Introduction

• Understand the difference between the medical paradigm toward health and the chiropractic paradigm.
• Why should we care for children if we view chiropractic as a treatment for a musculo-skeletal condition?
• Why should we not care for children if we understand the devastating effects of the vertebral subluxation?

T.K. Videman M.D. out of the University of Helsinki in 1988 found that joint degeneration began on a cellular level 5 - 7 days post injury no matter the age. He found that after 2 - 3 weeks of joint fixation, 18 months was required for optimal healing, but this healing was always incomplete.


Why Should We Emphasize Children?
• Correct subluxations early. Either at birth or before. Early correction means better prevention.
• Focus on the children for a better future. Less dis-ease, less imbalance, less criminality.
• Emphasizing children relates to the inner child of the adult.

Office Set Up
• Make your office “child friendly.” Have a play area for kids. Put pictures and drawings up at eyesight level for children. Walk into your office on your knees to view it like a child does.
• **Display lots of photographs.** Always take two so you can give one to the family. The child’s first adjustment, special days, Christmas (have Santa there), good report cards etc. Post the photographs in the reception room for all to see.

• **Make it fun for the kids to get adjusted.** Deer tables, horse tables, cow tables. Let them adjust their dolls and toys. Have them help you check the parents.

• **Have special events for children.** Fingerprinting, coloring pictures, costumes, face painting.

• **Highlights for children.** Having murals on the walls and a generally fun atmosphere for them is essential.

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**Dealing with Fear**

• Maternal instincts, which start after conception. Fear of injuring the fetus. Lying prone is preferred for the fetus, rather than supine. Drop tables can be frightening for a first time pregnant woman.

• Ignorance creates fear, especially with childbirth. Be able to educate and then support your patients through the birthing process.

• Deal with the fear of the parents regarding chiropractic care for the newborn. Most think that adjusting techniques are the same for children as for adults. Many do not understand the need for care.

• Your attitude is paramount to the care of the newborn. If you accept the honor that goes with the request of the parents, then make sure you show them how you feel.

**Some of the Ways Fear Can Be Created In Children**

• **Making your office appear medical.** Many children have had their trust betrayed or have had bad experiences in a medical office. Don’t try to emulate that.

• **Don’t be aggressive** when approaching a child for the first time. You will be a giant to them.

• **Watch the tone of your voice.** Children respond most favorably when a “happy face” precedes your speech.

• **Slow down your movement of your hands.** Quick hand speed will frighten a child.

• **Don’t pull the child away** from the parents. You need to adapt to the needs of the child instead of having the child adapt to your needs.

• **Be very gentle with your adjustments.** NEVER, NEVER, NEVER, adjust into resistance.

• Gradually bring the child into the practice if they are afraid. Get out of the “Quota” mentality.
• **Understand when a child is trying to control his/her environment.** This traditionally happens during the 2 to 4 year old time frame. Don’t take their actions personally.

• **Learn to handle the non-compliant child** in a manner that supports the parent without frightening the child.

• **Learn to deal with pre-teenage years.** The child is looking to “fit in” with their peer groups.

• **Listen to the child.** Really listen. Acknowledge the child so they know that you heard them. Then talk to the child instead of the parent. Let the parent overhear.

• **Remember to listen and deal with your own children when they reach this age.** Many DC’s are so involved with their practices, that they forget that their own children have peer pressure and emotional problems also.

**Spinal Subluxation Analysis**  
Obviously, the type of spinal analysis that is used should correspond to the technique that is used. When dealing with children, we may have to adapt our techniques and therefore adapt our analysis to meet their needs. A child who refuses to leave the mother’s arms will be a challenge for a doctor who relies heavily on x-ray. So we must be flexible so as to not frighten the child otherwise this creates an ongoing problem for the child to receive chiropractic care.

**X-ray**

• Many authorities have different viewpoints on when to x-ray a child. Some x-ray from birth. Some will x-ray once the child can stand posturally on their own. Some choose a certain age. All have one thing in common. They x-ray when the need supersedes the risk.

• If x-raying a child that is postural, sometimes some assistance is needed to have them hold still. A lumbar support velcroed to the bucky can serve this purpose.

