Building Better Kids: The bigger picture!

Presented by:

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Beacon Hill Chiropractic & Massage

Our vision we hold for you and our community

We change lives through inspiration, empowerment, and excellent health care delivery

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CHIROPRACTIC AND MASSAGE
~NORTHWEST~

Our outline for this workshop

- Part I – Review brain function, development considerations, factors impacting cognition, and optimal brain function requirements.
- Part II – Review of diet and it's connection to behavioural issues in children,.
- Part III – Little people lifestyle factors that can make the difference in your children's entire life. Exercise, habits of posture, backpacks, technology, and more.
- Lots of opportunity to answer questions & discuss

First, a few trends in the world..

- Why is natural care (alternative) growing in popularity?
- When does our health begin to be challenged?
- What does our medical research reveal about contemporary medical care (hospital/MD off)?

Kids (brain) health challenges

- Are we evolving?
- How is children's behavioral health now vs 1960's? 1980's? 2000?
- Bad Genetics? If not, then what?
- Is nutrition relevant to brain? Research says..

7 Enemies of a Healthy Brain (toxins, malnutrition, physical laziness, mindlessness, lack of sun, stress, sleep deprivation,)

"A World Health Organization report on the global burden of disease estimated that nearly a quarter of the global disease burden is related to environmental causes."

Neira, Maria et al. Environmental threats to children's health - a global problem; Source: International Journal of Environment and Health, Volume 2, Numbers 3-4, 24 October 2008 , pp. 276-292(17) abstract below

"These environmental-mediated diseases cause more than three million deaths in children under five every year."

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"17% of all children are affected by a develop-mental disability;

"most impact the brain and nervous system."

1 of every 150 – autistic 60% male, 1 in 15 American children (ADHD)
http://www.ewg.org/files/EWGKidsafe_reasons.pdf below

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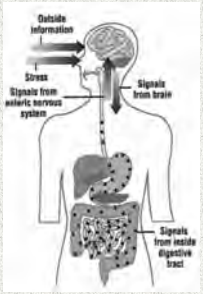
The gut is like a "2nd Brain"



- Research at McMaster University:
  - gut bacteria influence brain chemistry & behavior
  - regular ingestion of good gut bacteria significantly lowers stress induced hormone Cortisone
- Also regular consuming of the Lactobacillus strain caused changes in receptor expression for GABA
  - Lowered anxiety & depression
  - This is critical for young guts (children)

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Low Glycemic Brain

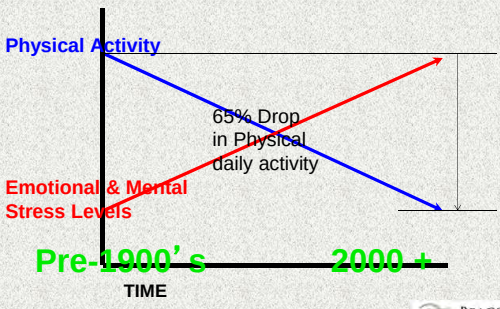
"In all major depression studies a significant decrease of the omega 3 fatty acids

and/or

an increase of the omega 6/omega 3 ratio was revealed"

Encephale. 2003 Jan-Feb;29(1):49-58. PMID: 12640327 below

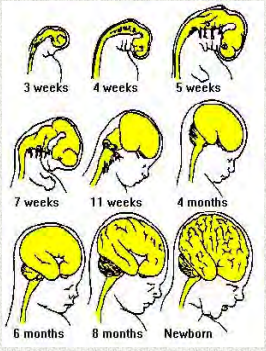
The Paradox of our time!



Brain development and function

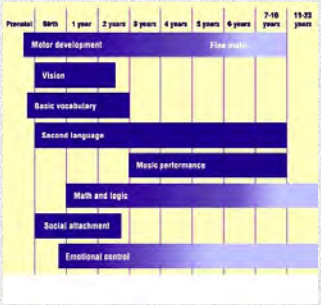
- A look at embryology, and steps to a great brain. Look what this is related to!!!!
- Other key factors: environments best for learning, nutrients key to the journey, back to the basics (oxygen, sunlight, ___, ___, & ___!

Brain Development



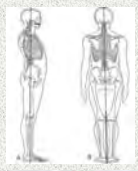
- At birth most neural connections have not yet formed
- These connections are formed and refined as we age via
  - Movement
  - Nutrition
  - Environment
  - Experience
  - Genetics

Critical brain development



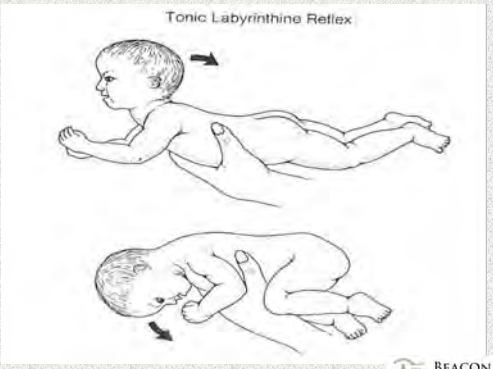
- Brain has amazing capacity to grow and change
- For optimal development is important to emphasize certain things at specific times of life
- The first ten years are the most vital in terms of brain growth and development

