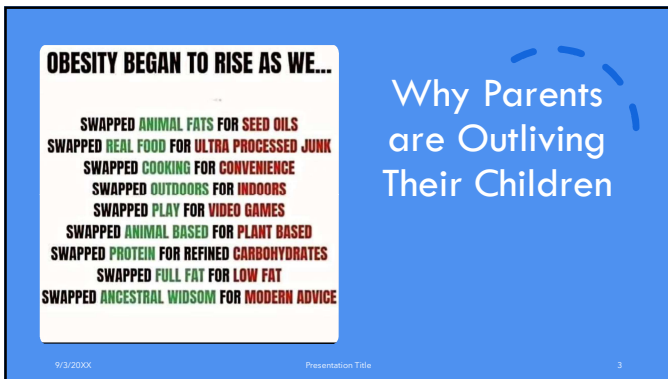




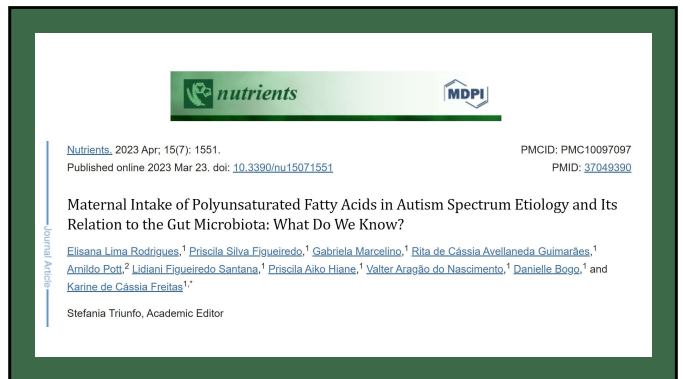
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PCN Psychiatry and Clinical Neurosciences

Regular Article | Open Access | © ⓘ

Arachidonic acid-derived dihydroxy fatty acids in neonatal cord blood relate symptoms of autism spectrum disorders and social adaptive functioning: Hamamatsu Birth Cohort for Mothers and Children (HBC Study)

Takaharu Hirai PhD, Naoko Umeda PhD, Taeko Harada PhD, Akemi Okumura PhD, Chikako Nakayasu BA, Takayo Ohto-Nakanishi PhD ... See all authors ✓

First published: 23 July 2024 | <https://doi.org/10.1111/pcn.13710>

5

Autism research

- Polyunsaturated fatty acids (PUFAs), which include omega-3 fatty acids, are dietary fats that play a key role in fetal brain development and may be linked to autism spectrum disorder (ASD). Research suggests that people with ASD have lower levels of PUFAs than those without ASD, possibly due to overactive PUFA metabolism. Altered PUFA metabolism can lead to increased inflammation, oxidative stress, and imbalances in neurotransmitter formation and action.

6

Cause

- Today, we've seen a massive shift towards consuming more PUFAs and fewer saturated fats. This change is particularly pronounced in the consumption of linoleic acid (LA), an omega-6 PUFA that's abundant in vegetable oils. Prior to the 20th century, LA made up less than 2% of total daily caloric intake. Now, it accounts for over 25% of total calories for the average person⁴ — a more than tenfold increase!

7

ADHD AND OTHER HEALTH PROBLEMS

- Another study investigating umbilical cord fluid found that elevated levels of AA were linked to higher ADHD symptom scores during childhood.⁶ Further, maternal diets high in omega-6s increases ADHD risk in the child.^{7,8}
- High omega-6 diets in mothers have also been associated with increased risk of cognitive impairments in their children.^{9,10} These findings collectively support the "fetal origins of disease" concept, which suggests that altered nutrition in early life can lead to disease development later on.
- This is particularly relevant to central nervous system (CNS) development, as "the developing CNS is particularly vulnerable during intrauterine development to metabolic compromise given the exceptional energy demands of its many cell types that are being generated (including neurons, astroglia, microglia, oligodendroglia, vasculature), their protracted movements (migration), morphogenesis, and assembly into functional circuits.
- Thus, disruption of these processes by environmental factors will likely provoke long-lived modifications to brain structure and, ultimately, function".¹¹


8

Solution

- Return to traditional fats- Sources richer in saturated fats and lower in PUFAs. (Tallow, lard, eggs, butter).
- Limit consumption of vegetable (seed oils), nuts and seeds, plus fattier cuts of meats from chicken and pigs fed a high-PUFA diet.
- A renewed focus on prenatal nutrition given the impact of maternal diet on fetal development.
- FYI: Current USDA tips for Tips for Pregnancy: "Choose vegetable oils instead of butter"

9

Aspartame and risk of autism



- Maternal intake greater than or equal to 12 ounces daily (1 can, 177 mg) during pregnancy/breastfeeding more than triples the risk of autism.
- Between 24%-30% of pregnant women use either non-nutritive sweeteners during pregnancy. There is a direct transplacental passage of NNSs in humans.
- There is a troubling concern about the possible dose accumulation of NNSs in the fetus.
- Causes decreased availability of glutathione, increased oxidative stress, mitochondrial dysfunction, inflammation, dysbiosis of the gut microbiota, leaky gut, and increased blood-brain barrier (BBB) permeability.

• Nutrients: August 29, 2023, Vol 15, No. 17: Article 3772

10

Subluxations at Birth

Necessity:

Incidence of Somatic Dysfunction in Healthy Newborns

- Objective: To identify the incidence and patterns of somatic dysfunction in healthy newborns 6 to 72 hours old.
- Methods: Healthy infants were examined and assessed for somatic dysfunction, including asymmetry and motion restriction of the cranial, cervical, lumbar and sacral regions.
- Results: One hundred newborns were examined (mean gestational age 38.5 weeks). In 99 of them, at least 1 sphenobasilar synchondrosis strain pattern was present, with side bending rotations being the most common present in 63 of them. Condylar compression was found in 95 newborns, temporal bone restrictions in 85 and motion restriction of at least one cervical vertebral segment in 91 newborns; at least one lumbar vertebral segment in 94 newborns, and a posterior sacral base in 80 newborns.
- Conclusion: Somatic dysfunction of the cranial, cervical, lumbar, and sacral regions was common in healthy newborns, and the total somatic dysfunction (SDSS) was related to the length of labor.

• Journal of the American Osteopathic Association, November 2015, Vol. 115, 654-665. doi: 10.7556/jaoa.2015.115

11




There has never been a more important time for Pediatric Chiropractic!

Brain Development Examination
Subluxations and Corrections
Common Problems and Case Studies

9/3/20XX Presentation Title 12

12

The Infant Brain



Think of this stage of development as the seat of everything automatic or the "bottom" of the brain.

13

100 Billion Brain Cells

Few Connections (synapses)



14

The First Year

- The brain continues to develop at an amazing rate throughout the first year. The cerebellum triples in size, which appears to be related to the rapid development of motor skills that occurs during this period. As the visual areas of the cortex grow, the infant's initially dim and limited sight develops into full binocular vision.
- Herschkowitz N. Neurological bases of behavioral development in infancy. *Brain & Development*. 2000;22:411-416.
- Knickmeyer RC, Gouttard S, Kang C, et al. A structural MRI study of human brain development from birth to 2 years. *Journal of Neuroscience*. 2008;28(47):12176-12182.

15

Neurological Development

65% of all neurological development occurs after birth in the child's first year of life. This is why it is important for a child to get checked and adjusted during the first year of life.