• Make sure your equipment is good. Use high-speed screens and film. Use good collimation. Shielding should be done for brain, eyes, thyroid, breast tissue, sex organs and bone marrow in the long bones. Direct shielding works well but indirect (shadow shielding) usually does not frighten a child as much as the direct shielding. Keep the focal film distance (FFD) at 80” or greater.

**Instrumentation**

Many forms of instrumentation can be used on children – nervoscopes, neurocalometers, thermography, infra-red or surface EMG. Some generalities are applicable to all instruments when dealing with children.

• Show the child the instrument before using it. Some instruments look like electrical devices to a child. Have them touch the instrument and assure them that it doesn’t emit any electrical current.
• When using an instrument that requires a skin contact, remember that children’s skin is more supple and moveable than the adult tissue. Therefore use a dotting method rather than a glide on the child’s skin. Gliding requires too much force on a child to maintain contact. This will irritate the child’s skin and leave the child frightened.
• Children are much more ticklish than adults and have little to no desire to control their ticklishness. Wrap your arm around the abdomen of the child while using the instrument in the other hand. Have the child place their hands upon your arm. This will help break the ticklish response.

**Static Palpation**
• Use the proper digit to fit the child. Palpate with a purpose and do it quickly and smoothly without rushing or frightening the child.
• Feel for bony misalignment, muscular rigidity, edema, and guarded tenderness.
• Palpate the:
  - transverse process of atlas
  - the posterior portion of the lamina-pedicle junctions in the cervical
  - the spinous and transverse processes in the thoracics
  - the spinous and mammillary processes in the lumbar
  - just lateral to the tubercles in the sacral segments

**Motion Palpation**
• **Atlas/Occiput** - use gentle lateral flexion and rotation to feel for fixation between the atlas and occiput. Remember to only motion the upper cervical area and do not laterally flex or rotate the entire cervical spine.
• **C2-C7** - From C2 down through C7 use a gentle posterior to anterior glide. Contact either the spinous directly or the posterior aspect of the lamina-pedicle junction. Do not use extension motion of the neck to check for the P/A glide. Just support the head gently.
• **Thoracic Spine** - check for P/A glide by using your index finger and middle finger on the transverse processes. Adapt the child's position for its comfort.
• **Lumbar Spine** - can be motioned very well if the child will allow you to place him/her across your lap prone. On a small child you can grasp their ankles with one hand and lift both legs simultaneously while palpating the spinous processes with the other. This method can be continued down throughout the sacral segments as well.
• **SI joints** - can be motioned by lying the child prone, palpating the SI joint and lifting the ipsilateral leg. Fixation and edema in the upper part of the joint would indicate a PI ilium, and fixation and edema in the lower part of the joint would indicate an AS ilium.

When a child is old enough to sit and follow instructions, you could have him/her sit on the adjusting bench with you behind them. Place your thumbs on both PSIS’s and have the child spread their knees apart and then approximate them. When the knees are spread, both thumbs should converge equally toward the second sacral tubercle. If they do not, then the thumb with least movement is the involved side.
Supine Leg Checks

- Leg checks on an infant can be performed well in the supine position. However, many times legs will grow asymmetrically, so be aware that the information used may be different than its use in the adult. Look for a change pre and post adjustment.
- Have the parent hold an object above the child’s head. Preferably one that makes noise. Hold the child’s feet with your thumbs on the medial maleoli. Gently bicycle the child’s legs until you feel the relaxation then pull down to complete the check.
- If working with a newborn, their legs will be flexed at the hips and knees. Gently pull their legs down to an extended position and let go.

If one or both legs are rigid in extension before you do anything, there might be a hip dysplasia. Check with Ortolani’s or Barlow’s.

If one leg stays rigid in extension there may be a posterior ilium on that side. If both legs stay extended there can be a possibility of increased intracranial pressure.

Inverted Posture Analysis
Inverted posture analysis can be performed inverted after 3 months of age up to 18 months

Supine Posture Analysis
Supine analysis can be performed when the child is too young for a standing postural analysis. The supine analysis is only valid for the points and distortions viewed from the anterior.

