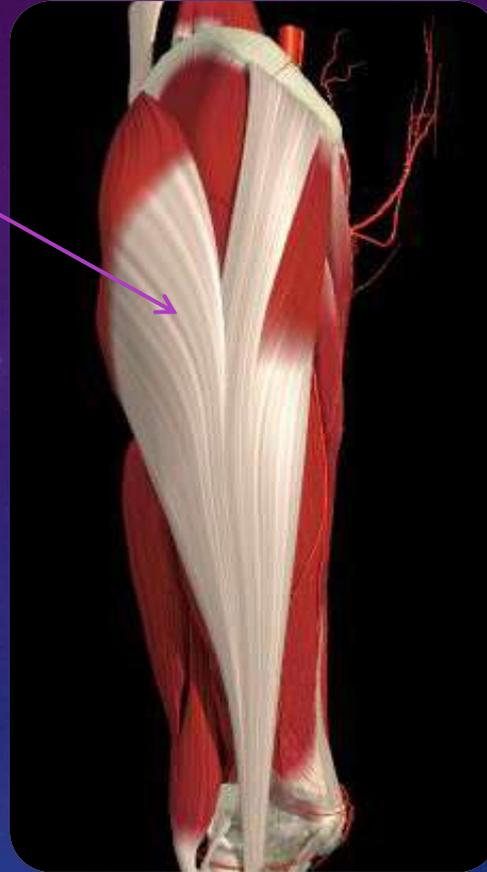
Interosseous  
ligament



This is a tough fibrous tissue that has to be strong and flexible. This is a view of the lower leg with a little animation of the displacement or subluxation of the fibula. Note the Interosseous ligament would have to be injured for this kind of subluxation to occur. Most of muscles of the lower leg will be recruited in a reflex guarding pattern to hold this structure together.

# LATERAL VIEW OF THE THIGH

In my opinion the Ilio-tibial band syndrome is caused by subluxation of the proximal fibula tibia joint. Pain at the top of the crest where the ITB inserts on the upper part of the iliac crest is caused by the subluxation of that joint at the other end at its' origin. Pain at the trochanter can be caused by the iliotibial band being so taut that motion or laying on that side at night becomes very painful.



# LATERAL VIEW OF THE LOWER LEG

The lateral view of the lower leg shows the relationship of the lower leg to the foot and ankle. Dysfunction of the proximal Fib-Tib joint can make Peroneus and Tibialis Anterior distress felt in the foot and ankle region. I consider the foot and ankle in the lower leg to be a functional unit.



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# EVALUATING THE LOWER LEG INJURIES

- Palpation of the proximal “Fib-Tib” joint
- Palpation of the Illio-Tibial Band or TFL (looking for “hip” pain)
- FIB-TIB SQUEEZE TEST: squeeze the Proximal Fib-Tib joint while provoking the tender TFL, looking for change
- Palpation of the distal Fib-Tib joint, squeeze for signs of relief of tenderness

In evaluating the lower leg injuries it can be on one level simple but the range of symptoms and complaints can be quite varied and complex. I want to actually touch the joint top front and back of the proximal joint. I find it to be common that when there is a separation you can feel it in the posterior aspect of the joint. I stick my index finger around behind the fibular head and if there is a gap there I am suspicious that we have this injury. Also a lot of times that’s a very painful place to palpate and I can get a +3 flinch response on some of these patients

# FIBULA SUBLUXATION AP VIEW



This is an x-ray study put together, on the left is the normal appearance of the fibula's relationship with the tibia. On the right we have someone who is injured and was having right leg pain and an inability to put full weight on her leg. You can see how much bigger the space is between the two bones and the top of the fibula is closer to the top of the tibia in the x-ray on the right.

# FIBULA SUBLUATION LATERAL VIEW



Here is a lateral view of the same individual, the right hand side again being the injured person. Note the difference in space between the two and that the left side has the fibula closer to the tibia. The right side shows signs a separation of the fibular head from the tibia. This is the most common subluxation pattern of the fibula it being superior and lateral to the tibia.

# ADJUSTING THE FIBULA WITH THE SPRING LOADED INSTRUMENT (SLI)

- Contact the proximal Fibula and squeeze it to the Tibia and tap your fingers, that lie above and around the Fibula Head, medially and inferiorly
- Supine
- Lateral
- Prone

# ADJUSTING THE FIBULA WITH THE SLI



Contact the top of the Fibula, press firmly in the direction of correction and then tap your thumb repetitively.

