Posture and Motor Matters In The Autism Spectrum

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Selected 2006-2012 "Guide To America's Top Chiropractors"
Since 2008 " Five Star Excellence Award in Chiropractic"
"Cutting-Edge Therapies for Autism: 2010-2012" Chapter Author
"Insights into Sensory Issues for Professionals" Chapter Author

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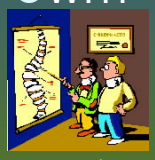
Not Just Another Posture Talk

- WHY



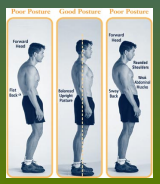
- Because Posture and Motor Matter by Influencing Motion

Motions Influences…..

- Development
- Mood
- Mental Clarity
- Metabolism
  - Energy
- Respiration
- Sleep
  - Digestion
  - Immunity
  - Recovery
- Each are of Key Importance with Autism

Beginning Level - Posture

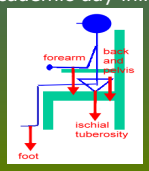
- What is posture?
- A position of our body or our body parts.



Beginning Level 2- Posture

- Which Posture puts the most stress on the underlying **Nervous System** (*The Most Important of System of the Body*) ?

A Clue: Position we spend most of our academic day in….



Intermediate Level - Posture

- Is there such a thing as One Perfect Posture?
- There is no one "Perfect" Posture.

Not Perfect But .....

The Better .....

- Your Posture
- Your Alignment
- Your Flexibility
- Your Balance
- Your Motion

The Better Your Quality of Life
And the Longer You Live

Weiniger, Steven, DC, p. 1

Advanced Level - Posture

- What is Posture.....Really?

- Posture is how you Balance your body.
- Posture is how you Move your body.

What is Balance?

- Balance is ....Where You are Really

Balance Test

- Why Poor Posture requires more Energy and causes Stress and Fatigue....

Posture and Balance

- Which One of these Postures is Balanced?

- All of Them?

Posture and Balance Test

- One – Leg Balance Test

- Proprioception – Body Awareness/Position
- Vestibular – Movement/Balance

Balance and Sensory Processing

- *Far Senses* - Allow us to respond to stimuli outside our body:
  - Hear
  - See
  - Taste
  - Touch
  - Smell
- *Near Senses* - Or Hidden Senses – Automatically respond within our body to stimuli:
  - Body Position/Awareness
  - Movement/Balance

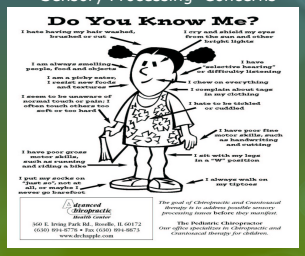
Balance and Sensory Processing

- Sensory Processing Disorders: any condition which demonstrates the inability to process information through the ***Senses.***
- Interestingly the DSM IV R only acknowledges the sensory component in ASD as an isolated secondary finding *Diagnosed by Social (4), Communication(4) and Behavioral(4) variations.*

Autism Spectrum Disorder Conference - 2012

Balance and Autism

- As much as 85% of Individuals with ASD Have Sensory Processing Concerns



The Autism Spectrum: Future

DSMR V: May 2013: Create *Sensory Processing Disorders* Category

A. Social Communication (All 3)

B. Behaviors (At Least 2)

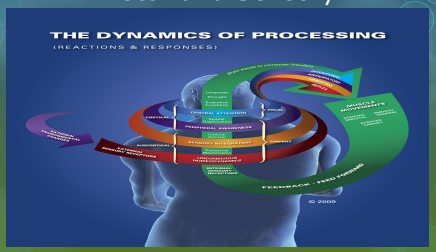
1. Stereotyped or repetitive speech, motor movements or use of objects
2. Excessive adherence to routines and ritualized patterns of behavior or excessive resistance to change
3. Restricted, fixed interests that are abnormal in intensity or focus
4. Hyper- or hypo- reactivity to sensory input or unusual interest in sensory aspects of environment

Indifference to pain,heat,cold/Adverse response to sounds,textures/Sensory seeking/Visual Inspection