Prone Posture Analysis
Posture can be analyzed prone on an infant below 3 months of age. Place the infant prone without a face piece. The child will automatically turn their face to one side or the other.

- If the face is turned to the left, the thoracic spine should curve to the right.
- If the face is turned to the right, the thoracic spine should curve to the left.
- The arms and legs should be flexed symmetrically.
- The legs and knees should be flexed symmetrically.
- The head should be able to be turned and the thoracic spine should adapt accordingly.
Visualization
Because many children cannot adapt to your needs in chiropractic analysis, visualization may become one of your primary methods of analysis. Below we have listed a variety of different observations that can be performed to help indicate subluxation.

- **Head tilt.** The side of the raised mastoid can indicate either an occiput or atlas involvement on that side.

- **Head and neck extension or flexion.** This can indicate an AS or PS occiput.

- **A child that tends to choke regularly** may have a potential AS occiput problem.

- **Rotation.** The infant will have difficulty rotating toward the side of an involvement. Most especially related to the upper cervical subluxation. Watch the preferred side of breastfeeding.

- **Invert the child** and displace its weight to mostly one leg by flexing the other leg. The child will normally flex the arm and rotate the face toward the side of the flexed leg. If the child refuses to or has difficulty rotating its face toward that side then suspect an upper cervical involvement.

- **Holding the infant under the axillae, very slowly and gradually tip the infant laterally.** Guide the head with your thumbs as you perform this maneuver. Then laterally tip the infant in the other direction. The side that has less lateral flexion of the head is the side of an open wedge.

- **Observe the posture of the child when standing.** Look for foot flair, which could indicate a pelvic rotation. Also, bilateral feet turned inward which could indicate a base posterior sacrum. Observe the gluteal folds. A lower or deeper gluteal fold can indicate a posterior inferior ilium on that side. Also, more creases in the posterior upper thigh on one side can indicate a PI ilium on that side.

- **Laying a baby prone and squeezing the gluteal area can indicate the side of an anterior inferior sacrum.** Watch the top of the gluteal crease. The upper part of it will deviate toward the Al sacrum.
• **Watch a toddler crawl.** If the crawling child deviates to one side, suspect an anterior superior ilium on the side he/she deviates toward. An inability of the parent to diaper a baby because the legs stay rigid in extension can indicate increased intracranial pressure.

• **Increased intracranial pressure can be indicated by:**
  - an inability of the parent to diaper a baby because the legs stay rigid in extension
  - uneven eye level - the side of increased pressure on the lower eye.
  - Flat head syndrome.
  - A happy child suddenly crying when inverted.
  - A child fussing and moving its hand toward an ear (could also indicate ear infection or teething).

• **Toe walking.** Can indicate occiput involvement, cranial involvement, or cross-crawl patterning problems.

**General areas to observe during different developmental times:**

• **Newborns:** check the upper cervical and (if C-section birth) the upper to mid-thoracics.

• **8-10 weeks old:** holds head upright and can maintain position. Check the lower cervicals.

• **5 months old:** rolls prone to supine to prone. Lifts torso up in prone position. Check lower thoracics.

• **6 - 8 months old:** starts to stand and sits without help. Check lumbar area.

• **10 months old:** Pulls to a standing position but unable to get down. Check sacral segments.

• **11 - 15 months:** Cross-crawling and walking. Check sacroiliac area.

**Full Spine Adjusting Techniques**

**PS Occiput**

**Seated** - Have the child either sitting in a chair, between your legs, or held by the parent.

• Doctor stands behind the child
• Contact the superior aspect of the mastoid groove on the side that is superior
• Position hands with either the thenar eminence of the appropriate hand or the lateral aspect of the thumb
• The stabilizing hand cradles the occiput on the opposite side and the fingers stabilize the atlas.
• Adjust posterior to anterior, superior to inferior and right to left or left to right depending upon the listing.
**Supine** - Better for a child above 7 years old

- Have the child lying on the table or on the parent’s abdomen
- Contact the superior mastoid groove with the pisiform or index finger of the hand that corresponds to the superior occiput.
- Stabilize the atlas with the other hand while cradling the occiput.
- Rotate the face away from the contact (no more than 45 degrees).
- The thrust is toward the opposite shoulder of the patient.