# ADJUSTING THE FIBULA WITH THE DROP PIECE

- Put the drop piece with roll under the knee
  - 1. Supine
  - 2. Lateral
  - 3. Prone
- Squeeze the Fibula to the Tibia and drop (sometimes the Fibula needs to be moved inferiorly, so an inferior component to the thrust is needed)
- Please note all procedures are gentle and firm, don't expect the first drop to complete the correction.

# ADJUSTING THE FIBULA WITH THE DROP PIECE



Thumb contact pulling and pushing the Fibula into the direction correction and drop gently, firmly and repetitively.

# MANAGEMENT OF THE LOWER LEG INJURY

- Bracing
- Ergonomics of the Lower Leg

Managing the lower leg injury can be difficult. In a list of degree of difficulty I think adjusting the joints as the easy part. It's more difficult to evaluate and make the correct diagnosis and even more difficult is the management of the injuries. We sit and cross our legs or sit on them, tuck them and generally deform them as personal habits. Most of the time the habits predate the injury causing flare ups and chronic inflammatory states. One of my massage therapists (25 yrs) says everyone she treats has leg and ankle injuries. So we find this to be very common.

# BRACING

- A compressive brace can be very helpful
- There are various types of compressive braces and sleeves
- Circulation issues can develop with braces in this region
- Difficult injury to manage for active patients
- Supportive footwear is important

# THE ERGONOMICS OF THE LOWER LEG INJURY

- Review personal habits: leg crossing, leg sitting, kneeling activities
- Walking and running on asphalt and concrete to be avoided
- Hydrotherapy especially if knee, low back and other injuries are present

The ergonomics of the lower leg injury is a difficult subject. Patients invariably have personal habits that relates to their legs, knees and feet. Some of these personal habits will interfere with the recovery of more recent injuries. Patients that have desk jobs are usually not aware of what they do with her feet, legs and knees while seated at the desk. The difficult part for the doctor is to get the patient to become alert. Sometimes I've recruited a spouse to help manage a change in behavior with the legs.

# EVALUATING, ADJUSTING AND MANAGING THE INJURED FOOT AND ANKLE.

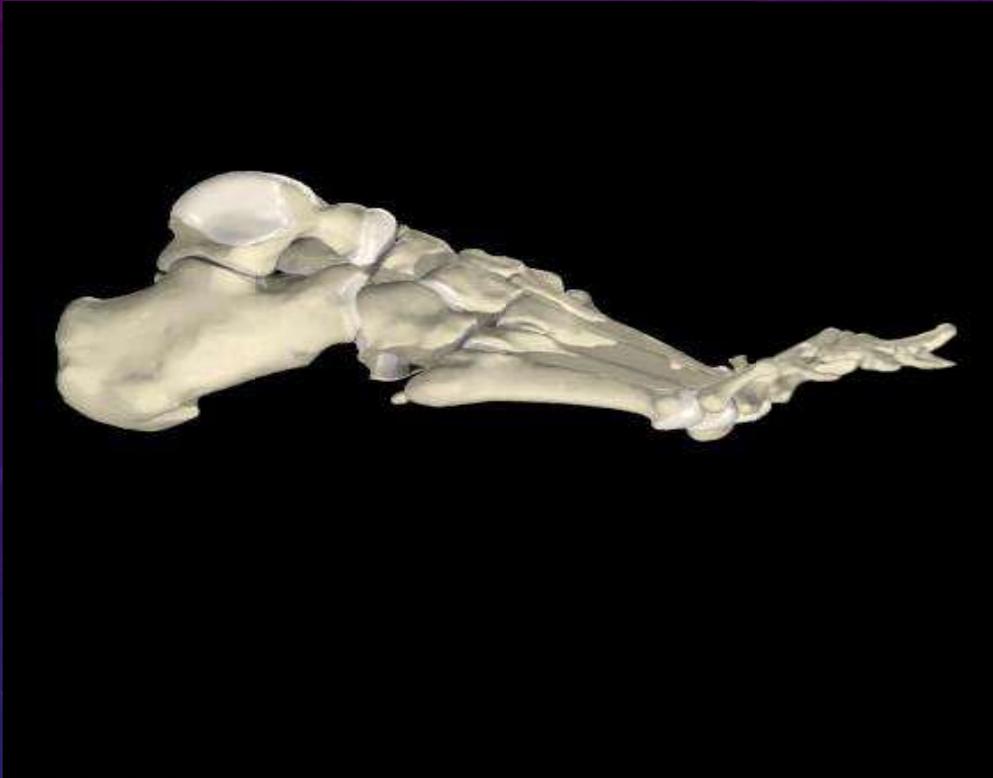
Evaluating, adjusting and managing the injured foot and ankle properly can change someone's mobility and quality of life. The modern injuries that are occurring in our population include injuries to feet and ankles. Asphalt and concrete are not kind to the human foot. Foot on the brake at the moment impact can cause permanent injuries. Rehabilitation from any of these types of injuries should be focused on improved alignment. Foot and ankle function would be critical for rehabilitation of the spine, and pelvis and many other conditions including cardiovascular problems. An inability to walk or walk without pain and with stability could keep rehabilitation limited in scope and reduced outcomes would be anticipated.

