

Developmental Perspectives of Pediatric OMT

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Learning Objectives for the osteopathic physician:

- ▶ 1) Understand the impact that infant and child rapid growth and development presents to the assessment of an osteopathic pediatrician.
- ▶ 2) Learn to assess and treat an infant for torticollis.
- ▶ 3) Be able to assess the source of infantile “colic” through history and an osteopathic exam.
- ▶ 4) Be able to apply osteopathic treatments for teething symptoms.

Learning Objectives for the osteopathic physician (cont):

- ▶ 5) Start integrating osteopathic concepts in the well child exam.
- ▶ 6) Begin treating simple somatic dysfunctions found during growth spurts.
- ▶ 7) Make a positive difference in a child's present and future.



William R Mast, MD

1940-2015

“Dr. Bill”

Served as ENT in Dover Delaware 1975-1984

Tulsa Oklahoma 1984-2003

Why be a D.O. pediatrician?

- ▶ Changing the outcome of disease starts with the well baby check
- ▶ Examining joints, range of motion, observing a child's use of their body in play, and testing their body tone brings clues into describing their maturity and present developmental stages.
- ▶ Treating somatic dysfunction early prevents problems later and a long road of misdiagnosis.
- ▶ To educate parents in how to help develop their child's muscle tone and coordination, and where trouble shooting avoids prolonging therapy later.
- ▶ Examining all the normal children all of the time means that the abnormal findings will stick out like a sore thumb.



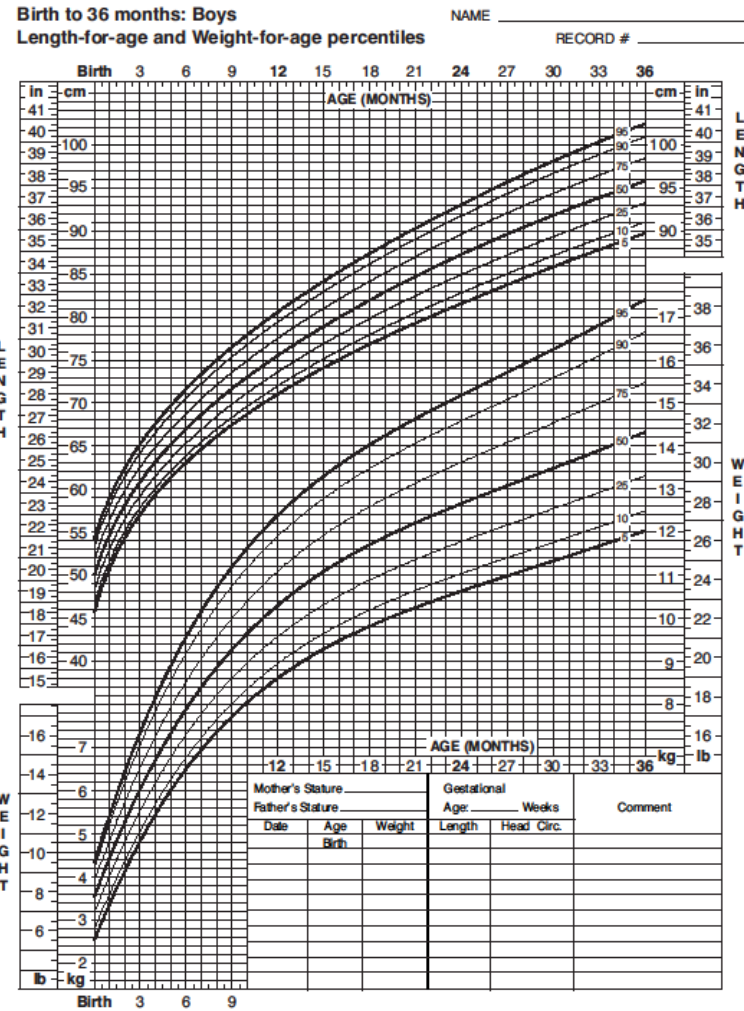
2007



2017

Childhood rapid growth and development affects joint mobility, spinal posture, and muscle/tendon shortening.

