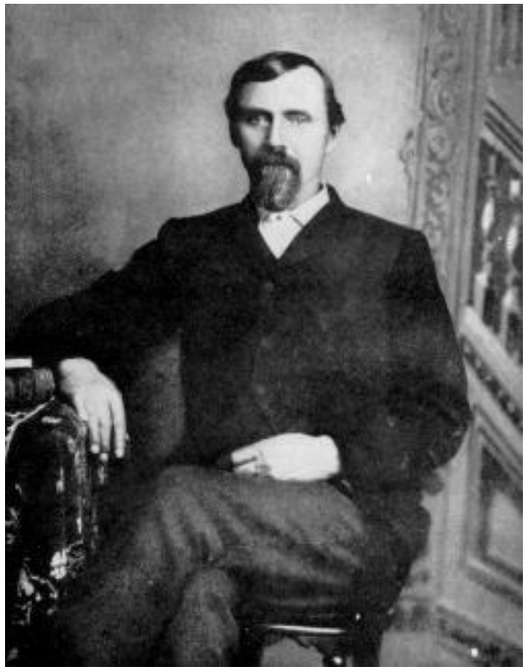
Retained Primitive Reflexes - An Osteopathic Approach

My Osteopathic Genealogy



A.T. Still

W.G. Sutherland

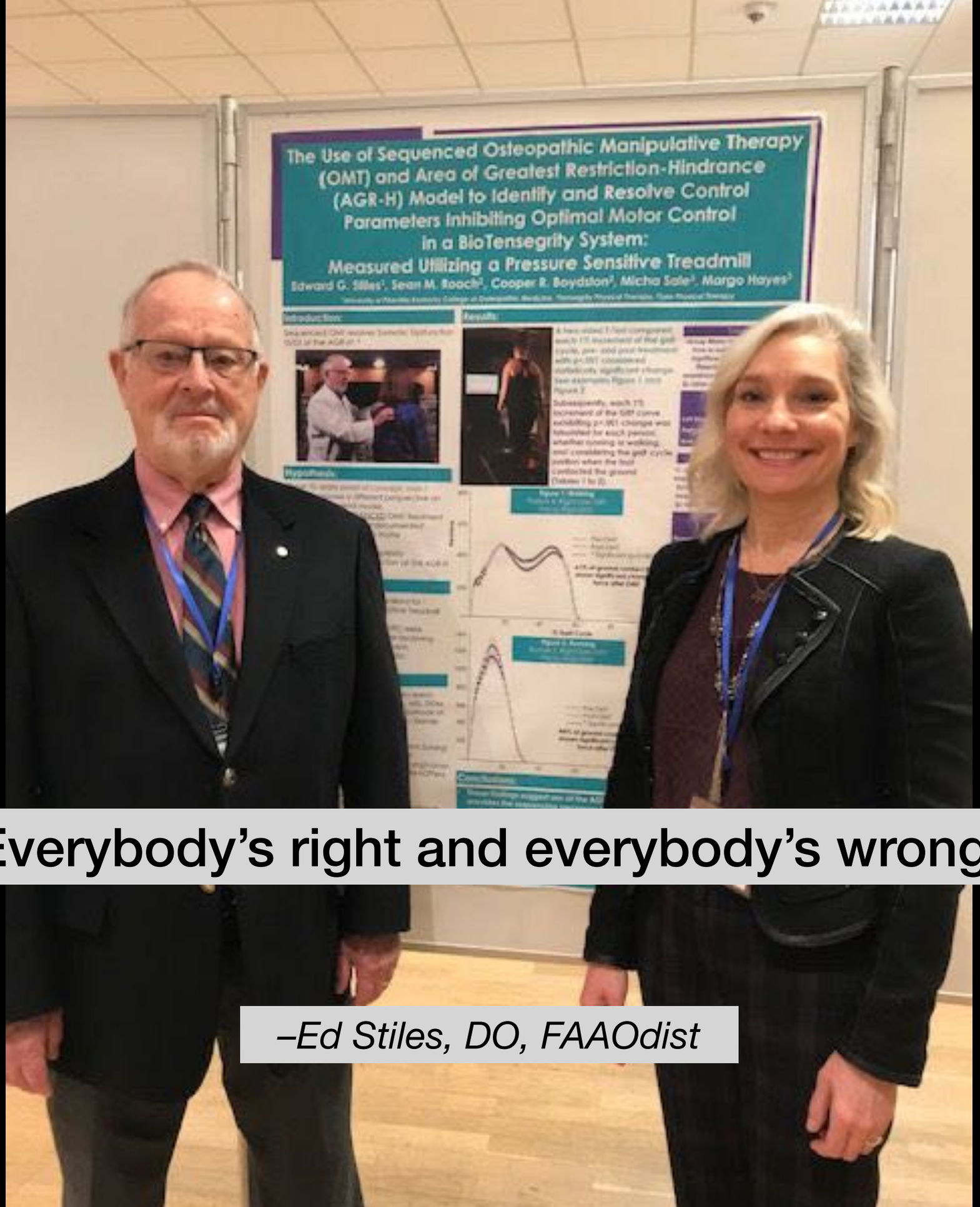
G.A. Laughlin

F.L.Mitchell, Sr.

P.E. Greenman

P.T. Wilson

E.G. Stiles



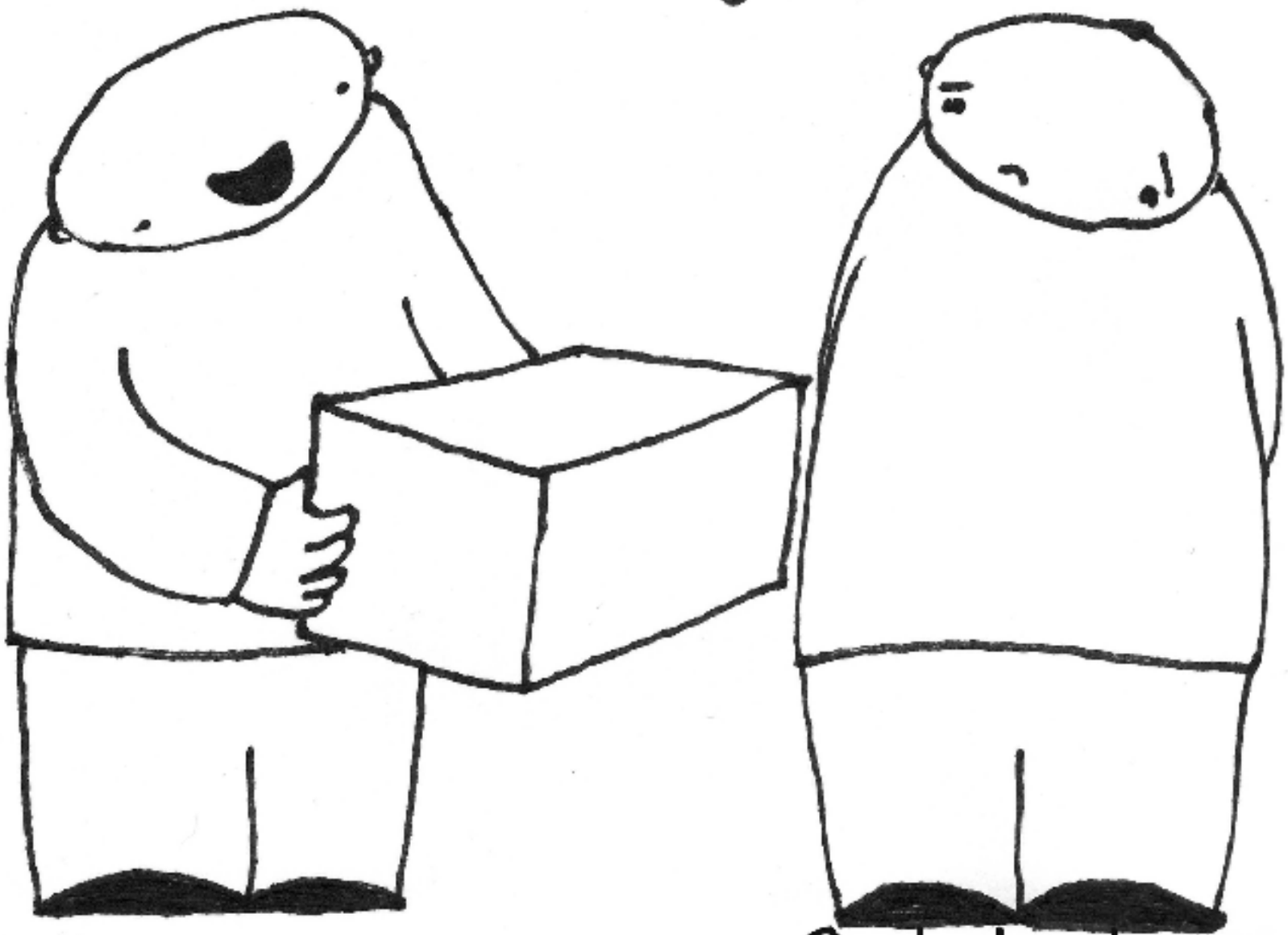
"Everybody's right and everybody's wrong."

–Ed Stiles, DO, FAAOdist

Reflex

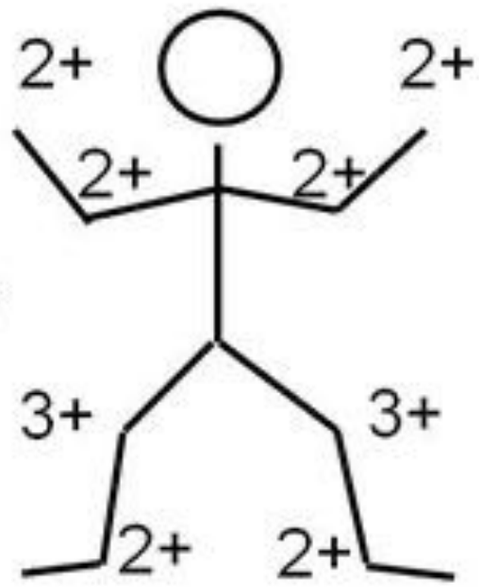
- In its simplest form, a reflex is an unconscious pattern of motion that is expected from a certain activating stimulus.

Welcome to the faith! Now, here's our complimentary box, outside of which you should never ever think again.



Reflexes

- **Deep tendon reflexes**
  - Biceps reflex C5/C6
  - Brachioradialis reflex C6
  - Triceps reflex C7
  - Patellar reflex L4
  - Achilles tendon S1
- **Plantar response**
- **Reflexes tested in special situations**
  - Spinal cord injury
  - Frontal release signs
  - Posturing
- **Scale**
  - 0 = absent
    1+ = hypoactive
    2+ = normal
    3+ = hyperactive
    4+ = hyperactive with clonus
    5+ = sustained clonus



Clinical shorthand to summarize reflex findings

We have certain spots that we test to allow us to "look inside" at the nervous system and see how certain parts are functioning…or malfunctioning

Reflexes

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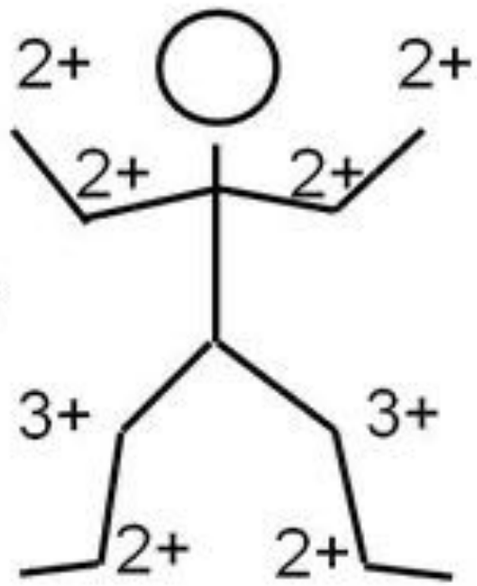
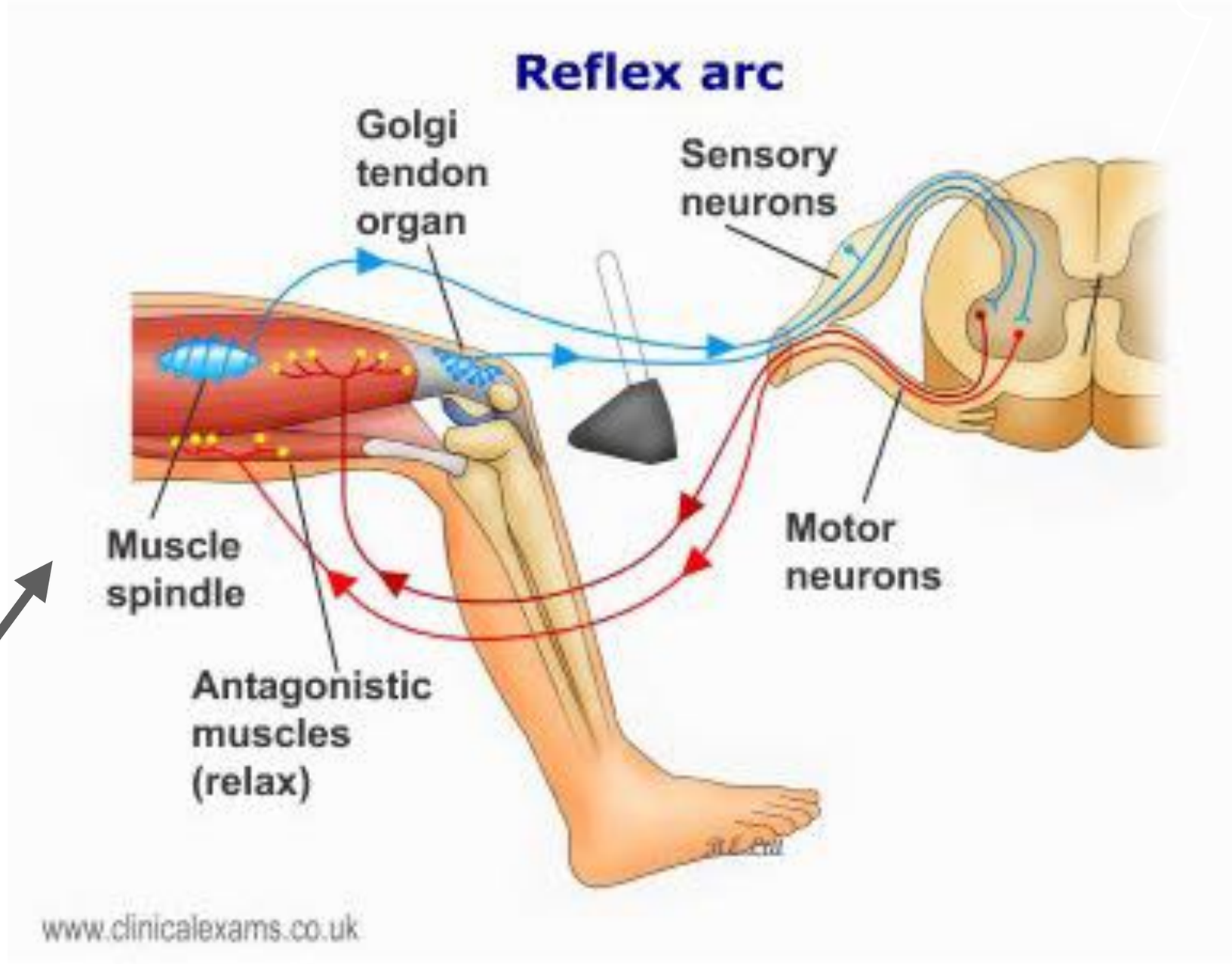


Clinical shorthand to summarize reflex findings

We have a language that describes whether that automatic response is just what we expect…or more or less than we expect.



We even have an explanation of how the pattern of motion is supposed to work

Reflexes

- This exam for reflexes is part of our education and is supposed to be part of any patients initial exam.

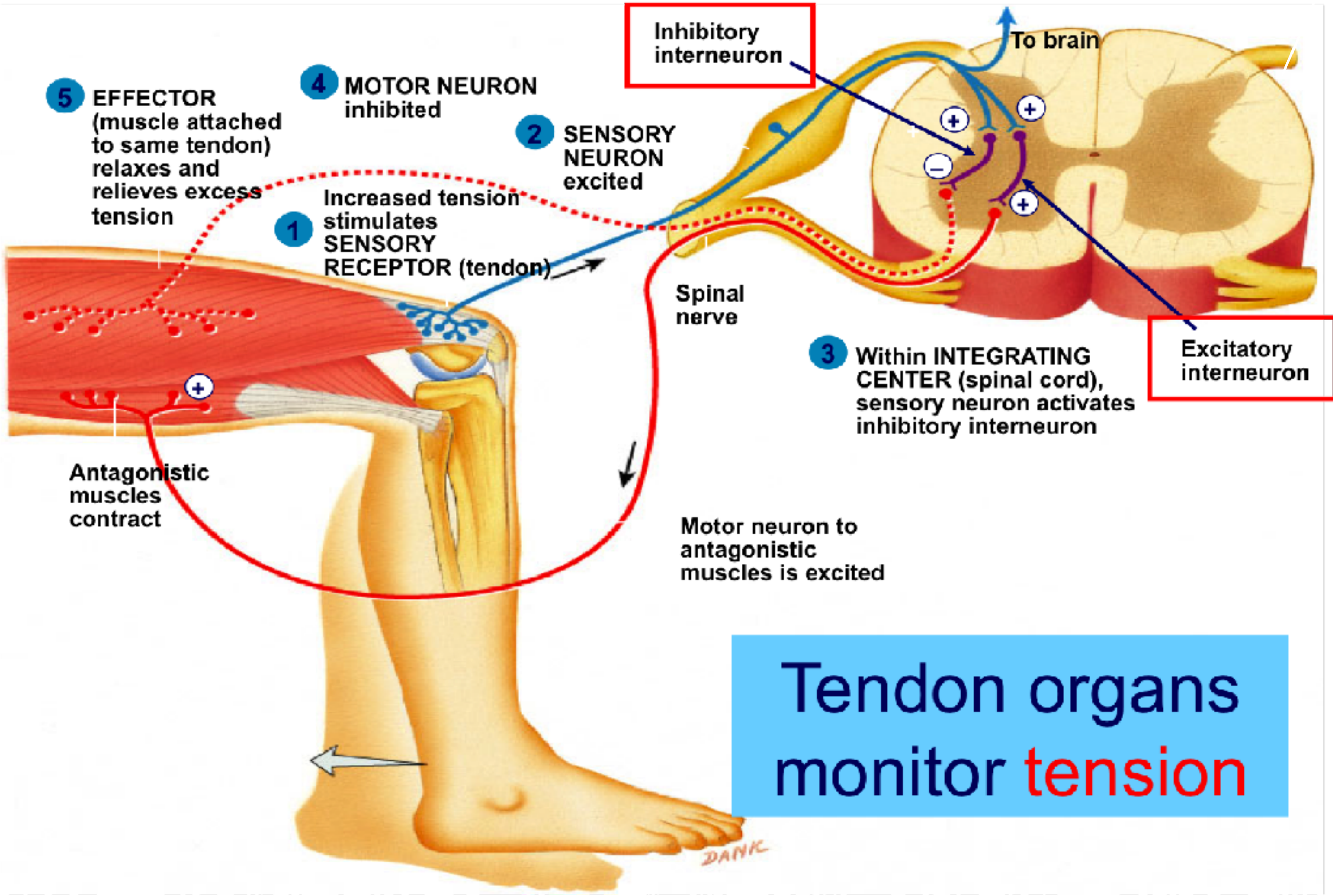
- And its good information to gather…until you recognize that it is only part of the picture of the patient.

Reflexes

- In my practice, I did this for a few years, then found my first patient who had something that seemed to come before, or be bigger than, the reflex testing.

Reflexes

- Then I found that:
  - I wasn’t taught well enough in school
  - I wasn’t asking the right questions
  - I wasn’t testing the right things
  - The answers in the books didn’t seem osteopathic enough
  - The patient had the answers if I was willing to be the student again…the student of the patient…



Tendon organs monitor tension

Reflexes

- In the last picture, the author states that tendon organs monitor tension. Is that 100% true osteopathically?
- Might it also be true that tendons (and ligaments and maybe even all connective tissues) give a window into the health of their attached nervous system by showing us their tension?

Reflexes

- And thus, a movement pattern that we expect MAY indicate health, but a movement pattern that we don't expect SHOULD lead us to more investigation?

- And that investigation should be osteopathic in nature… while not leaving behind the allopathy that we know. (this is where EBM comes in - but remember EBM is ALWAYS lagging behind the people discovering it (the clinicians))

Engaging the Ram of Reason

Perhaps this should be the official osteopathic graduation headgear…

Things that seem to cloud or hinder accurate reflex testing

Dural Shock

Dural Shock

- With the principle that trauma can/will cause connective tissue to tighten, the dura can be tight/ restricted.

- Barral talks about the dura being stuck, but does not address the beginning and end of the dural attachments, only the vertebra.

- This is most easily found with the patient seated.

Dural Shock

- What should happen when screening is that the patient should extend whenever an anterior force is placed through the spine.

- The neck should go more into a lordotic curve, the thoracic kyphosis should straighten and the lumbar spine should go more into a lordotic curve.

Anterior pressure is applied to test for extension of the spine

The front hand stabilizes the forehead

Lack of/ resistance to extension is positive for dural shock

Dural Shock

- If the spine is relatively rigid along its length when an anterior force is applied, the only anatomy that connects them all is the dura and we can surmise that it is tight.

- That tension restricts motion of the cranium and sacrum (and everything else in the body).

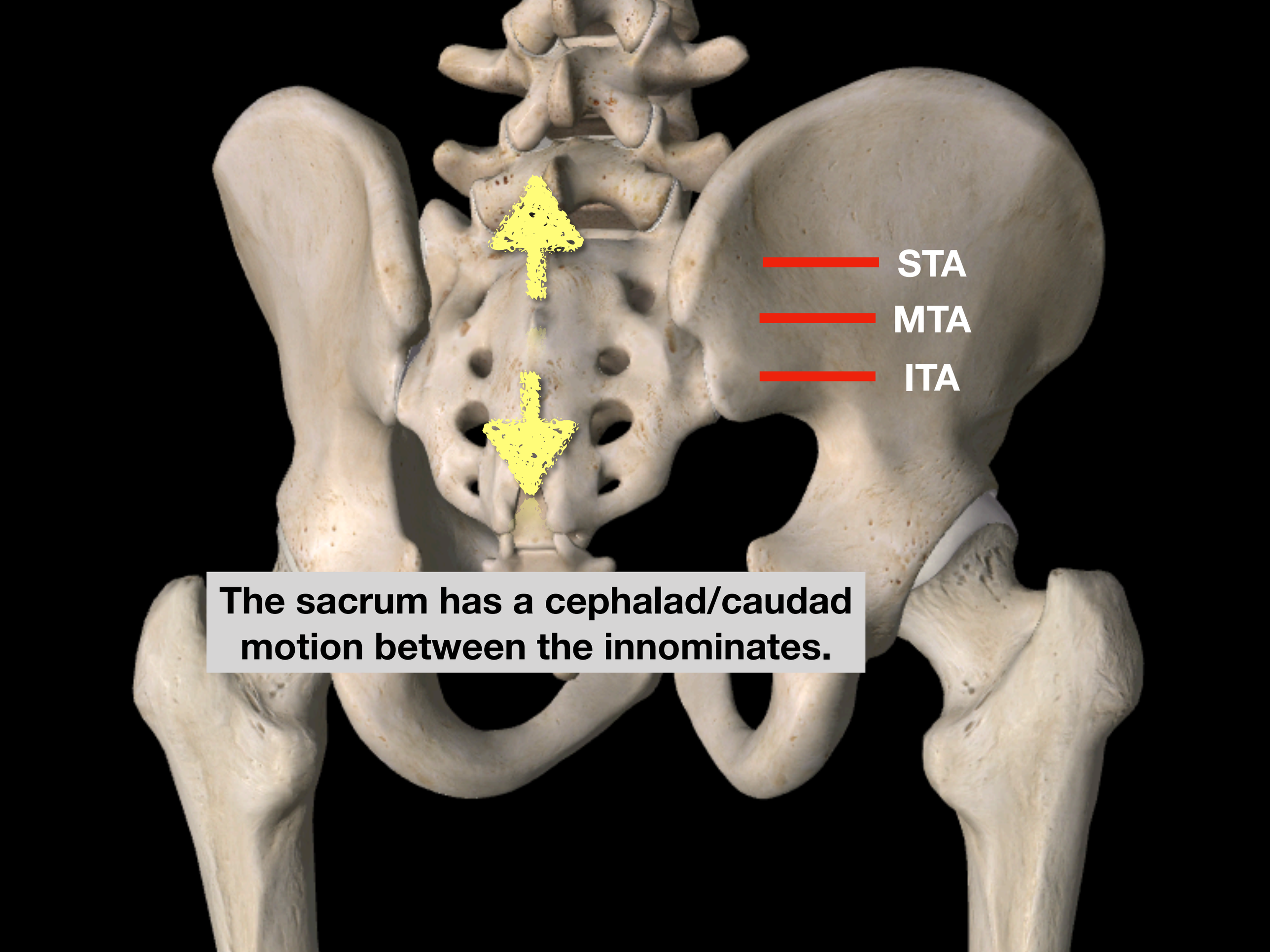
Dural Shock

- Some practitioners suggest that this limit in motion is “normal” for this particular patient.
- Shock is not something that should be considered “normal”.
- It is an adaptive response by the body to keep us alive.
- It can be treated and resolved!

Dural Shock

- My clinical findings correlate with this relating to a cephalad/caudad movement of the sacrum between the innominates.

- Testing to see the place of maximal tension is performed with one hand on the beginning and the other on the end of the dural tube.

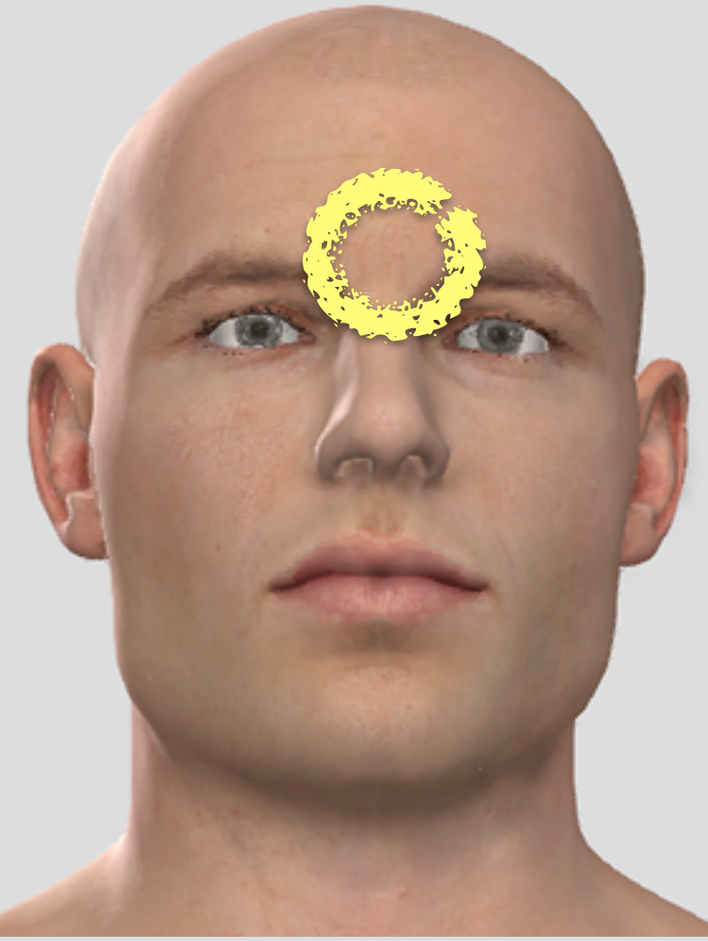


The sacrum has a cephalad/caudad motion between the innominates.

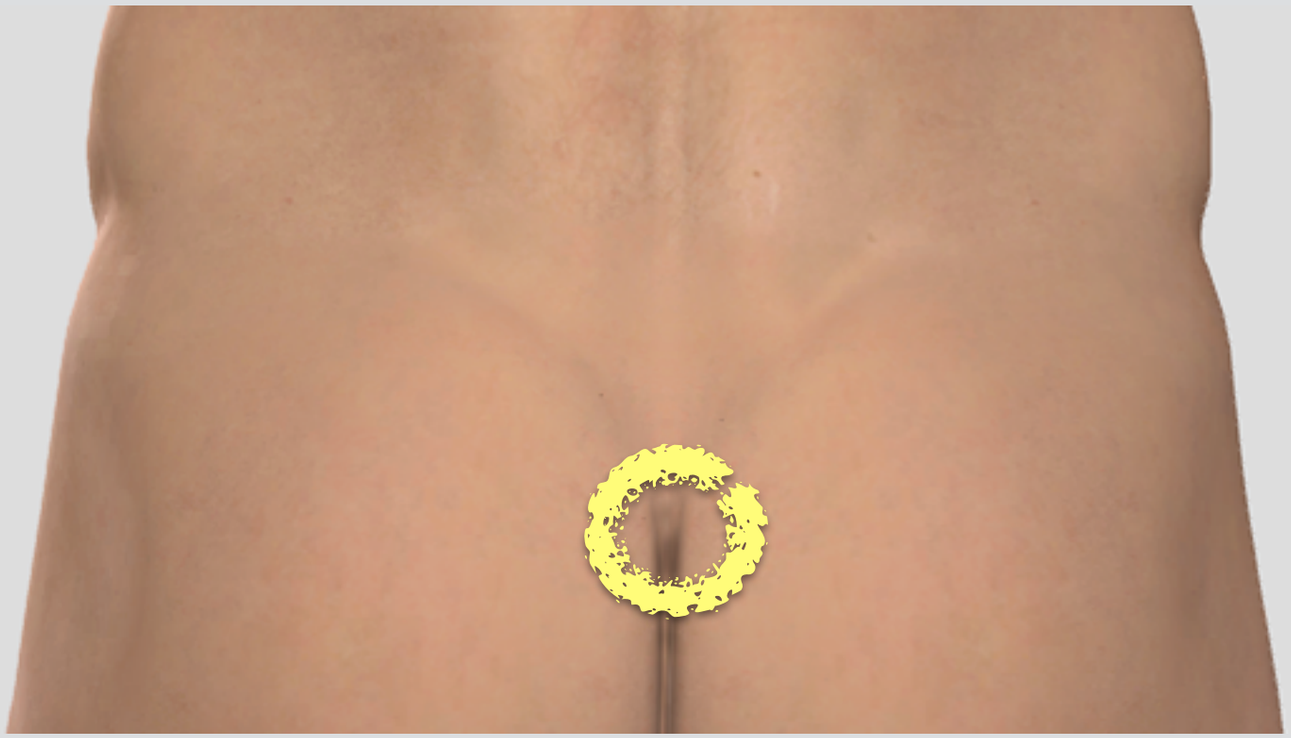
Dural Shock

- To test for dural shock:
    - Have the patient seated in front of you.
    - Place two fingers from one hand on nasion and two fingers from the other hand on the tip of the coccyx.
    - Then gently spring each -

Is there more tension at the crista galli (the beginning of the dura)?