# REVIEW OF RELEVANT ANATOMY

- a. Most important are the Calcaneal/Talar joint, Talus/Mortise joint, Mid-foot joints, Fib-Tib joints
- b. The muscular structures of the region: Gastrocnemius, Peroneus, the Hallucis group and Plantar Fascia
- c. Most of the muscles of the lower leg go to the foot

# LATERAL VIEW OF THE FOOT

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The foot has multiple complex joints. There's an architecture that their shapes imply that is essential to its function. Change the architecture or allow building code violations into the structure and you have to expect a change in function.

# LATERAL X-RAY OF THE FOOT



Here is an x-ray of the normal foot. Note contours and smooth features of the bones. I rarely find a foot that feels the way this looks. Injury to the feet I consider to be endemic in the population.

# LATERAL VIEW OF THE LOWER LEG AND FOOT



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As you can see most of the muscle tissue is shared between the lower leg and foot. So I consider this a functional unit. Injuries to the lower leg almost invariably has adverse consequences to the foot. Most pain patterns in the foot have some relationship if not the origins in the lower leg.

# MEDIAL VIEW OF THE LOWER LEG AND FOOT



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Here is the medial view of the lower leg and foot. Note the big toe tendons come down behind the medial malleolus and attaches to heel bone. Separation of the proximal fibula and tibia combined with a subluxated calcaneus can produce severe arch pain, MP pain and big toe pain.

# PLANTAR SURFACE OF THE FOOT

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Pictures



The Calcaneal Talar joint is extremely important to the integrity and function the foot. Not only does the plantar fascia attached to the calcaneus but the neurovascular bundles that proliferate out to the plantar surface of the foot are also bound to the calcaneus. Calcaneal subluxation can result in neurological and vascular deficit as well as muscular skeletal distress patterns.

# Evaluating Foot and Ankle Problems

- a. The Calcaneus should be under the Talus
- b. The Talus should be under the Mortise joint
- c. The Metatarsals should be lined up with the Cuneiforms
- d. The foot has a building code
- e. Determine the lower leg involvement in the complaints (Fib-Tib Squeeze Test)