The earlier abnormal spinal function can be recognized and corrected in a child's life, the greater the opportunity that child will have for optimal neurological development.

16

HEMISPHERES PYRAMID OF DEVELOPMENT AND LEARNING

Birth to Age 3
Sees the fastest rate of brain development in the entire human lifespan. (80% of adult size)

www.hemispheres.org.uk

17

Hierarchy of Brain Development

- Thinking Brain → Abstract Thinking, Learning, Rational Thinking, Problem Solving, Reasoning
- Feeling Brain → Feeling, Emotional Regulation, Social Interaction, Empathy
- Movement Brain → Motor Movement, Balance, Coordination
- Survival Brain → Survival Skills, Fight or Flight Response, Temperature, Sleep, Hunger, Thirst

• Honoring the body's role in brain development.
• Development through movement.

Bottom-Up Approach

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18

Bottom-Up Interference

Stress on the nervous system in this early phase.

The child's brain won't stop growing, but they will have an abnormal pattern to their development which could later lead to more serious health patterns as a toddler, teen or adult.

9/3/20XX Presentation Title 19

19

Signs of Nervous System Stress

- Excessive clumsiness
- Difficulty with balance
- Floppy muscle tone
- Difficulty with speech
- Delays in learning
- And seizures.

20

20

Brain Hemispheres

- Right to left
- 0-2: the right brain is primary
- 2-6: Left brain dominance
- Both grow together after that

Left and Right Brain Functions

Left-Brain Functions	Right-Brain Functions
Analytic thought	Holistic thought
Logic	Intuition
Language	Creativity
Science and math	Art and music

21

Motor Milestones-Year 1+

12-15 months	Walking
08-11 months	Standing
06-10 months	Crawling
06-09 months	Sitting
04-07 months	Rolling
@ 1month, 4 months, 6 months	Head Control
	Birth

22

Red Flags


```

    graph TD
      A[Rolling onto side from Day 1] --> B[Bearing weight on legs]
      C[Head lag with pull to sit maneuver] --> D[Tone: Hyper or hypotonicity]
      E[Abnormal or missed crawling] --> F[Failure of primitive reflexes to inhibit.]
      B --> D
      D --> F
    
```

23

Rolling – When is it appropriate?

24



Standing too long, too soon

- Bearing weight:
- 3 months
- 7 months

alamy stock photo


25



Head lag

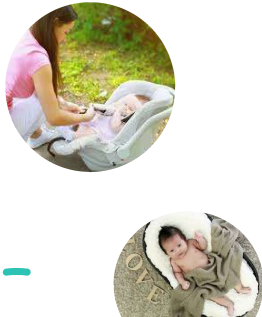
When is this abnormal and what might it indicate?

26



Tummy Time- Extensor Tone

27



Container Syndrome:

Infant may hate tummy time and miss crawling.

28

Another Reason
for Missed
Crawling



29

29


And Another...
1994 Back to
Sleep



30

30

Other causes of
missed
milestones



31

31

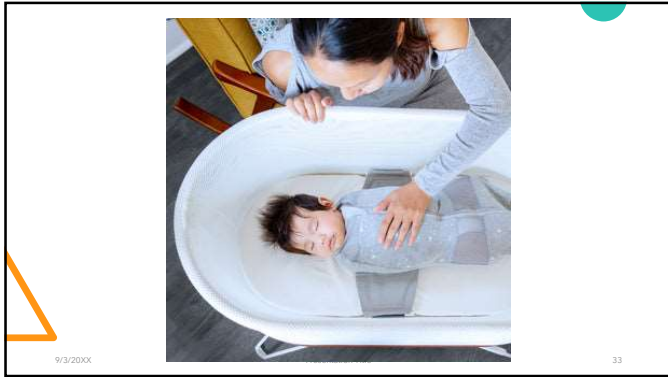
Swaddling Too Long



ARMS IN 1 ARM OUT 2 ARMS OUT



32

32



33


Sleep sacs

34

Milestones are an Indicator of Proper Neurological Development



- Better to assist and make sure milestones are met within an appropriate time frame rather than have to go back and retrain the brain at a later date.



35

Components of a Good Exam


- Rapport building: Parent(s)
- History: Pregnancy, birth, why are they here leading to appropriate questioning.
- Exam:
 - Observation: Skin: Baby acne, dry spots, Mongolian spots, bruising of face, milia, rashes, etc.
 - Head: Shape
 - Facial symmetry
 - Torso and extremity symmetry
 - Respiration: Infants breathe through the nose until about 4 months.
 - Posture: normal appearance: flexion of knees, hips and elbows.
 - Mouth symmetry
 - Jaw symmetry

36

Exam (cont'd)

- Cranial Nerve Evaluation
- Palpation: Palate and tongue, scm muscle, hyoid bone, clavicles, lymph nodes, spine, pelvis, sacrum.
- Range of Motion: Torso Flexion, torso extension, torso lateral bending right and left torso rotation right and left, cervical ROM, extremities ROM
- Tone of the upper and lower extremities
- Cranial exam: Anterior and posterior fontanelle, coronal, sagittal and lamdoidal sutures, shape, Webster's coronal suture.
- Orthopedic Tests: Barlow, Ortolani for hip dysplasia.
- DTR's
- Primitive Reflex Testing



37

Primitive Reflexes

Definition: a neurological arc that has both a specific stimulus and a predictable response or responses.

Each reflex has its own distinct timing and duration.

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The Importance of Primitive Reflexes

- Initially, they are present for our survival beginning in the womb.
- They lay the foundation for the nervous system and continue to work in concert with it throughout our lives.
- They set the stage for all that is to follow, and in conjunction they prepare the way for a complex network of neurological connections.
- They bring to life a vast array of abilities that encompass cognition, motor control, psychological development, learning and behavior.

39

Primitive Reflex Purpose

0-4 months: Protection and survival
4-24 months: Development
Lifelong: Stress regulation and trauma recovery. (ie: death, divorce, day to day stress of taking care of child with special needs, Covid-19)

40

What Is Their Lifespan?

The primitive survival reflexes should become inhibited or controlled by higher centers of the brain allowing for the development of the higher level postural reflexes.

Inhibition occurs for most of the primitive reflexes by one year with the exception of the Babinski reflex which can last until **24 months**.

41

PRIMITIVE REFLEX INTEGRATION BENEFITS

- Better motor skills
- More automated learning
- Less sensory sensitivities
- Improved emotions and behavior
- Better self-confidence and social skills

42



Reflex screening benefits

- To prevent or diminish developmental delays before they occur.
- To maximize future potential.

43

Fear Paralysis Reflex

First reflex: emerges 5-7 weeks in-utero and integrates between 9 and 32 weeks.
Replaced by Moro

Any disruption carries risk of adversely affecting the integration of all the remaining primitive reflexes.

In place to protect the mother and fetus. If a threat is introduced the fetus will experience:

- Motor paralysis
- Restricted peripheral blood flow
- Lowered heart rate
- Protects the fetus from: Cortisol and adrenaline

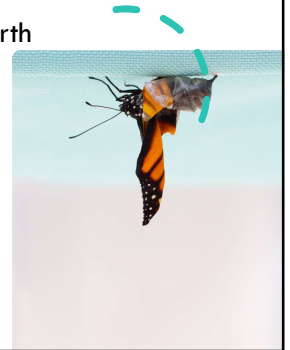
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45

Reflexes That Assist With Birth

- The Moro reflex produces cortisol and adrenaline to help activate the birth process.
- ATNR acts like a corkscrew causing the first rotation as the fetus initiates the journey down the birth canal.
- Bauer crawling, Perez, and Spinal Galant reflexes orchestrate the further movements that are necessary for birth to progress.