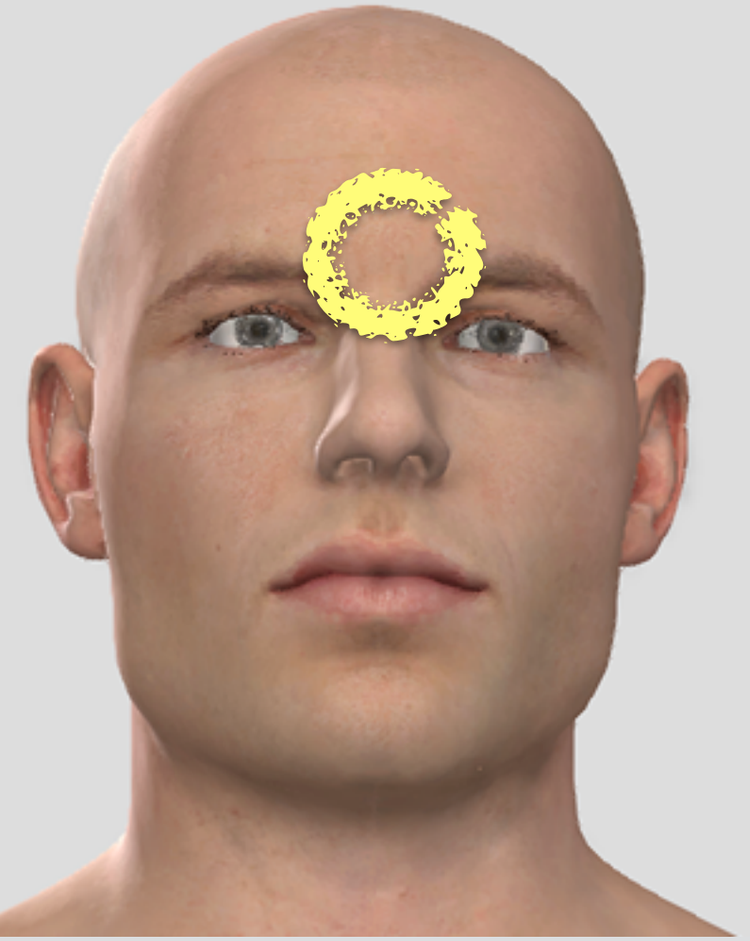


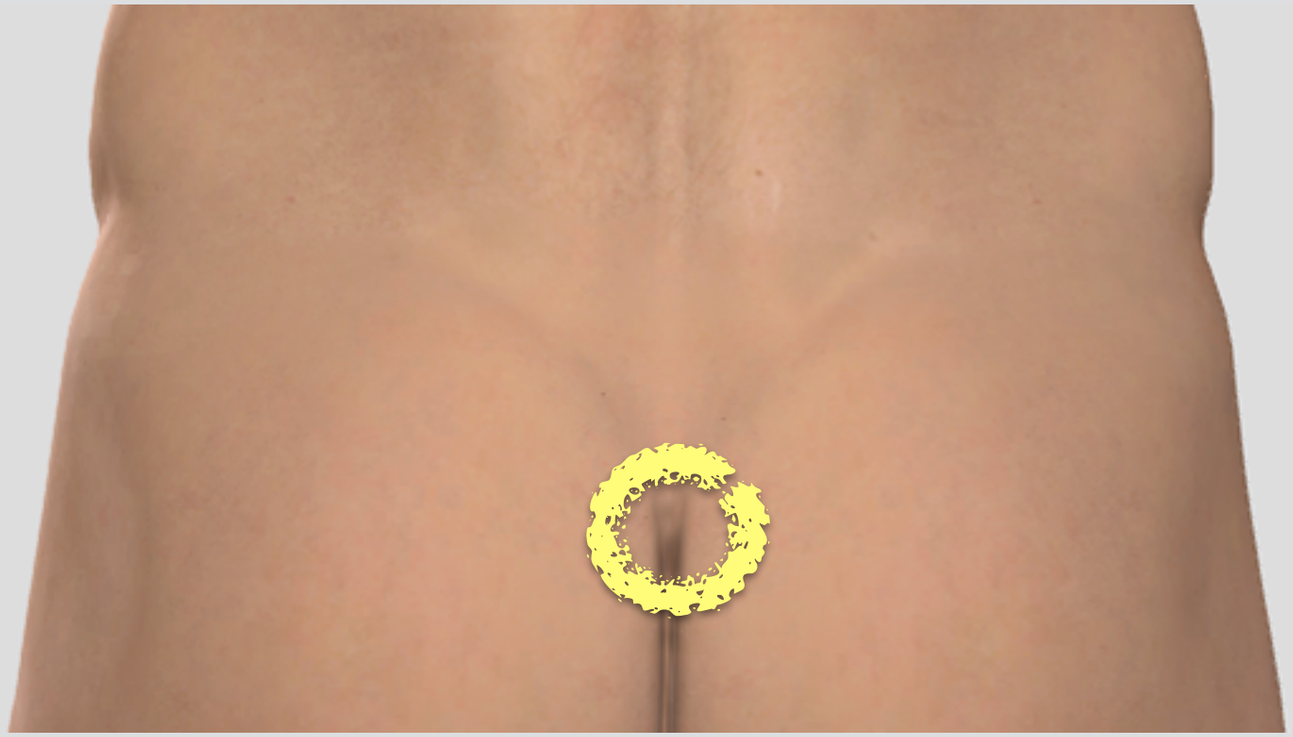
With gentle palpation…
(I have the patient seated and use two fingers on each spot)



Or at the coccyx (the end of the dura)?

The one with the most tension is what we balance the body around for treatment.





Dural Shock

- If the sacrum moves caudad it pulls on the ethmoid/crista galli (and this structure (nasion) will feel more restricted during motion testing).

- If the sacrum moves cephalad, the sacrum will feel more restricted.

- Either of these will tighten the dura and give the findings of restricted dura.

Dural Shock

- Treatment is indirect, seated and aimed at allowing the dural tension to unwind (BLT or functional).

- Rescreen the body after treatment to find extension now possible.

Lab

Fulford's Shock Sidebending Restriction

Fulford's Shock

- This was the first one we started exploring (so it has the most correlations).

- Josh Dalton, DO, said "I think I have got Fulford's shock figured out".

- And from that all of what you about to see was born.

Fulford's Shock

- The more we explored, the more that the things we had seen in our education started to fall into place.

- I'm going to attempt to tie them together in a way that makes sense (even though we never met or studied with Dr. Fulford (only his students)).

The Fulford Response

- According to Eric Dolgin, DO, FCA, Dr. Fulford described shock as a divot near the left xyphoid process.

- Think of the xyphoid as a vertebra and that vertebra is rotated to the left - this is simple shock.

- More pronounced (complex) shock has both sides of the xyphoid “back” (bilateral rotation restriction).

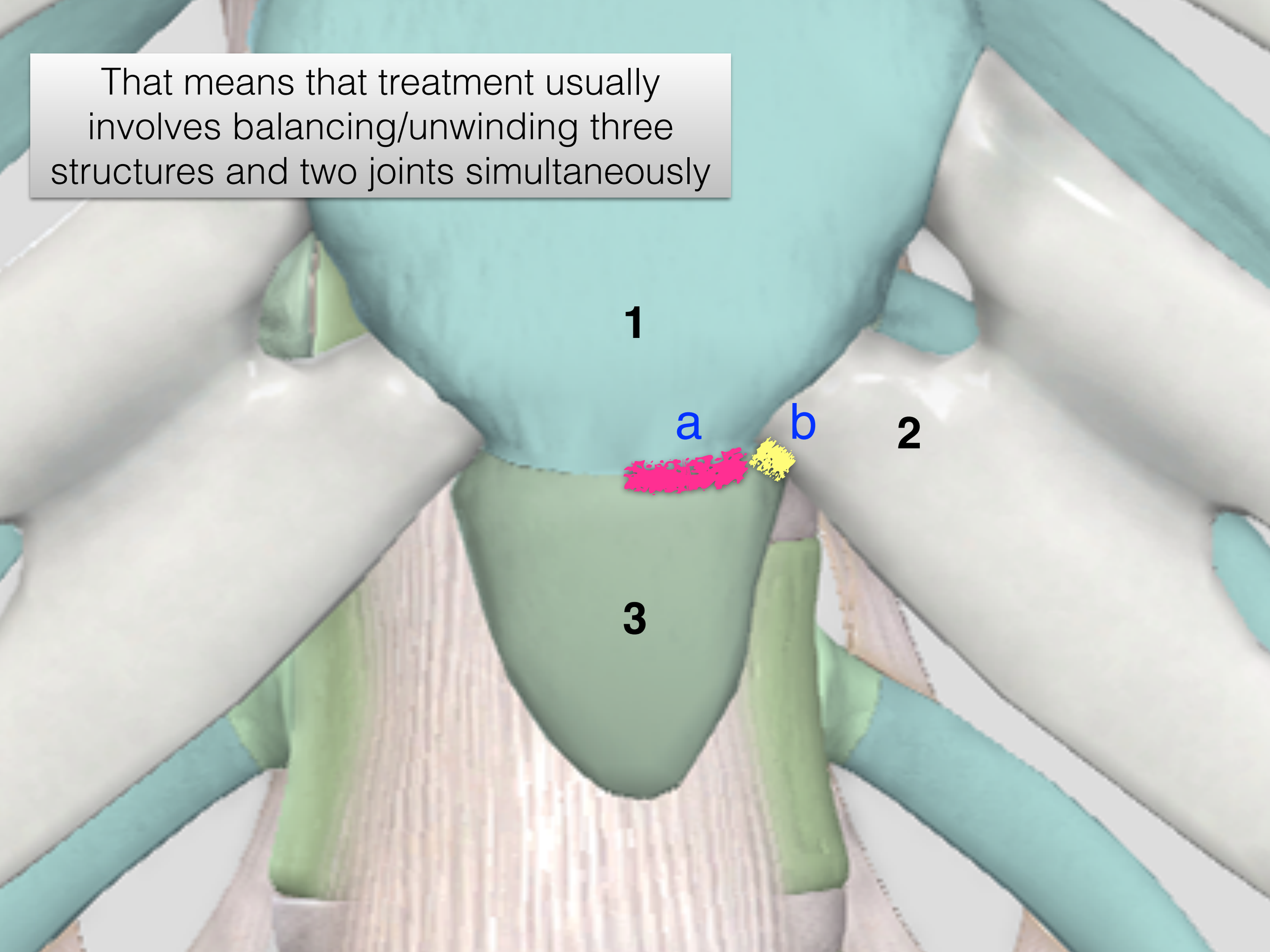
The xyphisternal junction is a joint just like any other in the body.

That means that the xyphoid can rotate and get restricted - left rotation is most common. Bilateral rotation is second most common. Right does not seem to occur individually EXCEPT in COVID.

There is also a small xyphoid/rib articulation that occurs bilaterally.

This articulation is commonly stuck with xyphoid rotation.

That means that treatment usually involves balancing/unwinding three structures and two joints simultaneously



The Fulford Response

- Dr. Dolgin goes on to explain that the trauma energy stagnates or gets stuck in the spleen during shock.

- In Chinese medicine, the spleen:
    - controls blood
    - circulates nutrients
    - controls appetite and digestion
    - controls upright posture
    - keeps us thinking clearly
    - houses the emotion worry

- And the spleen chakra houses the life energy of the body

The Fulford Response

- Dr. Fulford talked about an energy cyst and how it would get stuck deep to the linea alba.

- This was the focus of his treatment for shock.

- The male is treated from the right side and the female from the left side (based on Dr. Randolph Stone's polarity therapy).

The Fulford Response

- Straight fingers and hands were used to release the energy cyst.

- The method certainly works, but takes more time than the one presented here.

The Fulford Response

- There are also Chapman's reflex points that correspond to Fulford's shock.

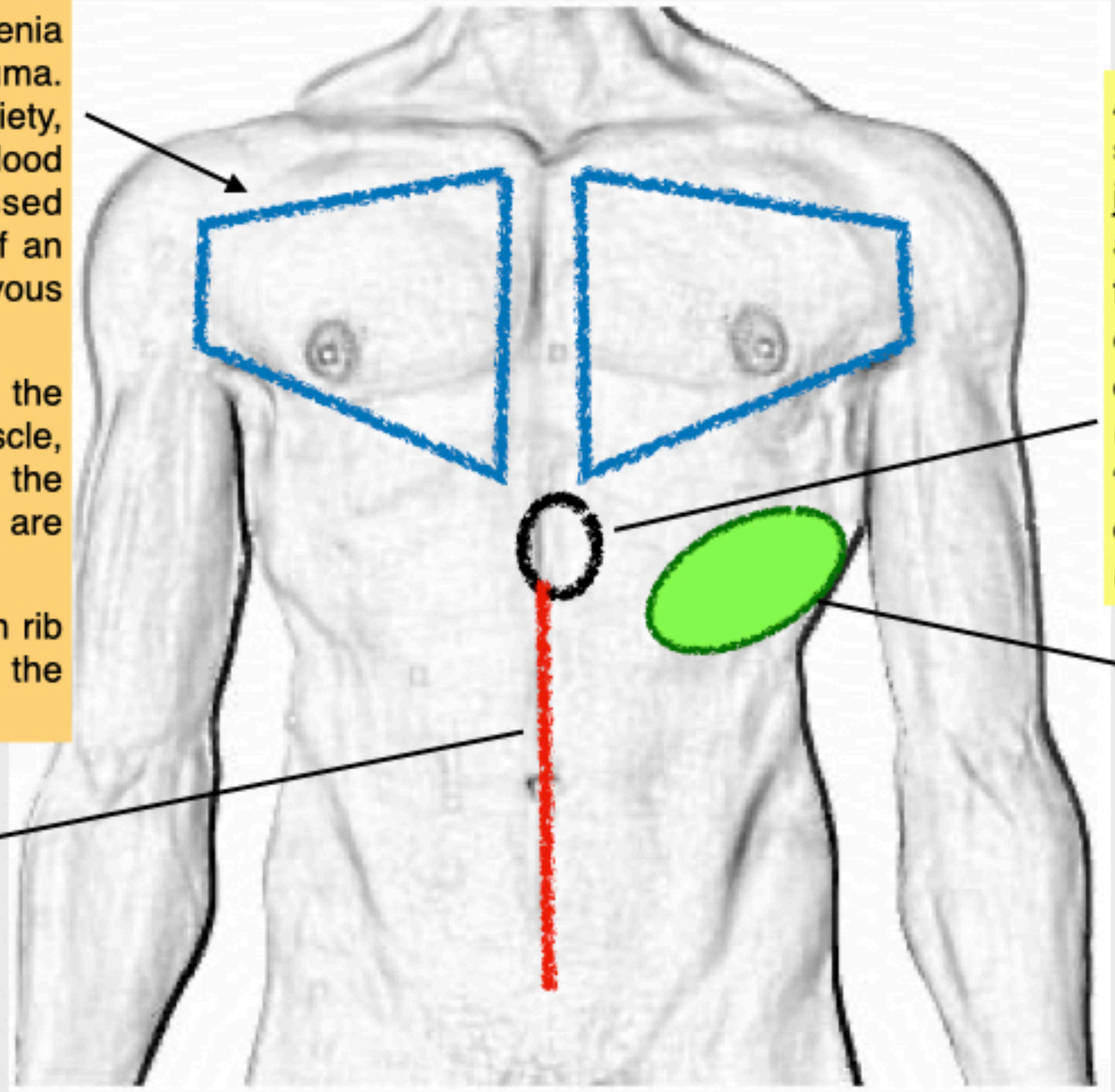
- These are the points for neurasthenia.

Shock in the Body

Shock comes in many forms. To keep it simple, I will call shock any force or energy that comes into the body in a way that the body can't handle it. It is trauma. This is not an exhaustive list, but shock can be indicated by the following findings:

The Chapman's reflex for neurasthenia is also an indicator of shock/trauma. The symptoms are: fatigue, anxiety, headache, heart palpitations, high blood pressure, neuralgia and depressed mood. The reflex is an indicator of an imbalance in the autonomic nervous system.

a. The anterior point for this is the entirety of the pectoralis muscle, including its attachments — the muscle and its attachments are tender to palpation
b. The posterior point is on the 4th rib along the medial border of the scapula



A divot found on the left side of the sternum near the xyphisternal junction. This depression is approximately the size of the pinky fingernail. It may also be experienced as a posterior deviation of the left xyphoid process (a left rotation of the segment) in "simple" shock and a full depression of the xyphoid in "complex" shock (more than one traumatic event).

Restriction in the motion of the spleen.

Energy cysts or tension along the linea alba. The linea alba can hold an indicator of shock/trauma. When palpated correctly, this indicator cannot only be used for diagnosis, but also for treatment.

Shock, according to some experts, is the most overlooked diagnosis in osteopathy. If it is present and untreated, nothing else seems to work - including western medicine. Suspect shock in any patient who has seen another practitioner (or many) before coming to see you.

Shock in the Body

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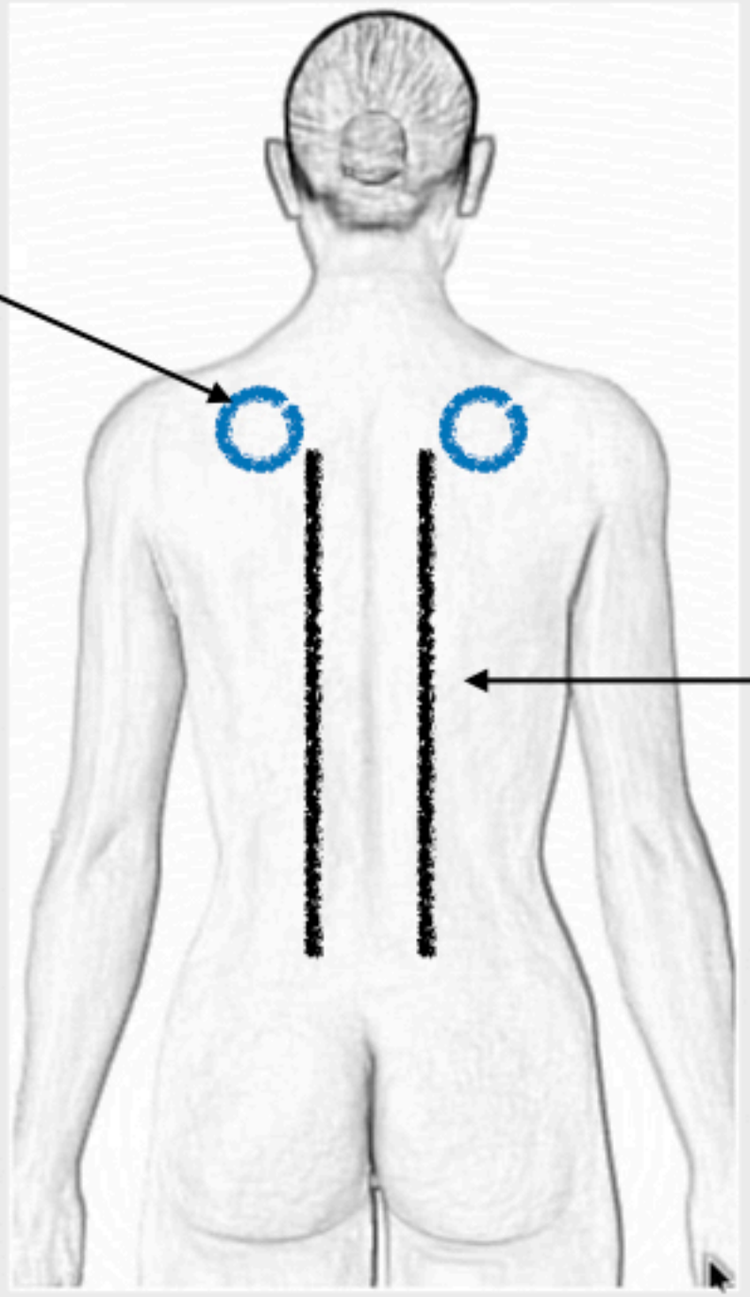


Shock/trauma can also manifest as a feeling of tension/restriction in the thoracic and lumbar spine when screening the patient, beginning at approximately T_4 and continuing toward L_5. This part of the spine resists rotation (both directions), extension, and side bending (both directions) when compared with the upper thoracic and cervical area. It can be anywhere from completely immobile to only slightly restricted. It has more of a chronic than acute feel, and feels more dural (overall restriction) in nature than muscular or bony (one or more segmental restrictions).

Shock/trauma is overwhelming to the body. In response, parts of us stop functioning normally. This response can be as simple as an alteration in breathing if it involves the diaphragm, to PTSD if it involves the brain. Every organ and tissue can be affected.

Josh Dalton's Findings

- When Dr. Dalton first reintroduced me to shock, he said "every diaphragm is affected, but it seems to be most stuck in the right foot"

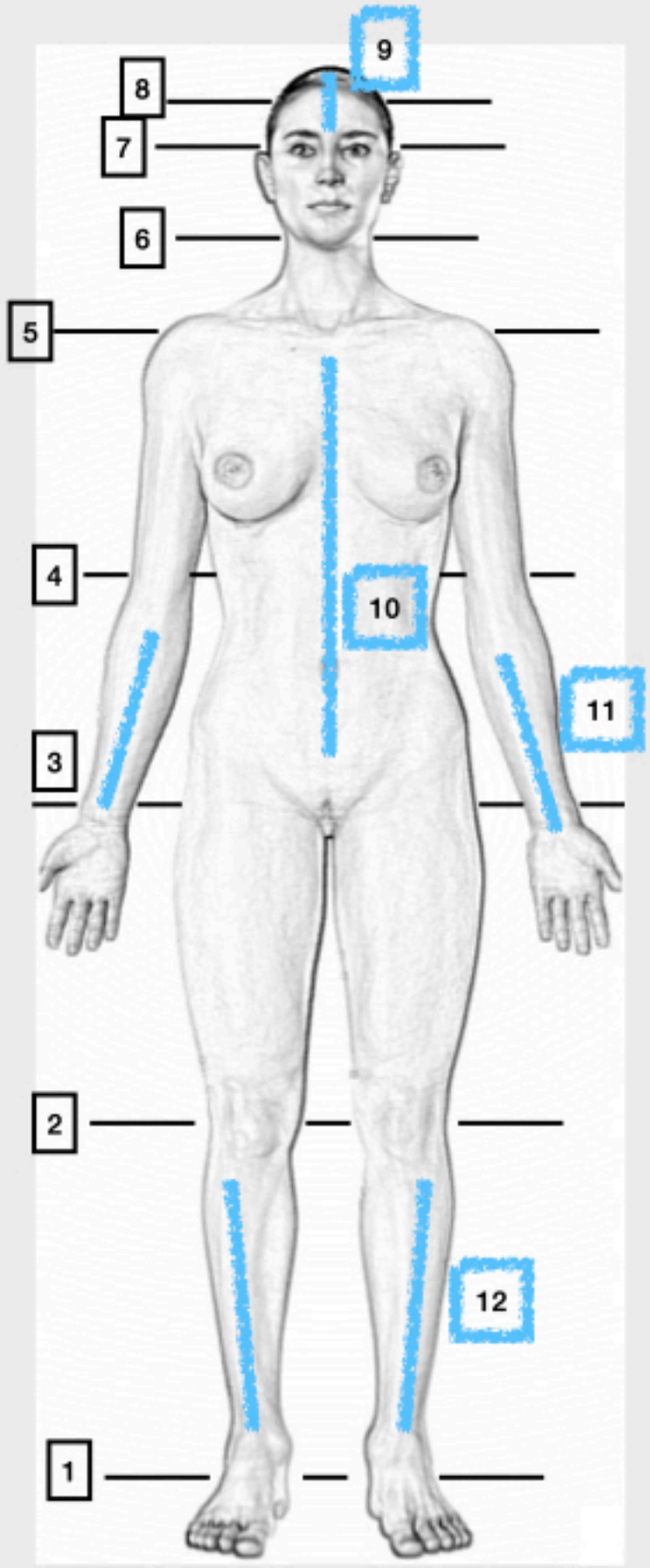
- His treatment at the time was to vibrate the right foot until the plantar fascia released…

- And every diaphragm in the body would change.

Shock in the Body

The body has a number of diaphragms (structures that span from left to right and front to back). These diaphragms move freely in times of health and become restricted (partially or fully) when the body experiences shock.

Diagnosing for restriction among these diaphragms and releasing them (restoring body wide fluid motion) is one treatment for correcting shock.



The Diaphragms of the Body	
1	Plantar Fascia
2	Meniscus of the Knee
3	Pelvic Floor
4	Respiratory Diaphrgam
5	Thoracic Outlet
6	Tongue
7	Tentorium
8	Diaphragma Sella
9	Falx Cerebri/Cerebelli
10	Linea Alba
11	Interosseous Membrane
12	Interosseous Membrane

Dr. Beck's Findings

- While exploring what Dr. Dalton had imparted, I remembered Rue Tikker, DPM demonstrating the Hiss whip on a patient.

- It felt like the Hiss whip might work on a patient to clear the shock and a new (and more rapid) treatment was born.

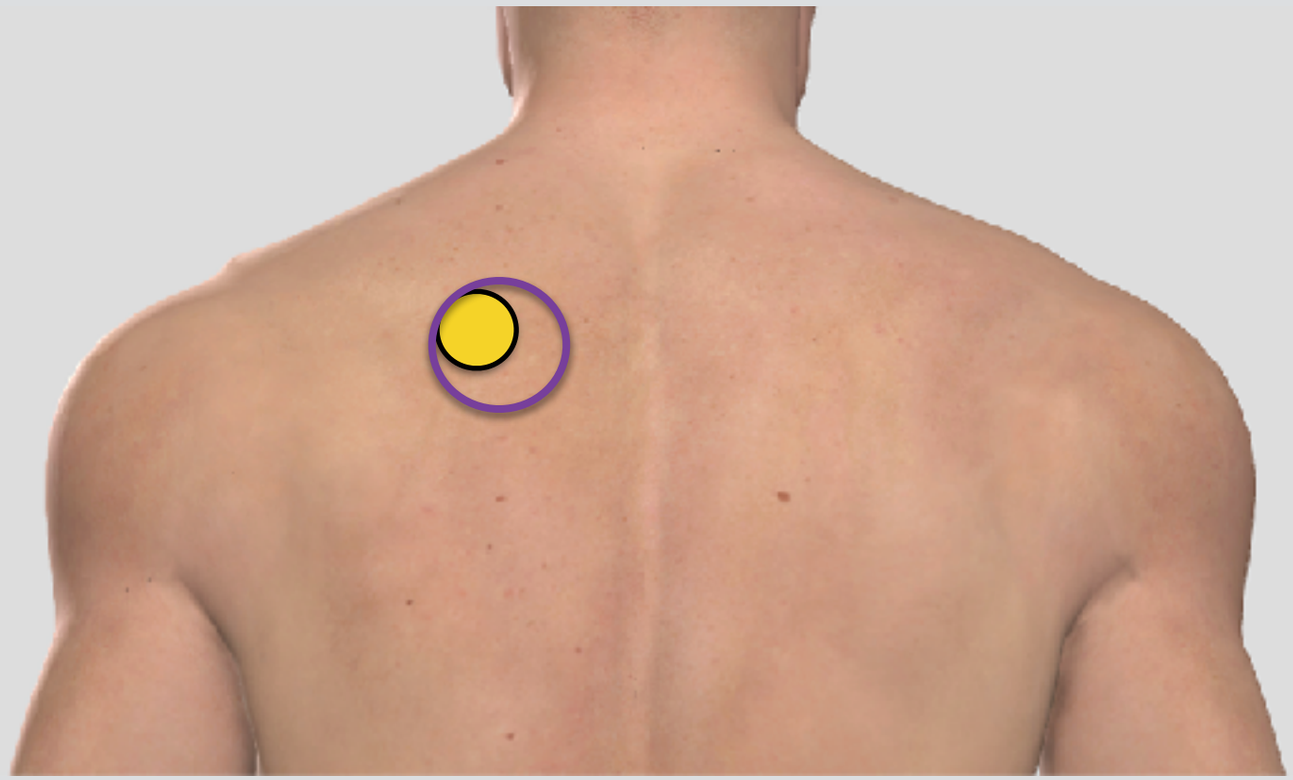
Fulford's Shock

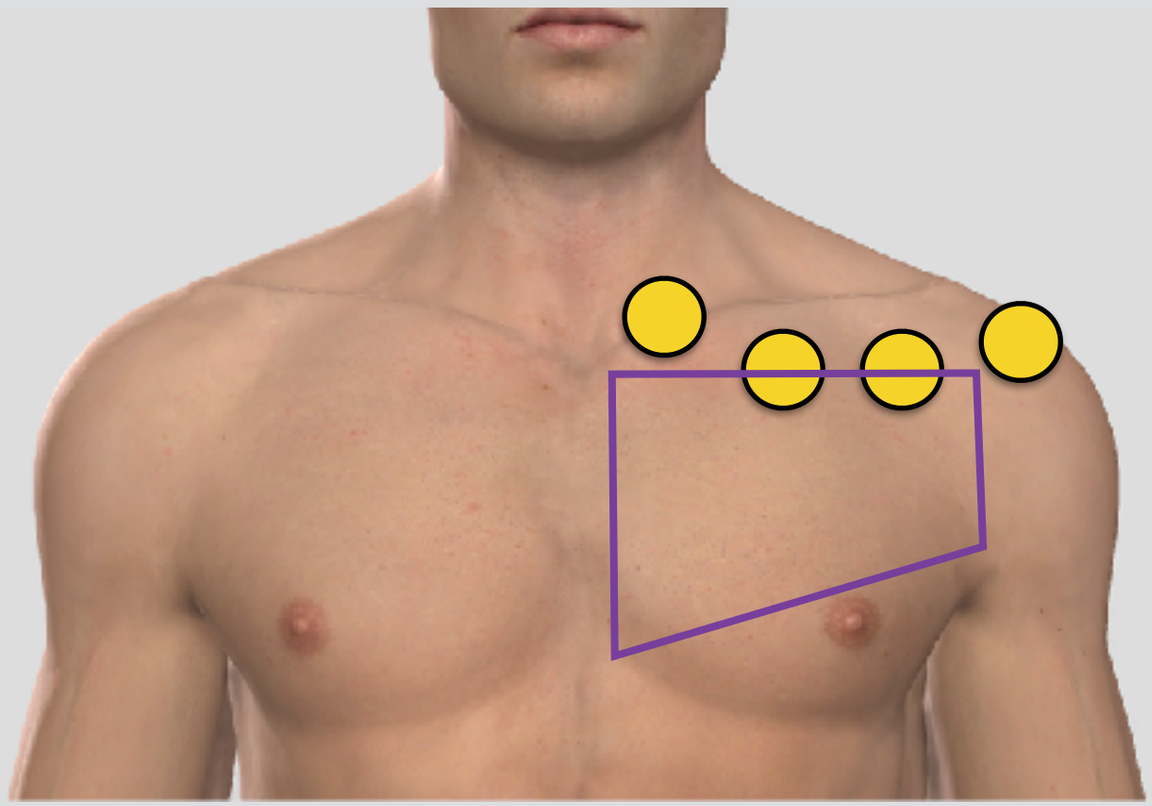
- What seems to go together in Fulford's shock is:
    - xyphoid restriction
    - right talus caudad
    - divot in left costal margin
    - energy cyst in linea alba
    - all diaphragms disrupted
    - spleen stuck

Fulford's Shock in Sequencing

- There are two ways this can show up.
- We will start with the Jedi Way…
- When you place your hands on the shoulders to test circumduction, you will notice tension at your thumb and second and third finger tips.
- This corresponds to the Chapman's Reflex points.

Chapmans' Reflex Points for Neurasthenia





Fingers from Left Hand

Fulford's Shock in Sequencing

- The second way is a restriction in side bending that begins at T4 (the is the emotional center according to Dr. Fulford).

- Above T4, the spine will side bend normally.

- Below (and all the way to the sacrum) there is a noticeable restriction.

- (other motions *can* be restricted, but sidebending is the most pronounced restriction in this type of shock)

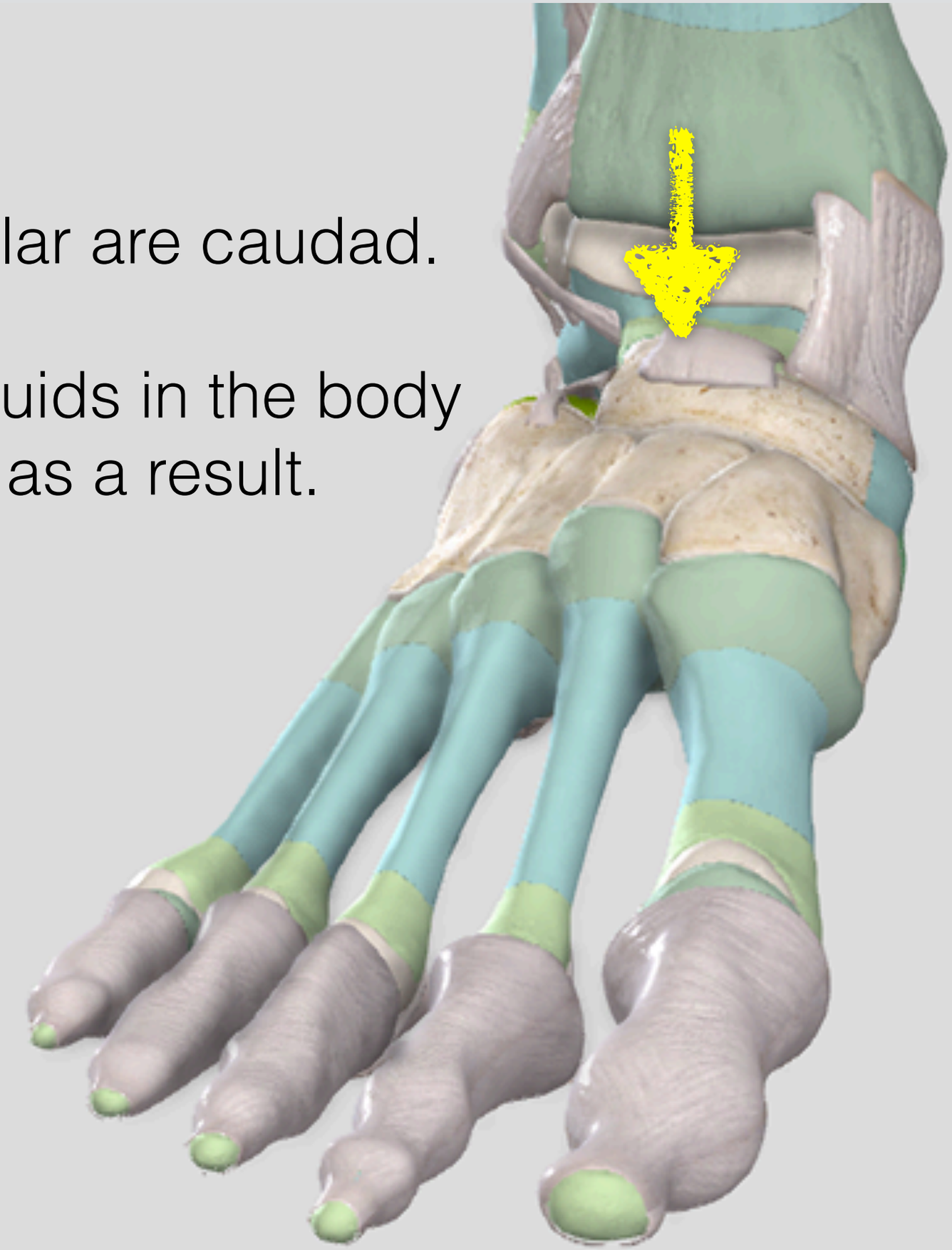
Lack of side bending

Typically, increased paravertebral muscle tension

Right talus/navicular are caudad.

Diaphragms and fluids in the body are restricted as a result.

Treatment is aimed at restoring normal fluid motion (Hiss whip).



Lab

Axial Shock

Rotation Restriction

Axial Shock

- This shock presents as a lack of rotation in the axial spine.

- Sidebending, flexion/extension and translation are still present.

- Although it is present in the neck, it is easier to discern in the thorax and lumbar spine.

Axial Shock

- With the patient seated and one hand on the shoulder and the other ipsilateral on the spine, a transilatory/ rotary motion through the spine shows that it has very little to no actual rotation.

- This is differentiated from the dural shock because the spine will move into extension - it just resists rotation.