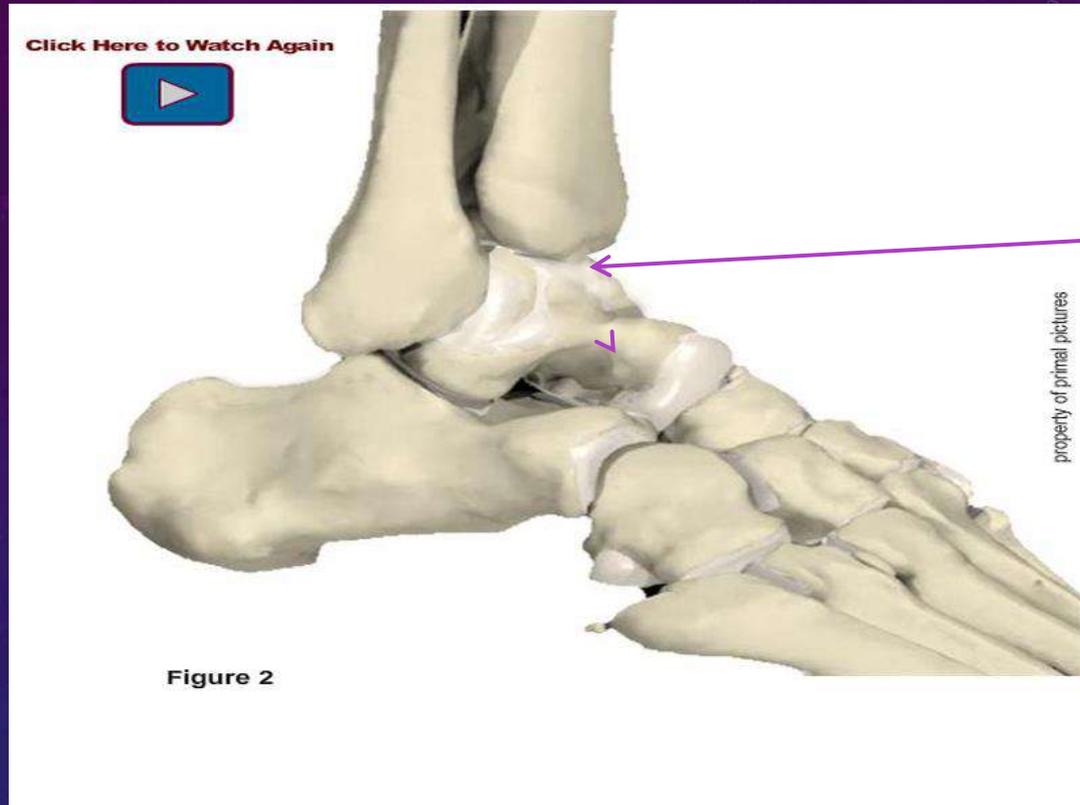
# CALCANEAL SUBLUXATION



In evaluating the calcaneal talar joint I find the lateral malleolus and put my thumb underneath it. I'm looking for a shelf or Ridge. The left picture shows the aligned calcaneus with the talus. The right side shows the calcaneus having subluxated posteriorly and laterally relative to the talus. This ridge should be very painful to the touch. Most of the time this is a complete surprise to the patient. To test involvement of the subluxation I will have to provoke the patient's complaint: big toe pain, tingling and numbness of the foot, plantar fasciitis or arch pain whatever it is and draw or pull the calcaneus into place and check for changes.

# TALUS ALIGNEMENT

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Talus joint with the leg

If the ankle bone is not properly underneath the mortise joint the foot is misaligned. Certain positions and activities would make that worse and feeling like the foot is going to come out from underneath the leg is actually an accurate statement. The body will respond appropriately and tighten up all the involved muscular structures. Ligaments will become inflamed, arteries, veins and nerves will become entrapped when we have this important joint lose its alignment and stability

# BIG TOE, ARCH PAIN

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The lower leg and the foot are a single unit. I discussed a testing procedure that I call the Fib-Tib Squeeze Test. As you can see in this simple illustration that the big toe muscles attach higher up into the lower leg. Injury to this part of the lower leg could result in big toe pain

***Assessing Lower Leg Involvement In Foot And Ankle Problems: Are Any Of These Tests Positive? (A Positive Sign In These Tests Is Relief Of Or Less Pain)***

- a. Big Toe pain: squeeze the proximal Fib-Tib joint, assess the Big Toe pain while maintaining the squeeze, does this give relief?
  
- b. Big Toe pain: pull the Calcaneus anteriorly and medially; assess the Big Toe pain while maintaining the pulling, does this give relief?

## CONTINUED

- c. Heel pain: Squeeze test, Squeeze the proximal Fib-Tib joint while provoking the heel pain, does this give relief?
- d. Heel pain: Pull the Calcaneus anteriorly while provoking the heel pain, does this give relief?
- e. Plantar Fascitis: Pull the Calcaneus anteriorly while provoking the Plantar pain, does this give relief?
- f. Arch pain: Pull the Calcaneus anteriorly and medially while provoking the Arch pain, does this give relief?

# EVALUATING FOOT AND ANKLE PROBLEMS

- a. The Calcaneus should be under the Talus
- b. The Talus should be under the Mortise joint
- c. The Metatarsals should be lined up with the Cuneiforms
- d. The foot has a building code
- e. Determine the lower leg involvement in the complaints

# Adjusting the Talus with the Drop Piece

a. Posterior Talus: Place the foot with the back of the heel in contact with the drop piece, drop posteriorly on the lower leg, best with knee bent and supported. Repeat.

b. Anterior Talus: Place the end of the Lower Leg on the edge of the drop piece, with the foot hanging off the drop piece. Drop on the foot with it in a neutral position to the leg, best with knee bent and supported. Repeat.

# DROP PIECE ADJUSTING/ ANTERIOR TALUS



Drop piece adjusting allows specific contact and thrusts so that the forces involved do not affect other joints or injuries.

# ADJUSTING THE ANTERIOR TALUS ON THE DROP PIECE



Place the end of the lower leg on the edge of the drop piece, with the foot hanging off the drop piece. Drop on the foot with it in a neutral position to the leg.