46

BAUER CRAWLING



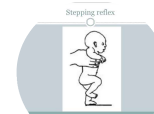
- Appears around **28** weeks in utero.
- Present from birth to about **6** weeks. Then returns when the infant begins to crawl.
- This reflex affects the development of whole body coordination. It leads to balance between the right and left hemispheres of the body. When this reflex is in play, it activates the [super highway or the corpus callosum](#) in the brain that connects the two brain hemispheres.

47

Placing and Stepping



- Present birth to **6** weeks.
- Absence suggests paresis often as a result of a breech delivery.



48

Spinal Perez

- Holding the infant in the prone position, stroke upwards from L5 along either side of the spine. The infant will flex arms and legs with extension of the neck and they will cry.
- Present from birth to six weeks.
- Development of movement and mental processing.



49

Babinski

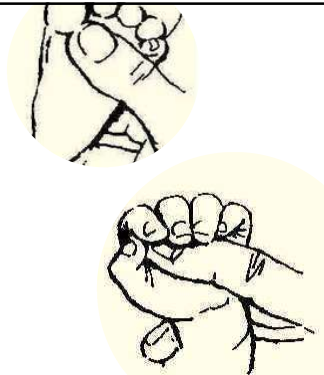
- Helps prepare infant for taking their first steps.
- Emerges week 1 and present up to 2 years.
- *Absence of this reflex suggests that their central nervous system has not matured properly, or there is some problem in their spinal cord.*
- *Persistence of this reflex even after reaching the age of two, can cause difficulty in placing their foot on the ground with ease.*



50

Palmar and Plantar Grasp

- Emerges: 11 weeks in utero
- Birth: Fully present
- Inhibits:
 - Palmar: 2-3 months of life.
 - Plantar: 7-9 months of life
- Palmar is replaced by: Pincer grasp



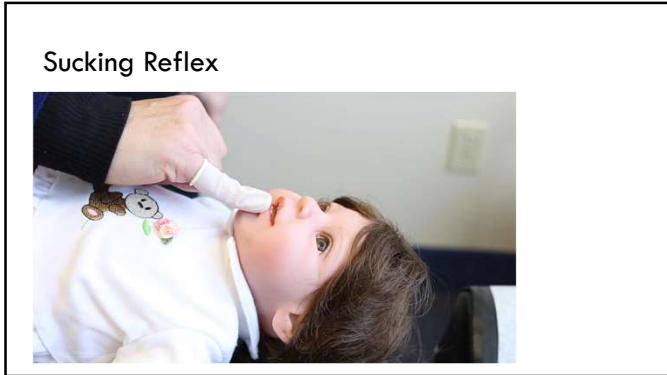
51

Rooting and sucking

- Present from birth to 4 months. Absence or diminishment may be associated with upper cervical subluxation (Occiput to C3).



52



53



54

Suck Training Exercises for Strengthening and Coordination

- Cheek Rubs- outside facing infant

- Squishy Face

- Lower gum line rubs

- Push ups on upper molar area

- Tug of War- finger to roof of mouth and pull out

- Push down and pull out on tongue

- Tongue touches side to side

- Cheek stretches- internal

55

Blink and Acoustic Blink

Present at birth and is a permanent reflex. Absence may indicate blindness.

Shine bright light in eyes.

Clap hands near ears-absence may indicate hearing loss.

Other permanent reflexes are:
Breathing, swallowing, pupillary.

56

Asymmetric Tonic Neck Reflex (ATNR)

- Present from 2 weeks to 6 months.
- Absence suggest cerebral damage.



57

Spinal Galant

- Emerges at 20 weeks in utero.
- In late pregnancy, causes inversion creating proper positioning for birth
- Present from birth to 3-6 months.



58



- Spinal Galant and Perez Demo

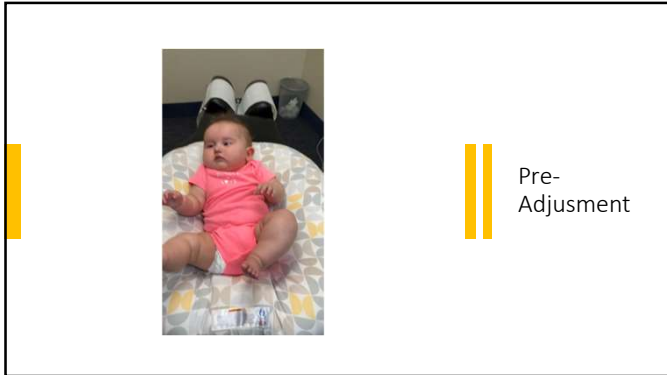
59

Moro reflex

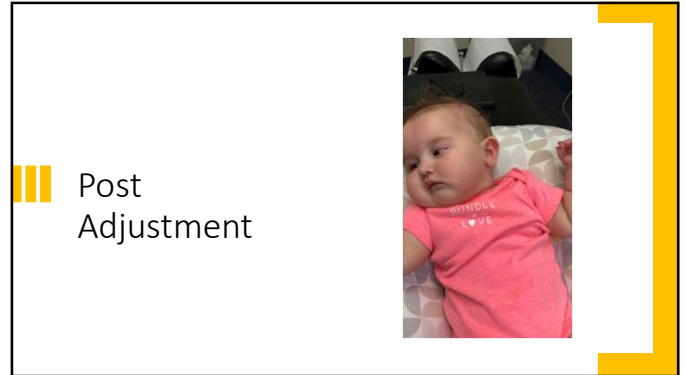
- Emerges 9-12 weeks after conception and should be fully present at birth.
- Response to undue stress or sensation of any kind.
- Inhibits by month 4.



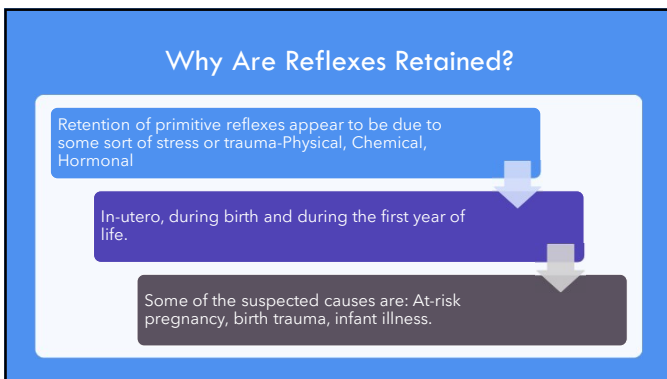
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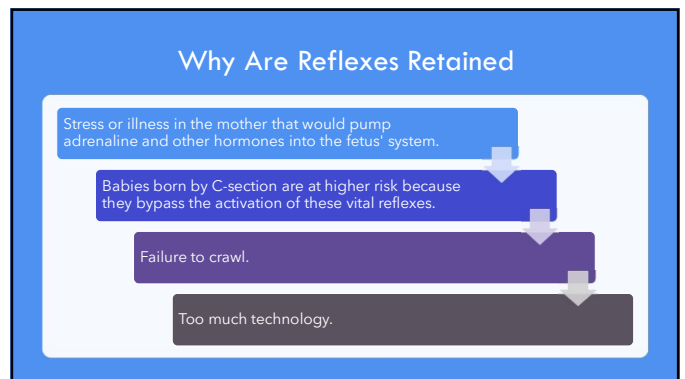
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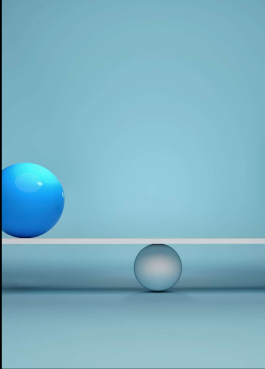
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63



64




Failure to Develop Normally

- If the infant fails to integrate the primitive reflexes, they will not be able to reach their milestones appropriately in the first two years of life.
- This will affect the neocortex and the connections that form between the left and right hemisphere.
- Resulting in a functional disconnection between the two hemispheres.