- This is differentiated from the Fulford's shock because the spine will sidebend - it just resists rotation.

Axial Shock

- This shock seems to be characterized by the heels being restricted bilaterally in caudad motion (they are stuck cephalad).

Lack of rotation

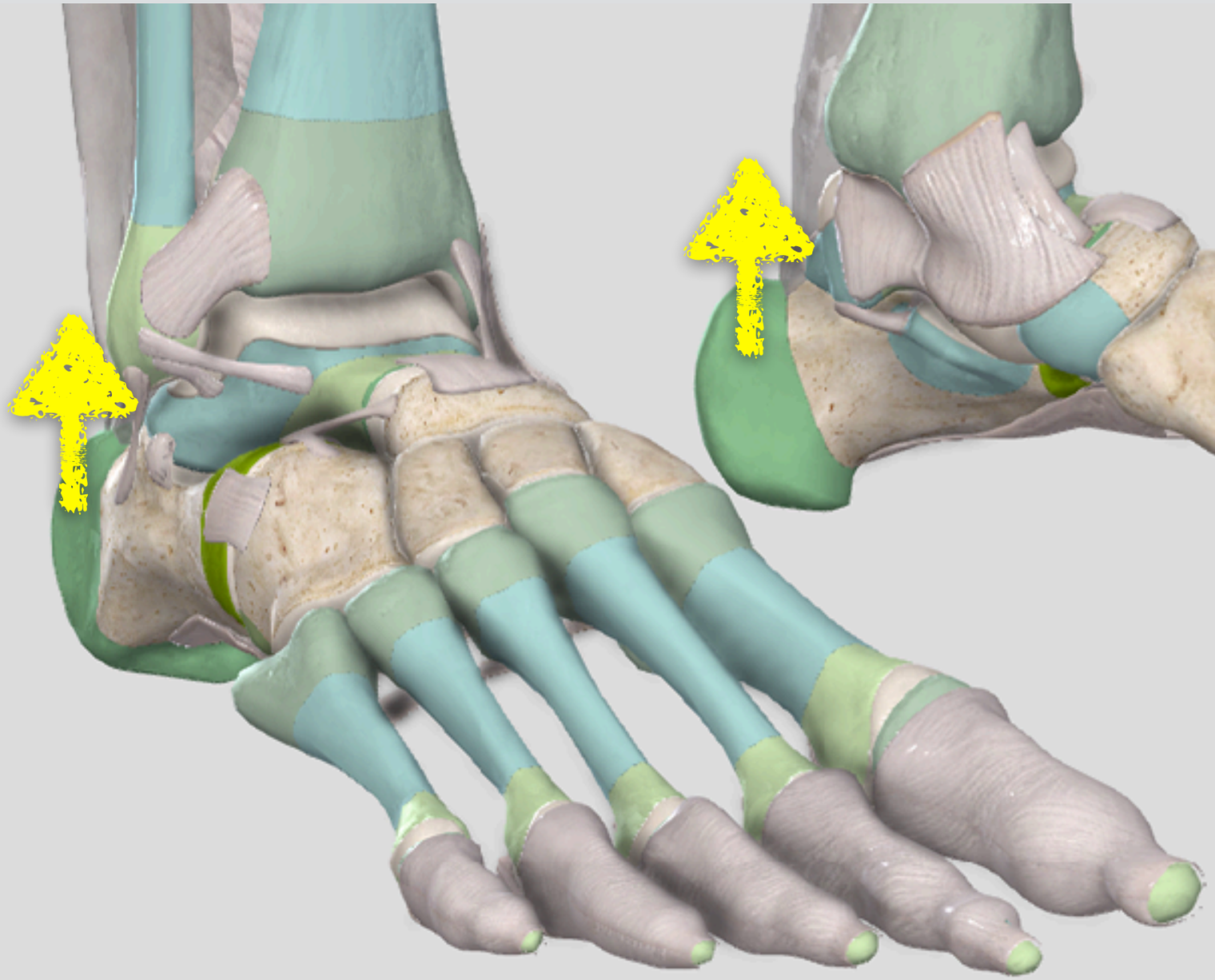
There is muscle tension present, but it is deeper and more subtle than Fulford's shock (rotatores mm.)

Axial Shock

- Treatment involves treating both heels until they release and are free to move caudad again.

- This should return rotational motion to the spine.

Both heels are stuck cephalad.



Treatment is aimed at restoring normal heel motion (returning caudad motion).

Axial Shock

- I have found the percussor to be a useful tool for this.

- HV/LA also works well. I use repetitive short amplitude tractions to be as precise as possible during the treatment.

Lab

Abdominal Shock

Abdominal Shock

- If the lumber spine lacks motion and feels more like one vertebra rather than five individual vertebra when screening, think stuck peritoneum.

- The lack of lumbar motion is typically bilateral and nearly equal in presentation.

The lumbar spine feels like a rigid pipe rather than five vertebra

The lumbar spine feels like a rigid pipe rather than five vertebra

There is also a concurrent muscle tension (lateral to the tension associated with a restricted vertebra)

Abdominal Shock

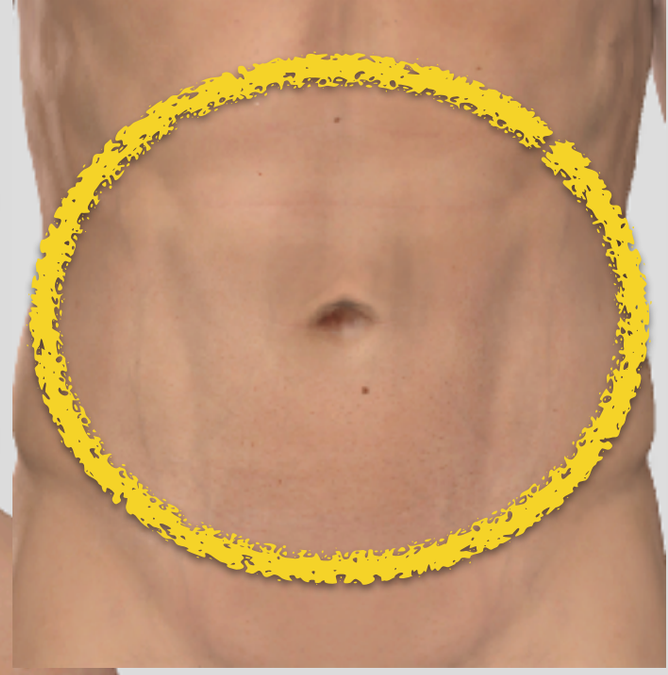
- Charles H. Murray states in his book *Osteopathic Gynecology* (1912): “…any inflammation of the viscera will be reflected in the tenderness and tension of the integument over that viscera.”

Abdominal Shock

- Thus, if the organs of the abdomen are tight/ dysfunctional, the skin of the abdomen and the peritoneum will also be tight.

- This is the crossroads where sequencing meets the fascial distortion model, abdominal strain/ counterstrain points, and visceral osteopathy.

Equates to tight peritoneum/visceral dysfunction



Abdominal Shock

Abdominal Shock

- This abdominal tension involves the solar plexus.
- This finding is explained by Hilton's Law:
    - the nerve supplying the muscles extending directly across and acting at a given joint not only supplies the muscle, but also innervates the joint and the skin overlying the muscle.
- The solar plexus is the "gut brain" and can be activated for a number of reasons.

Abdominal Shock

- Because this involves the solar plexus (our primitive center for detecting danger - the gut feeling), there was some event that activated/ triggered this response over another.

- Look for an emotional component/life event along with the physical one and restore balance as you treat.

- This may mean getting therapists involved.

Abdominal Shock

- With this lumbar finding we have many things that cross correlate:
    - the visceral ganglia are activated/up regulated
    - the gut bacteria are on alert/out of balance
    - there is a distortion in the abdominal fascia (this can lead to pubic dysfunction)
    - there is at least one organ that is dysfunctional
    - the gut brain is activated (survival mode)
    - the vagus nerve is activated

Abdominal Shock Treatment

- Murray also states that you can treat the peritoneum like a muscle - which means that muscle energy will work just as well as myofascial release, visceral, fascial distortion model and functional - so you can treat the peritoneum to relax the abdomen OR you can diagnose and treat the organs (visceral) to relax the abdomen.

Abdominal Shock

- Treatment of the peritoneum/viscera should resolve the lumbar rigidity and reveal five individual moving vertebra upon rescreening.

- There may now be lumbar dysfunction present underneath, but it should now be more easily discernible.

Treatment returns the lumbar spine to five independently moving vertebra

Lab

Midline Shock

Translation Restriction

Midline Shock

- The newest to be discovered, midline shock could also be called a midline dysfunction.
- In the sequencing approach it shows up as a lack of uniform movement in the center of the spine during screening and a resistance to translation movement.

Midline Shock

- With the patient seated and one hand on the shoulder and the other ipsilateral on the spine, a transilatory/rotary motion through the spine shows that it has very little to no actual translation.

- The movement of the spine can also feel disjointed (it moves smoothly in parts and not in others).

Lack of uniform movement/restricted translation

Midline Shock

- This is differentiated from the dural shock because the spine will move into extension - it just resists translation.

- This is differentiated from the Fulford's shock because the spine will sidebend - it just resists translation.

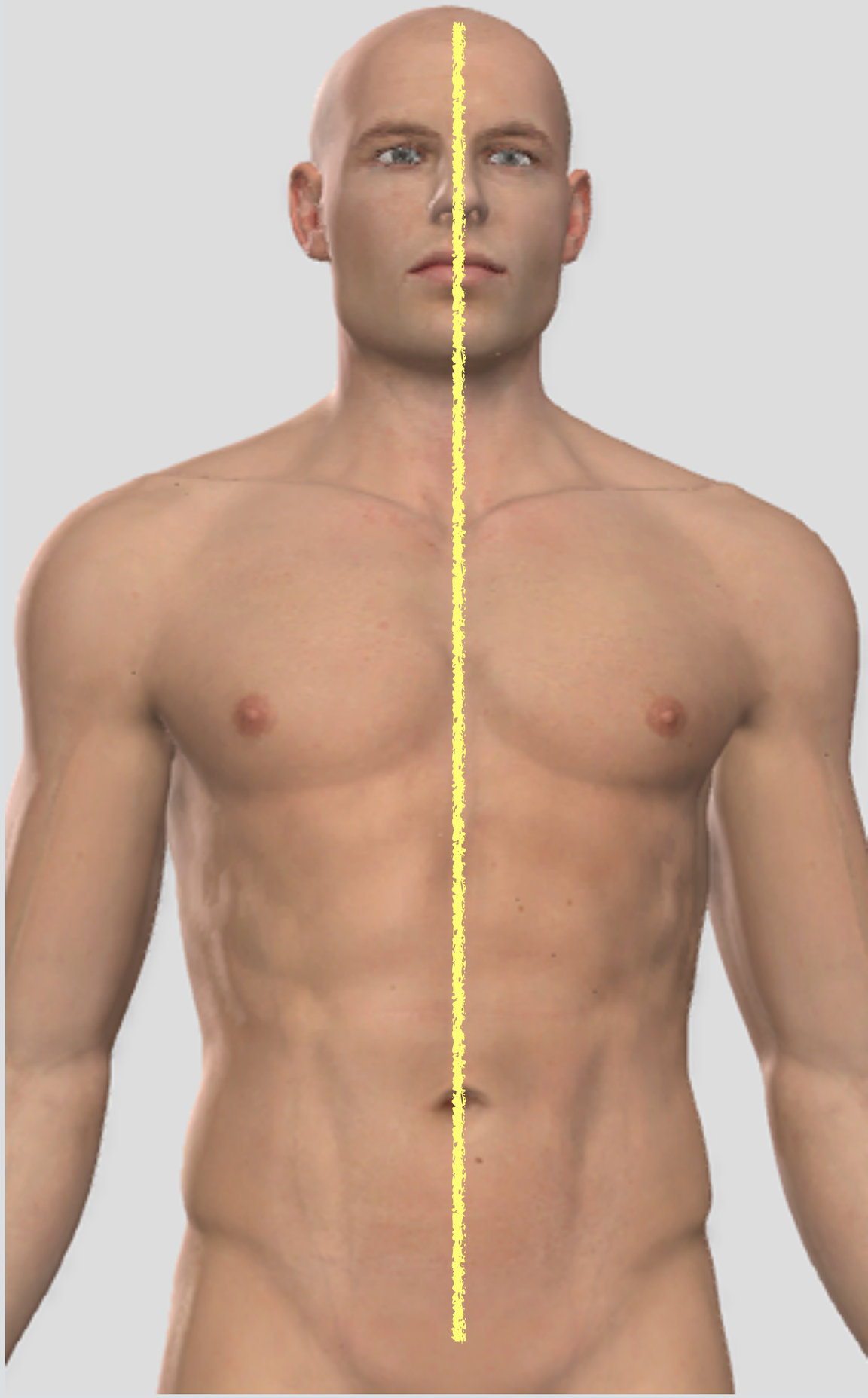
- This is differentiated from the axial shock because the spine will rotate - it just resists translation.

Midline Shock

- When the lack of translation motion is noted in the screening, move to the head for further evaluation.

- From the head, check the midline of the body (both energetic and physical) for any abnormalities.

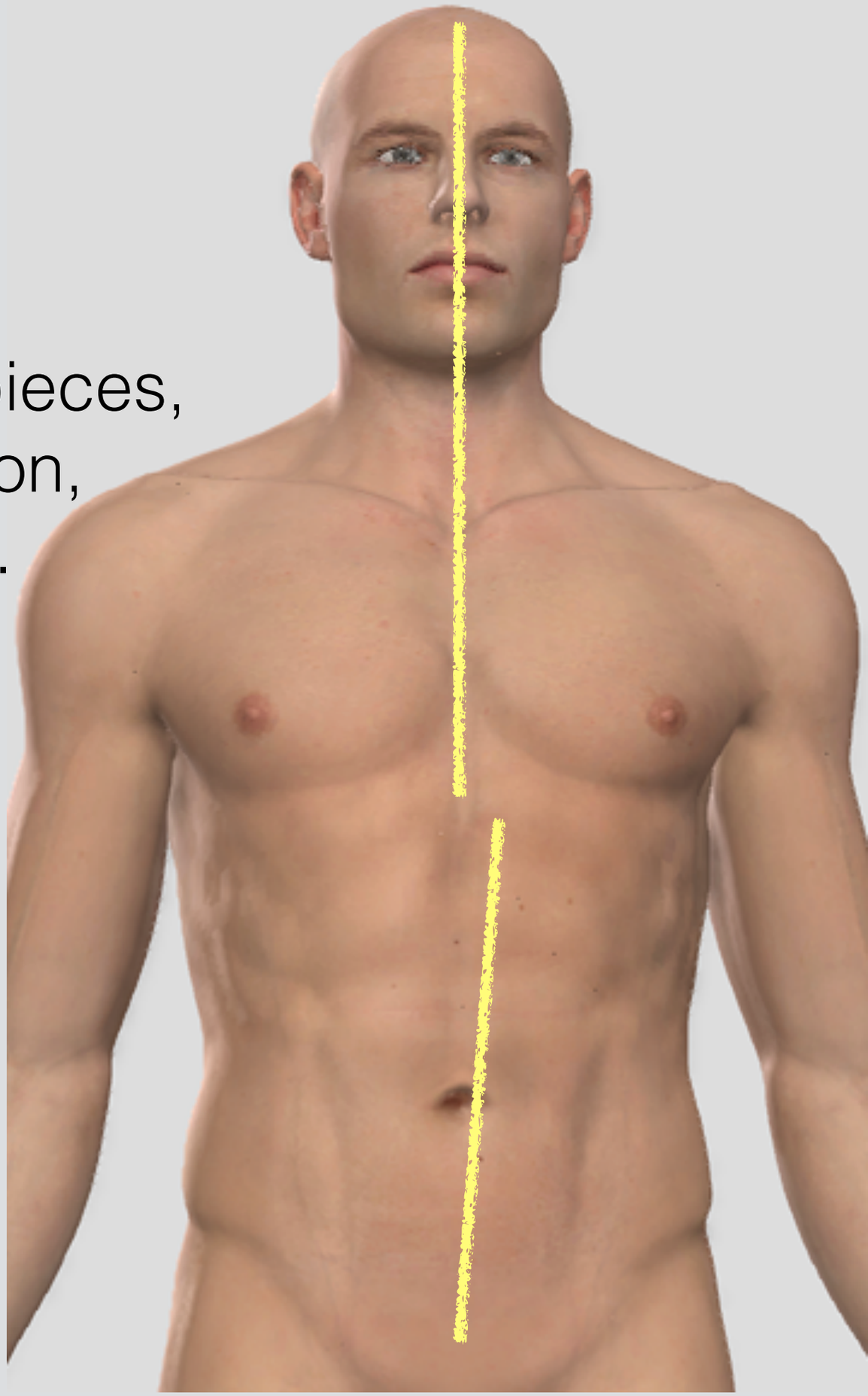
In a normal patient, the midline feels centered and homogeneous



In a patient with Midline shock, the midline feels different.

It can be broken into pieces, skewed in a direction, curved or curled.

Treatment is aimed at restoring the continuity and center of the midline.



Midline Shock

- Treat using a biodynamic/cranial approach until the midline returns to normal.

- Then rescreen the body looking for return of translation and a fluid motion of the vertebra.

Lab

Embryologic Shock

Embryologic Shock

- As stated earlier, if shock (of any type), is experienced before the growth plates fuse, then a sixth type of shock can be present.

- This shows up in the bone(s).

Embryologic Shock

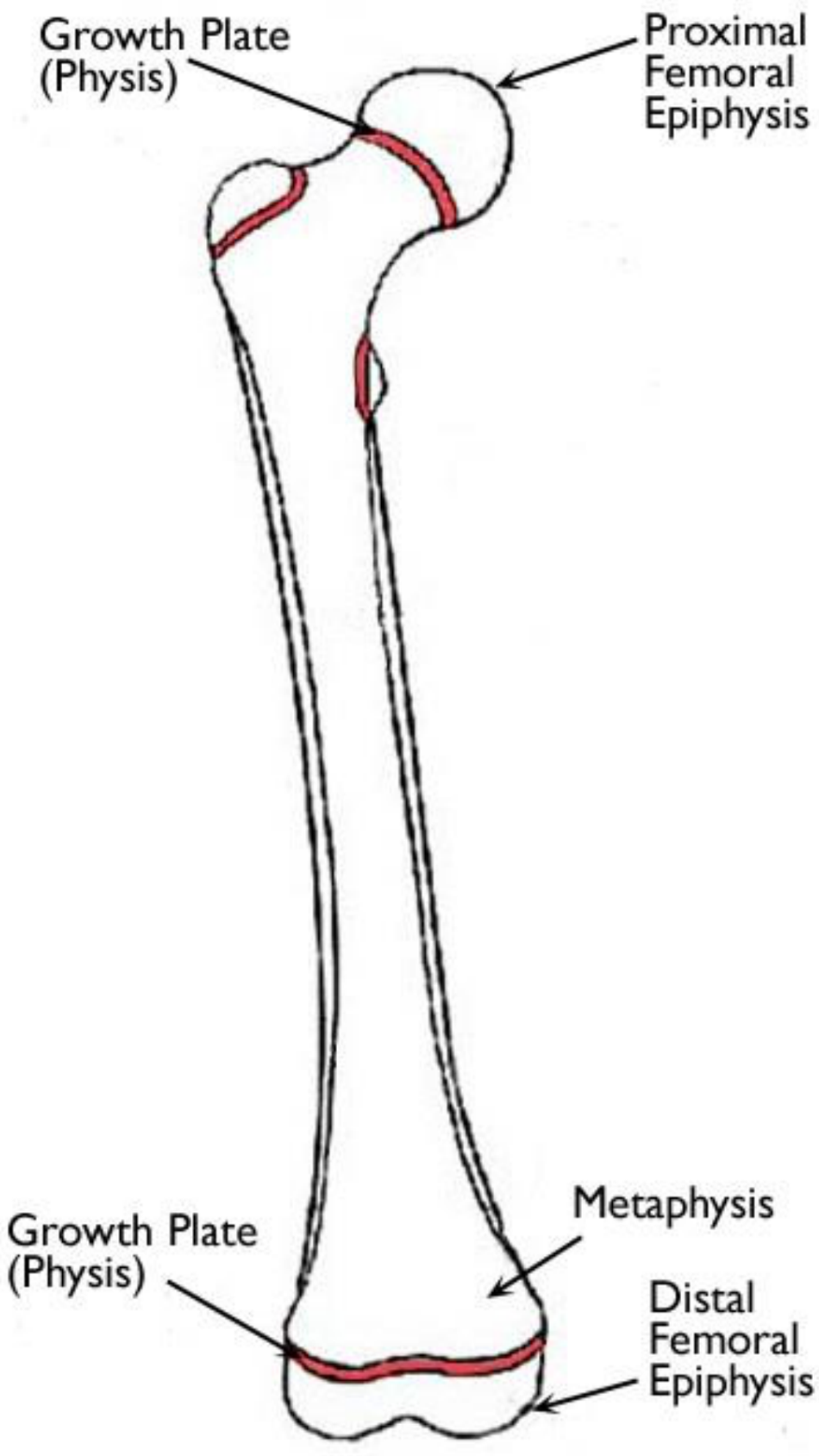
- Unlike the other kinds of shock, this one grows with you…until it is removed.

- Look for this where there is leg length discrepancy, a history of martial arts, multiple MVA's, etc.

- In non-traumatic bone growth, the bone grows normally and the growth plate has no restrictions in movement.

- There is good motion at the growth plate (cranial motion is present at metaphysis, physis and epiphysis).

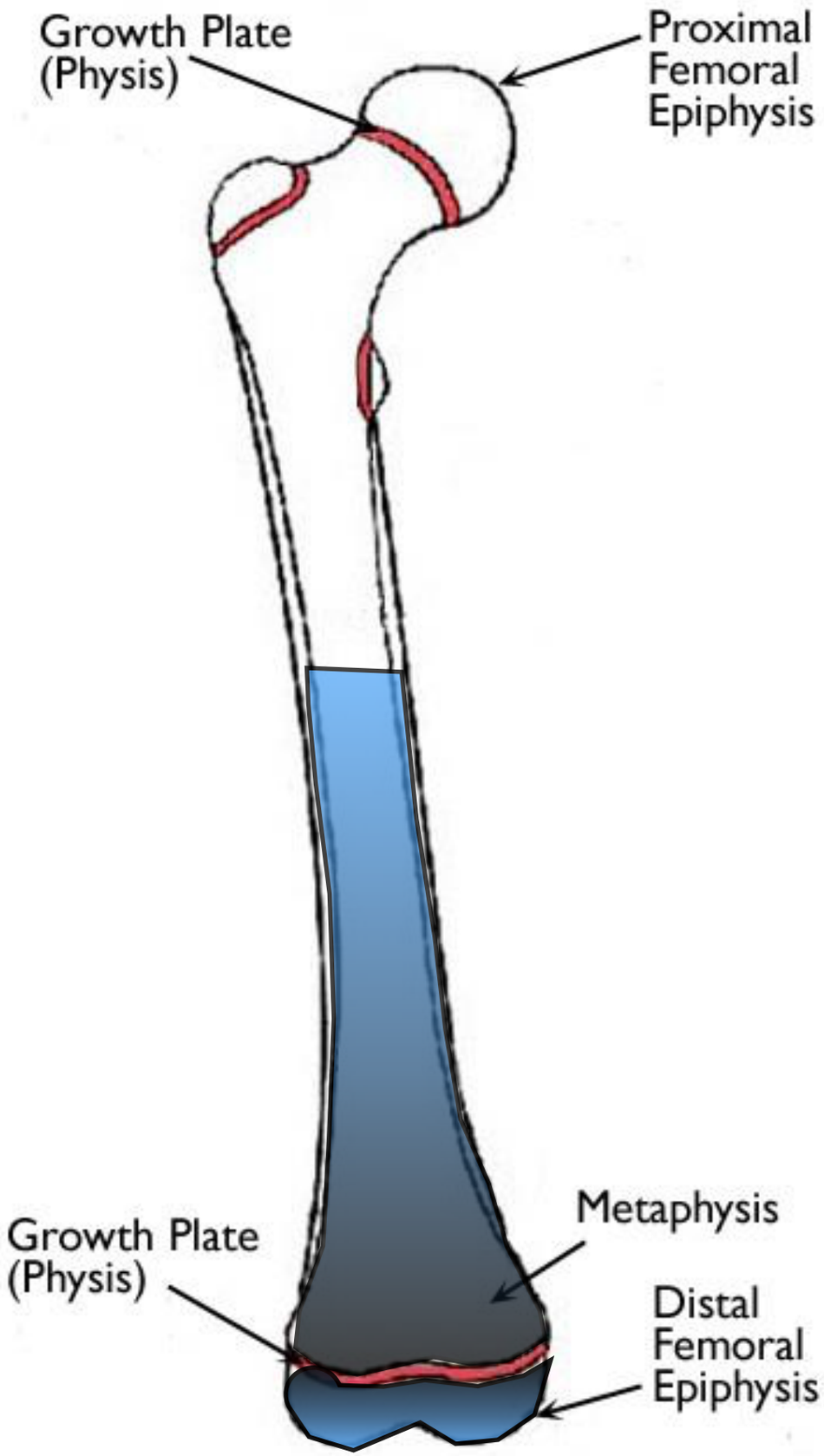
- There is no osseous strain at the growth plate.



https://orthoinfo.aaos.org/en/diseases--conditions/growth-plate-fractures/

The location of this force can introduce an intraosseous strain into the tibia.

The location of this force can introduce an embryologic strain.



- When trauma occurs prior to fusion of the growth plate(s) a few things can occur:

- The trauma can act like compression of the growth plate - this will diminish (or eliminate) cranial motion at one or more locations.

- There will be restriction in motion (compression/distraction, shearing, rotation, etc.)

- There may also be the feel of an osseous strain that is centered at the physis. This can effect a small or large portion of the bone.

https://orthoinfo.aaos.org/en/diseases--conditions/growth-plate-fractures/

Embryologic Shock

- This kind of shock is rarely looked for, but can be the cause of multiple symptoms:

- Incomplete growth of a bone.

- Lack of vitality.

- Muscle aches/pains, nerve symptoms, fascial restriction.

- Fascial distortions.

Embryologic Shock

- Treatment is aimed at releasing the shock and restoring the cranial motion.
- The treatment here is principle based and can include: percussion hammer treatment to release the trauma, injections to release the restricted fascia, fascial distortion model treatment to identify and release the fascia/bone, cranial to return normal motion, or functional to unwind the restriction.

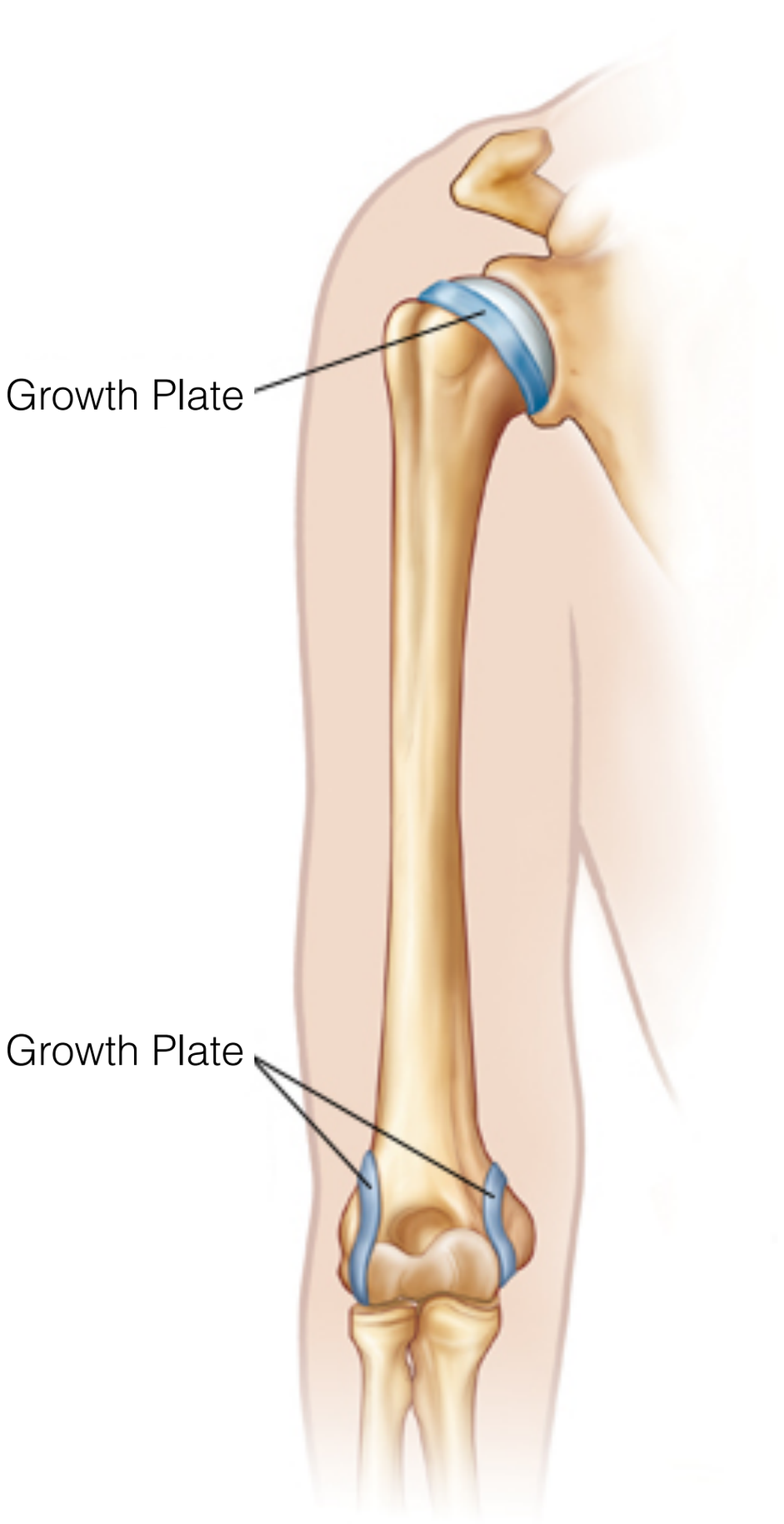
Embryologic Shock

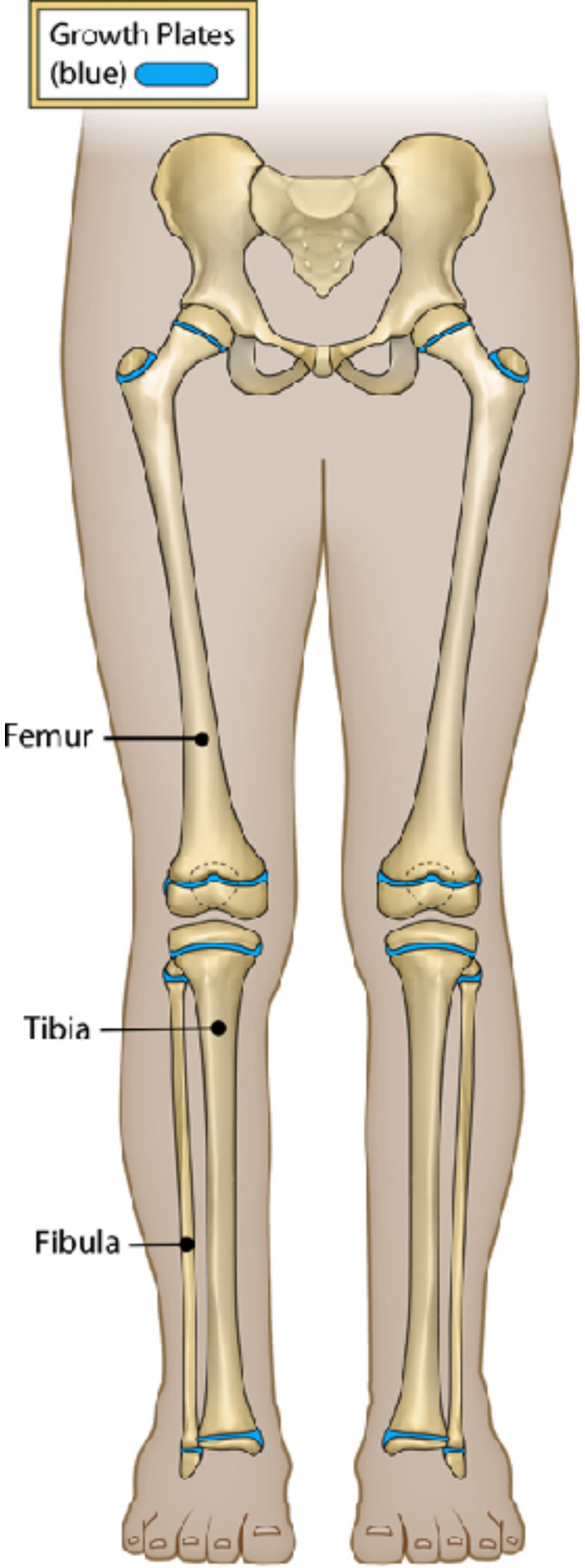
- To test for embryologic shock (theoretically) you must motion test the growth plates of each bone.