# CALCANEAL DRAW TEST

To test the involvement of the subluxation, I provoke the patient's complaint: big toe pain, tingling and numbness of the foot, plantar fasciitis or arch pain, whatever it is. Either the patient or I will provoke the complaint and then I will pull or push the calcaneus back into place, and count to 30. Over ninety percent of the time, the symptoms start to fade with the maintained pressure of holding the calcaneus in place.

# THE CALCANEUS DRAW TEST CONTINUED



The doctor grasps the posterior aspect of the heel bone and, while stabilizing the mid-foot with the other hand, pulls or draws the heel bone forward or anterior and medial, toward the toes.

# ADJUSTING THE CALCANEUS WITH THE DROP PIECE

a. Posterior Calcaneus: Set the back of the Calcaneus on the drop piece, best with knee bent and supported, grip the talus and mid-foot and drop towards the back of the Calcaneus, repeat.

b. Posterior and Lateral Calcaneus: Set the back of the heel on the drop piece and the rotate the foot externally 10-15 degrees. Grip the talus and mid-foot and drop towards the drop piece. Repeat.

# ADJUSTING THE POSTERIOR CALCANEUS OR ANTERIOR TALUS ON THE DROP PIECE



# ADJUSTMENT FOR A LATERAL CALCANEUS



The medial side of the foot is placed on the drop piece with the calcaneus off the edge. Drop lateral to medial.

# ADJUSTING THE MID-FOOT

a. Inferior Metacarpals: Place top of Foot on the drop piece, with the Cuneiforms at the edge and the foot is hanging off the drop piece. Contact the Base of Metatarsals, on the Plantar surface, just distal to the Cuneiforms. Drop. Repeat.

b. Inferior Cuboid or Navicular: Place the foot and ankle on the drop piece with the Cuboid or Navicular just off the edge, contact the plantar surface each and and drop.

Please note all procedures are gentle and firm, don't expect the first drop to complete the correction.

# DROP PIECE ADJUSTING OF THE MID-FOOT



The doctor's hand is on the drop piece, contact hand is inferior Cuneiform joints with the Metatarsals, the thrust is up while dropping the piece. Corrects dropped Metatarsals

# DROP PIECE ADJUSTING OF THE MID-FOOT



The prone foot is placed at the edge of the drop piece at the Cuneiform joints with the Metatarsals. Thumb contact and drop I to s. This corrects dropped for inferior metacarpals. I do this after the previous procedure is no longer painful.

# MANAGING THE INJURED FOOT AND ANKLE

Any support to provide structural integrity is important. Anything that is flexible, various types of braces available.

## ***Taping Protocols***

Taping can be very helpful for even flare-ups of chronic cases

- Posterior/lateral Calcaneus
- Lateral Calcaneus

# TAPING, BRACING, ORTHOTICS AND FOOTWEAR CONTINUED

## b. Bracing

1. The Figure 8 brace is easy to use most commonly used for ankle sprains
2. Many other types available – can be ordered online or purchased cheaply at local drugstores

## c. Orthotics

1. Make an orthotic with orthopedic felt and tape it to the foot for extreme cases
2. Managing The Injured Foot And Ankle with various types of orthotics
3. The normal architecture of the foot should be restored before the impression for the orthotic is made

# TAPING, BRACING, ORTHOTICS AND FOOTWEAR CONTINUED

## d. Footwear for chronic problems

Avoid athletic shoes– boots will last longer and cost about the same.

The Doctor is the Advocate for the Injured Foot, Not Your Fashion Statement

Good Footwear Treats the Foot Like Mother Earth: Absorbing the Heel Strike

# THE LATERAL CALCANEUS



Note the lateral displacement of the heel bone the angle between the medial and lateral malleolus

# THE ADJUSTED CALCANEUS



Not much difference once weight bearing

# TAPING FOR A POSTERIOR CALCANEUS



Note the anchor around the mid-foot. The posterior wrap is cut short of the anchor.

# THE MEDIAL VIEW OF FOOT TAPING FOR A POSTERIOR CALCANEUS



Note the posterior wrap has been pulled forward onto the anchor and another, outer anchor, will be applied

# TAPING FOR A LATERAL CALCANEUS



The posterior wrap is cut short of the anchor.