C. Symptoms Must Present Early in Childhood

D. Symptoms together limit and impair everyday function

Motor and Sensory



- Brain Injury Rehabilitation: Cortical and Subcortical Interfacing via Retinal Pathways , PM&R Volume 2, Issue 9, September 2010, Pages 852-857**Deborah G. Zelinsky OD**

Evidence of Motor Involvement

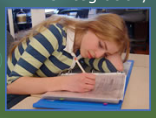
- "Tapping your fingers is a simple action, but it involves communication and coordination between several regions of the brain," said Dr. Stewart H. Mostofsky, senior study author and a pediatric neurologist in the Department of Developmental Cognitive Neurology at the Kennedy Krieger Institute
- "The researchers found that children with autism relied more heavily on a region of the brain responsible for conscious, effortful movement, while their typically developing peers utilized a region of the brain important for automating motor tasks. Children with autism also showed less connectivity between different regions of the brain involved in coordinating and executing movement, supporting the theory that a decreased ability of distant regions of the brain to communicate with each other *forms the neurological basis of Autism.*"

First Neuroimaging Study Examining Motor Execution In Children With Autism Reveals New Insights

ScienceDaily (May 5, 2009)

Posture and Autism

- Many of Primitive Reflex Postures are evidence of Disintegration/Adaption/Compensation seen in ASD





Posture, Gait and Energy

Out on a limb: Arm –Swinging riddle is answered,

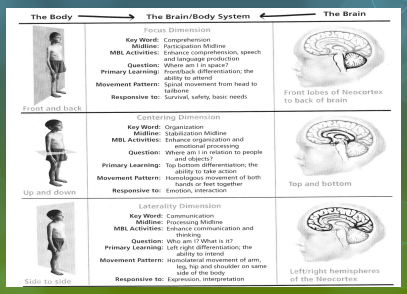
Paris (AFP), July 28, 2009 – Proceedings of the Royal Society B

- One arm walk requires 12% more metabolic energy
- Same side arm-legs swing requires 25% more metabolic energy
- No arm moment while walk (Vertical Ground Reaction Movement) requires 63% more metabolic energy

.....When compared to normal arm swing with gait

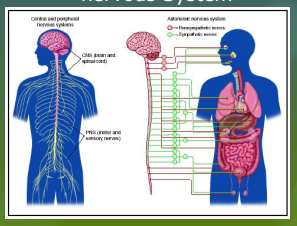
Your Biomechanics effect your energy levels!

Brain and Body Connection



Which Body System Involved?

- The Central, Peripheral and Autonomic nervous System



CNS and Development

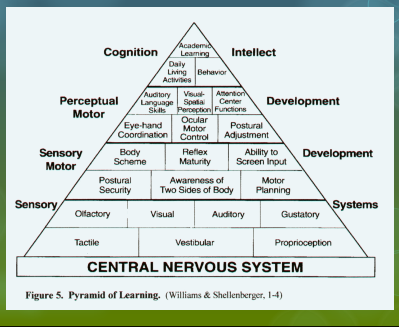


Figure 5. Pyramid of Learning. (Williams & Shellenberger, 1-4)

The Biomechanical Approach

- Where *Motor* and *Sensory* Meet


The Simple Link

- Movement grows the Brain

Gross motor proceeds fine motor function, which correlates to higher academic achievement.

(Exercise : Assisted/ Unassisted (Random –Intentional)/Neuro-Re-ed)

- Chiropractic Fine tunes Movement/Motor

Chiropractic has been shown to increase exercise performance (gross and fine motor movements) 2 to 4x's when compared to exercise alone.

The Spinal Link

- " The only source of constant stimulation to the brain comes from the spine and postural muscles……"
- When the daily physical/emotional/chemical stresses of life cause misalignments – called Subluxations – "the brain is not adequately stimulated. This can cause problems throughout the body."