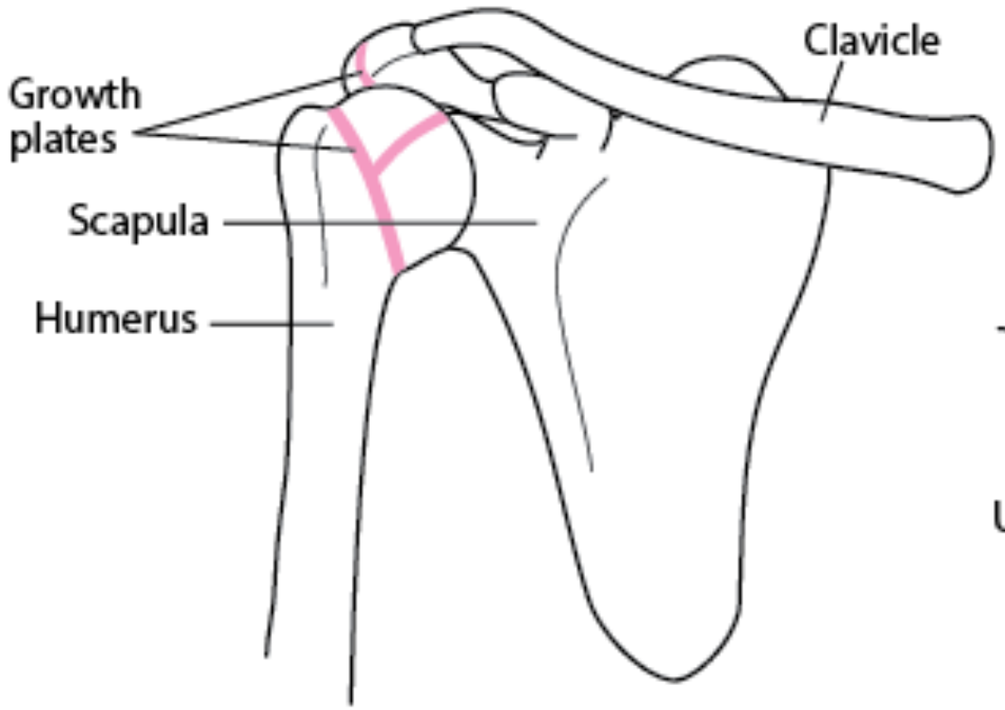
- In clinical practice I have found that two things help narrow down where to test:

1. The patient will point to the area (like in FDM).

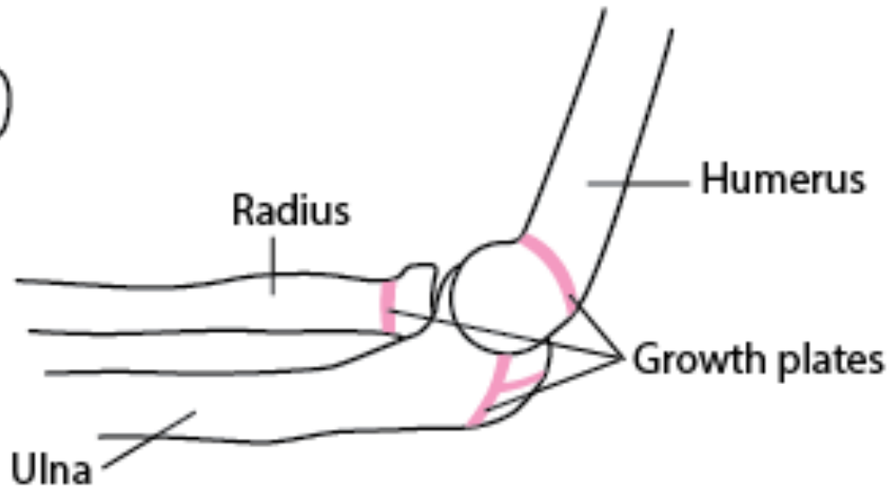
2. The area is restricted/does not move well at a place that is NOT a joint (the limb feels stiff in one place).



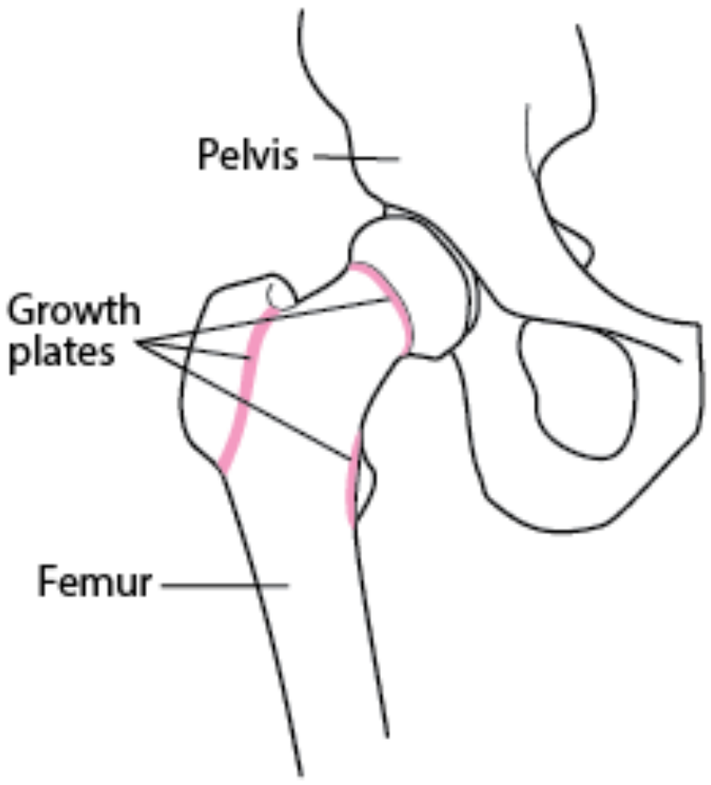




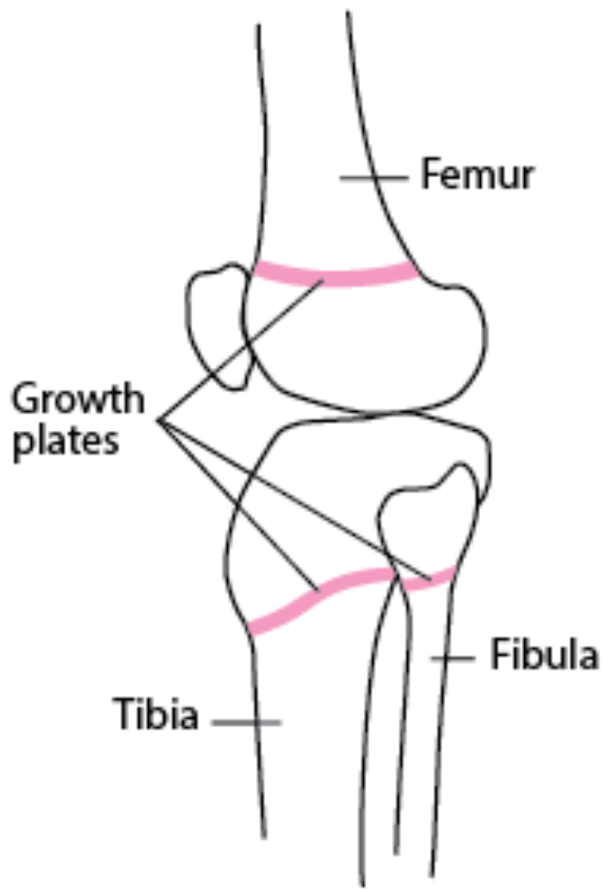
Shoulder (Front View)



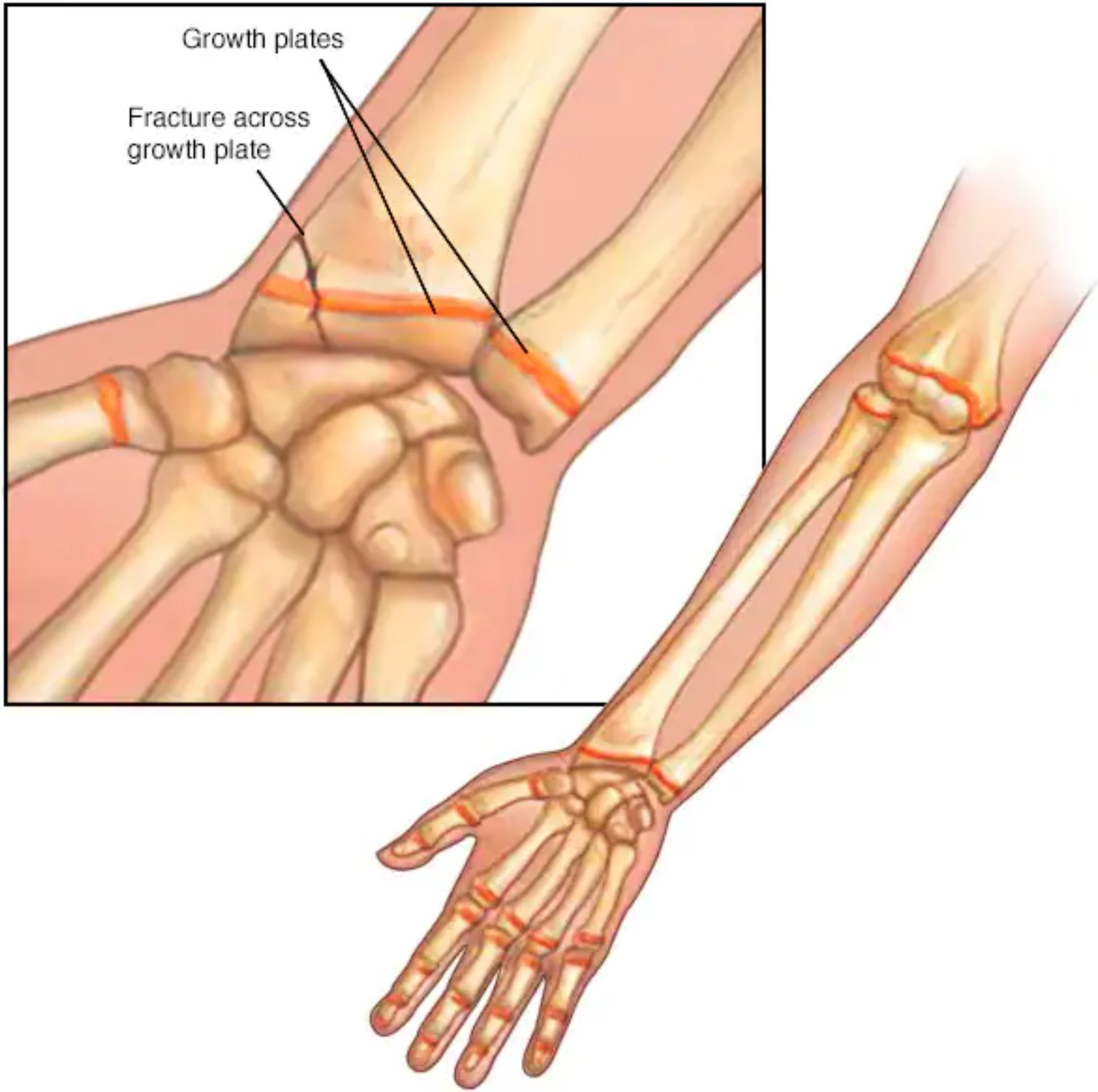
Elbow (Side View)

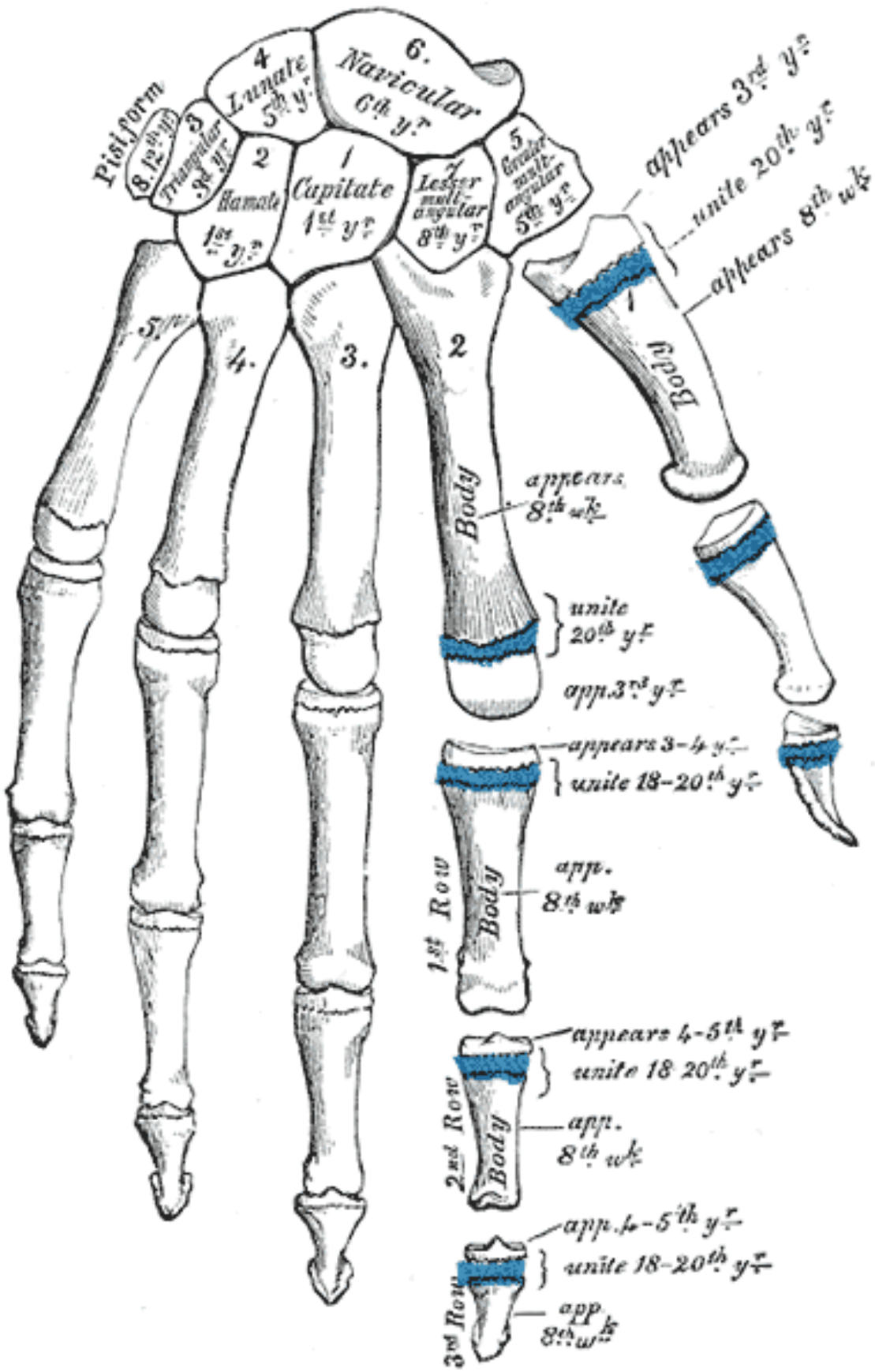


Hip (Front View)



Knee (Side View)



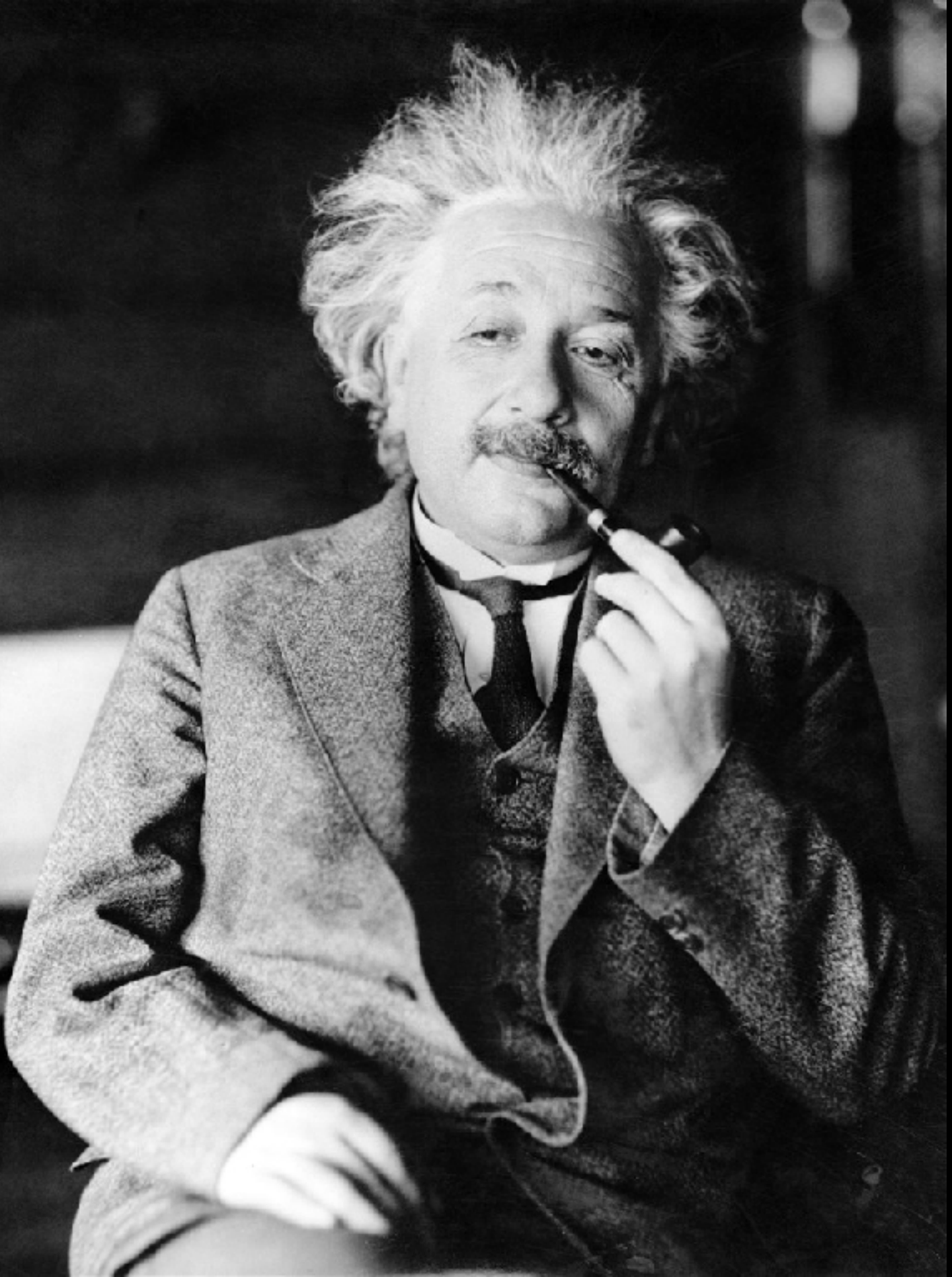

Pisiform
8.12th yr
3
Triangular
3d yr
4
Lunate
5th yr
6.
Navicular
6th yr
2
Hamate
1st yr
1
Capitate
1st yr
7
Lesser multangular
8th yr
5
Greater multangular
5th yr
5.
4.
3.
2
Body
appears 8th wk
unite 20th yr
app. 3rd yr
appears 3rd yr
unite 20th yr
appears 8th wk
Body
appears 3-4 yr
unite 18-20th yr
1st Row
Body
app. 8th wk
appears 4-5th yr
unite 18-20th yr
2nd Row
Body
app. 8th wk
app. 4-5th yr
unite 18-20th yr
3rd Row
app 8th wk

Embryologic Shock

- If restriction is present, multiple things occur together:
    - Cranial motion is restricted at the site.
    - The site lacks vitality and is often painful.
    - The bone feels hard at a place that is not a joint.
    - The growth plate lacks spring and will be restricted in at least one plane of motion.
    - Often, palpating the restriction will trigger emotion.

Lab

Questionnaires



“The important thing is to not stop questioning. Curiosity has its own reason for existing.”

–Albert Einstein

Reflex Questionnaire

- These are questions, which is answered affirmatively, can lead you to suspect primitive reflexes that may still be present in the patient.

Part I: Pregnancy & Birth History

Did the mother have a viral infection in the first trimester of pregnancy?

Were there any medical problems during pregnancy such as threatened miscarriage, high blood pressure, or excessive morning sickness?

Was the mother under severe emotional stress between the 23^{rd} and 28^{th} week of pregnancy?

Were there any complications during pregnancy or delivery; prolonged labor, fetal distress?

Part I: Pregnancy & Birth History

At any time during the pregnancy/delivery was the child said to be in a breech position?

Was there use of forceps or suction delivery?

Was a caesarian section performed?

Was the child more than 2 weeks pre-mature or 2 weeks late?

Were excessive ultra sounds performed during pregnancy?

Part II: Family & Health History

Is there any history of learning difficulties in the family or either parents' family?

Has the child been diagnosed with a learning disability?

Has the child been diagnosed with ADD/ADHD or Autism Spectrum Disorder?

Did/does the child suffer from chronic ear infections?

Part II: Family & Health History

Did/does the child have a history of allergies, asthma, or frequent illnesses?

Does the child have chronic digestive disorders?

Is/was the child a bed wetter past the age of 5 years?

Does the child suffer from motion sickness?

Did the child suffer from a head injury?

Part II: Family & Health History

Was your child small for term?

Were there any unusual physical signs? (jaundice, bruising, distorted skull)

Was there any difficulty feeding or keeping it down? Did your child easily feed off both breasts?

Between 6 to 18 months was your child very active or demanding? Or particularly quiet and unresponsive?

Did your child develop a violent rocking motion when standing or sitting?

Was your child a ‘head-banger’?

Does your child suffer from travel / motion sickness?

Part II: Family & Health History

Did your child start walking before 10 months or after 16 months?

Did your child bum shuffle or skip the cross crawling stage?

Was your child late when learning to talk (2-3 words by 2 years)?

Did your child experience any serious illness or seizures in the first 18 months of life?

Does your child suffer from travel / motion sickness?

Did your child have trouble establishing hand dominance or crossing the midline with objects?

Part II: Family & Health History

Was there any sign of eczema, asthma or allergies?

Did your child have any adverse reactions to childhood vaccinations?

Did your child have difficulty learning to dress his / herself?

Did your child suck their thumb past the age of 5?

Did your child wet the bed regularly past the age of 5?

Does your child suffer from travel / motion sickness?

Did your child have trouble establishing hand dominance or crossing the midline with objects?

Part III: Learning & Developmental History

Was there lack of, or little, creeping or crawling **on all fours** with this child?

Were there any troubles with feeding or latching on in the first 3 months?

Did/does this child have difficulty distinguishing right from left?

Is, or did, the child have difficulty deciding which hand they would use as their dominant hand?

Does this child have difficulty catching a ball or have poor hand-eye coordination?

Does this child seem awkward in P.E.,dance, gymnastics, etc.?

Does the child have difficulties sitting still and/or paying attention?

Part III: Learning & Developmental History

Does the child have difficulty tying shoelaces or doing up buttons?

Does the child have reading difficulties?

Does the child occasionally reverse letters when writing?

Does the child have difficulty writing or is their writing very messy?

Does/did the child have difficulty learning to ride a bicycle, swim, or swing?

Does the child have any speech/articulation difficulties?

Part IV: At School

Did your child have problems learning to read and / or write in the early years at school?

Did your child have difficulty telling the time on an analogue clock?

Did they have difficulty riding a bicycle?

Did they suffer from recurrent sinus or ear infections or headaches?

Did they have difficulty catching a ball?

Part IV: At School

Did your child have ‘ants in the pants’?

Did your child make numerous mistakes when copying from the board?

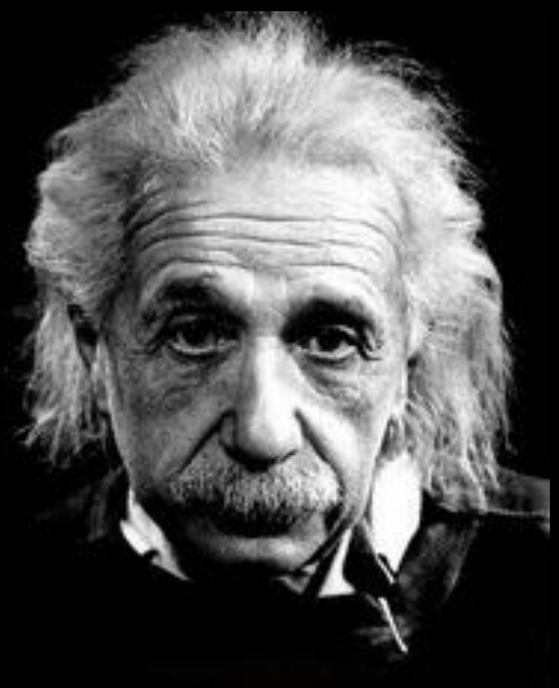
Does your child occasionally miss letters or write them backwards?

Does your child have an awkward pencil grip?

Has your child ever been diagnosed with any conditions such as Low Muscle Tone or ADHD?

If there is sudden noise would your child over-react?

Retained Primitive Reflexes



“All that is valuable in human society depends upon the opportunity for development accorded the individual.”

–Albert Einstein

Retained Reflexes

- Most of the reflexes that we have as babies serve a purpose during our development.

- When we “outgrow” the need for these reflexes, we should lose the reflex. (it should integrate)

- However, many of the reflexes remain in us after we should have outgrown them.

Retained Reflexes

- This can be anything from an annoyance to actual pathology.

- We will look at a few of the reflexes and how to test for them.

- We will cover a principle based way to help integrate these reflexes.

Retained Reflexes

- Not all reflexes will be covered due to time constraints (there are 70).

- Other reflexes can be looked up online.

- The same principles should help to integrate these reflexes as well.

Contraindications

- Include anything that can worsen with treatment:
    - Bleeding
    - Infection/ Inflammation/Fever
    - Trauma/Recent Injury/Fracture
    - Cardiac Problems/Blood Clots
    - Malignancy/Cancer/Pain of Unknown Origin
    - Pregnancy
    - Menstruation (with excessive bleeding)
    - Orthostatic/Postural Hypotension

Sequence

- Screen/Treat the patient first, paying special attention to the brain and spinal cord. (to the extent of your education)

- Get a baseline assessment of the brain and spinal cord before beginning treatment.

- Always recheck that the brain and spinal cord are completely released after treatment.

Warnings

- The physical response to the reflex is not always visible.
- Always check the brain/spinal cord for responses.
- DO NOT over treat a child's reflexes.
    - They may become overstimulated (won't listen, throw a temper tantrum, etc.)

Age to Begin

- It is suggested to not initially begin working on correcting the retained reflexes until a child is 5-7 years old.

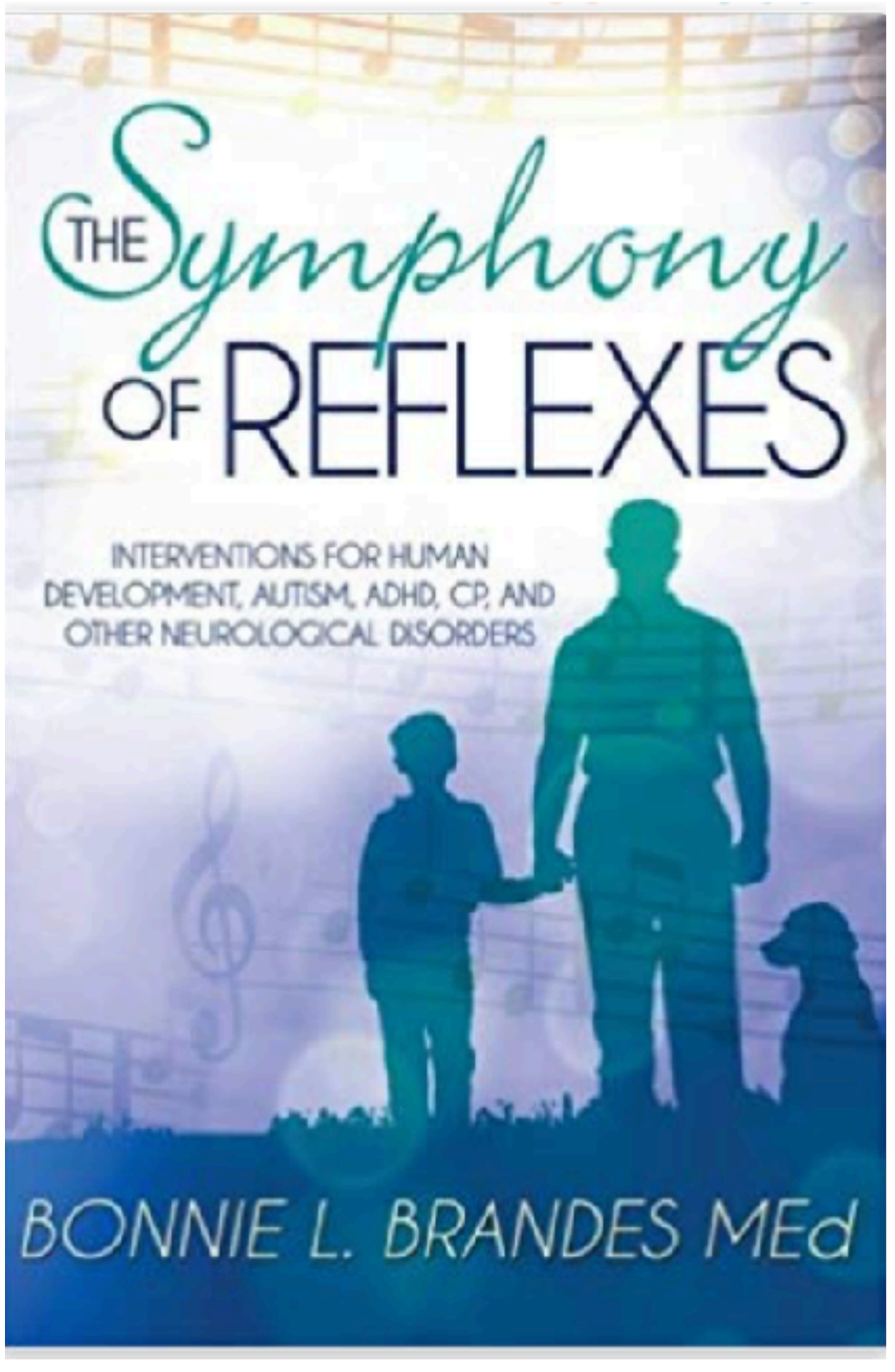
- As you gain experience, you may choose to work with younger children.

The Symphony of Reflexes

Bonnie Brandes, MEd

ISBN-10: 150285502X

ISBN-13: 978-1502855022



Movement is Key

- In a Canadian study of over five hundred students, those who spent an extra hour each day in gym class scored markedly better on exams than those who spent less time in gym class.

- According to Dr. Joseph Mercola, “Exercise encourages your brain to work at optimum capacity by causing nerve cells to multiply, while strengthening their interconnections, and protecting them from damage.

- Brandes, Bonnie. The Symphony of Reflexes: Interventions for Human Development, Autism, ADHD, CP, and Other Neurological Disorders . Kindle Edition.

Movement is Key

- Movement not only integrates reflexes but also helps them to remain integrated.

- Lack of movement (watching TV, texting, computer games, etc.) bring stress to the nervous system and can lead to brain shrinkage.

- Brandes, Bonnie. The Symphony of Reflexes: Interventions for Human Development, Autism, ADHD, CP, and Other Neurological Disorders . Kindle Edition.

What You Eat Matters

- Sugar and high-fructose corn syrup suppress BDNF (which is like “miracle grow” for the brain, allowing higher brain centers to function optimally), while a low-sugar diet combined with regular exercise supports brain development and normal integration of reflexes.

- Brandes, Bonnie. The Symphony of Reflexes: Interventions for Human Development, Autism, ADHD, CP, and Other Neurological Disorders . Kindle Edition.

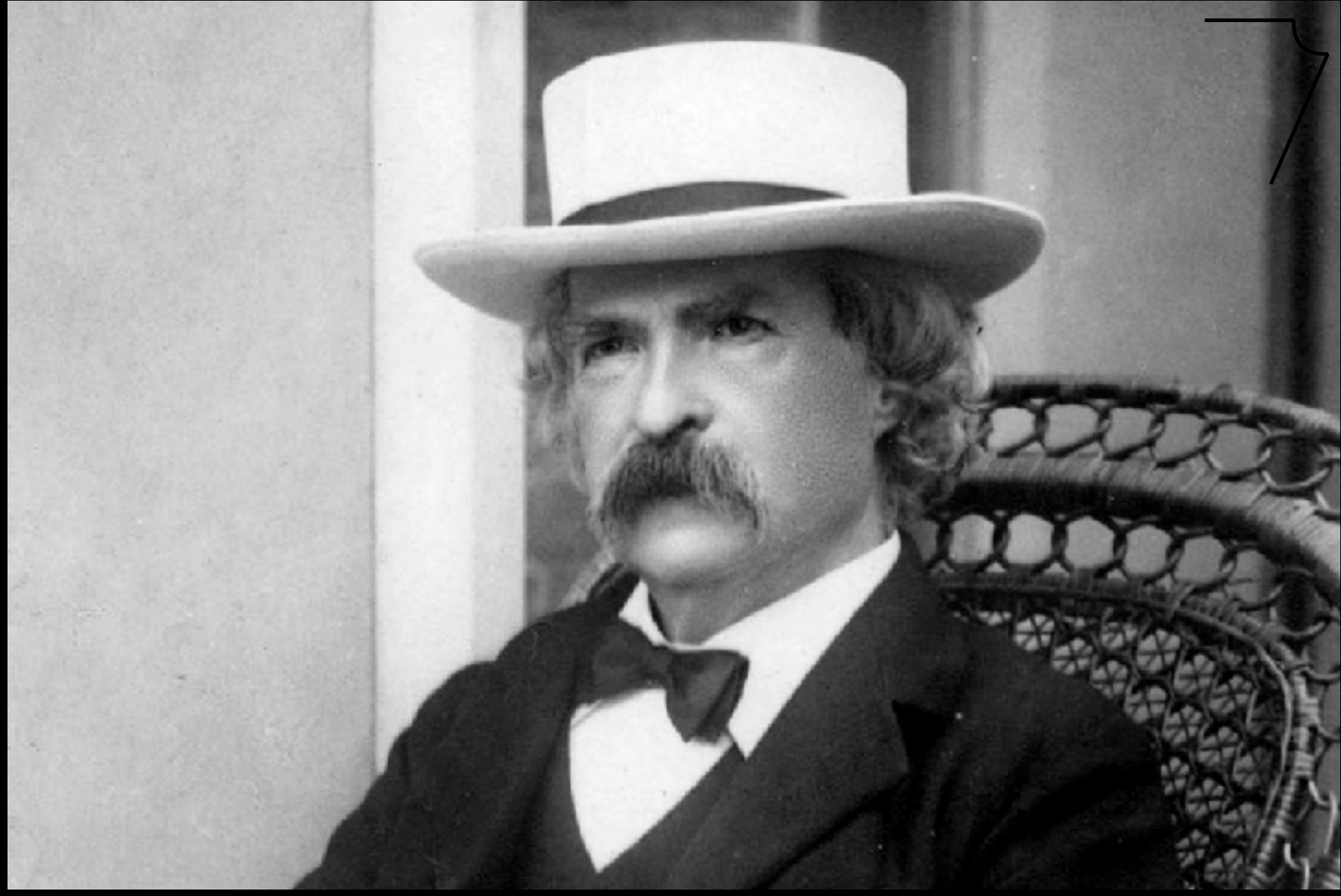
Avoid Baby “Fads”

- Siegel and Burton conducted a study of 109 babies, published in the *Journal of Developmental and Behavioral Pediatrics* in October of 1999, and found that those babies using the newest walkers learned to sit upright, crawl, and walk **later** than babies who did not use walkers or who used earlier walkers whose design made it possible for a baby to see his legs.