65

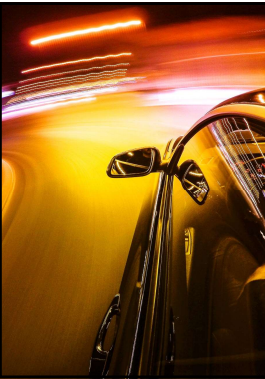
Neurodevelopmental Delays

- Statistically 1 in 6 children will have a developmental delay.
- CDC reported 1 in 36 or. Boys are four times more likely to be diagnosed with autism than girls. 1 in 45 adults. (2020)
- Many of the "symptoms" of ADD, ADHD, etc. are similar to the "symptoms" related to retained primitive reflexes.



9/3/20XX Presentation Title 66

66



How can parents help?

- Spend as much time on the floor unrestricted.
- Restrict upright time, ie: car seat to only while driving remembering that when upright cortex is engaged.
- Avoid all media under the age of two. (AAP recommendation)
- Movement is the key to proper brain development.

67



Primitive Reflex Chart

9/3/20XX Presentation Title 68

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Forces of Commonly Used Chiropractic Techniques for Children

Todd et al, JMPT: July/August 2016

- Grade 1: Todd: 0-2 months: Low force, low speed with a force maximum of 10% of adult SMT.
- Grade 2: Todd: 3-23 months: Low force, low speed, with a force maximum of 30% of adult SMT.
- Grade 3: Todd: 2-8 years: Moderate force, moderate speed, with a maximum of 50% of adult SMT.
- Grade 4: Todd 8-18 years: Moderate force, high speed, with an maximum of 80% of adult SMT.

69

- Marchand cited a study by the Koch brothers that revealed episodes of bradycardia and apnea after thrusts ranging from just 30-70 N (with an average of 50 N) to the upper cervical spine in young infants.
- Those younger than 3 months were twice as likely to have a significant drop in their heart rate compared to any other age groups (Todd).
- Therefore, techniques that use forces of the lower value should be used in the cervical spine of infants under 3 months (preferably less than 30N).

Marchand and Todd

70

FORCE APPLICATION

- Marchand and Todd
- Activator I-IV: 61N to 137.8N

71

Force Application Decision Making

Based upon:

- Age
- Weight
- Height
- Sex
- Neurologic development
- Muscular control
- Clinical confidence and experience of the practitioner

72

Developmental Anatomy

- The geometry of the articulating surfaces of the joints and elastic properties of the supporting ligaments are significantly different in the adult and pediatric spines.
- In children, motion in the lower cervical spine is different than adults. Motion is greatest at the level of C5-6 in adults, whereas children have the greatest motion at C2-3.
- Adult motion characteristics usually develop by age 10.
- The facets are not well ossified until age 7-10 and significant stability cannot occur until this has been accomplished.
- The infants and young toddler's facet joints are almost "gummy-like". So, until adult characteristics have developed and vertebral structures have ossified, the primary subluxation in the child will be atlas laterality.

73

LESS IS MORE

74



75

Cranial Examination

76

Head Examination

- The head circumference should be measured and plotted. Head shape should be noted and sutures palpated.
- Craniosynostosis (premature closure of the suture) can cause a misshapen head. Bone growth occurs perpendicular to the suture. If one suture is closed, compensatory growth will occur in the remaining open sutures. Synostosis of the sagittal suture (most common) results in scaphocephaly (a thin elongated head). Synostosis of the coronal sutures results in brachycephaly (a wide flat head). Synostosis of the metopic suture results in trigonocephaly (a triangular shaped head).

77

Head Molding

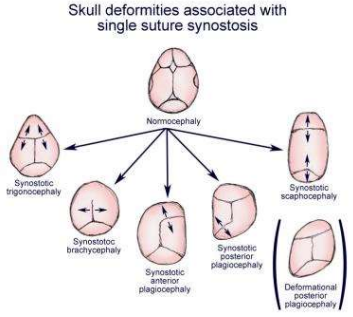
- Assisted birth: Vacuum, forceps
- Traumatic birth
- C-Section



78

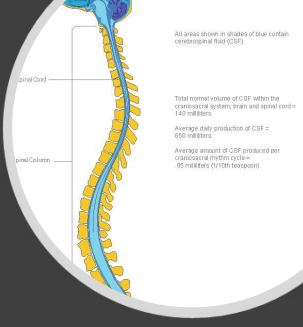
Head Shape-Observation

Skull deformities associated with single suture synostosis



79

- Cranial motion is the life force of the CNS:
- CSF fluid circulation
- Pituitary gland releases hormones
- Cranial bones expand and contract
- Tailbone rocks forward and back



All areas shown in shades of blue contain cerebrospinal fluid (CSF).

Total normal volume of CSF within the cerebrospinal system, brain and spinal cord = 140 milliliters.
Average daily production of CSF = 600 milliliters.
Average amount of CSF produced per cubic centimeter of brain tissue = 0.5 milliliters (0.150 teaspoon).

80

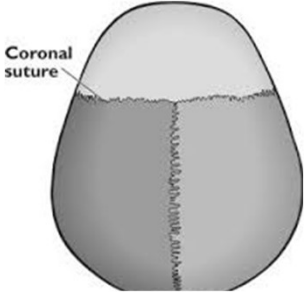
Correction of Overriding Sutures

- Place one finger in the newborn's mouth while holding the cranial vault with the other hand. You want the infant to suck on your finger as hard as he or she will do it. As sucking occurs, place a little pressure in coordination with the sucking rhythm on the midline of the roof of the mouth. Between the sucking action and the adjunctive pressure, the tendency for the natural widening of the cranial vault is increased. You can also correct overriding sutures at this time.

81

Webster's Coronal Suture


- Indications of increased intracranial pressure: Misshapen head, suture overlap, one eye appearing lower than the other without a head tilt.



82

Webster's Skull Measurement

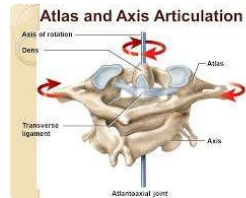
- ANALYSIS
- Use a tape measure and measure the circumference of the child's head.
- Measure from the glabella to the EOP on both sides.
- The side with the larger measurement is the side of the increased pressure.



83

Atlas Adjustment

- Inversion
- Sustained Contact
- Toggle
- Cervical Stairstep



84

Inversion



- Contraindications:
- Birth Trauma: Before one month
- Hemorrhagic disease
- Hydrocephalus
- Hip instability
- Neurological Symptoms (i.e. epilepsy).