Sensory Development Seminars 2005

The Chiropractic Approach

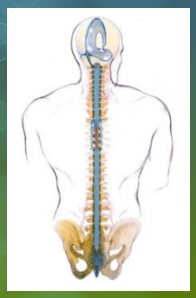
- Chiropractors identify a biomechanical complex of functional and/or structural and/or pathological articular changes that compromise neural integrity and may influence organ system function and general health, which are academically named *Subluxations*

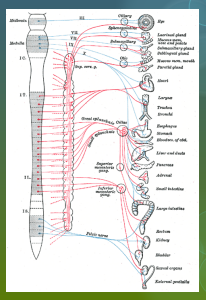
Subluxations?

- CNS irritation characterized by:
  - Irregular boney mechanics or spinal misalignment
  - Nerves imbalances
  - Muscle irritations
  - Tissue inflammation
  - Degenerative wear

The poor structure or mechanics involved in creating *Subluxations* results in poor motor, sensory, reflex and neurological function, as well as causes of pain.

Brain and Body Involvement



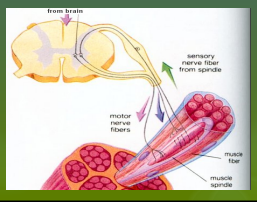


Adjustments?

- Gentle spinal pressure techniques called *Adjustments are utilized* to reduce or rid this Subluxation complex

Adjustments and Proprioception

- Spinal Adjustments recruit the firing of mechanoreceptors (which only fire at extreme range of motion); Stimulates Proprioceptors
  - Acts with the Vestibular (Balance) System
  - Helps Child progress through motor developmental stages



Neurosensory Integration

- "A well-trained nervous system is this greatest friend a mind can have"
  Halleck, 1898

Input Output

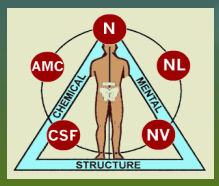
The Nervous Systems controls every system in your body!

Functional Neurology?

- The approach that the neurons and the nervous system are the modulators of human expression and experience.
- The focus of FN is the integration of all the brain's sensory activities in order to benefit a variety of clinical and subclinical symptoms

Applied Kinesiology?

- Chiropractic, Cranials and More…



Chiropractic's Benefit with ASD

- The results showed that improvement of ATEC scores occurred in six of the seven children under upper cervical adjustment and in five of the seven children under full spine adjustment. Two of the children improved so much that they no longer met the criteria to be classified as autistic. Overall, the study noted that the most common clinical aspects of improvement were in communication, verbal skills, eye contact, mood, and physical sport skills.
- March 9, 2006 Journal of Vertebral Subluxation (JVSR)

Chiropractic Benefits Delays

Recent research has shown the benefit of chiropractic and children with developmental delay.

157 children ages 6 t0 13 with various form of developmental delay.

After Chiropractic treatment and exercises were completed, the psychological tests were repeated. As a group, the children improved on all eight tests and 20 areas of cognitive function. For example, on one of the memory tests, 82 percent of the children improved. According to the study, "their ability to concentrate, maintain focus and attention, and control impulsivity and their performance at home and school improved"

Masarsky, Charles S., DC., Chiropractic for the Mind of a Child
Dynamic Chiropractic – April 9, 2010, Vol. 28, Issue 08

Measuring CNS Function

- Health care practitioners are challenged, particularly in a clinic setting, to quantify variations of the CNS communication with SPD conditions.
- Frequently conventional tests such as blood markers, MRI's and EEG's appear unremarkable. However research methods have shown promise.

Noninvasive Testing of the CNS

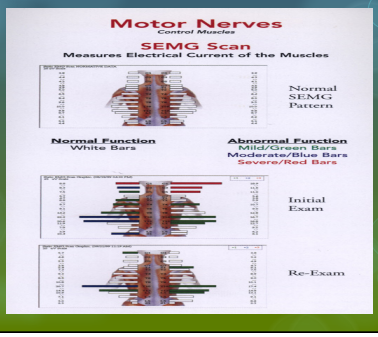
- Infrared Thermography

Measures temperature variations along the spine as indications of imbalances in the Autonomic nervous system which result from subluxations within the CNS.