**AS Occiput Seated**

- Use a cervical block.
  - Place child in chair, between legs or in parents lap.
  - Doctor is behind child, contacting the glabella with the middle finger pad.
  - Use the hand that corresponds to the superior movement of the occiput.
  - Stabilize with middle finger of opposite hand over contact finger.
  - Thrust is anterior to posterior and superior to inferior.

**Supine** - Use a cervical block.

- Place child on table with cervical block under neck.
- Doctor stands at the head of the table favoring side that has moved superiorly.
- Contact glabella with ulnar side of contact hand.
- Place stabilization hand under occiput without lifting the neck off of the cervical block.
- Thrust with the contact hand in an anterior to posterior and superior to inferior direction.
- This can also be used with a drop-piece.

**If the occiput has bilaterally moved AS**

- Stand at the head of the table
- Place the thenars of both hands on the glabella while wrapping your fingers around the occiput.
- Thrust toward the feet, bringing the glabella inferiorly as the posterior portion of the occiput moves superiorly.
- This can also be used with a drop-piece.
Atlas

The atlas can be adjusted many ways. The most important aspect of correcting atlas on a child is to correct the laterality.

**Toggle - Side posture**

- Place patient in a neutral side posture position with the side of atlas laterality up.
- Contact the transverse process with either the superior pisiform, thumb, index finger or pinkie. If the child is too young to lay alone, have the parent assist or have the child held by the parent using the parent’s shoulder as a headpiece.
- Smaller children can be adjusted by using the Webster Infant Adjusting Headpiece.

**Sustained contact** - Contact the atlas TP with whatever digit fits and hold a sustained contact in your line of correction for approximately 12 - 15 seconds or until the bone moves.

The movement from this contact will be more of a glide than an osseous movement.

**Supine adjusting**: Should only be performed with an osseous movement after 7 years of age, or younger if no rotation is used. The sustained contact can be used supine at any age.
Doctor Wearing Headpiece

Parent Wearing Headpiece
Sustained contact: Contact the spinous or posterior portion of the lamina - pedicle junction with whatever digit fits and hold a sustained contact in your line of correction for approximately 12 - 15 seconds or until the bone moves.

The movement from this contact while be more of a glide than an osseous movement. This can be done with the patient in virtually any position.

Prone osseous movement: This can be accomplished by contacting the spinous or LPJ with the index finger, or pinkie and backing it up with the opposite index finger. The line of correction is posterior to anterior and slightly inferior to superior.

Side posture: This can be accomplished by contacting the spinous or LPJ with the index finger, or pinkie and supporting the forehead with the opposite hand. The line of correction is posterior to anterior and slightly inferior to superior.
**Dual Lamina Drop**: Contact both lamina with a thumb and index finger. Stabilize the top of the head with the other hand. Perform a light posterior to anterior drop.

**Supine**: Should only be performed with an osseous movement after 7 years of age. If the primary misalignment is rotational then use rotation but no lateral flexion.

**Thoracics**

- Contact the prominent TP with the pisiform, thumb pisiform, double thumb, or double index finger, depending upon the size.
- Thrust in a posterior to anterior and inferior to superior direction.
- Make sure to exaggerate the inferior to superior component of your thrust when in the lower thoracics.

**Upright**

- Contact the TP’s with both thumbs while placing your finger around the trunk of the child.
- Lift the child slightly, opening up the articulations.
- Thrust with both thumbs and gently place the child back on his/her feet.
- **Only use this when the child has complete control of their head and neck. Never extend the neck back when doing this adjustment.**
Parent Holding Child

- Use index and middle finger on transverse processes backed up by ulnar surface of the opposite hand
- Also can use double index finger, or double pinky on the spinous process
Lumbar and Sacral Segments

Prone

- Place the child on the table or across your lap.
- Contact the spinous process with a pisiform, thumb - pisiform, double thumb, or double index finger contact.
- Thrust in a posterior to anterior and inferior to superior direction.
- If the lumbar area is allowed to drop forward this sometimes makes the movement easier.

Side Posture - There should not be fear involved with adjusting a child side posture.