- The large tray used on newer walkers prevents the baby from seeing the legs, blocking the visual feedback that teaches her how to travel through her surroundings. The tray also prevents the grasping and exploring of objects that are critical for early development. The unnatural upright movement of the child in the walkers and jumpers may cause overdevelopment of the calf muscles, which can lead to walking on toes, while inadequate development may occur in the hips and upper legs.

- Brandes, Bonnie. The Symphony of Reflexes: Interventions for Human Development, Autism, ADHD, CP, and Other Neurological Disorders . Kindle Edition.

Fear Paralysis Reflex



“If you hold a cat by the tail you learn things you cannot learn any other way.”

–Mark Twain

Fear Paralysis Reflex

- This is the first reflex to appear in utero. It occurs from 5-7 weeks
- It is usually integrated by the 12th week of development
- Testing this reflex may stimulate fear in the patient, so maintain a safe space and therapeutic rapport

Fear Paralysis Reflex

- It may come about from fear or trauma during pregnancy
- Its purpose is to cause withdraw from any sign of danger. It triggers a decreased heart rate, decreased respirations, and decreased muscle tone (playing dead) (this is a parasympathetic response)
- It is interconnected with the Moro reflex

Fear Paralysis Reflex

- If it is activated in someone, they tend to have a low tolerance to stress and be overly sensitive in one or more of their senses (facilitation???)

Fear Paralysis Reflex

- OCD/Inflexible
- Easily Distracted
- Difficulty Sleeping
- Separation Anxiety
- Very Attached to Parent

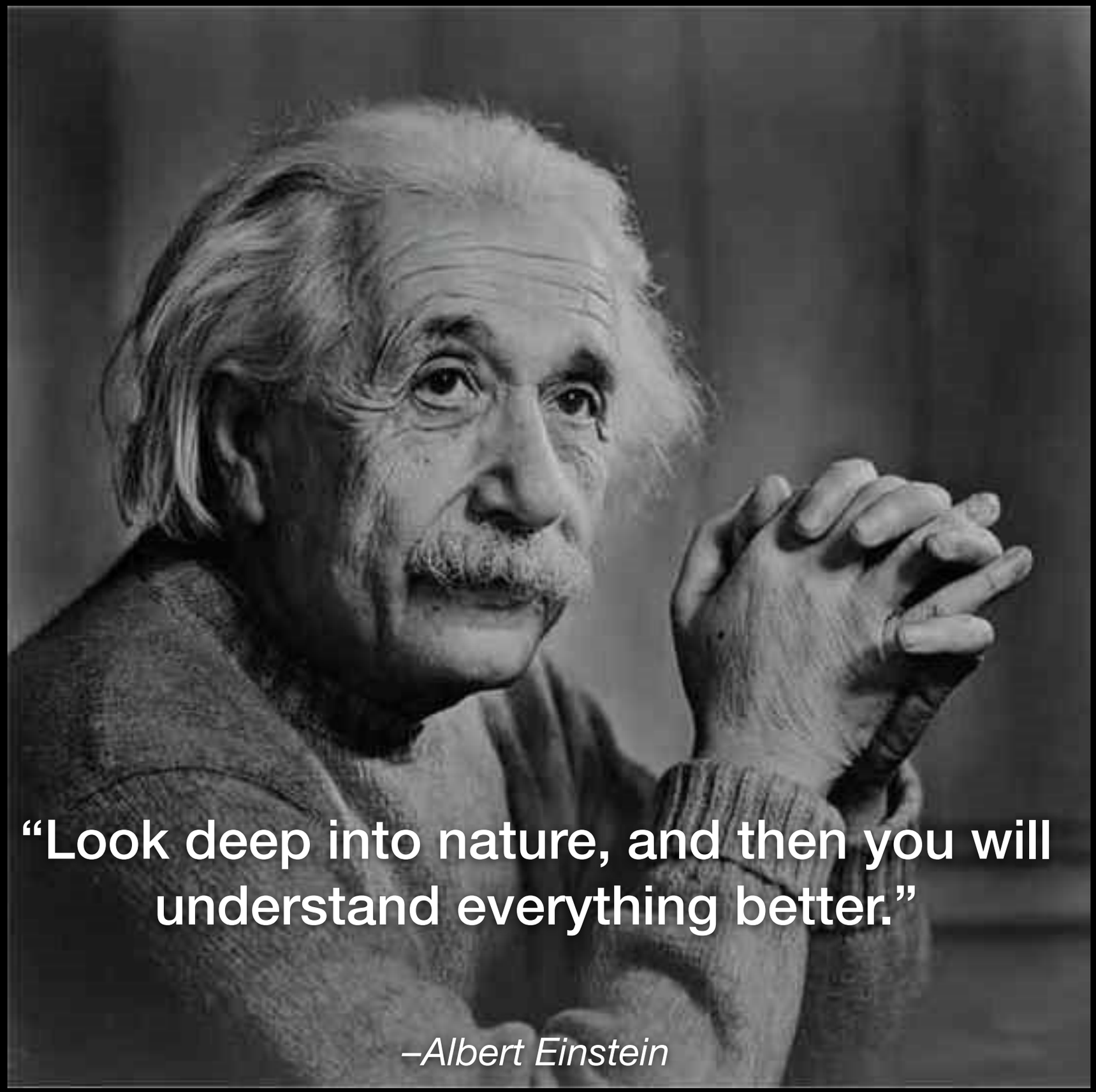
Fear Paralysis Reflex

- Evaluation:
    - Evaluate closed eyes for a blink or response as you tap the sternum, laterally on both elbows, knees or the bottoms of the feet
    - Sudden noises will also activate
    - This activates the patients (and your) sympathetic nervous system.

Osteopathic Finding

- Patient twitches during palpation. Nervous system ramped up. Poor sleep.

Moro Relfex


“Look deep into nature, and then you will understand everything better.”
–Albert Einstein

Moro Reflex

- Begins at the 8-9th week in utero and is fully emerged by the 30th week

- Should integrated by the 4th month of infancy

Moro Reflex

- It involves three distinct components:

1. Spreading out the arms (abduction)

2. Unspreading the arms (adduction)

3. Crying (usually)

Moro Reflex

- The Moro reflex may help the infant cling to its mother. If the infant lost its balance, the reflex caused the infant to embrace its mother and regain its hold on the mother’s body

Moro Reflex

- Is a body defense with activated sympathetics and adrenals
- Triggers can be:
    - Strong unpleasant stimulation with balance, auditory, visual, tactile or proprioceptive factors

Moro Reflex

- People who do not have an integrated reflex may have:
  - Hypersensitivity to light and sound
  - Difficulty blocking out background noise
  - Can be reactive in situations to great physical or emotional stress
  - Intolerant of routine changes
  - Inflexible

Moro Reflex

- This startle reflex can lead to:
  - ADHD
  - Anxiety

Moro Reflex

- Testing:
  - With patient lying supine, gently lift neck with the 2nd and 3rd fingers

  - A stiff neck is a positive test

Moro Reflex

- Testing:
  - With patient lying supine, gently lift the posterior knees with the 2nd and 3rd fingers

  - A stiff leg is a positive test

Moro Reflex

- Testing (Starfish):
    - With patient sitting in a chair with no arms
    - Ask the patient to extend both arms and legs to the side
    - Then ask them to cross the arms (right over left) and legs (right over left)
    - Then extend both arms and legs again
    - Then cross left over right
    - Inability to do either is a positive test

Moro Reflex Video Links

- https://commons.wikimedia.org/w/index.php?title=File%3AMoro_reflex_while_sleeping.ogv

- https://www.parent24.com/Baby/Newborn/The-Moro-reflex-20150826

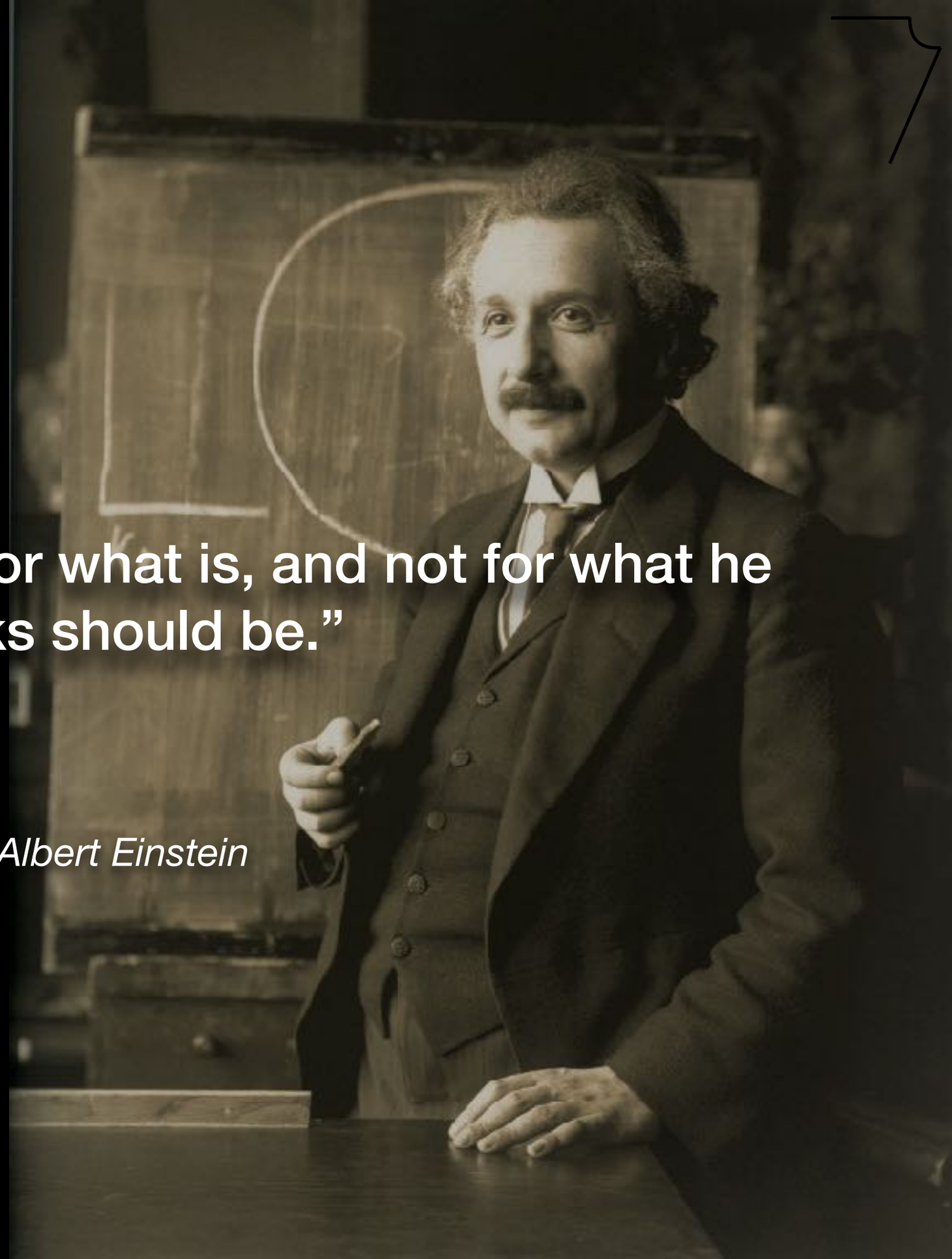
Osteopathic Finding

- Cervical spine relatively rigid. All joints stiffer than normal.

Spinal Galant

“A man should look for what is, and not for what he thinks should be.”

–Albert Einstein



Spinal Galant

- Emerges at 20 weeks of development

- Usually integrates by the 3-9 month of infancy

Spinal Galant

- This sidebend reflex helps in travel down the birth canal
- Helps to develop hip movement
- Develops the vestibular system

Spinal Galant

- A retained reflex can cause:
  - Inability to sit still
  - Poor concentration
  - Bedwetting and/or poor bladder control
  - Clumsy
  - Irritated by tucking in a shirt or tight waistbands on pants
  - Lack of focus and attention to a task
  - Fidgeting
  - Trouble with short term memory
  - Frequently making noise (buzzing, humming)

Spinal Galant

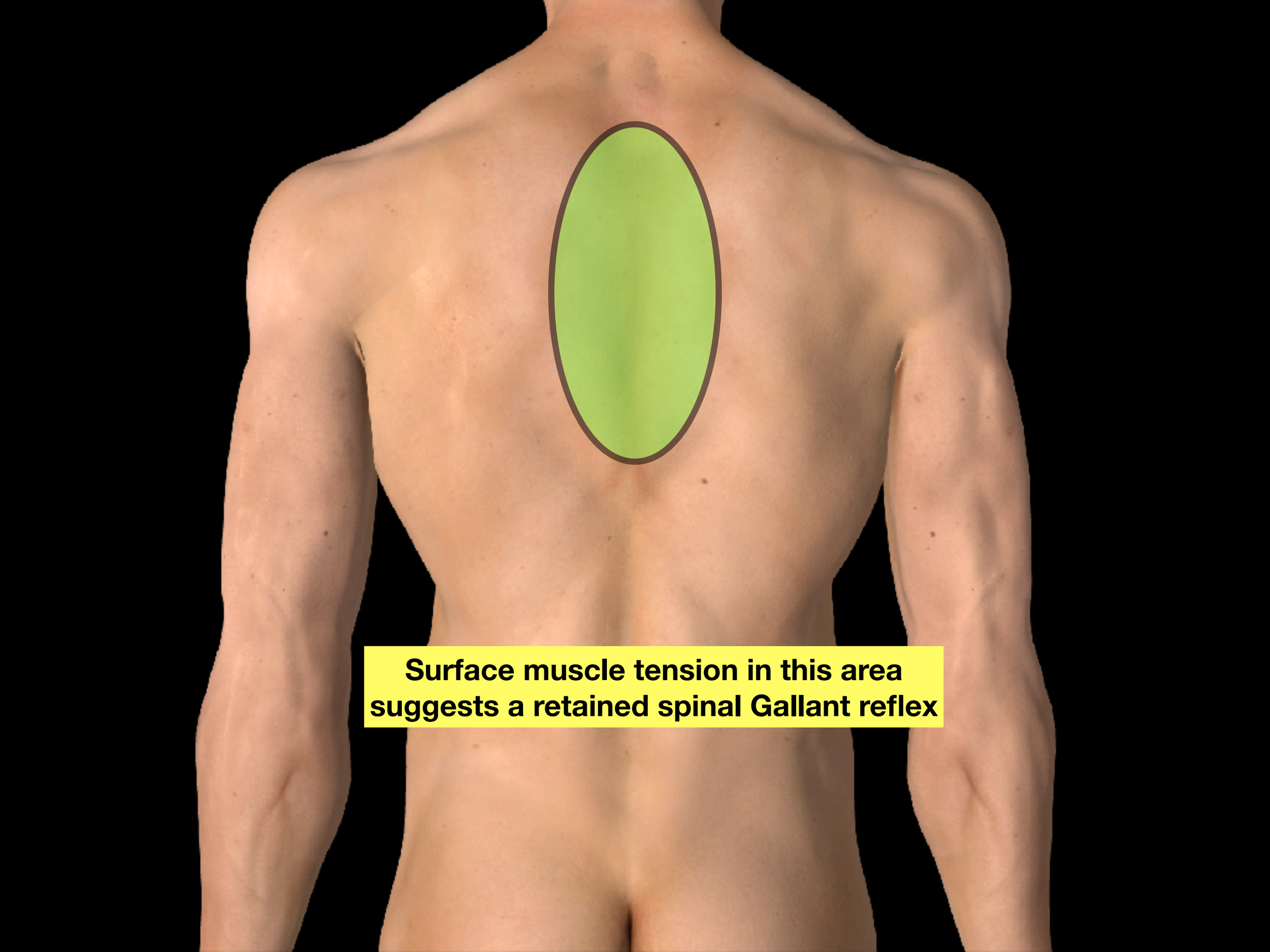
- Can show up in adults as:
    - Scoliosis
    - Clumsiness in lower half of the body
    - ADHD
    - Irritable Bowel Syndrome
    - Digestive Issues
    - Uncomfortable in tight clothing

Spinal Galant

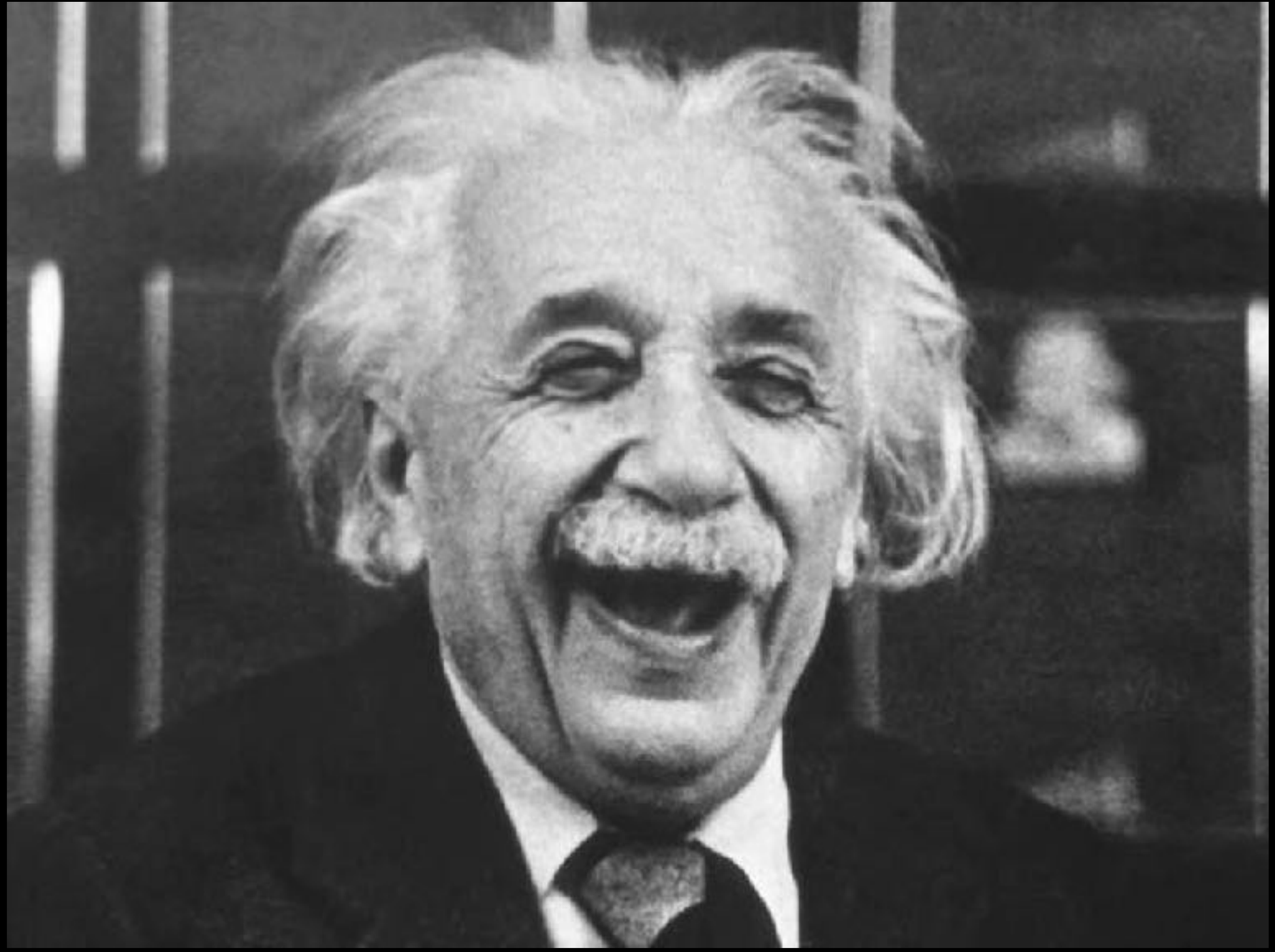
- Testing:
    - Patient is on hands and knees or side lying
    - Spine is stimulated gently from T1 to the Sacrum on one side at at time
    - Sidebending, ticklish response or pain are all positive responses

Osteopathic Finding

- Paraspinal muscles are abnormally tight.


Surface muscle tension in this area
suggests a retained spinal Gallant reflex

Spinal Perez



“I am thankful for all of those who said NO to me.
Its because of them I’m doing it myself.”

–Albert Einstein

Spinal Perez

- Emerges at birth

- Usually integrates by the 2-3 month of infancy

Spinal Perez

- The sidebend reflex helps in travel down the birth canal
- Helps to develop hip movement
- Develops the vestibular system

Spinal Perez

- A retained reflex can cause:
  - Inability to sit still
  - Poor concentration
  - Bedwetting and/or poor bladder control
  - Clumsy
  - Irritated by tucking in a shirt or tight waistbands on pants
  - Lack of focus and attention to a task
  - Fidgeting
  - Trouble with short term memory
  - Frequently making noise (buzzing, humming)

Spinal Perez

- Can show up in adults as:
    - Scoliosis
    - Clumsiness in lower half of the body
    - ADHD
    - Irritable Bowel Syndrome
    - Digestive Issues
    - Uncomfortable in tight clothing

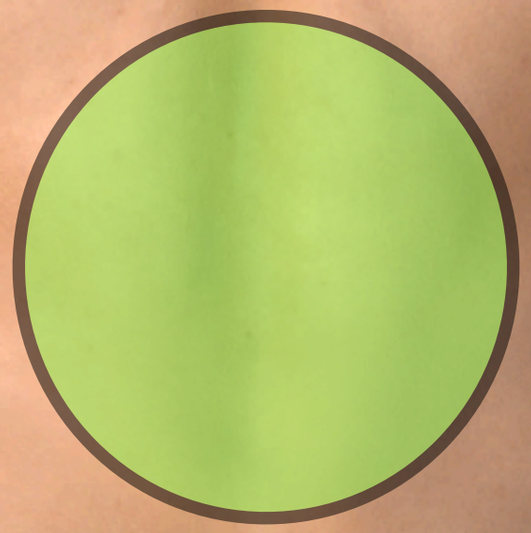
Spinal Perez

- Testing:
    - Patient is prone
    - Spine is stimulated gently from Sacrum to the T1 on one side at at time (opposite the spinal galant)
    - Lifting movement of the buttocks or hips, backward arch of the torso, lifting of the head, flexion of the upper or lower limbs is positive test

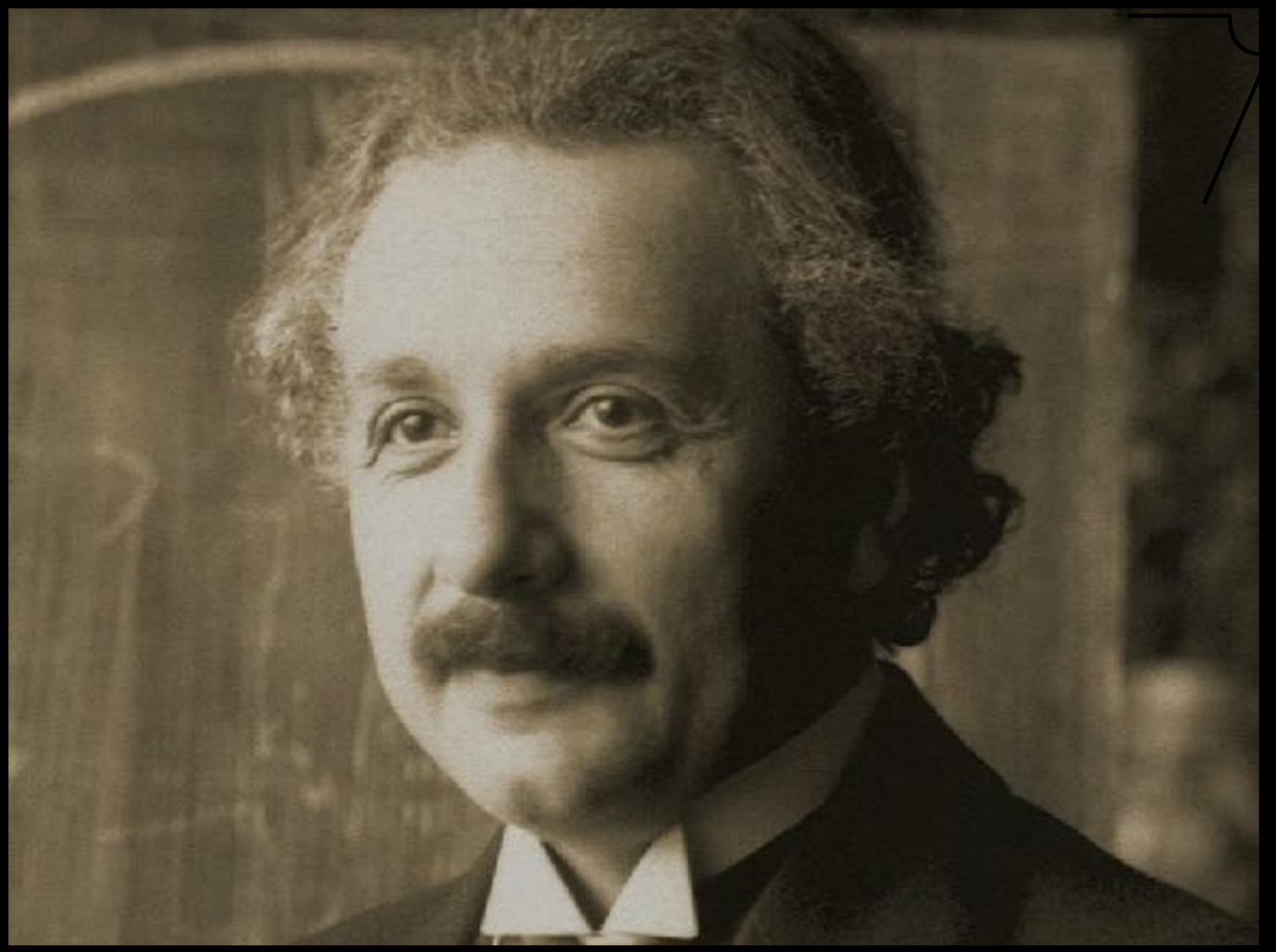
Osteopathic Finding

- Paraspinal muscles are abnormally tight. Findings are worse near the sacrum.

Surface muscle tension in this area suggests a retained spinal Perez reflex



Asymmetrical Tonic Neck Reflex (ATNR)



“Education is what remains after one has forgotten what one has learned in school.”

–Albert Einstein

Asymmetrical Tonic Neck Reflex

- Begins at the 13th week in utero

- Should integrated by the 6th to 9th month of infancy

Asymmetrical Tonic Neck Reflex

- The ATNR manifests when the baby's head is turned to one side. The infant's arm and leg on the side to which the head is turned will extend and the opposite limbs will flex (curl inward) so that the child appears to be in what has been called a "fencer's pose"

Asymmetrical Tonic Neck Reflex

- The purpose of the ATNR is to provide stimulation for developing muscle tone and the vestibular system whilst in the womb before birth. It also assist with the birthing process by inhibiting limb movement and slowing it down so that the baby uses a "corkscrew" movement through the birth passage.

Asymmetrical Tonic Neck Reflex

- It is linked with corpus callosum development
- ATNR helps with eye-hand co-ordination and serves as a precursor to this skill
- A retained ATNR can have a significant impact on a child's development and it is often thought to have a major effect on the child's physical, cognitive, social and emotional progress, thus affecting their ability to function well in school

Asymmetrical Tonic Neck Reflex

- The retained reflex will continue to influence limb movement every time the head is turned and will have physical influences that impact all other areas.

- The ATNR can cause the spine to curve (scoliosis)

- Both the ATNR and TLR can cause subluxation of the femoral head or dislocation of the femoral head as it completely moves out of the hip socket

Asymmetrical Tonic Neck Reflex

- This retained reflex can lead to:
    - Movement/Coordination difficulties
    - Vision problems (dyslexia, long distance vision issues, binocularity problems)
    - Difficulty walking
    - Joint alignment issues (scoliosis)

Asymmetrical Tonic Neck Reflex

- This retained reflex can lead to:
  - Poor balance when moving head side to side
  - Homolateral (same side) rather than cross pattern movements when walking, skipping, or marching
  - Difficulty crossing the imaginary midline between the two sides of the body with the arms or legs
  - Poor smooth eye movements

Asymmetrical Tonic Neck Reflex

- This retained reflex can lead to:
    - Difficulty shifting focus from distance to near
    - Difficulty keeping place when copying from the board
    - Mixed laterality (use right and left hands interchangeably)
    - Poor handwriting
    - Poor expression of ideas on paper

Asymmetrical Tonic Neck Reflex

- This retained reflex can lead to:
  - Difficulty learning to ride a bicycle
  - ADD and ADHD characteristics
  - Difficulty throwing and catching a ball
  - Learning problems
  - Difficulty with multitasking

Asymmetrical Tonic Neck Reflex

- This retained reflex can lead to:
  - Writing with the arm crossed over the midline (curled wrist)
  - Shows up when eating with utensils
  - They will drop something when the head is turned away

Asymmetrical Tonic Neck Reflex

- Testing:
  - Standing test - Patient stands with arms outstretched
  - Operator turns patients head to one side (left)
  - Positive test - patients arm on right will move medially or right leg will bend

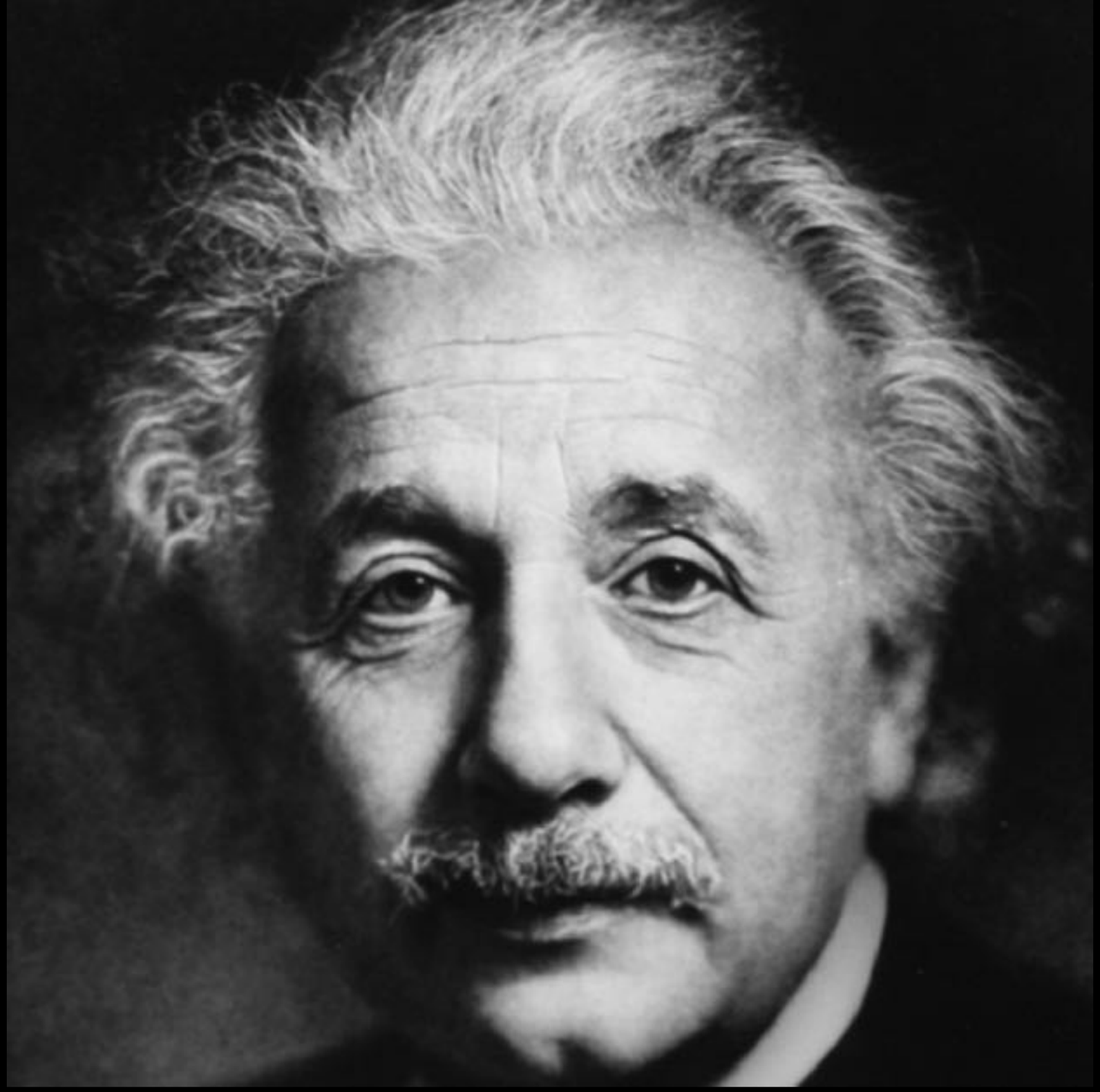
Asymmetrical Tonic Neck Reflex

- Testing:
  - Patient is on all fours
  - “I am going to turn your head from side to side and I want your arms to remain as still as possible”
  - Any arm movement is a positive test

Osteopathic Finding

- Upper cervical muscles are tight (C1-C3).