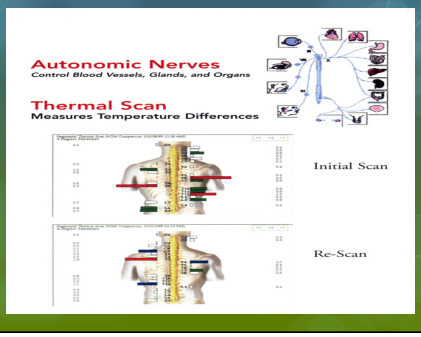
- Surface Electromyography

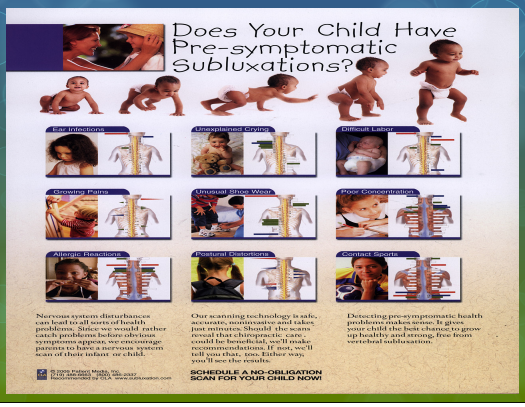
Illustrates the effectiveness of motor nerves by measuring the amount of current at the muscle, with imbalances being indication of subluxations within the CNS

Surface Electromyography



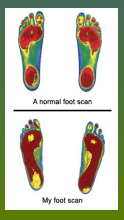
Infrared Thermography





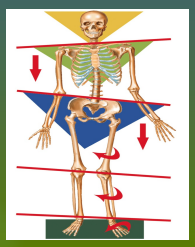
A Step in the Right Direction

- 75% of imperfections from poor foot mechanics are transmitted up through the spine via *Presso-receptors*.
- Digital Foot Scan…. Orthotics



Back to Where We Began

- Because Posture and Motor Matter by Influencing Motion



The Best of Both Worlds

- Chiropractic *adjustments* work to restore more appropriate motor, sensory, reflex and neurological input and therefore improve function.
- Improve Structure ⟷ Improve Function
- Working inside to out and not outside to in.

Clarifications

- There is no HealthCare that is guaranteed or without risk.
- However, Chiropractic is among the safest and most effective in benefiting the nervous system through benefits to:

- Your Posture
- Your Alignment
- Your Flexibility
- Your Balance
- Your Motion

- The Better Your Quality of Life

And the Longer You Live

A Mom's Story

Dear Parents,

After a frustrating year of indifferent doctors who ignored my concerns about my son, finding Dr Chapple was like a gift.

Over weeks of therapy he has improved considerably. He no longer cocks his head. Spins or presses his forehead onto me.

In Fact, we took him for a haircut, and for the first time he sat still for the whole thing…No unfinished haircut, frantic barber or parents.

It's sad, but I had never really noticed that he didn't run very much before. When he did…he ran on his toes with a very awkward gait. Now he races around on his little feet for the sheer joy of running that all children have.

A Mom's Story

- We are glad that another parent sent us to Dr Chapple. Since our son has received treatment his posture and walking are noticeable more in balanced. His school reports far fewer headaches and better attention. He enjoys his treatments.

A Mom's Story

- We were first uncertain what to expect with treatment as our son's concerns centered around allergies. With regular care he has been sleeping better and needs less allergy medication. His teacher just told me that she will be awarding him "Most Improved" in both academic and behavior for this year.

I see his face light up each time I tell him he is going to Dr Chapple, maybe because he is feeling a lot better after treatment.

Some Help from Michelangelo…

- "the danger that exist is not aiming to high and reaching it, but aiming to low and achieving it."
- We can never aim to high for our children

Some Resources

- www.icpa4kids.com
- www.upledger.com
- www.movementbasedlearning.com
- www.autismone.org

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Abstract

Title: Posture and Motion Matter in the Autism Spectrum

Abstract: Movement influences many aspects of our lives. From development, to mood, to metabolism, to mental clarity, to sleep which influences digestive and immune function, proper motor activity is crucial. Posture guides this motor activity and frequently goes uncorrected among individuals on the spectrum. Learn how this matters and Chiropractic's role.