Rapid growth



Published May 30, 2000 (modified 4/20/01).
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
<http://www.cdc.gov/growthcharts>



OMT starts at birth:

- ▶ Birth History: Term or preterm, SVD, C/S, risk factors, breech, epidural, nuchal cord, precipitous delivery, prolonged labor and engagement of the head, meconium stained amniotic fluid, NICU stay, oxygen supplementation or ventilator use, antibiotics, hyperbilirubinemia

OMT starts at birth:

- ▶ Infant feeding issues: latch problems, arching, not turning head well, uncoordinated suck
- ▶ Bowel habits: slow stooling and grunting, reflux, bloated abdomen, constipation

Infant Physical Assessment

- ▶ Hips held symmetrically and in anatomical position, normal thigh creases, approximately equal leg length
- ▶ Diaphragm use
- ▶ Curvature in spine or natural rotation in torso, arching back

Infant Physical Assessment

- ▶ New onset occipital flattening between office visits
- ▶ Head rotation preference, tight neck muscle, compressed shoulder girdle
- ▶ Suture overlap, anterior fontanelle size, plagiocephaly, suck/latch assessment

Infant OMT: Preventive medicine starting at birth

- ▶ Decrease symptoms of:
 - ▶ Colic
 - ▶ Reflux
 - ▶ Torticollis
 - ▶ Constipation
 - ▶ Teething

Infant OMT: Preventive medicine starting at birth

- ▶ Decrease risk of:
 - ▶ Recurrent ear infections
 - ▶ Pyloric stenosis (decrease somato-visceral hypertonicity to pylorus)
 - ▶ Radiation exposure from diagnostic procedures
 - ▶ Chronic lacrimal duct obstruction
 - ▶ Chronic nasal stuffiness in breathing/tracheomalacia

Applied OMT: treat the water, no ossify

- ▶ Lumbosacral: Myofascial and cranial sacral release
- ▶ Diaphragm and upper mid thoracic: myofascial release
- ▶ Thoracic outlet and shoulders: indirect and myofascial release
- ▶ Neck assessment for effects of nuchal cord tightness and for torticollis: indirect, myofascial, and direct head rotation engagement
- ▶ Head: Cranial OA release and related techniques

Torticollis: factors of influence

- ▶ Intrauterine positioning
- ▶ Prolonged head engagement in labor (>24 hours)
- ▶ Gastroesophageal Reflux
- ▶ One sided positioning during feeds
- ▶ Positional plagiocephaly
- ▶ Growth Spurt
- ▶ Immature neck muscle use
- ▶ Body spinal curvature- “Body Torticollis”
- ▶ Head tilt noted soon after birth

Torticollis Presentation

- ▶ Right side muscle tension, prefers left rotation with neck extension
- ▶ Right rotation with secondary neck flexion
- ▶ If secondary to plagiocephaly of left occiput, will likely extend into parietal region due to increased head extension and affect ear height and placement (anterior ear), some left frontal bone bossing
- ▶ If secondary to plagiocephaly on right occiput, will likely affect right frontal bossing more than ear placement.
- ▶ Plagiocephaly should be treated early and referred for cranial OMT if not available in one's office.



Right torticollis at birth

Older sister was born with same neck dysfunction secondary to intrauterine positioning. She required 2 years of PT. Patient started OMT every 2-3 weeks for 4-5 months. Symptom free at 5 months of age, no head tilt, normal neck muscle use B/L





Infant OMT: start with sacrum

Cephalad approach for sacral distraction



Lumbosacral decompression and pelvic balance



Infant OMT

Myofascial diaphragm release, then move up thoracics



Infant OMT

Torticollis check

Infant OMT

Torticollis check





Infant OMT

Turning head into side of muscle spasm can be helpful during treatment, initiates direct therapy. Then turn head opposite into restriction second.



Infant OMT

Palpate right occipital temporal interface and distract left sacrum for cranial release



Infant OMT

OA decompression

Infant OMT

Palpate right neck muscle spasm
and move around the temporal
bone to feel for release



Torticollis treatment review





Colicky babies cry

Ask Questions

- ▶ Breast or formula?
- ▶ Breast: is mom taking any medications
- ▶ Formula: discuss type of formula, consider using broken down protein formula or different brand
- ▶ Gaseous abdominal distention, constipation
- ▶ Stool caliber
- ▶ Probiotics

Colicky Babies Cry!