85

Dr. Carol Phillips

Inversion Technique

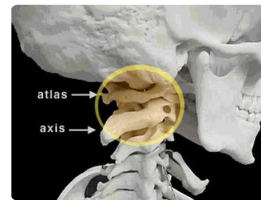
86

Inversion Observation

- Rotation of the head to one side.
- Rotation or lateral flexion of the shoulders or pelvis.
- Flexion of one or both legs.
- Asymmetry of arm motion.
- Hyperextension.

87

Atlas



Palpation:
What will you feel?
A hardness or lump under the ear
on the side of laterality.

88

Atlas ROM



- Lateral Flexion: Atlas listing will be on the side of decreased bending.
- Rotation: Atlas listing will be to the side of decreased rotation.

89

Infant Placement



90

Sustained Contact-Gentle Touch

In this technique, a gentle pressure is applied to the fixated motion unit in the spinal column, and the practitioner waits to feel a gentle "giving way" of the tension in the tissues supporting the joint. Chiropractors reporting using the touch and hold technique have measured at approximately 2 N (@7ounces) of pressure applied when using this technique in the pediatric population.

91

Sustained Contact



92

Toggle

- In an infant, the toggle adjustment is performed by laying the infant across the parent either in a side posture position or upright against a drop-piece section worn by the practitioner. The practitioner then uses a thumb or double-finger contact or cupped hand and delivers a very short and quick thrust without recoil to encourage normality of movement in the lateral range of motion of the atlas.
- No known research in the pediatric population regarding force application.
- Research by Graham in adults revealed an average force of 111.2N (25lbs.)
- Graham BA, Clausen P, Bolton PS. A descriptive study of the force and displacement profiles of the toggle-recoil spinal manipulative procedure (adjustment) as performed by chiropractors. *Man Ther.* 2010;15(1):74-79.

93

Infant Toggle Head Piece



94

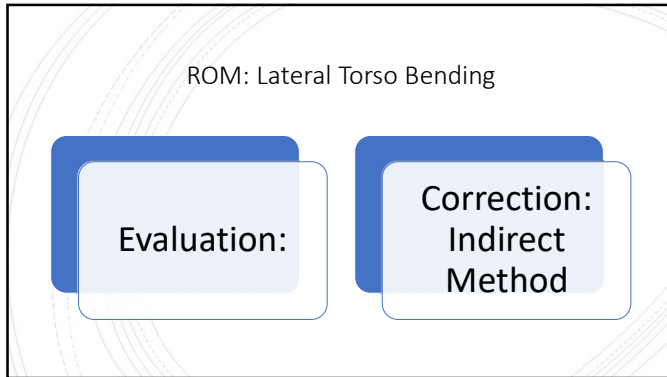
Cervical stairstep

- Four distinct steps as you compress the cervical spine:
- Step 1: C7-T1
- Step 2: C6-C5
- Step 3: C4-C3
- Step 4: C2-C1

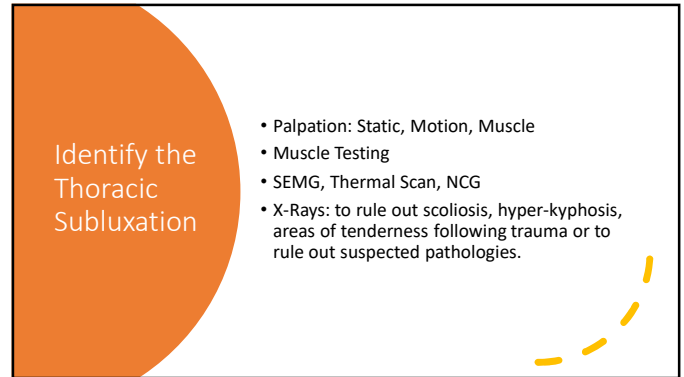
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Thoracic Spine

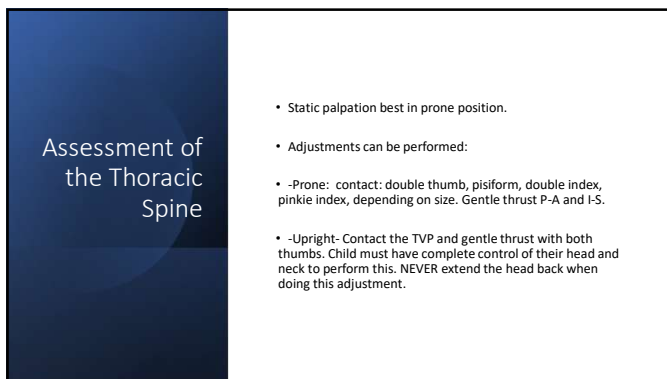
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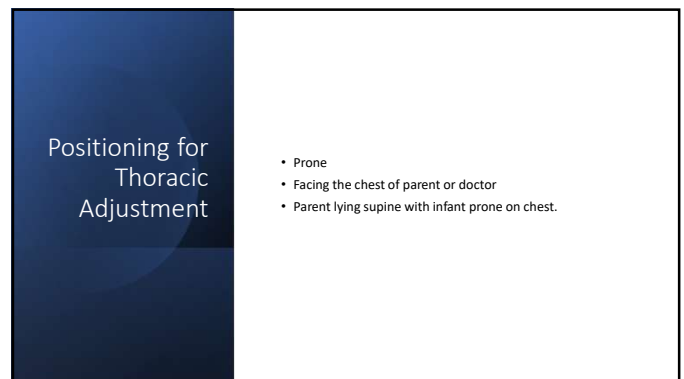
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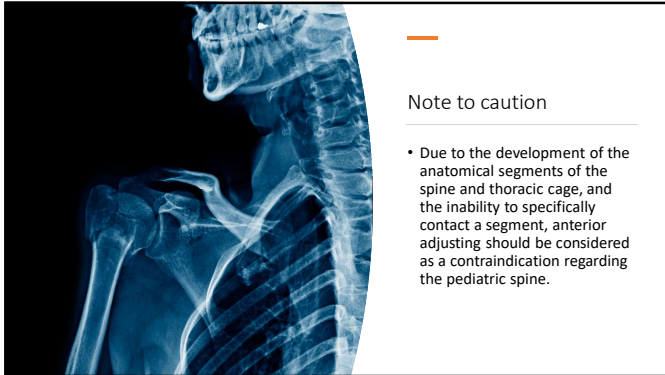
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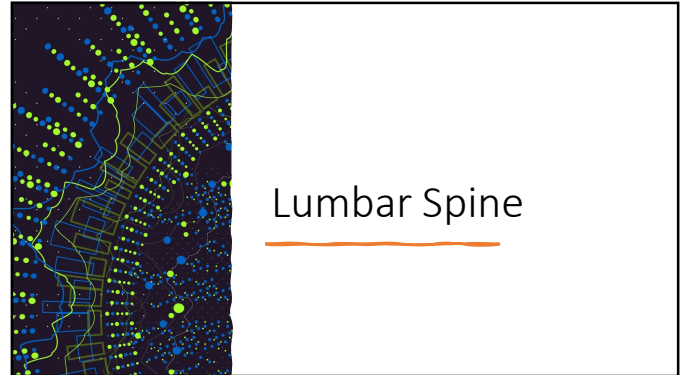
100



Note to caution

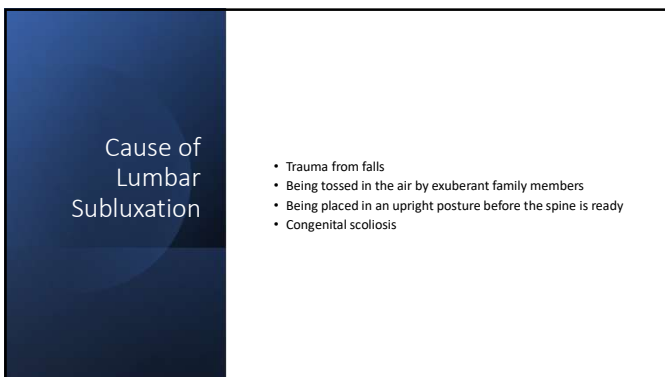
- Due to the development of the anatomical segments of the spine and thoracic cage, and the inability to specifically contact a segment, anterior adjusting should be considered as a contraindication regarding the pediatric spine.