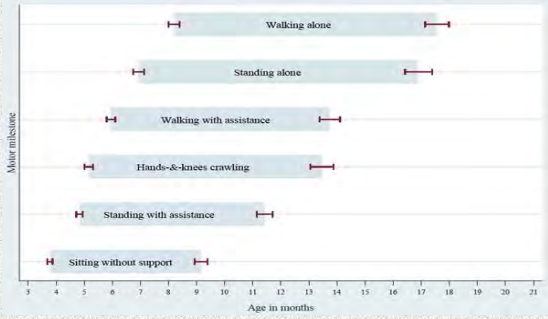
How do we get to this point?



- Tall, aligned, great posture
- Healthy muscular tone
- Flexible, agile, coordinated

- Great happy disposition/attitude
- Calmness, focused thinker
- Well adjusted to social interactions and interpersonal interactions and relationships

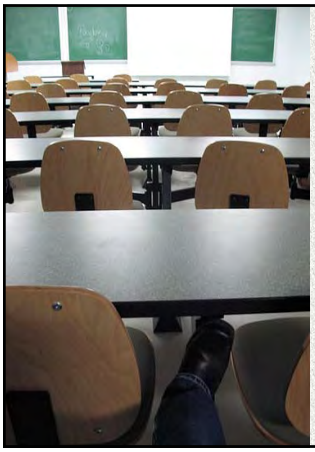




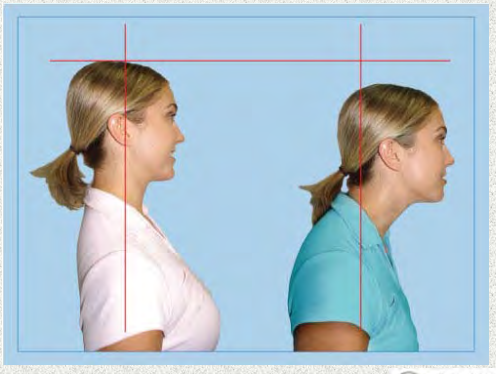
By 3 months – hold head up securely, align eyes

By 4-7 months – develop extensor thrust

By end of first year – stand upright



"If you wanted to create an education / work environment that was *directly opposed to what the brain was good at doing*, you probably would design something like a classroom."



Brain – Spine Connection

- "90% of the stimulation and nutrition to the brain is generated by the movement of the spine"

  Dr. Roger Sperry, (Nobel Prize Recipient for Brain Research)
- Additionally, Sperry posited that 90% of the brain's energy output is used in relating the physical body to gravity. Only 10% has to do with thinking, metabolism, and healing.

Sperry, R. W. (1988) Roger Sperry's brain research. Bulletin of The Theosophy Science Study Group 26(3-4), 27-28. Nerve Connections. Quart. Rev. Biol. 46, 198

Notes of interest

- Posture is considered a reflection of tone of the erector spinae muscles and poor posture is associated with decreased function of the cerebellum and higher brain
- Have you noticed in your children and other young people that poor, slouching, and hunched posture is becoming more prevalent in the population

Brain Stimulation Strategies

- **Relationships!**
  - What are their role in our brain health and function?
- **Learning & creativity**
  - Why is this important?

"Cells that fire together will wire together"

http://www.sharpbrains.com/blog/2007/11/25/use-it-or-lose-it-and-cells-that-fire-together-wire-together/ below

Brain lipids (fats), effect structure and function.

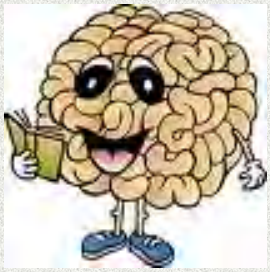
"the brain, (after adipose tissue), is the organ richest in lipids"

"omega3 deficiency alters *the structure and function of* membranes and *induces minor cerebral dysfunctions*"

J Nutr Health Aging. 2004;8(3):163-74. PMID: 15129302

Nutrition is critical to brain function

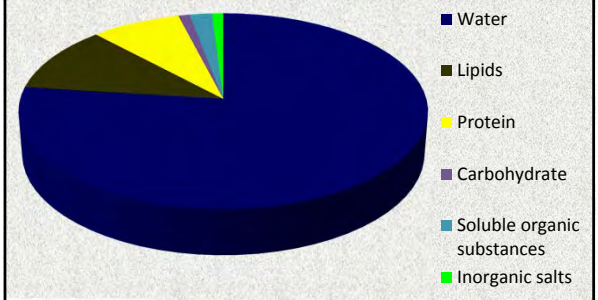
"Higher consumption of the long-chain omega-3 fatty acids had positive effects on "memory, mood and personality"



Neurosci Lett. 2007 Jun 29;421(3):209-12.PMID: 17574755

Brain composition 77% water

http://faculty.washington.edu/chudler/facts.html below



"dehydration levels of 1% may adversely affect cognitive performance."