Ask Questions

- ▶ Daytime fatigue and self soothing
- ▶ Arching back and spitting up, secondary plagiocephaly
- ▶ Turning purple and red
- ▶ Assess growth chart, feeding schedule, and caloric intake

Colic Osteopathic exam and treatment

- ▶ Routine physical assessment and osteopathic exam.
- ▶ Focus more time on lumbosacral decompression, diaphragm release, and thoracic myofascial release.
- ▶ Show parent how to bicycle legs, and massage skin and abdomen
- ▶ Treat underlying reflux
 - ▶ Avoid overfeeding
 - ▶ Keep head upright 20 minutes after feeds
 - ▶ Keep a feeding schedule
 - ▶ Offer H2 blocker Rx



Let's Talk about teeth

OA release (grinding)

Myofascial release at the gums, mandible and maxilla, follow around the angle of the jaw. Intraoral with gloved finger



2010

Well child check osteopathic assessment for kids who grow like trees



2017

Osteopathic Well Check Assessment

- ▶ Supine:
- ▶ Leg length, knee height, and hip height
- ▶ Lumbar rotation
- ▶ Ankle joint ROM, hip ROM, hamstrings
- ▶ Rib excursion and diaphragm depression
- ▶ First rib and clavicle

Osteopathic Well Check Assessment

- ▶ Standing:
- ▶ Equal shoulders and scapula
- ▶ Follow the spine, forward bend test
- ▶ Coordination and walking exam
- ▶ Genu varum (bow-legged) and valgum (knock knee)
- ▶ Stance and ankle/foot pronation



Lumbar and pelvis

Flex hips, rotate side to side



ASIS, Iliac Crests and Knees

Leg length

If leg length is not equal, first realign pelvis and check again.

High left hip, ask about constipation.



Pelvis and Lower extremity review



Lumbar rotation and release





Diaphragm and Ribs

First Rib “shrug it off” release

- ▶ 1) Test for depressed or elevated first rib. Child inhales and exhales while monitoring first rib motion. Identify a stuck rib.
- ▶ 2) Palpate and monitor rib to accentuate movement throughout motions.
- ▶ 3) First, shrug shoulder high up to the ears.
- ▶ 4) Second, push shoulders back to table to bring scapulae close together
- ▶ 5) Last, reach down sides like trying to touch knees. Exaggerate and push shoulder furthers.
- ▶ 6) Shrug out the shoulders and retest rib movement. Then secondary myofascial treatment.

Diaphragm and Thoracics review



Scapula Height

Then Forward Bending test



Knees & Ankles



Foot Pronation



Neurological Coordination Exam

- ▶ Sitting: reflexes for knee jerk (L3,4), ankle jerk (S1), brachioradialis and biceps (C5,6), triceps (C6,7)
- ▶ Standing:
 - ▶ 1) Romberg (proprioception), pronator drift (lesion vs immature CNS)
 - ▶ 2) Balance one foot 3-5 sec or 10 sec (jump for preschool)
 - ▶ 3) Upper body strength testing, grasp
 - ▶ 4) Normal gait, Toe walking, heel walking, tandem gait (heel to toe line)
 - ▶ 5) crab walk/duck walk and frog jump
- ▶ High five, great job!

Review of Osteopathic Musculoskeletal assessment for children

▶ Supine

- ▶ 1) Iliac crest and ASIS height; restriction/rotation of pelvis
- ▶ 2) Leg length, knee height
- ▶ 3) ROM Achilles tendons, hamstrings, hip rotation, and ankle joint stiffness
- ▶ 2) Lumbar rotation test
- ▶ 5) Rib excursion, diaphragm depression, clavicles and first ribs

▶ Standing

- ▶ 1) Equal shoulder height and scapular height
- ▶ 2) Forward bend, assess for early scoliosis (girls age 8-14)
- ▶ 3) Foot pronation, genu valgum
- ▶ 4) Neurological coordination exam

Right lower extremity exaggerated genu valgum after 8 weeks of walking boot use for fractured metatarsals.



Treatment with foot dorsiflexion, then myofascial release while implementing lower extremity tibial distraction. Also articulate proximal fibular head and treat.



Post treatment alignment



Questions?

Thank you!