- Put the child in a neutral side posture position with the side of spinous rotation up.
- Stabilize the upper body by holding the child’s arms while folded in front of them.
- Contact the spinous process with the index or middle finger of the inferior hand while stabilizing the pelvis with the base of your hand or forearm.
- The thrust is through the fingertip with no body drop. Many times this moves very easily just on setup.
- Sacral segments are adjusted exactly the same as above except the line of correction is posterior to anterior and superior to inferior.

Ilium
The ilium in the child usually misaligns one of 4 ways:

1. Posterior Inferior
2. Anterior Superior
3. Internally Rotated
4. Externally Rotated.

These can be corrected with either prone or side posture adjustments:

**Prone**

**PI Ilium**

- Doctor stands on the same side of involvement.
- The contact is with the thenar or thumb of the superior hand on the inferior aspect of the posterior superior iliac spine.
- The opposite hand lifts the ipsilateral leg of the child just above the knee to take the slack out of the SI joint.
- The thrust is only with the superior hand in an inferior to superior and posterior to anterior direction.

**AS Ilium**

- Doctor stands on the same side of involvement.
- The contact is with the fleshy pisiform of the superior hand on the ischial tuberosity.
- On a smaller child the contact can be made with 2 thumbs side by side.
- The stabilization hand is in the anatomical “snuff box”.
- The thrust is posterior to anterior and superior to inferior.
**EX Ilium**

- Doctor stands on the same side of involvement.
- The contact is with the fleshy pisiform of the superior hand on the lateral aspect of the PSIS or on smaller children use 2 thumbs with one backing up the other.
- The stabilization hand is in the anatomical “snuff box”.
- The thrust is lateral to medial with a bit of posterior to anterior. The child is gently “rolled” away from the contact.

**IN Ilium**

- Doctor stands opposite the side of involvement.
- The contact is with the fleshy pisiform of the superior hand on the medial aspect of the PSIS or on smaller children use 2 thumbs with one backing up the other.
- The stabilization hand is in the anatomical “snuff box”.
- The thrust is medial to lateral with a bit of posterior to anterior. The child is slightly “rolled” away from the contact.

**Side Posture**

**PI Ilium**

- The involved side is up.
- The superior stabilization is the same as the lumbar side posture.
- The contact is with the pisiform or the index finger on the inferior aspect of the PSIS.
- The base of the hand or forearm stabilizes the upper leg.
- The thrust is posterior to anterior and inferior to superior.

**AS Ilium**
• Involved side is up.
• Performed as a pull.
• Use fingertips of inferior hand on the ischial tuberosity.
• Pull is performed in a superior to inferior and posterior to anterior direction.

**IN Ilium**

• Involved side is up.
• Performed as a pull.
• Use fingertips of inferior hand on the medial aspect of the PSIS.
• Stabilize upper leg with the base of hand and pull in a strong medial to lateral direction.
• There is also some posterior to anterior.

**EX ilium**

• Involved side is down.
• Performed as a pull.
• Use pads of fingers on the lateral aspect of the PSIS.
• Stabilize upper leg with the base of hand and pull in a lateral to medial direction.

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**Webster’s Coronal Suture Adjustment**

Indications of increased intracranial pressure

• Misshapen head. Suture overlap
• Eye distortion. One eye appearing lower than the other without a head tilt.
• A happy, non-fearful child crying dramatically upon inversion (after 10 days of age)
• Difficulty in diapering the infant because of bilateral rigid legs in extension.
• Fussiness that can be perceived as ear infection or teething.
Analysis

• Use a tape measure and measure the circumference of the child’s head, one hemisphere at a time. Measure from the glabella to the external occipital protuberance on both sides just above the ears. The side with the larger measurement will be the side of the increased pressure.

Correction

• Place the child on the infant headpiece with the increased pressure side up.
• The doctor should place both thumbs on either side of the coronal suture and thrust apart. Use 3 quick thrusts using the light drop. Recheck the circumference measurement the next visit. If they are not equal continue the adjustment. When the measurement is equal then discontinue this adjustment.

Special Cases:
• Nocturnal Enuresis
• Congenital Torticollis
• Stuttering