101



Lumbar Spine

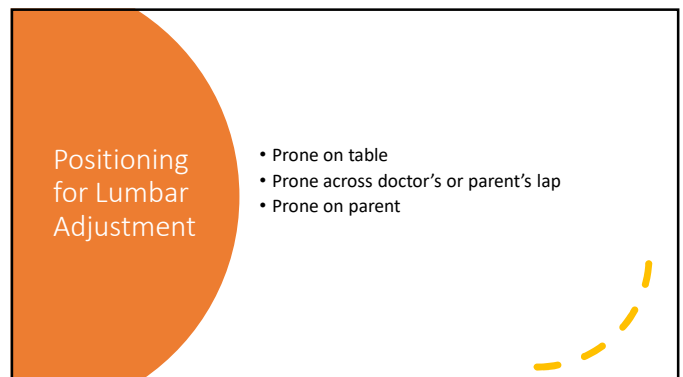
102



Cause of Lumbar Subluxation

- Trauma from falls
- Being tossed in the air by exuberant family members
- Being placed in an upright posture before the spine is ready
- Congenital scoliosis

103



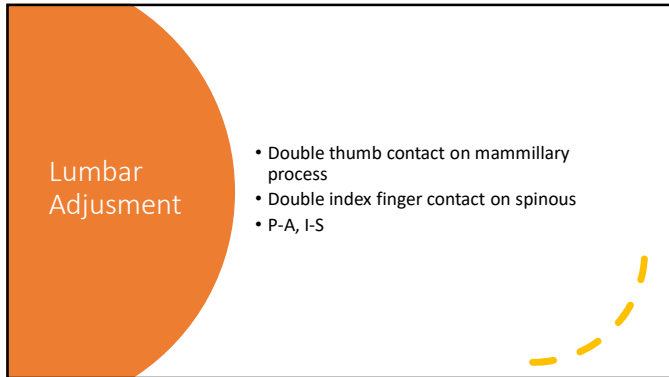
Positioning for Lumbar Adjustment

- Prone on table
- Prone across doctor's or parent's lap
- Prone on parent

104

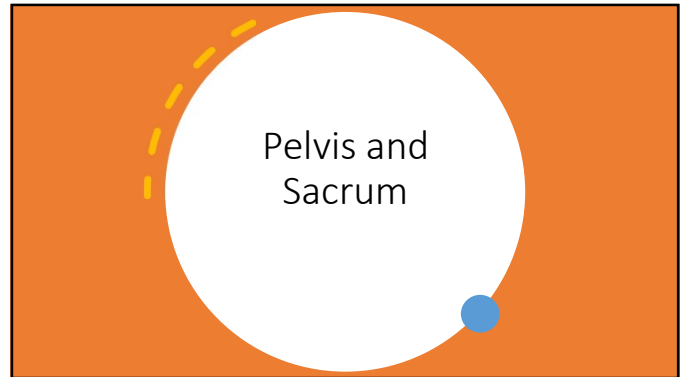
Lumbar Adjustment

- Double thumb contact on mammillary process
- Double index finger contact on spinous
- P-A, I-S



105

Pelvis and Sacrum



106

Il Iium

- Leg length analysis for the weight-bearing child. (D+)
- Low gluteal fold on the involved side.
- Double pinkie contact on involved PSIS.-
- LOC: P-A, 2-6 ounces of pressure.

107

Posterior Sacrum

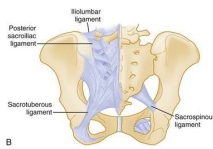



- **Neonate:**
- Sacral Posteriority- A prominence is detected upon palpation indicating a BP sacrum.
- Correction- P to A thrust. (pinkie toggle)
- **Child after six months of age:**
- Heel to buttock test: restricted leg is side of posteriority
- Correction- P to A thrust

108

Anterior Sacrum

- Sacral Anteriority- Apply lateral to medial pressure against the buttocks bilaterally and simultaneously. The fold will deviate to the side of AI sacrum.
- Correction- A "Basic" type contact on the sacro-tuberous ligament on the side of AI sacrum for about 30 seconds. (ST ligament found between the ischial tuberosity and sacro-coccygeal junction).

109

Logan Basic

- Logan Basic- HELPS Signs:
 1. High Crest- Standing and lying
 2. Taut Erector Spinae musculature.
 3. Lowest freely moveable vertebral body rotation.
 4. Pain (palpable pain SI joints)
 5. ST ligament tension.
- Positive indicators ipsilateral to side of AI sacrum.


110

+ •What Are Some Common Disorders With Children?

- Colic/Acid Reflux
- Ear Infections
- Latching Issues/Failure to Thrive/Tongue Tie

- Torticollis/Plagiocephaly
- Food Allergies
- TMJ
- Constipation
- Bed Wetting/Enuresis
- Asthma
- Fever
- Neurodevelopmental Disorders

111



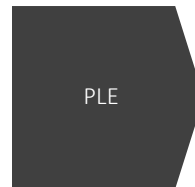
“ You never know how far reaching something you may think, say or do today will affect the lives of millions tomorrow.” B.J. Palmer

112

Mila

- Born with intestinal duplication cyst.
- Cyst removed
- Diarrhea from birth
- Distended stomach
- Several visits to the ER.
- Current Treatment: Diet high in protein and MCT's.

113



What Is Protein Losing Enteropathy (PLE)?

Protein-losing enteropathy (PLE) occurs when albumin and other protein-rich materials leak into your intestine. Albumin is the most abundant protein in your blood. It has many functions, including transporting hormones and retaining water in your bloodstream.

Symptoms of PLE

If you have PLE, you will have hypoalbuminemia (low level of the albumin in blood) and may experience the following symptoms:

- Diarrhea
- Tissue swelling (edema)
- Ascites (excess fluid trapped in your abdomen)
- Pleural and pericardial effusions (excess fluid around your heart)
- Hypoproteinaemia (lower than normal protein levels in your body)
- Severe malnutrition

114

Julian- Restless Leg Syndrome

- Dad has had similar presentation since childhood.
- Julian wakes up every hour of the night complaining of tingling and funny feeling in his legs and feet.
- Current treatment: Iron supplementation.