# THE MEDIAL VIEW OF FOOT WITH COMPLETED TAPING FOR A LATERAL CALCANEUS



Note the lateral wrap has been pulled up onto the end of the anchor and another, outer anchor, has been applied

# TAPING FOR A LATERAL CALCANEUS



Note the anchor on the lower leg, 4" above the ankle, the lateral wrap is applied from lateral to medial, under the calcaneus and cut short of the anchor

# THE MEDIAL VIEW OF COMPLETED LATERAL AND POSTERIOR CALCANEUS TAPING



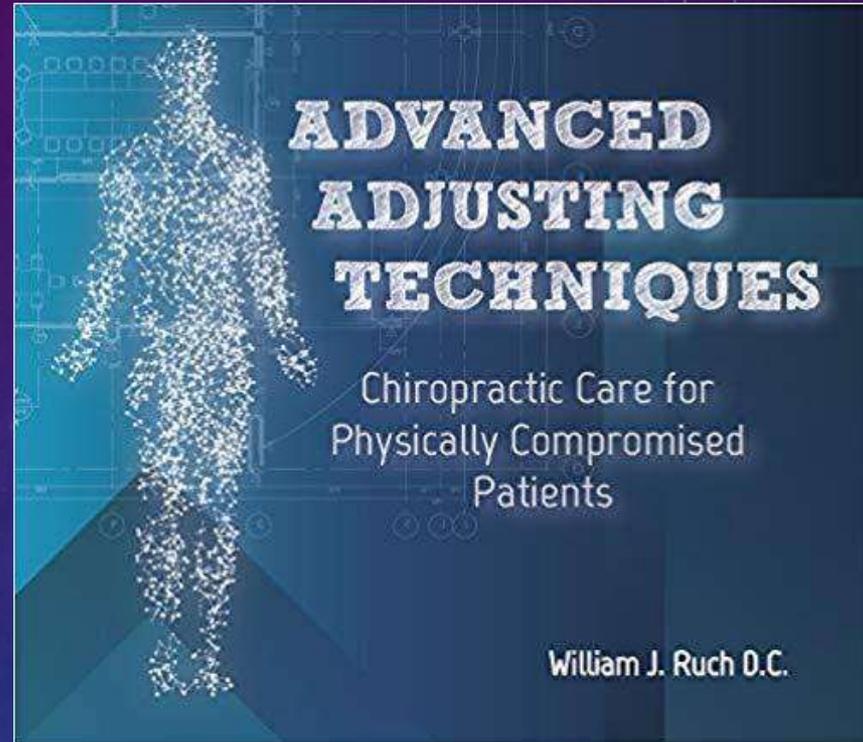
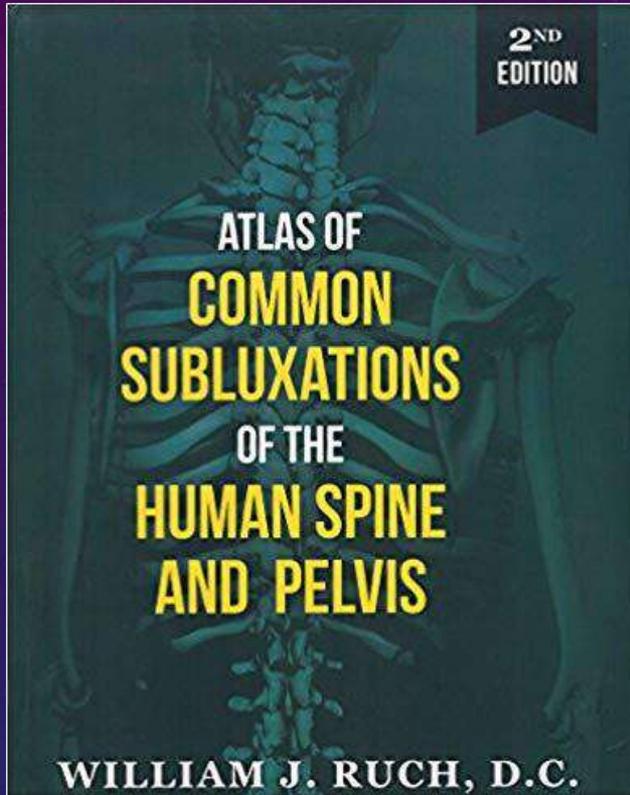
The lateral wrap was stretched to cover the inner anchor and another outer anchor has been applied

# THE TAPED HEEL WEIGHT BEARING



- Note the improved alignment of the heel to the
- leg and how the maleolei are more level — see
- (repeated) inset at right.

**THE PREVIOUS PRESENTATION CAN BE FOUND IN MORE DETAIL  
IN THESE BOOKS**



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