Symmetrical Tonic Neck Reflex (STNR)



“It is the supreme art of the teacher to awaken joy in creative expression and knowledge.

–Albert Einstein

Symmetrical Tonic Neck Reflex

- The STNR is normally fully developed by 6–8 months and significantly diminished by 2–3 years.

- If this reflex is retained beyond 2–3 years to such a degree that it "modifies voluntary movement", the child is considered to have "immature and abnormal reflex development", and this can have broad effects on the child's later development

Symmetrical Tonic Neck Reflex

- This reflex consists of two phases: flexion (inward movement) and extension (outward movement). When the child is positioned on their hands and knees, flexion or lowering of the head causes the arms to bend and the legs to extend. When the head is extended or raised, the arms extend and the legs bend.

Symmetrical Tonic Neck Reflex

- It is a bridging or transitional brainstem reflex that is an important developmental stage and is necessary for a baby to transition from lying on the floor to quadruped crawling or walking.[2] In order to be able to do this the baby needs to have been successful in unlinking the automatic movement of the head from the automatic movement of the arms and legs to progress beyond this development stage

Symmetrical Tonic Neck Reflex

- Whereas the ATNR divides the body in half vertically – the left and right sides, the STNR divides the body in half horizontally – the upper and lower body.

- This is a short-lived reflex that primarily helps the baby to learn to get up off the floor and onto their hands and knees. However, if this reflex is retained, the baby will not be able to move forward by crawling or creeping but will do a “bear walk”, scoot on their bottoms, or skip crawling, and just stand up and walk.

Symmetrical Tonic Neck Reflex

- The STNR is often retained in children that have suffered environmental deprivation such as children adopted from orphanages overseas who did not have the space or opportunity to creep and crawl at the appropriate time.

Symmetrical Tonic Neck Reflex

- This retained reflex can lead to:
    - Poor posture
    - Tendency to slump when sitting, especially at a desk or table
    - Simian (ape-like) walk
    - Poor eye-hand coordination
    - Difficulty tracking or catching a ball
    - Messy eater
    - Difficulty adjusting binocular vision from distance to near

Symmetrical Tonic Neck Reflex

- This retained reflex can lead to:
    - Difficulty learning to swim
    - ADD and ADHD tendencies
    - Poor learning abilities
    - Poor balance
    - Poor depth perception
    - Difficulty recognizing social cues
    - Poor space and time awareness
    - Anchors feet behind chair legs while sitting

Symmetrical Tonic Neck Reflex

- This retained reflex can lead to:
- “W” position when sitting on floor
- Reading and writing are easily lying on the floor with the legs extended
- Discomfort when sitting up straight with both legs and arms flexed
- Difficulty aligning numbers for math calculations

Symmetrical Tonic Neck Reflex

- The proper integration of the STNR is very important in visual development. If a child does not creep and crawl, they do not get the experience of visually tracking their hands as they move forward in space which helps to develop the ability of the eyes to cross the midline when tracking.

Symmetrical Tonic Neck Reflex

- Testing:
    - Patient is on all fours
    - Passively flex the head forward and then extend it backwards. The expected response would be forward head flexion producing flexion of the upper extremities and extension of the lower extremities while extension of the head will produce extension of the upper extremities and flexion of the lower extremities.

Osteopathic Finding

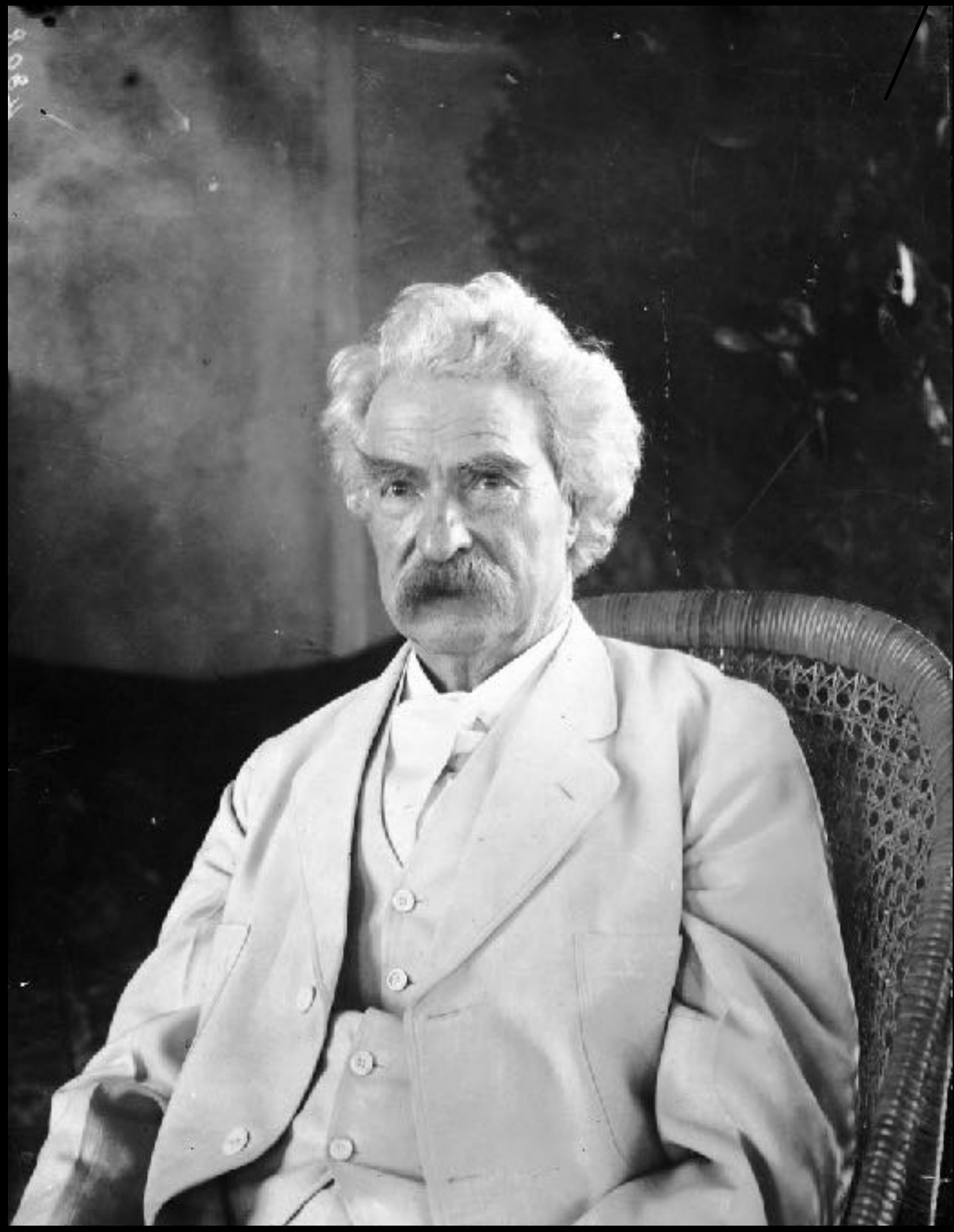
- Lower cervicals (C5-C7) are abnormally tight.

- Potential dental link to posterior molars.

Postural Reflexes

“Get your facts first, then you can distort them as you please.”

–Mark Twain



Postural Reflexes

- Postural reflexes are responsible for the subconscious maintenance of the body's posture when movement and position is altered and they ensure that the body remains upright and aligned. It is the effects of gravity on the body which triggers their response and so these reflexes do not begin to develop until after the baby is born.

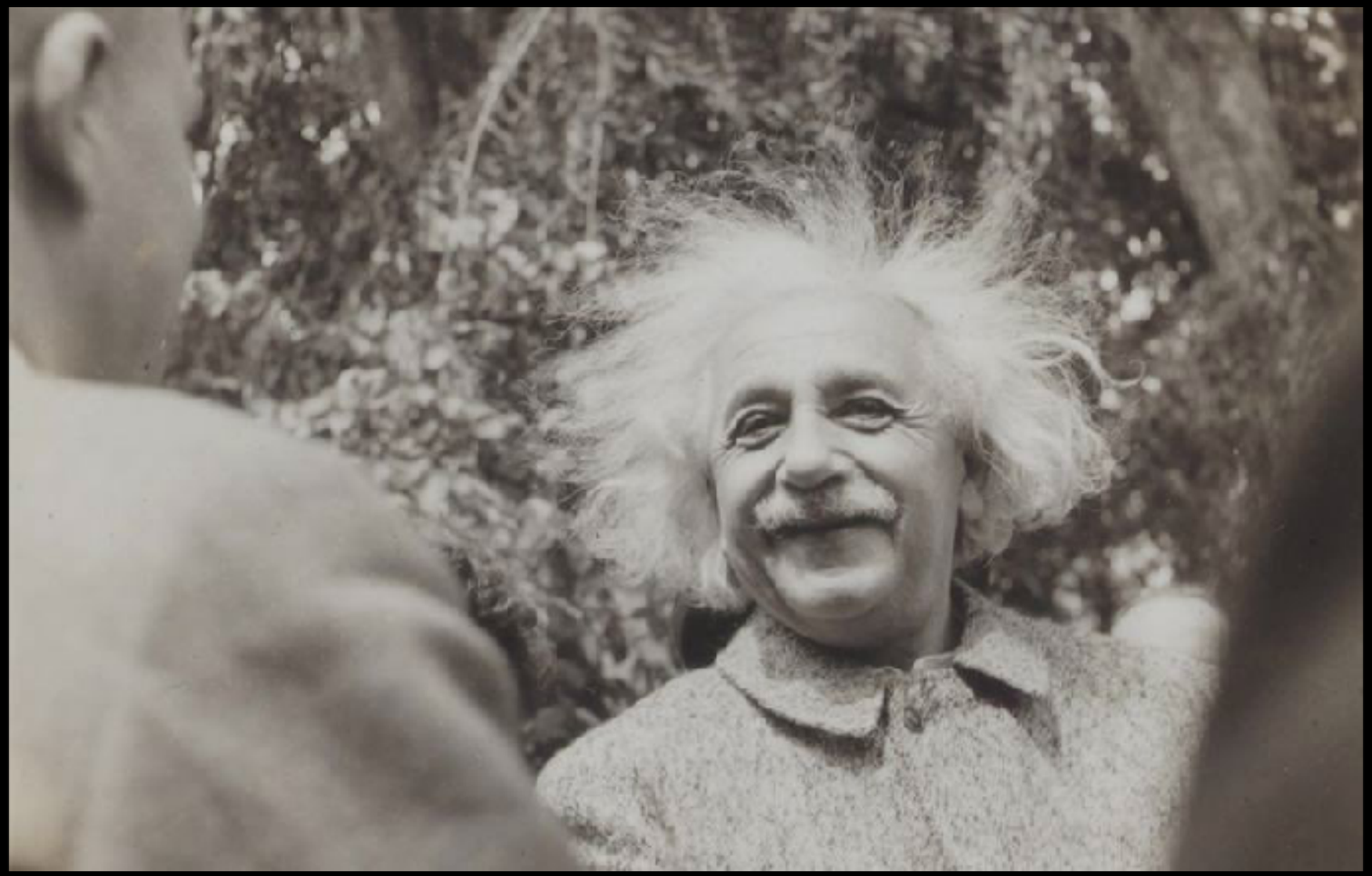
Postural Reflexes

- All but one of the postural reflexes arise from/are found in the midbrain. This means they are mediated from a higher center than the primitive reflexes and so their appearance signifies a maturation of the nervous system. The shift from primitive to postural reflexes is gradual and there will be overlap while both are present but the postural reflexes should be established by the time a child is three and a half. They should remain for life but with age they may decay, allowing the primitive reflexes to reappear.

Postural Reflexes

- The postural reflexes are divided into two groups – the righting reflexes and the equilibrium reactions. The primitive reflexes have formed the foundation for conscious movement and the postural reflexes allow subconscious control of posture, balance and coordination in the active and static individual. They help the baby develop from a passive little mass to an active being who can roll, sit, crawl, stand, walk and run and their contribution leads to an individual who can respond, at every stage, to a loss of balance and weight change in order to maintain body alignment or posture in space.

Neck Righting Reflex



“He who can no longer pause to wonder and stand rapt in awe, is as good as dead; his eyes are closed.”

–Albert Einstein

Segmental Neck Righting Reflex

- Develops in the infant - 6 mo supine to prone, 8-10 mo prone to supine

- Is essential to assist in changing positions & to provide flexibility to movements such a swimming, dancing, gymnastics, etc

Neck Righting Reflex

- The first of the righting reflexes to appear is the neck righting reflex. It is present at birth in a normal full term baby and strongest at about three months of age. It is triggered by stretching of the neck muscles when there is rotation of the head or movement of the cervical/neck spine. With the baby in supine/on his back, if the head is turned to one side, the whole body will follow, in what is called a log roll, until it is brought into alignment with the head.

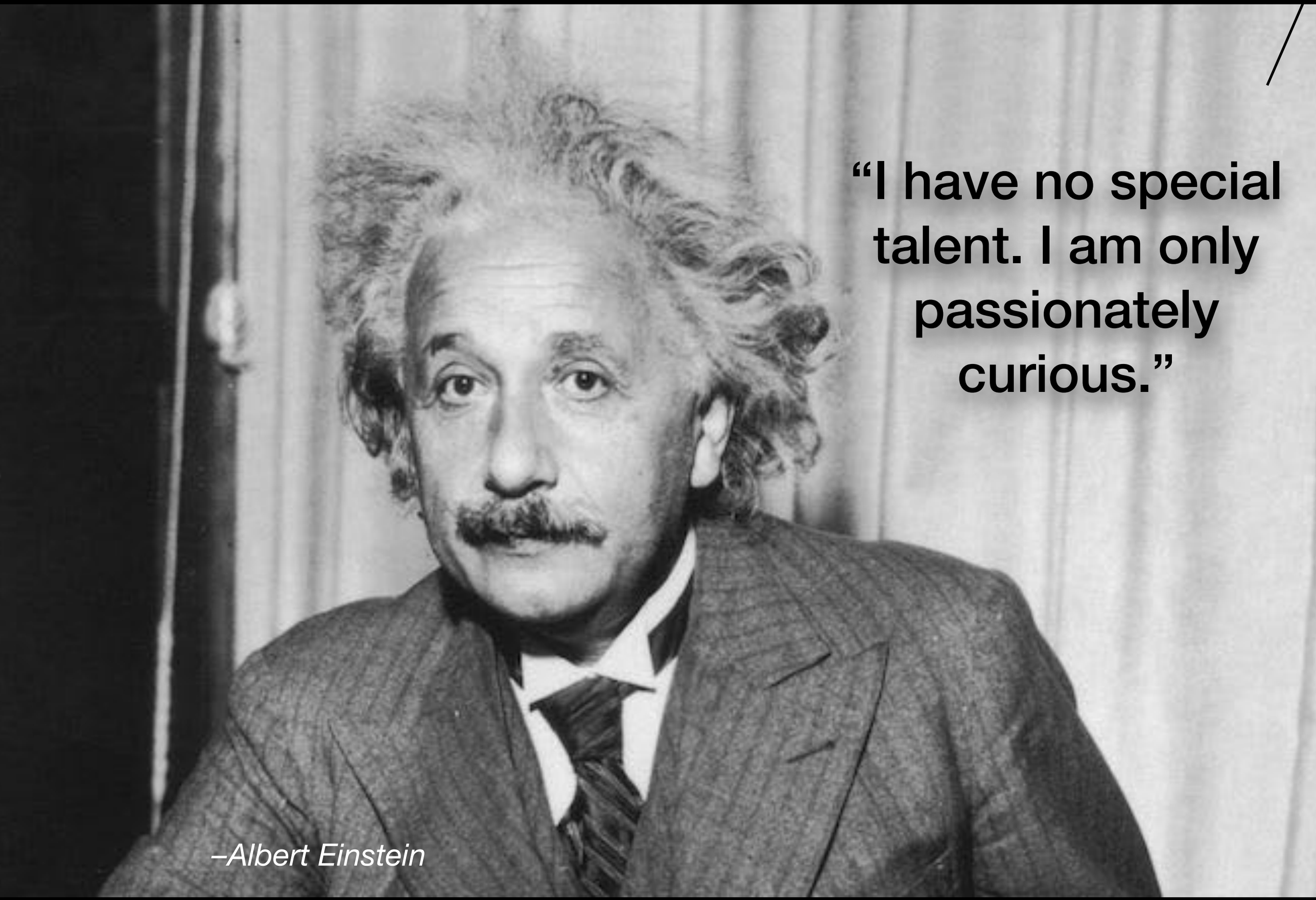
Neck Righting Reflex

- Testing:
  - Patient is supine (perhaps on floor)
  - Neck is slightly stretched cephalad and head is slowly rotated to one side
  - Patient should roll to the side, tucking in lower arm to follow head
  - Positive test is lack of rolling motion or lack of tucking arm

Osteopathic Finding

- Tight SCM’s, scalene’s and thoracic outlet.

Labyrinthine Righting Reflex


“I have no special talent. I am only passionately curious.”
–Albert Einstein

Labyrinthine Righting Reflex

- Emerges at birth

- Should be inhibited at 2-4 months of age

Labyrinthine Righting Reflex

- The labyrinthine head righting reflex is stimulated by tilting of the body or stimulation of cilia hair cells of the inner ear which detect movement of the head in space. The LHRR compensates body motion with a contraction of the neck muscles to keep the head level.

Labyrinthine Righting Reflex

- Children with underdeveloped labyrinthine-head righting reflexes often struggle with balance and coordination issues so they may appear to be clumsy or uncoordinated when they play sports.

- In addition, they may also have trouble with their vestibular and proprioceptive systems, which makes it difficult for them to pay attention in school and they often get motion sickness or experience dizziness.

Labyrinthine Righting Reflex

- If these head righting reflexes are not developed properly, you may start to see your child struggle with listening to the teacher, underdeveloped auditory processing, poor handwriting and trouble with gross and fine motor skills.

- A child with poor proprioception may have difficulty with motor planning and often has sensory seeking behavior (plays rough, chews, bites, likes tight clothes, pushes). Because these head righting reflexes are also closely related to lifting the head (postural reflexes) you may notice your child slouching in their chair, laying on their desk or struggling to lift their head to view the chalkboard.

Labyrinthine Righting Reflex

- Testing:
    - Patient is seated with eyes closed
    - Operator moves the patients torso right, left, anterior and posterior
    - Head should stay upright
    - A positive test is when he head tilts with the body

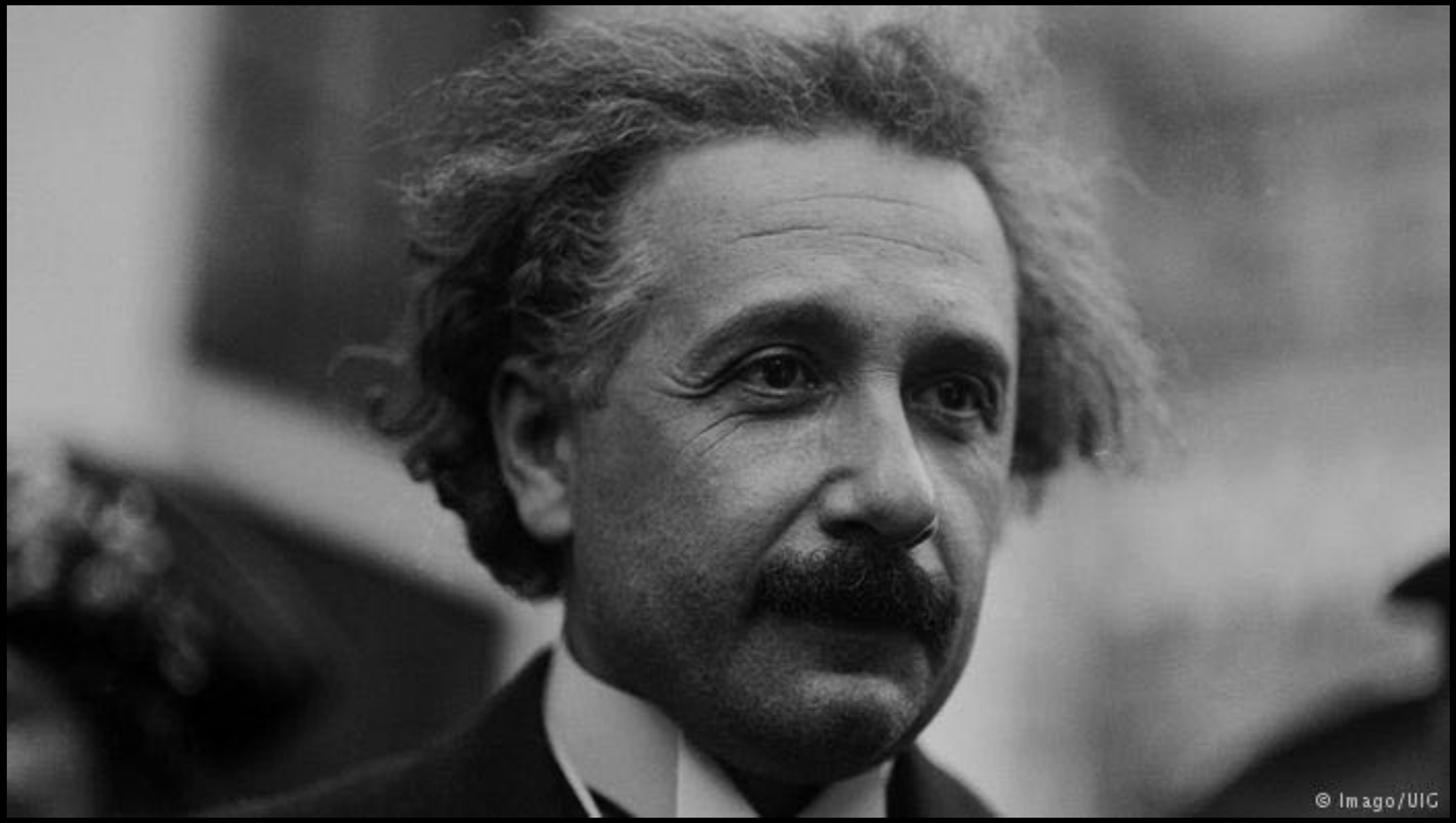
Osteopathic Finding

- Tight SCM’s, scalene’s and thoracic outlet.

- Lateral motion of the neck is restricted at the thorax.

Ocular Head Righting Reflex

“All religions, arts and sciences are branches of the same tree.”



–Albert Einstein

Ocular Head Righting Reflex

- Should be inhibited at 2-4 months of age

Ocular Head Righting Reflex

- The ocular head righting reflex keeps the head stable and the eyes stationary on visual objects in spite of other movements of the body. Since the OHRR is dependent for functioning on the cerebral cortex, visual perception can be impaired if underdeveloped. This can affect reading, comprehension and spelling in a developing brain.

Ocular Head Righting Reflex

- The OHRR responds to visual cues and it maintains the head in a stable position while the eyes are fixed on visual targets. This all occurs despite other movements of the body and head. This is a necessity to build the visual fixation skill, which is used to maintain visual attention when the body is in motion. It is also imperative for eye tracking when looking away from something and then looking back, which helps a child track words on a page and prevents them from skipping lines or words.

Ocular Head Righting Reflex

- Children who struggle with the OHRR often have difficulty with their visual systems and tracking with the eyes. This often causes them to skip words, write their letters backward, and they can’t copy notes from the chalkboard, has poor handwriting, struggles with spacing their letters and words and has difficulty with long-term or short-term visual memory. The constant struggle to refocus and readjust their eyes makes simple tasks like copying notes from the chalkboard very difficult. Parents may mistake their child for having Dyslexia because they can’t tell their visual system hasn’t developed properly.

Ocular Head Righting Reflex

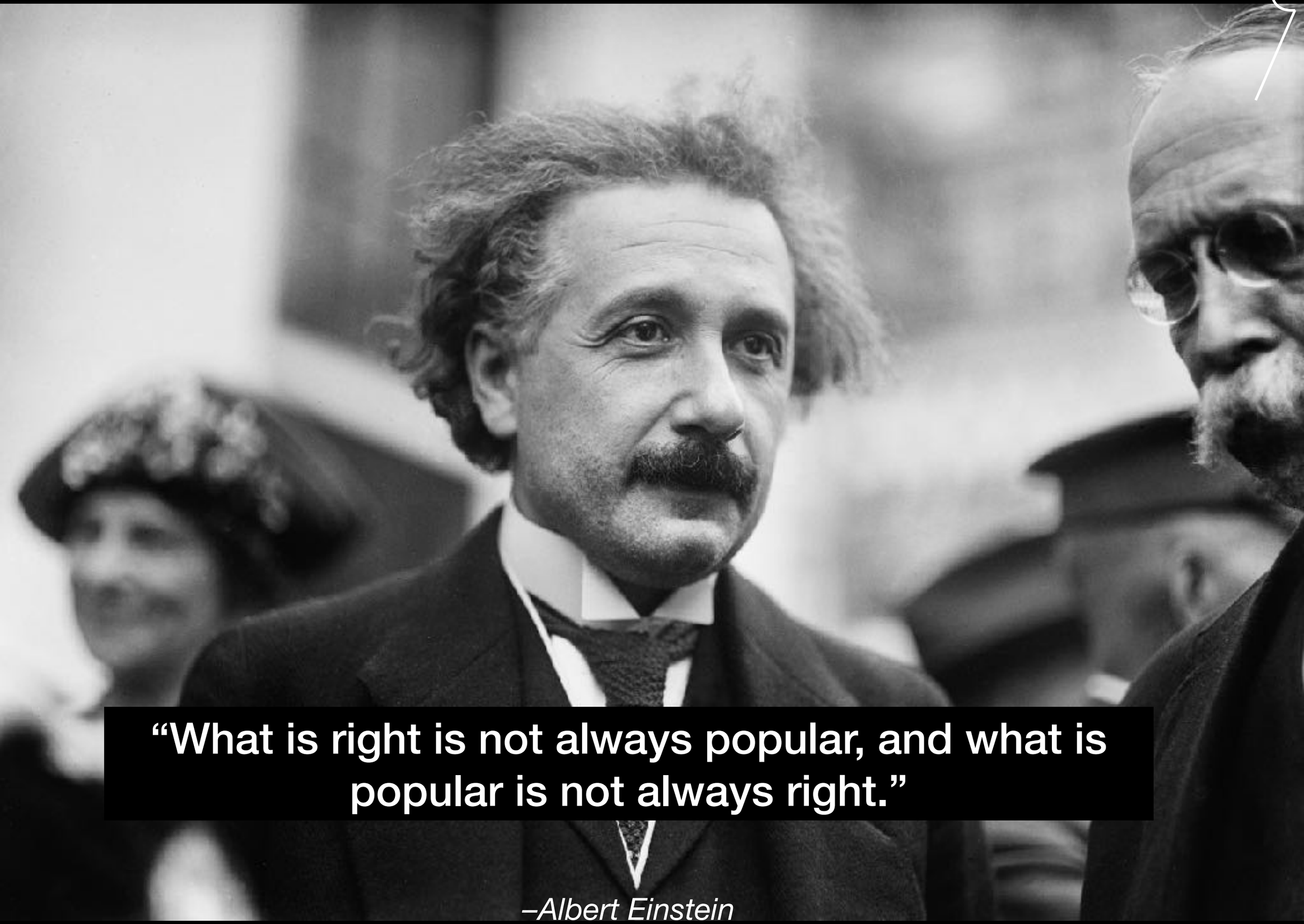
- Testing:
    - Patient is seated with eyes open
    - Operator moves the patients torso right, left, anterior and posterior
    - Head should stay upright
    - A positive test is when he head tilts with the body

Osteopathic Finding

- Tight SCM’s, scalene’s and thoracic outlet.

- Anterior/Posterior motion of the neck is restricted at the thorax.

Landau Reflex



“What is right is not always popular, and what is popular is not always right.”

–Albert Einstein

Landau Reflex

- Should be emerges at 3-10 weeks during infancy and should be absent between 1-2 years of age

- It helps to break the general flexion patten seen at birth

Landau Reflex

- The landau reflex stimulates extension throughout the body in the prone position if a baby is lifted in the air with support under his stomach. Landau reflex increases muscle tone and aids in inhibiting the tonic labyrinthine reflex in the forward position. It also increases a child’s head righting proficiency & torso muscle tone

Landau Reflex

- It is poor in those with floppy infant syndrome and exaggerated in hypertonic and opisthotonic infants

Landau Reflex

- Low muscle tone
- Poor posture
- Poor motor development
- Short term memory difficulty
- Tension in the back of legs, toe walker
- Lack of stimulation in the pre frontal cortex causing attention, organization and concentration problems
- Weak upper body
- Difficulty swimming the breast stroke
- Struggles to do a summersault. Knees buckle when head tucks under

Landau Reflex

- If the Landau reflex does not adequately develop or integrate in the infant within the normal timeframe, they may develop poor muscle tone throughout the back of the body. This could cause insufficient stimulation of the prefrontal cortex of the brain, which is responsible for functions like concentration, social decision making, attention and organization.

- A retained Landau reflex is also commonly linked to the Spinal Galant Reflex, which is also another reflex responsible for attention and focus issues in the classroom.

Landau Reflex

- Testing:
  - Have the child lie flat on the floor, face down with arms straight out in front. Have the child lift their upper body and arms off the ground while keeping the top of their feet on the floor. If they struggle with keeping both feet flat on the floor, the Landau Reflex is most likely still present.

Landau Reflex

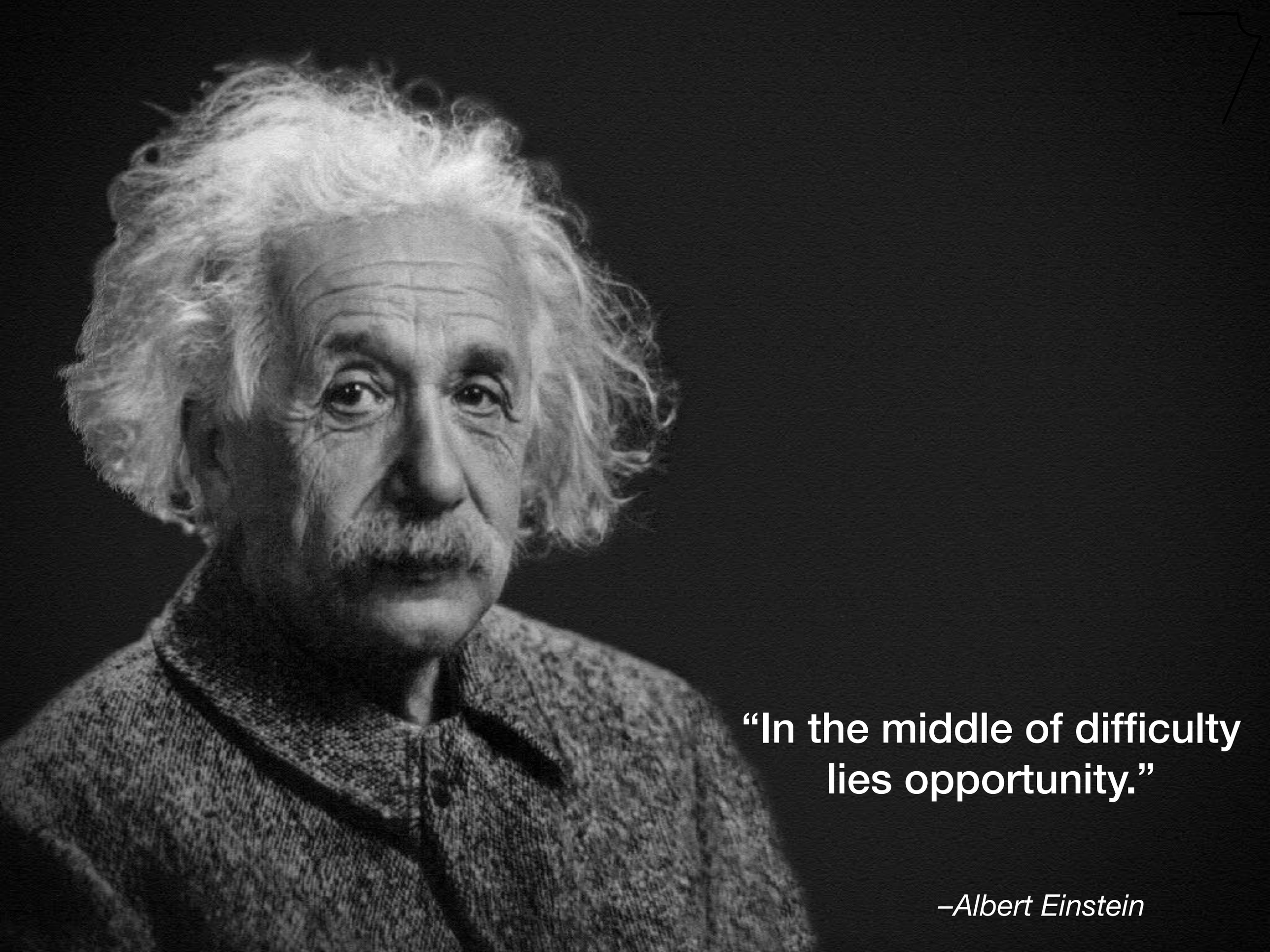
- Testing:
  - Have the child lie flat on the floor, face down with arms straight out in front. Have the child lift their upper body and arms off the ground and both legs off the ground. If they are not strong to resistance in this position, the Landau Reflex is most likely still present.