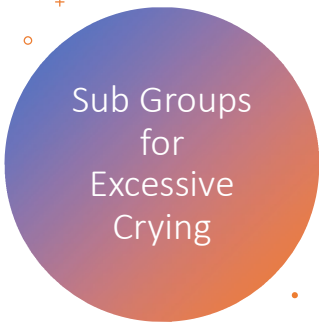
115

Colic/reflux



- Colic is usually defined as crying that lasts more than 3 hours per day for more than 3 days out of the week in an otherwise healthy infant under 3 months of age. It can be very stressful and frustrating to parents. Colic usually begins suddenly, with loud and mostly continuous crying.


116



Sub Groups for Excessive Crying

- Pathology: ie: UTI, <5% (High pitched crying and may be accompanied by high temperature, high respiratory rate and heart rate, and /or more sleep, grogginess, difficulty waking.
- Cow's milk protein intolerance: Pain induced by discomfort secondary to trying to digest the large proteins in cow's milk. Most common in formula fed babies. Signs: allergy, reddening of the skin, high respiratory rate and noisy respiration, diarrhea, constipation. (5-10%).
- Subluxation induced: difficult birth, multiple birth, in-utero constraint. Unable to rest in supine position, restless sleep, sensitivity to touch, or difficulty to rest in car seat. Common presentation helped with chiropractic care. (30-50%).
- Colic: Loud, disturbing, relentless crying often in late afternoon/evening. (30-50%) of inconsolable infants entering a chiropractor's office.
- Evidence-Based Chiropractic Care for Infants. Joyce Miller, D.C., PhD 2019)

117




Xantac, Prilosec and Prevacid deficiency

- COLIC?
- CAMERON'S STORY


118

Ear Infection



- #1 reason parents take their children to the doctor
- Untreated: hearing loss, speech impairment, learning difficulties
- Before age 6, 90% of all American children will have at least 1.
- Ear surgery required 20% of time. >2 million ear tubes/year. Most common surgical procedure in children.
- Treated with antibiotics, tubes even though AAP recommendation is watch and wait.
- Flawed as it treats only the symptoms, not addressing the cause
- Ongoing antibiotic treatment suppresses the immune system.
- Often caused by dairy sensitivity

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The AAP Says:


- Watch and wait in children 6 months to 12 years
- (Journal Of Pediatrics)
- It is known that antibiotics don't work for this problem, they have short and long term side effects, and known to contribute to what is now a major public health crisis.
- (antibiotic-resistant strains or "super bugs")
- So, why do they still get prescribed left and right by pediatricians and doctors?
- Could it be that:

120

Why They Do What They Do

- Antibiotics are the only thing they have to offer?
- Ear, sinus and respiratory infections account for nearly half the visits to a pediatrician's office?
- Drug companies make a lot of money on the sales of antibiotics.
- Philosophically, most parents still think it is what must be done.

121



What Is The Real Problem?


- Answer: Lack of movement caused by subluxation of the upper cervical spine.
- What happens when the interference is removed?

122

Earache before 1 year

- Cause: Ear bone misalignment or restriction resulting in pressure on the vestibulocochlear nerve. Ensuing blockage of the auditory tubes, that normally permit ear fluid drainage into the nasal sinuses, can allow harmful bacteria to incubate in the middle ears. Pressure here may lead to chronic ear infections, which can result in hearing loss and/or inner ear dizziness.
- Medical Remedy: Surgical tubes.
- Why are infants more prone to ear problems?
- Tubes are more narrow and level to the bone of the middle ear.

123



Current Pathogenic Protocol

- Amoxicillin
- Augmentin
- Cefdinir
- Cefdinir injections
- Tubes

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Ear Infections- Beginning of the end?

- Birth Process
- Antibiotics
- Tubes
- Snoring, loud breathing
- More Antibiotics
- Tonsil/Adenoid Removal
- Next Stop- Chest and Lungs
- (2-4x increase w/each dose)
- Lifelong chronic illness and
- Immune Dysfunction

125

Ear Infection: Correcting the Cause

- Misalignment or restriction:
- Ear bones
- Cranial bones
- Upper cervical subluxation-causes ear structures to function abnormally. Fluid stagnancy creates ideal environment for infection.
- Dairy-creates excess mucous-can block auditory tube. Hearing loss is due to temporary build up of fluid in the middle ear preventing vibration of the eardrum


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Ear Infection Natural Care

- 1)Adjustments
- 2)Ear Pull
- 3)Healthy Lifestyle
- 4) Home Care- neck massage technique, supplements (garlic-mullein oil), essential oils, diet restrictions.

127

Ear Pull



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129

TOTS/Ankyloglossia

- In the last few years, tongue ties have gained center stage as more families put an emphasis on the importance of breastfeeding.
- AAP recommendation:
 - Exclusive breastfeeding for about the first 6 months, with continued breastfeeding along with introducing appropriate complementary foods for up to 2 years of age or longer.

130

What is Tongue Tie?

- Embryological tissue in the midline between the undersurface of the tongue and the floor of the mouth that restricts normal tongue movement. - International Affiliation of Tongue-tie Professionals (IATP)

131

Ankyloglossia, Feeding Difficulty and Frenotomy by Year

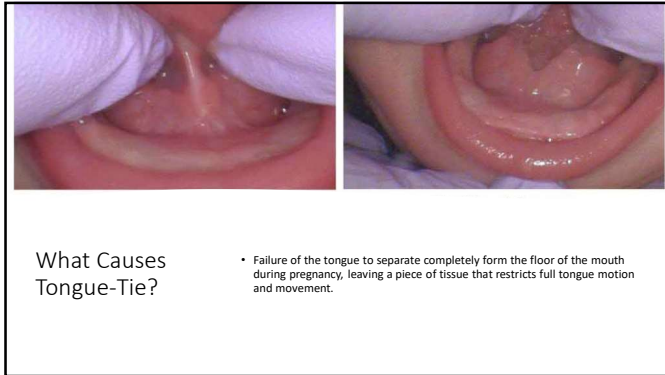
Year	Ankyloglossia	Lingual Frenotomy	Feeding difficulties
1997	3954	1,279	8,845
2000	9430	1,653	10,724
2003	7785	2,538	15,173
2006	11397	3,388	20,222
2009	19495	6,900	25,004
2012	32857	12,406	36,720

KIDS Database YEAR

Ankyloglossia and Lingual Frenotomy: National trends in diagnosis and management in the United States, 1997-2012
 Jonathan Walsh, MD, Anne Limb, MS, MHS, Emily Stopp, MD, MPH, and David Tomasko, MD

- 834% increase in diagnosis and 866% increase in frenulum procedures
- Weighted from 3 million pediatric discharges in 44 states.
- *Otolaryngol Head Neck Surg*. Author manuscript; available in PMC 2019 Apr 21

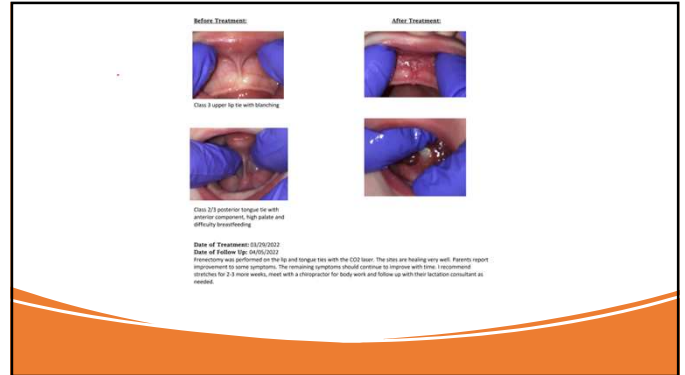
132



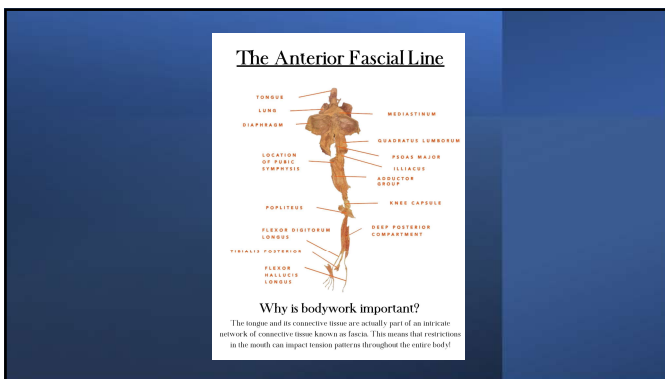
What Causes Tongue-Tie?