Osteopathic Finding

- Extension head…

- Flexed posture that is linked with tight bowstring.

Amphibian Reflex



“In the middle of difficulty
lies opportunity.”

–Albert Einstein

Amphibian Reflex

- Should be emerges at 4-6 months of age

- Its development depends on the reflexes that come before it, such as the ATNR and Spinal Galant

Amphibian Reflex

- In the amphibian reflex, raising of the pelvis causes an automatic flexion of one leg from the hip regardless the the child's head position. This reflex aids in the inhibition of the asymmetrical tonic neck reflex which increases mobility and independent movement of the legs and arms essential for crawling, creeping and gross muscle coordination.

Amphibian Reflex

- This reflex allows the infant to have more automatic flexion of the arm, hip and knee on the same side of the body when the hip is raised. In this way, the infant can be ready to roll over, creep and crawl, and eventually walk.

Amphibian Reflex

- In school, this reflex is important in developing motor coordination and whole brain thinking.

- It is crucial for developing cross lateral movements or movements that cross the midline of the body.

- It helps to balance both sides of the brain hemispheres and activates more nerve stimulation across the corpus callosum for whole brain activity, necessary for creative thinking and overall cognition.

Amphibian Reflex

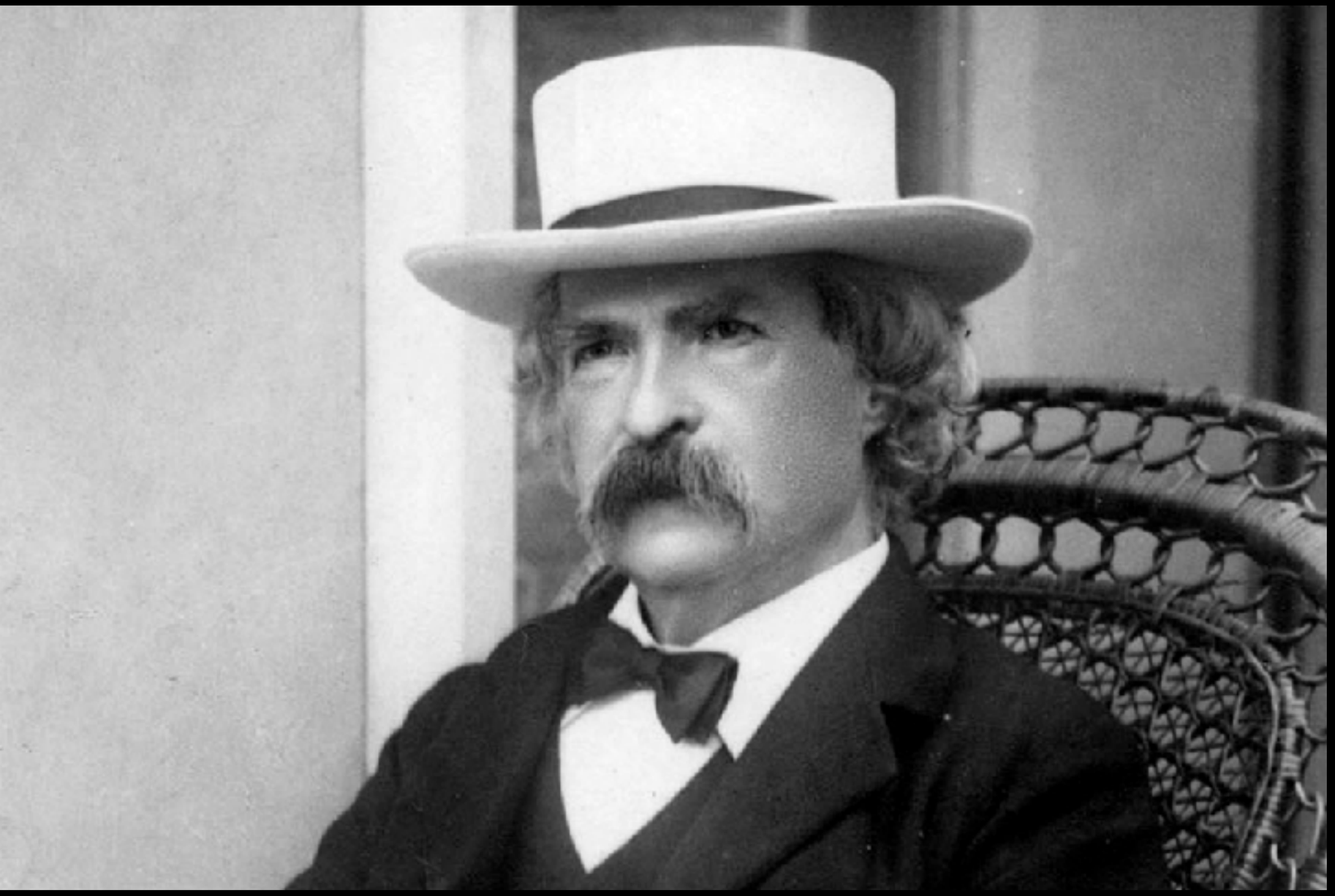
- Testing:
  - Patient is prone or supine. Raising of the pelvis to about 45 degrees causes an automatic flexion of the ipsilateral leg, regardless of the patients head position

  - Lack of this response indicates a retained reflex

Osteopathic Finding

- Possible tight psoas or hamstring (haven’t played with this much).

Stepping Reflex



"Whenever you find yourself on the side of the majority, it is time to pause and reflect."

–Mark Twain

Stepping Reflex

- Should be present at birth

- It should disappear by 2 months of age

Stepping Reflex

- Retained Reflex can lead to:
    - Toe walking – ‘running like an ostrich’
    - Tight calf muscles
    - Poor balance and muscle control
    - Feet and ankle problems with pain and dysfunction
    - Recurring hamstring injuries and mid-low back strains
    - Visual problems due to an altered perception of the horizon – head tilts forward and eyes look upward

Stepping Reflex

- “If you hold a newborn upright and place the soles of his feet on a table, he will begin to take steps,” Wible says. Although newborns can’t support their own weight, they’ll place one foot in front of the other and appear to walk. “The stepping reflex is ingrained in our primitive instincts to move,” Wible says. The purpose of this baby reflex is to prepare a child to walk, and it recurs around 12 months. As a newborn reflex, however, it usually disappears by the second month.

Stepping Reflex

- Testing:
  - If you hold a newborn upright and place the soles of his feet on a table, he will begin to take steps
  - Lack of this response indicates a retained reflex

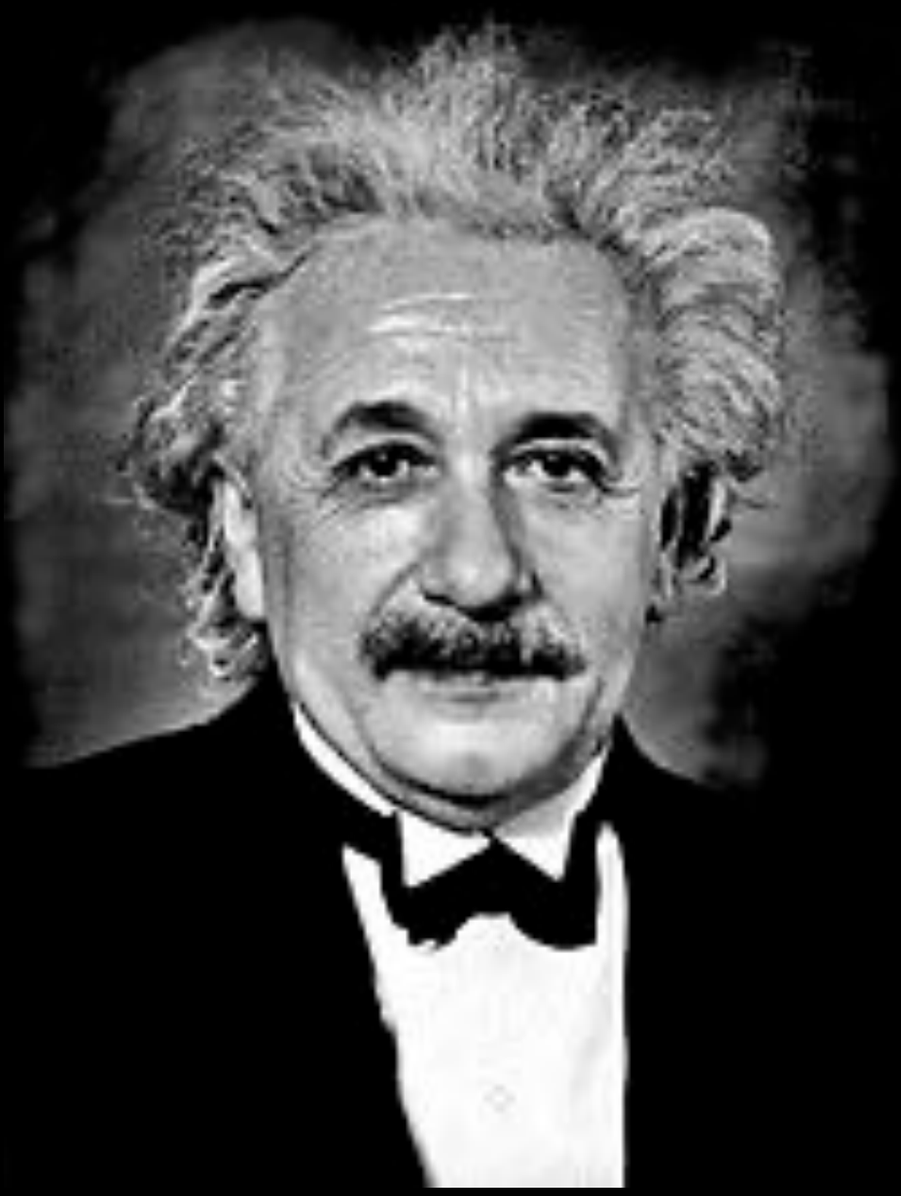
Stepping Reflex

- Testing (adult):
    - Look for tight calf muscles and more weight placed on the toes than the heels
    - Visual problems due to an altered perception of the horizon – head tilts forward and eyes look upward
    - Lack of this response indicates a retained reflex

Osteopathic Finding

- Restricted cephalad motion of forefoot to palpation.

Heel Reflex



“Education is not the learning of facts, it’s rather the training of the mind to think.”

–Albert Einstein

Heel Reflex

- Not much information available

- Many people want to correlate it with the achilles deep tendon reflex

Heel Reflex

- Retained Reflex can lead to:
    - Heavy heel walking – ‘walking like a baby elephant’
    - Heel pain
    - Achilles Tendonitis
    - Shin Splints
    - Poor core stability
    - Balance problems
    - Visual problems due to an altered perception of the horizon – head tilts back and eyes look down

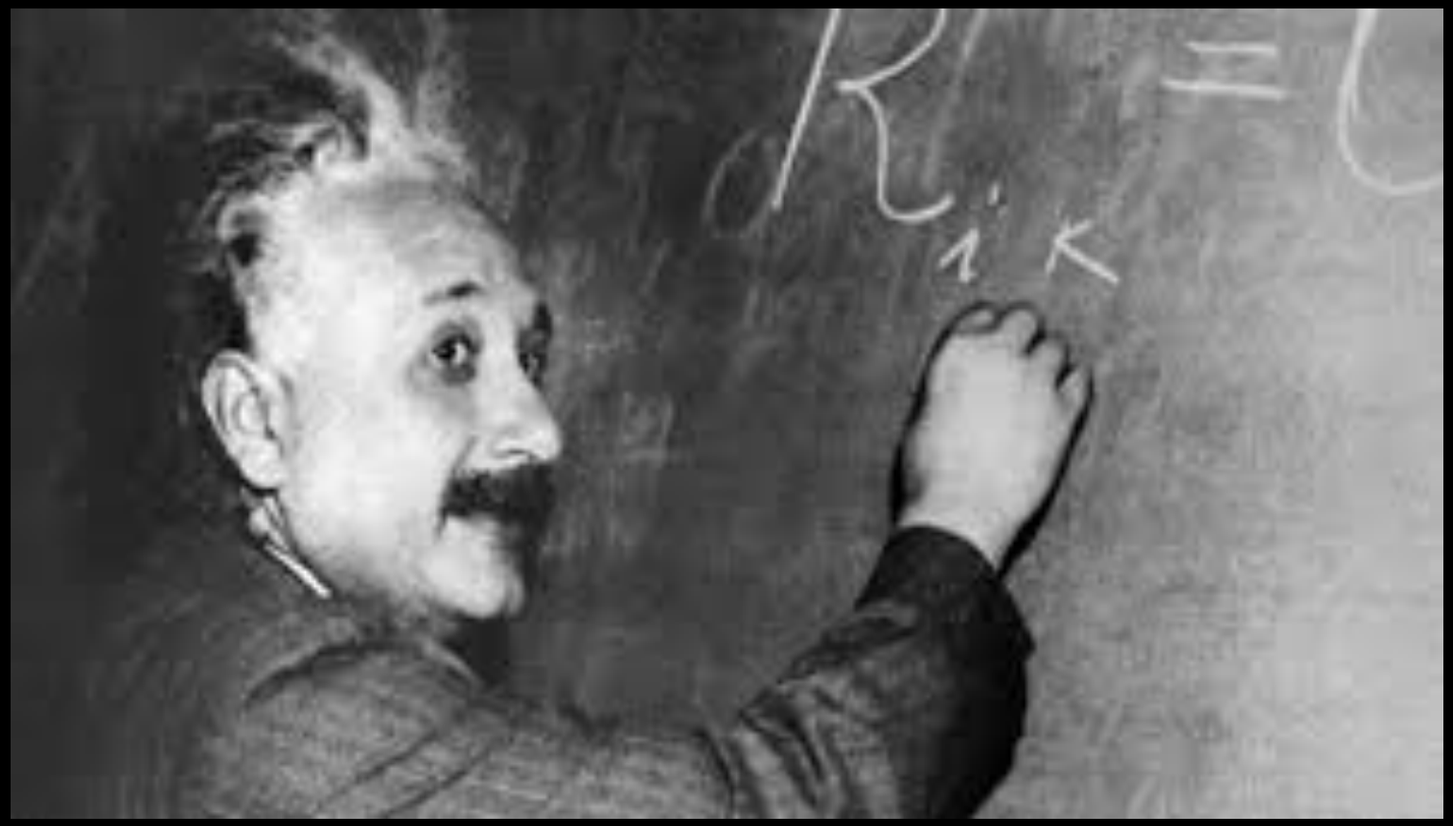
Heel Reflex

- Testing (adult):
    - Look for loose calf muscles and more weight placed on the heels than the toes.
    - Visual problems due to an altered perception of the horizon – head tilts back and eyes look down
    - Lack of this response indicates a retained reflex

Osteopathic Finding

- Restricted cehpalad heel movement.

Babinski Reflex



“Any intelligent fool can make things bigger and more complex… It takes a touch of genius—and a lot of courage—to move in the opposite direction.”

–Albert Einstein

Babinski Reflex

- It assists in the development of joint rotation, especially in the feet, ankles, knees, and hips.

- It also helps develop muscle tone in the lower part of the body and supports overall freedom of movement.

- It helps to develop gross motor coordination, which, in turn, prepares the child for crawling, standing, walking, and running.

- Because of its connection to the vestibular system, it plays an important role in the development of balance, coordination, speech development, and higher-level cognitive skills.

Babinski Reflex

- Conditions associated with a retained Babinski include:
    - Autism,
    - Cerebral palsy,
    - Foot problems as an adult (bunions, flat arches, etc.),
    - Stroke
    - Parkinson’s disease.

Babinski Reflex

- Retained Reflex can lead to:

  - Later in life, the Babinski sign can reemerge in multiple sclerosis and other neurological diseases including Parkinson's, ALS, brain tumors, meningitis, and some forms of polio.

  - It may also be present in head injuries, spinal cord injuries, spinal cord tumors, stroke, and spinal tuberculosis.

  - It may also appear briefly after a seizure, a marathon or long walk, or in conjunction with the use of alcohol or drugs.

Babinski Reflex

- Testing:
    - To elicit the Babinski reflex, one should stimulate the outside edge of the foot from the heel to the base of the toes.
    - When the Babinski SIGN is present, the large toe extends upward and the other toes fan out. The full response is also accompanied by dorsiflexion of the ankle (movement of the toes toward the shin) and flexion of the hip and knee joint.
    - In addition, there may even be a slight contraction or an abduction of the thigh, leading to withdrawal of the leg. The spinal cord segments involved in the reflex arc are lumbar 4 and 5 and sacral 1 and 2.

Osteopathic Finding

- Foot will not evert, but will invert.

Crossed Extensor Reflex

“Live as if you were to die tomorrow. Learn as if you were to live forever.”

–Mahatma Gandhi

Crossed Extensor Reflex

- Emerges at 28 weeks in utero

- Usually integrates by the 1-2 month of infancy

Crossed Extensor Reflex

- It allows the individual to develop the concept of having two legs.

- It is essential in developing the Thomas automatic gait reflex.

- Integration of the CER indicates that the medulla oblongata is matured and communicating with higher brain centers.

Crossed Extensor Reflex

- Young children and students may have difficulty with the following: handwriting and other fine motor skills such as buttoning shirts and tying shoes; math (dyscalculia), especially story problems and multiplication tables; reading, notably related to phonemic awareness; and saccades.

- Brandes, Bonnie. The Symphony of Reflexes: Interventions for Human Development, Autism, ADHD, CP, and Other Neurological Disorders . Kindle Edition.

Crossed Extensor Reflex

- Testing:
  - To elicit the crossed extensor reflex in the infant, firmly press the center of the sole of the upper foot (the inside of the ball of the foot on K1, acupuncture point). As a “contralateral” reflex, a response occurs in the leg opposite to the stimulated leg. The opposite leg will flex, adduct, and then extend again.

Osteopathic Finding

- Tension slightly anterior to 2nd and 3rd cuneiforms.

Stepping Reflex

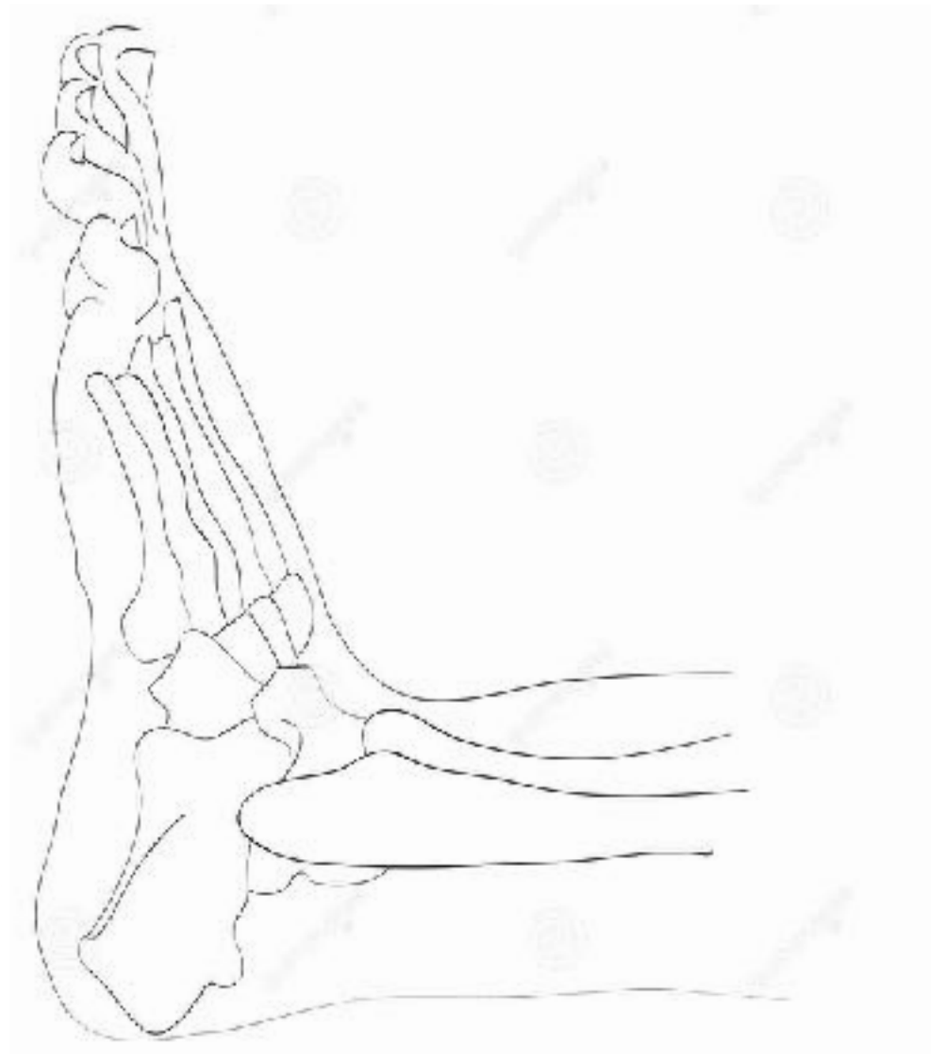
If this motion is possible, the stepping reflex is NOT present

If this is the ONLY motion possible, the stepping reflex is present

Primitive Reflexes in the Foot

- If springing pressure elicits no give in the calcaneus (hard end feel), look for a retained heel reflex.

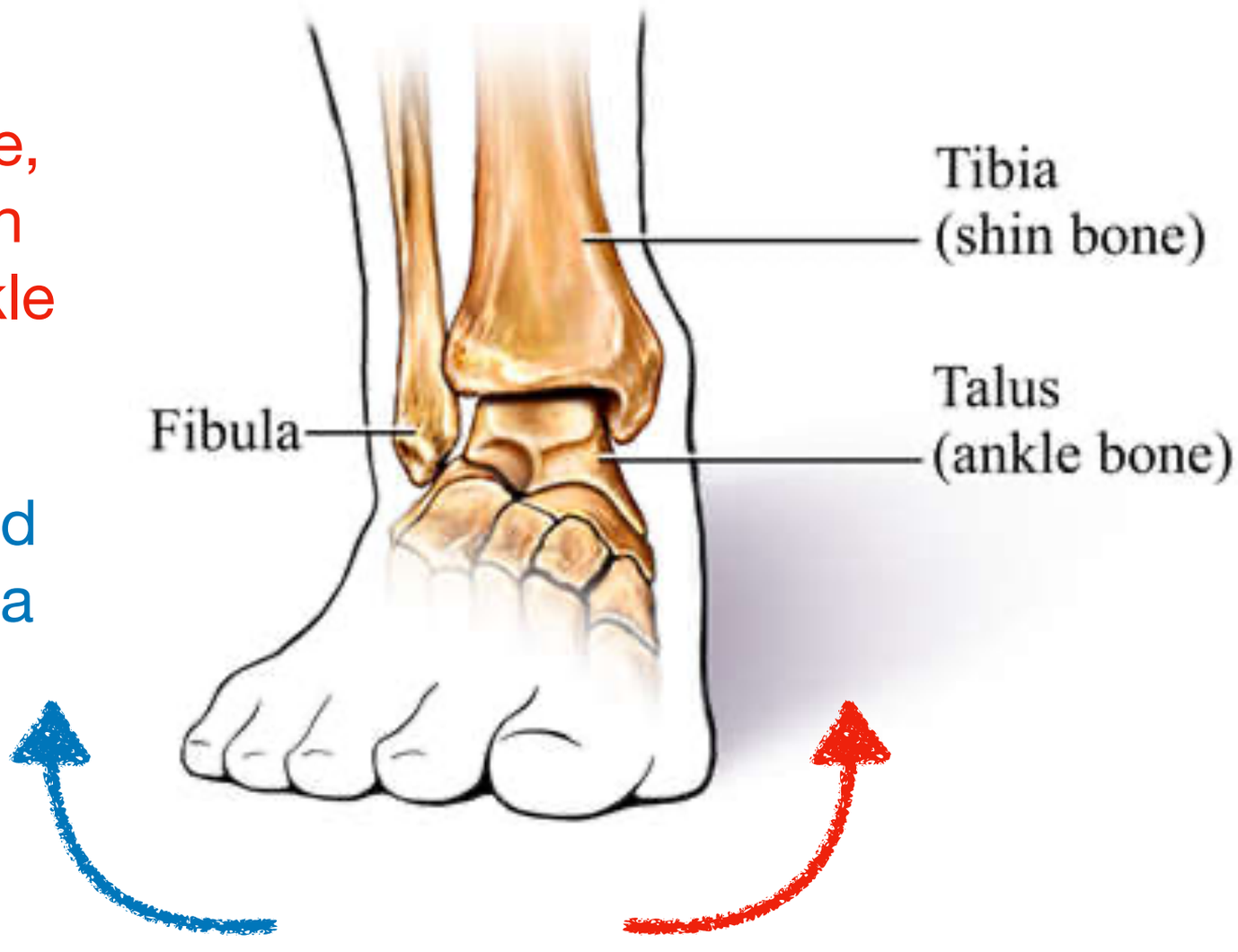
- (if you are testing too far posteriorly, you will dorsiflex the foot and not be testing the heel reflex)



Primitive Reflexes in the Foot

- If inversion motion is possible, this is normal. A foot stuck in inversion can indicate an ankle sprain (chronic or acute)

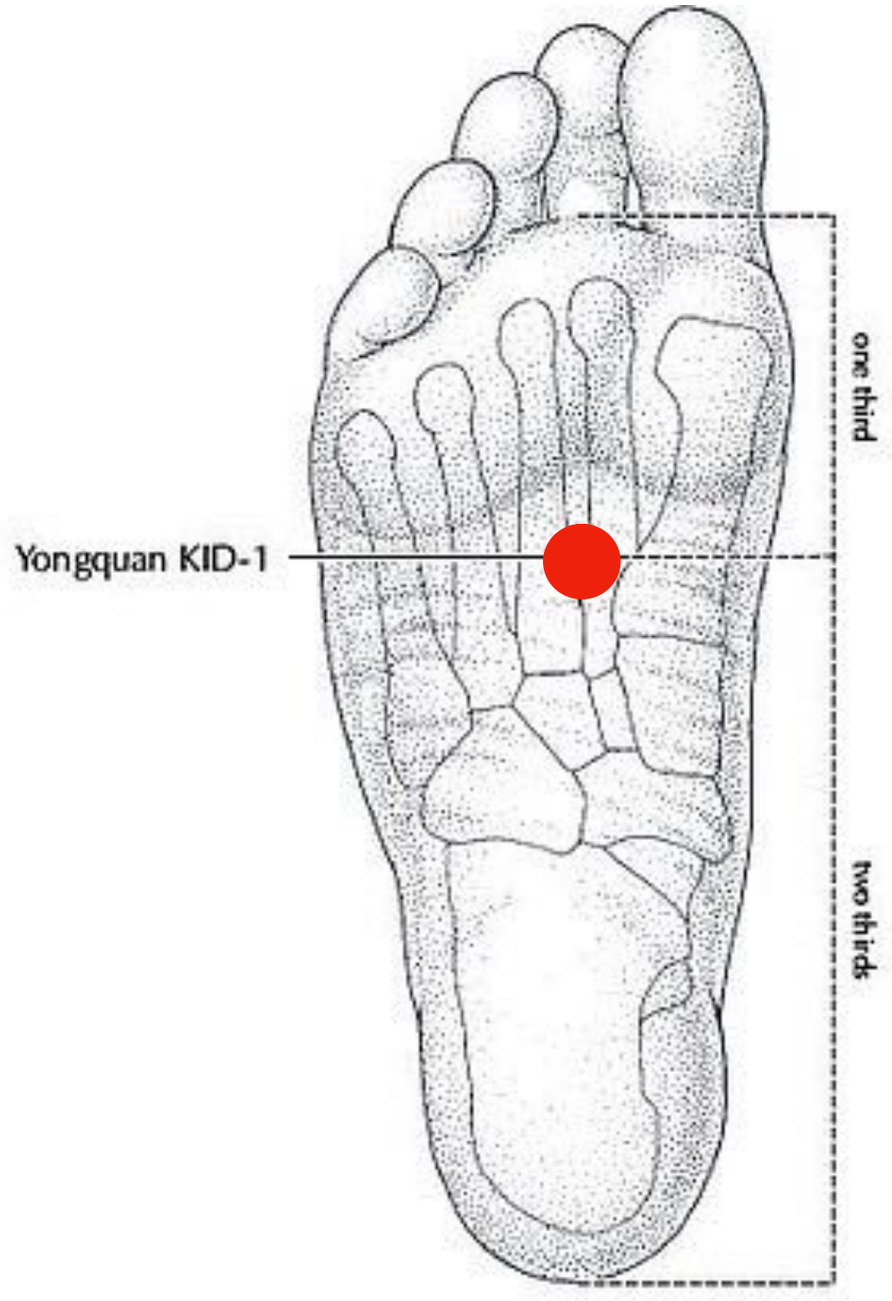
- If eversion motion is restricted or not present at all, look for a retained Babinski reflex.



Primitive Reflexes in the Foot

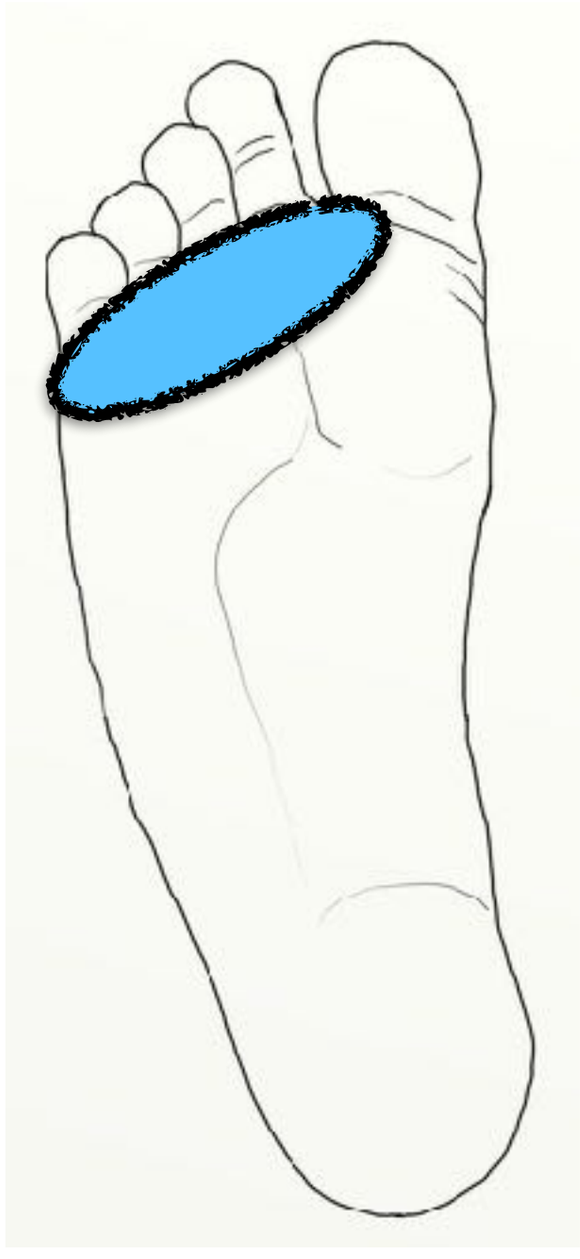
- If muscular tension is present here, check for a retained crossed extensor reflex.

- It is the Kidney 1 point in acupuncture and relates to insomnia.



Primitive Reflexes in the Foot

- If there is restriction of motion here (toe flexion primarily), check for a retained plantar grasp reflex.



Primitive Tactile Reflexes

Palmar Grasp Reflex

“We must not allow other people’s limited perceptions to define us.”

–Virginia Satir

Palmar Grasp Reflex

- Emerges at 11weeks in utero and should be present at birth

- It is a reflex of two parts – the grasp and the response to traction or the effect of pulling. If an object such as a finger is placed in the palm, the fingers close round the object (the grasp). If the fingers are then drawn gently upwards, the grip is reinforced (the traction effect) and it would appear that the baby could support its own weight if so suspended. If the baby's head is not in the midline, the grasp will be strongest on the occiput side/the side nearest the back of the head.

Palmar Grasp Reflex

- The purpose of the palmar reflex is deep-rooted; it helps the neonate cling to his/her mother for safety. In the first post-natal months, there is a connection between the palmar reflex and sucking and vice versa, such that there is reciprocal elicitation of these reflexes.

Palmar Grasp Reflex

- This connection between the palmar reflex and sucking is known as the **Babkin reflex** – the palmar-mandibular response. When pressure is applied to the palms, the neonate may flex and/or rotate his head and open his mouth. The Babkin response demonstrates the hand-mouth sensorimotor links which are present in the early months.
- An exceptionally strong palmar reflex may be found in an infant with kernicterus and hypertonic cerebral palsy. It will be unilateral in hemiplegia.

Palmar Grasp Reflex

- The palmar reflex should be inhibited in the first three to six months of life. A baby losing his palmar reflex will drive his parents mad by his incessant dropping of an object and the resultant demands that this is retrieved and handed back – only for it to be dropped again. The child is learning to ‘let go’ of an object previously held in an uncontrolled fashion because the reflex dictated it be so. Once he learns to release the object, a child can start to develop more mature hand movements, the most important and useful of which is opposition.

Palmar Grasp Reflex

- If a child has not learned how to release objects, his *manual dexterity* and fine motor use of his hand will be compromised. He will use a pencil, feeding tools and items such as scissors, inappropriately. This leads to the need for increased effort to perform tasks and the likelihood that these tasks are performed inefficiently and with reduced accuracy.