- Failure of the tongue to separate completely from the floor of the mouth during pregnancy, leaving a piece of tissue that restricts full tongue motion and movement.

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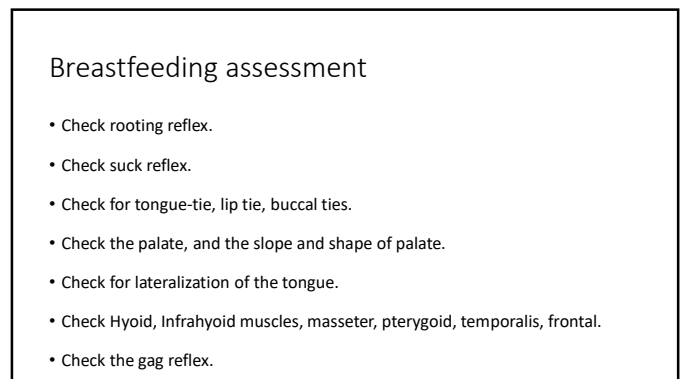
134



The Anterior Fascial Line

Why is bodywork important?
 The tongue and its connective tissue are actually part of an intricate network of connective tissue known as fascia. This means that restrictions in the mouth can impact tension patterns throughout the entire body!

135



Breastfeeding assessment

- Check rooting reflex.
- Check suck reflex.
- Check for tongue-tie, lip tie, buccal ties.
- Check the palate, and the slope and shape of palate.
- Check for lateralization of the tongue.
- Check Hyoid, Infrahyoid muscles, masseter, pterygoid, temporalis, frontal.
- Check the gag reflex.

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Altered tongue function not due to tongue tie

- Decreased mandible excursion
- Inability to tilt head into extension to allow wide-mouth opening.
- Displaced hyoid preventing balanced tongue activity.
- Aberrant cervical ROM and/or posterior joint restrictions affecting infant posture and position.
- Hypo or hypertonic muscles of mastication.
- TMJ joint laxity or imbalance.
- Cranial asymmetry or cervical subluxation.

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How to Spot a Small Jaw (Micrognathia)

- Do the top and bottom lips align and seal? No
- Does the bottom lip seem to disappear? Yes
- Does the baby have a hard time closing the mouth? Yes
- Does the chin look recessed? Yes

139



Pre and Post Frenectomy Care

- IBCLC
- Chiropractor
- Dentist or ENT
- Chiropractor
- IBCLC
- SLP/OT/Myofunctional Therapy

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Considerations for Delaying Release

- Dysregulation: oral, motor or emotional.
- Asymmetries (e.g. plagiocephaly, torticollis).
- Signs of oral sensitivity or aversion; difficulties with solids.
- Significant high or low body tone (e.g. body rigidity, clenched fists, clenched jaw, floppy).
- Weak tongue tone; minimal movement observed.
- Still healing from prior release elsewhere.
- Parents not emotionally ready, on different pages/still discussing.

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Objective Improvement After Frenotomy for Posterior Tongue-Tie: A Prospective Randomized Trial

Bobak A. Ghaheri, MD, Douglas Lincoln, MD, MPH, Tuyet Nhi T. Mai, more...

[Show all authors](#)

First Published September 7, 2021 | [Research Article](#) | [Check for updates](#)

<https://doi.org/10.1177/01945998211039784>

Setting

Private practice clinic.

Methods

In a prospective, randomized controlled trial, infants 3 to 16 weeks of age with PTT undergoing frenotomy were examined using a bottle-feeding system capable of objectively measuring tongue function. Validated patient-reported outcome measures were also obtained simultaneously.

Results

Forty-seven infants with PTT were enrolled into an observational/control arm (n = 23) or interventional/surgical treatment arm (n = 24). The total cohort consisted of 29 (61.7%) male infants with a median age of 39 days. At the day 10 time point, the interventional arm demonstrated statistically significant improvement in 11 objectively obtained feeding metrics, indicating faster tongue speed, more rhythmic and coordinated sucking motions, and a tongue more capable of adapting to varying feeding demands. Significant improvement in breastfeeding self-efficacy was reported in the interventional group while poor self-confidence persisted in the observational group. Infant reflux symptoms improved in the interventional group while not in the control group. Nipple pain also persisted in the control group but improved in the surgical cohort.

Conclusions

When measured 10 days after frenotomy for PTT, infants improve feeding parameters using an objective bottle-feeding system. Similar improvements are seen with patient-reported outcomes when PTT is released. Posterior tongue-tie is a valid clinical



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TOTS-Care Providers

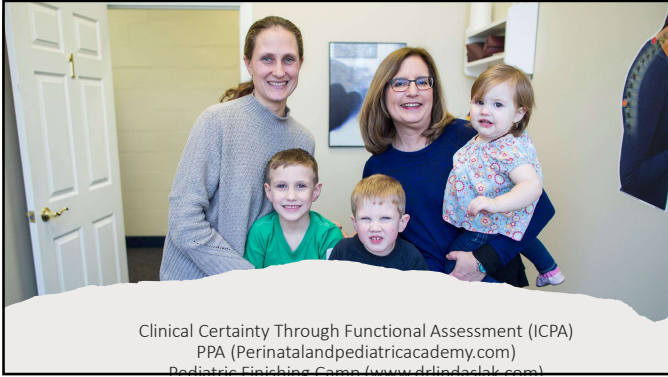
- TREATMENT OF OROFACIAL MYOFUNCTIONAL DISORDERS IN INFANTS AND CHILDREN AGES 0-4 AND INDIVIDUALS WITH SPECIAL NEEDS
Orofacial myofunctional therapy (OMT) aims to improve facial proprioception, improve the appearance of tone, and maximize orofacial mobility (Homem et al., 2014). While there is little debate that infants can present with an OMD diagnosis such as ankyloglossia, the way in which these infants and toddlers would be treated is different than how older patients, or children who are neurotypically developing would be treated. The volitional control, ability to follow directions and self-monitor are all important considerations

143


Published studies

- Tow and Vallone, 2009
- Miller et al, 2009
- Arcadi, 1993
- Bernard et al., 2012
- Cuhel & Powell, 1997
- Fry, 2014
- Hewitt, 1999
- Holleman & Knapp, 2011
- Hotrop, 2000
- Sheader, 1999
- Hubbard, 2014
- Stewart, 2012
- Miller et al, 2016, 2018

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Thank you!!!!

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- www.drindaslak.com



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