Palmar Grasp Reflex

- There may be overflow and *lack of separation of hand/mouth movements* so that the child uses his mouth when he writes or overuses his arms and hands when he talks. In severe cases, the development of speech may be affected because articulation is affected by a continuing Babkin response.

Palmar Grasp Reflex

- *Hypersensitivity in the palm of the hand* and intense dislike of touch in the hand is a nuisance and can prevent correct use of implements.

Palmar Grasp Reflex

- Testing:
  - Patients open hand is stroked from MCP to wrist and from thenar to hypothenar eminance

  - A positive test results in finger movement

Palmar Grasp Reflex

- Testing:
    - Have patient grasp two of operators fingers
    - Operator tests the grip strength against gentle traction (you can add rotation as well)
    - Patients thumb should be outside their fingers (naturally)
    - A positive test results in increase in patients grip

Osteopathic Finding

- All of the grasp reflexes have similar findings - tight scapulas that will not compress and tight rhomboids.

Hands-Supporting Reflex, Parachute Reflex

“I’ve learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.”

–Maya Angelou

Parachute Reflex

- This reflex supports the coordination of a wide array of functions, including both gross and fine motor skills. It helps the infant to develop the ability to move comfortably and safely through her environment; and it lends its support as the child learns to differentiate between her hands, arms, and shoulders.

- This differentiation will be particularly important in the development of handwriting.

Parachute Reflex

- A very basic function of the hands-supporting reflex that should not be overlooked is the protection of the child when falling. A child with a retained hands-supporting reflex may not extend her hands to avoid an injury when she falls.

- This, in fact, forms the basis of the test for this reflex.

Parachute Reflex

- To elicit the response, one should hold the baby under the armpits in a prone position and then lower her a short distance toward a horizontal surface.

- If the infant's motor nerve development is normal, at about 6 months, she will extend her arms, hands, and fingers on both sides of the body in a movement of survival and protection. Such a response would protect against injuries to the brain and internal organs, sometimes at the expense of the arms.

- The effect of the lowering motion on the baby's vestibular system, as well as on her vision, is important in eliciting the response. Children with a retained hands-supporting reflex may not use their hands and arms to protect themselves: they may bump into objects or people, display a generally undeveloped spatial awareness, and lack coordination and gross motor skills.

Parachute Reflex

- The hands-supporting reflex contributes to the establishment of physical boundaries and helps to create a sense of “personal space.”

- Thus, when the reflex is retained, we see unexpected reactions to someone who enters the child’s personal boundaries or “gets in her space.”

- In these cases, the child may bite, pinch, or hit in response. This type of reaction is also frequently reported in children or adults with autism.

- This sensitivity of personal space and lack of healthy boundaries may result in a tendency toward isolation—choosing to retreat into one’s own world.

- Such a person may become uncommunicative and socially distant or immature.

Parachute Reflex

- Testing in an Adult:

    - Enter their personal space while palpating for a brain response. If a response is noted, the reflex is retained.

Osteopathic Finding

- All of the grasp reflexes have similar findings - tight scapulas that will not compress and tight rhomboids.

- Consider how this would appear with the fear paralysis reflex also retained.

Babkin Reflex

“Believe you can and you’re halfway there.”

–Theodore Roosevelt

Babkin Reflex

- The Babkin Reflex emerges around 9 weeks in utero, is active during the first 3 months after birth, and should be integrated at about 4 months.

Babkin Reflex

- This reflex helps the baby to stimulate the breast causing breast milk to flow while breastfeeding. The pattern of the Plantar Reflex in the feet is very similar to the Babkin Reflex in mammals when they stimulate the breast with their paws.

Babkin Reflex

- When infants suck, there is not only involuntary movement of their hands, but many times their toes and feet curl. When a child with an active Babkin Reflex writes or does other fine motor work, like playing an instrument or using scissors, there will be involuntary movements of the mouth and tongue.
- Harald Blomberg (2012) has found that the Babkin Reflex may influence the movements of the sphenoid and temporal bones, and directly impacts speech, articulation, and even phonological ability.

Babkin Reflex

- Some symptoms of a nonintegrated **Babkin Reflex**
  - Low muscle tone in the hands
  - Poor handwriting; impaired fine motor skills
  - Challenges with speech and articulation; speech delay
  - Tensions of the jaw; grinding or clenching of teeth; tensions in the body, especially tightly clenched fists (TMJ issues)
  - Can affect reflexes responsible for eating, therefore can be seen in eating disorders and excessive nail biting
  - Retention of long-term sucking, such as biting or sucking on ones clothes or objects in the hands

Babkin Reflex

- Testing:
  - Patient tries to both open and close hands against the operator’s resistance

  - A positive test is displayed by weakness or lack of coordination in either movement

Osteopathic Finding

- All of the grasp reflexes have similar findings - tight scapulas that will not compress and tight rhomboids.
- Tight buccinators.
- Possible restricted premaxilla.

Plantar Grasp Reflex (Feet)

“The person who says it cannot be done should not interrupt the person who is doing it.”

–Chinese Proverb

Plantar Grasp Reflex

- The plantar reflex, like the palmar grasp reflex, emerges at 11 weeks *in utero* but it is inhibited a little later, usually by the time the infant learns to stand.

Plantar Grasp Reflex

- The plantar reflex is a grasp reflex but in the human infant only weakly so. Its purpose is to complement the palmar reflex and assist the neonate in grasping onto his mother. Its presence allows for movements of the toes and foot and helps stimulate movement of the whole leg.

- One of its most important roles is to inhibit the Babinski reflex within the first year of life.

Plantar Grasp Reflex

- This connection between the palmar reflex and sucking is known as the **Babkin reflex** – the palmar-mandibular response. When pressure is applied to the palms, the neonate may flex and/or rotate his head and open his mouth. The Babkin response demonstrates the hand-mouth sensorimotor links which are present in the early months.
- An exceptionally strong palmar reflex may be found in an infant with kernicterus and hypertonic cerebral palsy. It will be unilateral in hemiplegia.

Plantar Grasp Reflex

- *Gravitational insecurity* in standing is a major casualty of a retained plantar reflex. If foot placement when walking or foot position in standing is incorrect, the child will feel unstable and will not like being upright.

Plantar Grasp Reflex

- If a child has not learned how to release objects, his *manual dexterity* and fine motor use of his hand will be compromised. He will use a pencil, feeding tools, and items such as scissors inappropriately. This leads to the need for increased effort to perform tasks and the likelihood that these tasks are performed inefficiently and with reduced accuracy.

Plantar Grasp Reflex

- A child may suffer from *hypersensitivity* to touch on the soles of the feet and find uneven surfaces impossible to negotiate.

- If balance is shifted away from the soles of the feet to the balls of the feet, the child may be a *toe-walker.*

Plantar Grasp Reflex

- Testing:
  - The reflex is tested by gently stroking the sole of the foot behind the toes (ball of the foot)

  - The toes will curl/flex downwards towards the stimulation and the foot will plantar flex/moves away from the shin in a positive test

Osteopathic Finding

- Toes curled down, tension on the plantar surface proximal to the toes.

- Poor balance.

Rooting Reflex

“Great minds discuss ideas; average minds discuss events; small minds discuss people.”

–Eleanor Roosevelt

Rooting Reflex

- The rooting (searching) reflex is one of many oral reflexes, which gradually appear from about twelve weeks *in utero* and should be present at birth.

- The rooting reflex emerges at about 24 weeks post-conception and is seen *in utero* when stimulation of the side of the mouth or cheek results in turning of the head towards the stimulus.

Rooting Reflex

- The rooting reflex is strongest immediately after birth and it is important that the neonate's earliest attempts are gratified. The newborn will root or search and the reflex is triggered on contact or touch at the side of the mouth, cheek or nose. The baby turns his head towards the stimulus, opens his mouth and extends his tongue.

- The nipple or teat in his mouth makes contact with the roof of the mouth and this contact sets off rhythmic suckling movements – thus the 'feeding reflex' is put into action. If, for medical reasons, the baby is not able to feed orally immediately after birth, he may go on to have difficulties feeding at a later stage.

Rooting Reflex

- The purpose of the rooting reflex is obvious. There is a need for an innate pattern to search for food before vision is developed. As the baby grows, his responses become conditioned and the sight of the breast or bottle will have him turn his head to the necessary position and he will open his mouth with no physical contact.

Rooting Reflex

- A retained reflex can cause:

  - *Hypersensitivity* around the mouth area may be an issue with a retained rooting reflex.

  - *Poor fine muscle control* of the internal and external mouth area may lead to problems with correct and full articulation needed for speech.

  - The *tongue position* may be too far forward, making swallowing and chewing difficult resulting in poor control of food in the mouth and *dribbling*.

Rooting Reflex

- A retained reflex can cause:
    - Tongue lies too far forward
    - Hyper sensitivity around mouth
    - Difficulty with textures and solid foods
    - Thumb sucking
    - Speech and articulation problems

Rooting Reflex

- A retained reflex can cause:
    - Difficulty swallowing and chewing
    - Dribbling
    - Hormone imbalance
    - Thyroid problems and autoimmune tendency
    - Dexterity problems when talking

Rooting Reflex

- Testing:
  - The reflex is tested by gently stroking the from the mouth outward in the 4 cardinal compass directions three times each

  - Look for their mouth or hands to twitch on either side. This is a positive test

Osteopathic Finding

- Tension in the low back - dental connection
- Sensitivity around the mouth
- Poor speech
- Poor tongue function

Sucking Reflex

“The only thing worse than being blind is having sight but no vision.”

–Helen Keller

Sucking Reflex

- The sucking reflex is essential for feeding. Babies begin practicing it in the womb and it becomes fully developed by 36 weeks. This is why you may have caught a glimpse of your baby sucking his thumb or hand on the ultrasound. It's kind of like a warm-up exercise for the real world.

Sucking Reflex

- Babies who are born prematurely may not have a strong sucking reflex at birth. They may also not have the endurance to complete a feeding session. Premature babies sometimes need some extra help getting nutrients via a feeding tube that’s inserted through the nose into the stomach. It may take weeks for a premature baby to coordinate both sucking and swallowing, but many figure it out by the time of their original due dates.

Sucking Reflex

- The sucking reflex actually happens in two stages. When a nipple — either from a breast or bottle — is placed in the baby's mouth, they'll automatically start sucking. With breastfeeding, the baby will place their lips over the areola and squeeze the nipple between their tongue and roof of the mouth. They'll use a similar movement when nursing on a bottle.
- The next stage happens when the baby moves their tongue to the nipple to suck, essentially milking the breast. This action is also called expression. Suction helps keep the breast in the baby's mouth during the process through negative pressure.

Sucking Reflex

- Premature babies may have a weak or immature sucking ability because the reflex has not fully developed. You may notice a combination of sucking issues, including:

    - Disorganized or inefficient sucking patterns
    - Weakened lip seal
    - Impaired tongue shaping or movement
    - Weakened stability of the inner cheek
    - Trouble synchronizing the suck and swallow with breathing

Sucking Reflex

- A retained reflex can cause:
    - Speech and articulation problems
    - Difficulty swallowing and chewing
    - Difficulty speaking and doing manual tasks at the same time
    - Involuntary tongue or mouth movements when writing or drawing
    - Poor manual dexterity, especially when chewing or speaking
    - Class II dental occlusion requiring dental intervention

Sucking Reflex

- Testing:

- The baby's swallowing reflex projects the tongue forward which allows the baby to wrap their tongue around a nipple. This reflex matures to the adult swallow reflex whereby the tongue moves backwards to push a bolus of food down the throat.

- If a Juvenile Suck Thrust is not adequately integrated, the tongue projects forwards before moving backward in the normal swallow. This tongue thrust continually pushes against the back of the front teeth.

Sucking Reflex

- We swallow thousands of times each day just for saliva and this continual pressure can push the front teeth forward. This causes a ‘class 2 occlusion’ otherwise known as an overbite, one of the common problems requiring orthodontics or orofacial orthopedics. It is a huge problem for dentists and their patients.

- The correction for retention of this reflex can be at any time of life however correction as early as possible is of course preferable. It may save the formation of buck teeth, an overbite and narrow upper palate, or recurrence of the overbite after orthodontic intervention.

Osteopathic Finding

- Tension in the low back - dental connection
- Poor speech
- Poor tongue function
- Class II malocclusion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Snout Reflex

“Anyone who stops learning is old, whether at twenty or eighty. Anyone who keeps learning stays young. The greatest thing in life is to keep your mind young.”

–Henry Ford

Snout Reflex

- Emerges in Utero.

- Normally integrates by one year of age.

Snout Reflex

- In a typical infant, the snout reflex is related to sucking behavior.

- When retained, it may indicate a myriad of cerebral disorders that affect the frontal lobes and pyramidal tracks.

- This reflex is often retained in children with autism.

Sucking Reflex

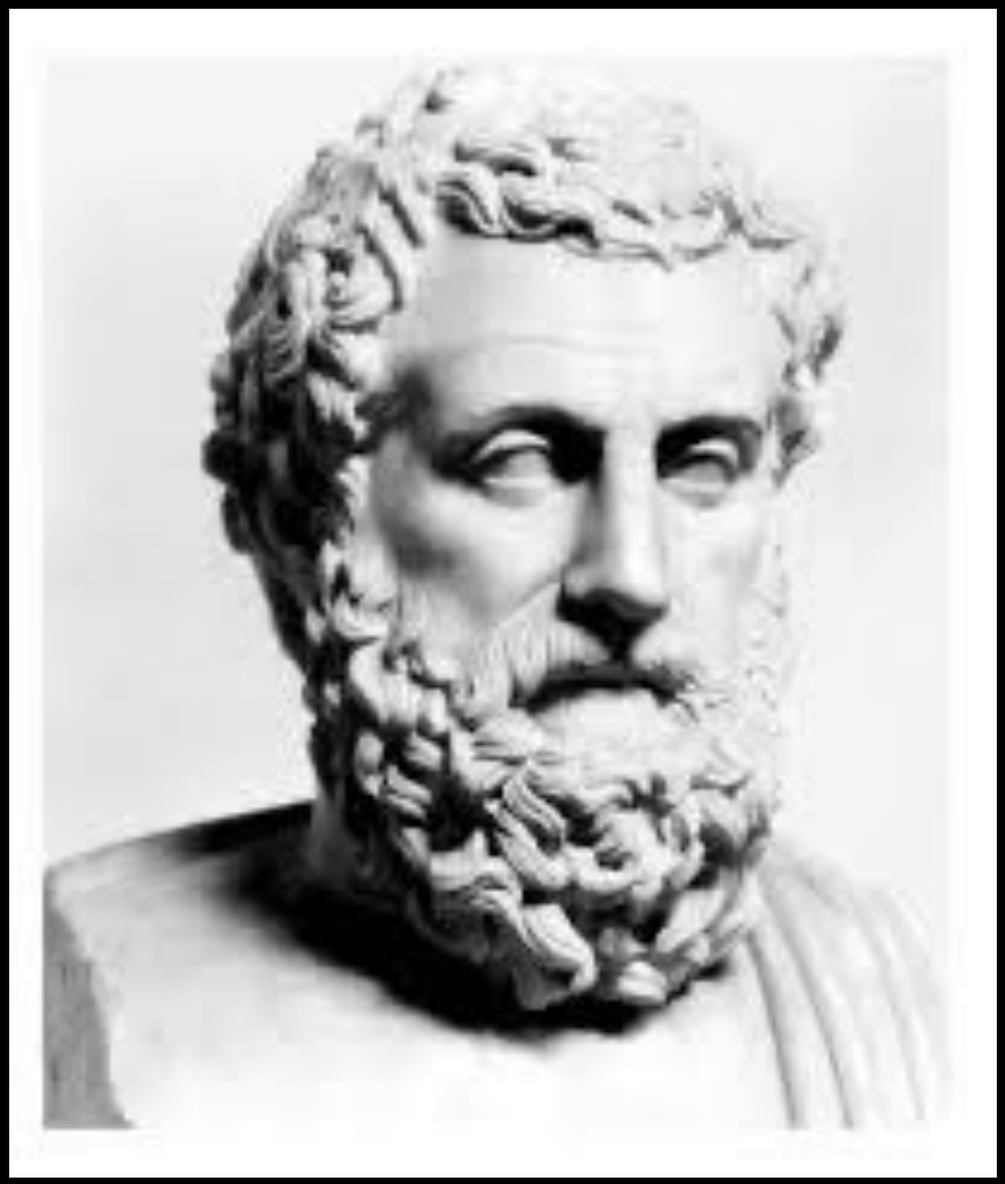
- Testing:
  - The snout reflex is elicited by lightly tapping the baby’s upper lip.

  - Muscle contraction around the mouth and base of the nose causes the mouth to pucker, creating the resemblance to a snout.

Osteopathic Finding

- Restriction of the premaxilla

Glabellar Reflex



“It is the mark of an educated mind to be able to entertain a thought without accepting it.”

– Aristotle

Glabellar Reflex

- Emerges at birth.

- Normally integrates by the fourth month.

Glabellar Reflex

- Testing:

- It can be elicited by repetitive tapping on the forehead.

- Typically, once integrated, the subject will blink in response to the first several taps and then become habituated to the stimulus.

- If the subject continues blinking, it is called Myerson’s sign. Persistence of blinking is abnormal and is an indicator of cerebral pathologies such as Parkinson’s disease, cerebral palsy, tumors, and head injury.

Osteopathic Finding

- Look for tension in the falx and scalp fascia.

Posterior Chapman's Reflexes and their Relationship to the Primitive Reflexes

Occur bilaterally unless otherwise noted

C_1 - Cerebral Congestion, Cerebral Congestion, Otitis Media, Nose, Tonsillitis

ASTNR

$C_{3,4,6,7}$ - Torticollis

Moro

C_2 -Cerebral Congestion, Pharyngitis, Tongue, Laryngitis, Sinusitis

ASTNR

These points relate to the grasp reflexes of the palm

Neurasthenia

Dupuytren's Contracture

These points relate to the righting reflexes and the STNR

Ribs$_{1-3}$ - Arms

T_2 - Thyroiditis, Bronchitis, Esophagitis, Myocarditis

T_3 - Upper Lung, Neuritis of the Upper Limb

T_4 - Lower Lung

These points relate to the spinal Gallant and Perez reflexes

$T_{5\,L}$ - Gastric Hyperacidity

$T_{5\,R}$ - Torpid Liver

$T_{6\,L}$ - Gastric Hypercongestion

$T_{6\,R}$ - Liver and Gall Bladder

$T_{7\,L}$ - Splenitis

$T_{7\,R}$ - Pancreas

These points relate to the spinal Gallant and Perez reflexes

T_8 - Small Intestine (Upper)

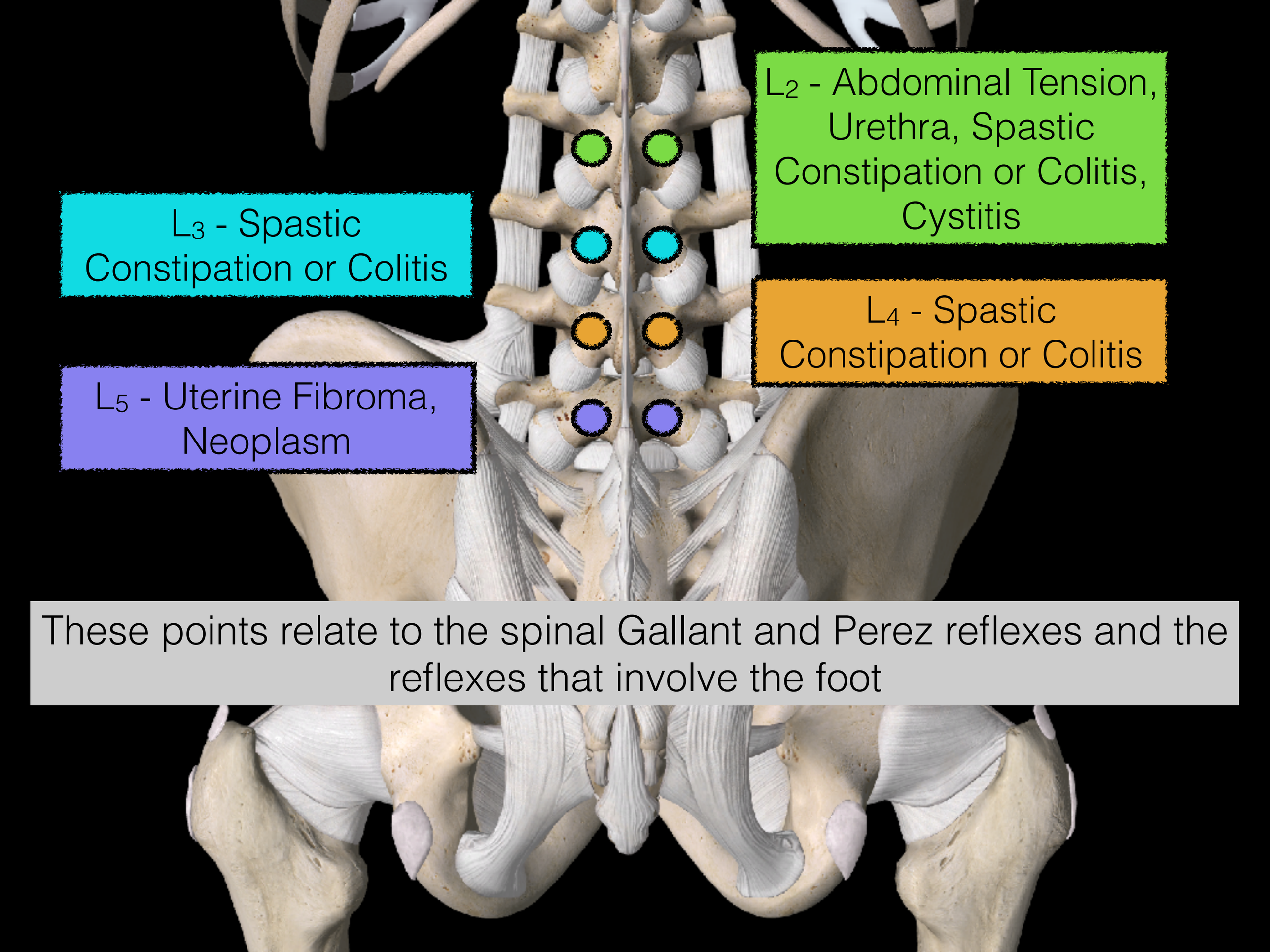
T_9 - Ovary (Inner), Small Intestine (Middle)

T_{10} - Ovary (Outer), Small Intestine (Lower)

Rib_{10} - Pyloric Stenosis (R side)

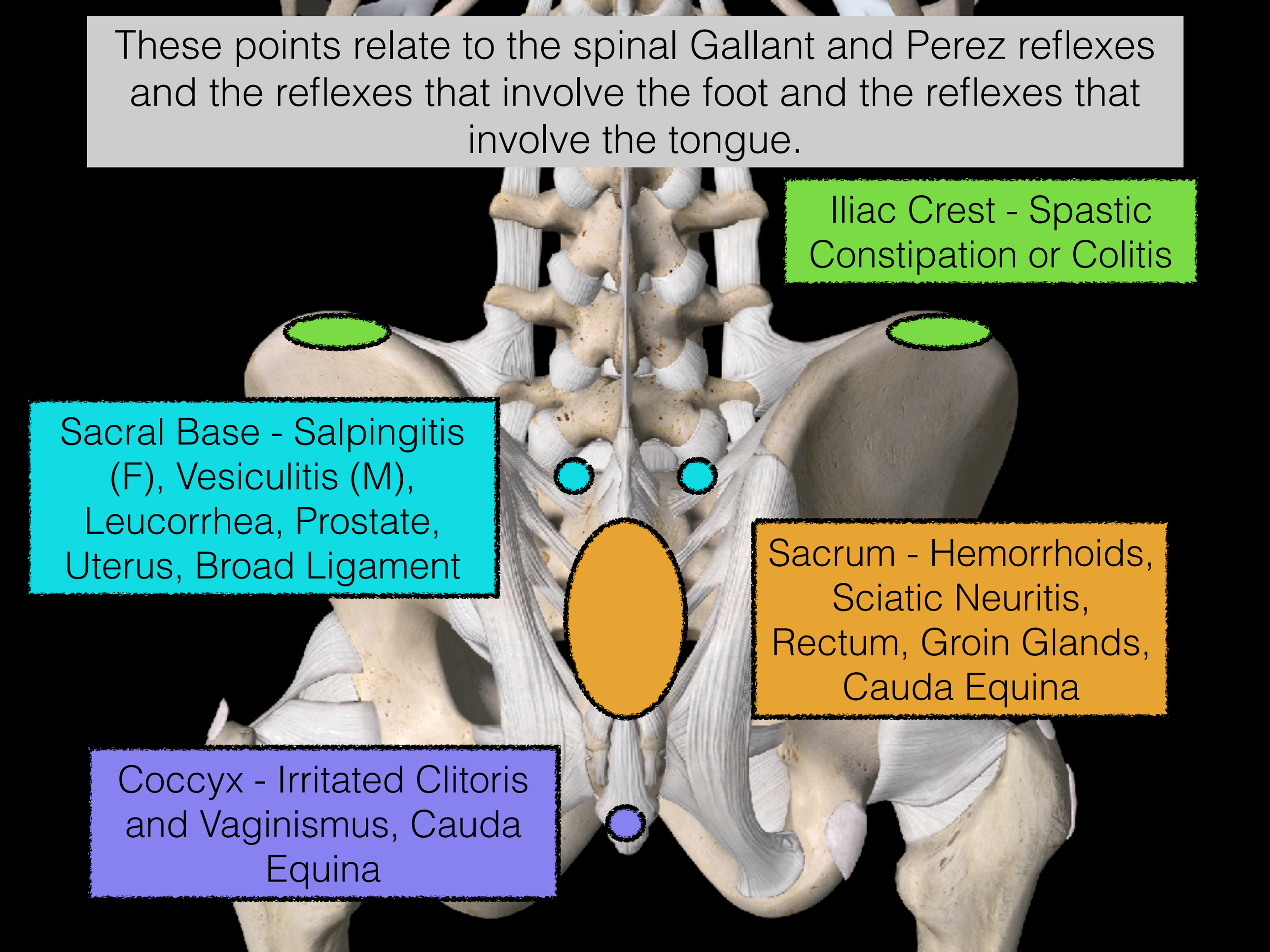
T_{12} - Kidneys

T_{11} - Appendix, Atonic Constipation, Adrenals



These points relate to the spinal Gallant and Perez reflexes and the reflexes that involve the foot

These points relate to the spinal Gallant and Perez reflexes and the reflexes that involve the foot and the reflexes that involve the tongue.



Iliac Crest - Spastic Constipation or Colitis

Sacral Base - Salpingitis (F), Vesiculitis (M), Leucorrhea, Prostate, Uterus, Broad Ligament

Sacrum - Hemorrhoids, Sciatic Neuritis, Rectum, Groin Glands, Cauda Equina

Coccyx - Irritated Clitoris and Vaginismus, Cauda Equina

Primitive Reflex	Purpose of Reflex	Appears	Should Integrate By:	Signs of Retention
Moro Reflex	Primitive Fight or Flight Reaction	Birth	2 to 4 Months	Hyper Sensitivity, Hyper Reactivity, Poor Impulse Control, Sensory Overload, Social & Emotional Immaturity
Rooting Reflex	Automatic Response to Turn Towards Food	Birth	3 to 4 Months	Fussing Eating, Thumb Sucking, Dribbling, Speech and Articulation Problems
Palmer Reflex	Automatic Flexing of Fingers to Grab	Birth	5 to 6 Months	Difficulty with Fine Motor Skills, Poor Manual Dexterity, Messy Handwriting
ATNR	To Assist Baby Through Birth Canal and Develop Cross Pattern Movements	Birth	6 Months	Poor Eye-Hand Coordination, Difficulty with Handwriting, Trouble Crossing Vertical Mid-line, Poor Visual Tracking for Reading and Writing
Spinal Gallant Reflex	Assist Baby with Birth Process	Birth	3 to 9 Months	Unilateral or Bilateral Postural Issues, Fidgeting, Bedwetting, Poor Concentration, Poor Short Term Memory
TLR	Basis for Head Management and Postural Stability Using Major Muscle Groups	In Utero	3 1/2 Years	Poor Muscle Tone, Tendency to Walk on Toes, Poor Balance, Motion Sickness, Spatial Orientation Issues
Landau Reflex	Assist with Posture Development	4 to 5 Months	1 Year	Poor Motor Development
STNR	Preparation for Crawling	6 to 9 Months	9 to 11 Months	Tendency to Slump While Sitting, Poor Muscle Tone, Poor Eye-Hand Coordination, Inability to Sit Still and Concentrate

Primitive Reflexes Cheat Sheet

Reflex Name	Description	Age Develops	Age Inhibited	Signs and Symptoms of Retention
Moro Reflex	• Considered the "fight or flight" response - activation of the sympathetic nervous system • Triggered by sudden unexpected occurrence of any kind • Arms and legs move outwards with quick inhalation, then freeze momentarily and then arms and legs tuck back in and the child exhales • Accompanied by a possible outburst of cries	Begins to develop 9 weeks in utero	2-4 months of life	• Hypersensitive/reactive • Poor impulse control • Vestibular related problems such as motion sickness, poor coordination (noticeable in ball games) • Physically timid • Oculomotor and visual perception problems • Poor pupillary control (sensitivity to light) likely caused by adrenal fatigue • Poor auditory discrimination • Dislike of change or surprise
Palmar Reflex	• Light touch or pressure in the palm of the hand will cause the fingers to close	Begins to develop 11 weeks in utero	2-3 months of life	• Poor manual dexterity/fine motor skills • Poor writing skills (messy writing or pressing too hard) • Speech difficulties (hand and mouth relationship via the Babkin response)
Asymmetrical Tonic Neck Reflex (ATNR)	• Movement of baby's head to one side will result in extension of the arm and leg to the side that the head is turned and bending of the limbs on the other side of the body • ATNR assists in a vaginal birth	Begins to develop 18 weeks in utero	Approx. 6 months of life	• Balance may be affected as a result of head movement to either side • Homolateral, instead of normal cross-lateral movements when walking, marching, skipping etc. • Difficulty crossing the mid-line • Poor ocular pursuit movements (eye tracking) • Difficulties with hand eye coordination • Poor handwriting and poor expression of ideas on paper
Rooting Reflex (Grasp Reflex)	• Searching, sucking and swallowing reflex • Light touch of the cheek or stimulation of the edge of the mouth will cause the baby to turn the head toward the stimulus and open the mouth in preparation for sucking	Begins to develop 24-28 weeks in utero	3-4 months of life	• Hypersensitivity around lips and mouth • Tongue may remain too far forward in the mouth (makes swallowing and chewing of certain foods difficult) • Speech and articulation problems • Poor manual dexterity (Babkin response)
Spinal Galant Reflex	• Assists in the birthing process • While the child in in the prone position, stimulation of the back on one side of the spine will result in hip flexion (rotation) to 45 degrees towards the side of the stimulus	Begins to develop 20 weeks in utero	3-9 months of life	• Fidgeting • Bedwetting • Poor concentration • Poor short term memory • Unilateral or bilateral postural issues

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Reflex Name	Description	Age Develops	Age Inhibited	Signs and Symptoms of Retention
Tonic Labyrinthine Reflex (TLR)	• Two parts to this reflex: flexion (forward) and extension (backwards) • Basis for head management and postural stability using major muscle groups • Reflex is elicited by either moving the head forward (flexion) or backwards (extension), either above or below the spine • TLR exerts a tonic influence on the distribution of muscle tone throughout the body - helping the baby "straighten out" from the flexed position in the womb • Balance, muscle tone (balance between flexor and extensor muscles) and proprioception are all trained during this process	Flexion: Begins to develop in utero Extension: Present at birth	Flexion: Approx. 4 months of life Extension: Up to 3 years old	• Poor posture - stoop (Flexion) walk on toes (Extension) • Hypotonus -weak muscle tone (Flexion), stiff jerky movements (Extension) • Vestibular problems (poor sense of balance, motion sickness) - (Flexion and Extension) • Oculomotor dysfunctions - visual-perceptual difficulties and spacial perception problems (Flexion and Extension) • Poor sequencing (Flexion and Extension) • Dislike of sporting activities (Flexion) • Poor sense of time (Flexion) • Poor organizational skills (Extension)
Symmetrical Tonic Neck Reflex (STNR)*	• Two parts to this reflex: flexion (forward) and extension (backwards) • When child is prone resting on all four limbs, flexion of the head causes the arms to bend and the legs to extend • Head extension, on the other hand, causes the legs to flex and the arms to straighten. • Helps the child to defy gravity by getting up off the floor onto hands and knees from the prone position • Helps to inhibit the TLR and forms the bridge to the next stage of development	Both flexion and extension emerges 6-9 months of life	Both flexion and extension 9-11 months of life	• Poor posture • Tendency to "slump" when sitting especially at desk/table • Simian (ape like) walk • Poor hand-eye coordination such as copying from the board • Inability to sit still and concentrate
Landau Reflex*	• Helps to inhibit the TLR and forms the bridge to the next stage of development • Engages the extensor tone throughout the body in the prone position if the baby is suspended in the air with support under the stomach • To assist with posture development	Emerges 4-5 months of life	3.5 years of life	• Affects the development of balance and muscle tone in rapidly changing conditions • Runs with stiff awkward movement • Find hopping , skipping and jumping difficult

***Considered a "bridge" reflex between primitive and postural**

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Links

- https://brainbrighttherapy.com/wp-content/uploads/2019/01/Primitive-Reflex-Handout_symptoms.pdf
- https://masgutovamethod.com/about-the-method/how-mnri-method-works
- https://masgutovamethod.com/articles#dv.i58
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Links

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