J Am Coll Nutr. 2007 Oct;26(5 Suppl):555S-561S. PMID: 17921465 below

Build the mind with sleep

A study of almost 7,000 Alameda County residents, over a nine-year period, *found that people who routinely slept six or fewer hours a night had about 70 percent higher risk of dying* than did people of similar age who slept seven or eight hours a night.

http://www.sfgate.com/cgi-bin/article.cgi?f=/c/a/2007/09/02/CMR2RF6AK.DTL&hw=diet&sn=006&sc=231 below

Sleep for our children

"certain brain functions happen only while we are asleep"

"skimping on sleep stymies these crucial cognitive processes: some aspects of learning only happen with more than six hours of sleep."

Scientific American Mind- August 7, 2008
http://www.sciam.com/article.cfm

How much sleep do new-borns, infants, young children need every day?

The Brain and Behavior – Intro to Behavioral Neuroanatomy

- Accumulating evidence suggests that the cerebellum plays a role in affective and higher cognitive functions.
- The progressive expansion of the cerebellum and the proliferation and specialization of its connections to the prefrontal cortex in the human contributes to the enhancement of mental and language skills.
- The lateral hemispheres of the cerebellum may be more involved with strategic planning, learning, memory, and language.

Clark / Boutros – Blackwell Science 1999

The Cerebellar Cognitive Affective Syndrome
Brain 1998, Apr;121 (Pt4):561-79

- Studies suggest that the cerebellum participates in the organization of higher order function
- The cerebellum has long been implicated in disorders of cerebral development – cerebral palsy, autism, learning disorders

Jeremy Schmahman, Mass General

Helping kids grow brains

Since the cerebellum and thalamus are important to the size and operation of the frontal cortex, if a child does not have normal or proper motor development, we would expect that the higher frontal lobe functions of cognition and behavior would be delayed in their development.

Likewise, helping a child to develop their motor skills should also help develop their non-motor skills

Build the brain, don't shrink it!

- Voluntary exercise promotes neuroplasticity, which means new brain cell growth and expansion!
- Exercise improves brain health!

Journal of Neurophysiology, July 2002

Physical Activity

"exercise interventions are associated with significant benefits for patients with mild to moderate forms of depression as well as in reducing anxiety. These findings have led to the proposal that exercise may serve as an *alternative or a supplement to traditional forms of therapy.*

American Journal of Lifestyle Medicine, Vol. 1, No. 3, 159-166 (2007)

"learning *was 20 percent* faster after intense physical exercise"

Neurobiology of Learning and Memory Volume 87, Issue 4, May 2007, Pages 597-609 abstract below

What does your child support themselves with?

This??? Or This??

Evolution Chair →

← Death to the brain chair

Proactive Disc →

At home & school

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Diet and your children

- Proper nutrition promotes the optimal growth and development of children
- It provides the building blocks for a child's body and mind
- 1 in 3 children born will develop diabetes in their lifetime
- Almost 50% of children miss an important meal in a 24hr period
- Less then 8% of children are getting the recommended amounts of fruits and veg and less then 1% were getting the recommended amounts in all food groups

VS.

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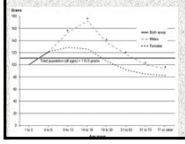
Do you have the Sweetest children?

- Children are more sensitive to sugar then adults and the effects are more pronounced
- 16% of total calories comes from sugar
- Sugar promotes sugar cravings
  - increased sugar → increased insulin release → insulin lingers in the body → triggers a craving for more sugar
- Sugar has been shown to decrease immunity
- Sugar increases risk of diabetes and heart disease
- Billy don't feed the dog that, it will make him sick
- Obesity statistics are on the rise
  - Boy/girl ratio is 3:1
- This is a wake up call!!!



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Sugar is not the only culprit

- When kids eat fast food, they eat MORE all day long
- Over a years time, a child can pack on 6 extra pounds just due to fast food
  - One year = 6 lbs…from age 5-18 = **84 LBS!!!!!!**
- **From happy meals to supersized**
  - **Some restaurants now offering healthier choices**
- **Junk food will damage arteries immediately**
- **Junk food causes kids to suffer at school**
- **Junk food can cause depression**
- **Junk food puts children off of healthy food**
- **Junk food affects sleep**
- **Junk food/fast food…IS NOT REAL FOOD!!!**
- http://www.huffingtonpost.com/2013/11/20/fast-food-truths_n_4296243.html

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Does your child have these signs?

Signs of inattention include:

- becoming easily distracted by irrelevant sights and sounds
- failing to pay attention to details and making careless mistakes
- rarely following instructions carefully and completely
- losing or forgetting things like toys, or pencils, books, and tools needed for a task
- avoiding tasks that require sustained mental effort

Signs of hyperactivity and impulsivity include:

- feeling restless, often fidgeting with hands or feet, or squirming
- running, climbing, or leaving a seat, in situations where sitting or quiet behavior is expected
- acting as if driven by a motor
- blurting out answers before hearing the whole question
- having difficulty waiting in line or for a turn

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From Sweet to Sour children

- Excess sugar and poor diet has been shown to decrease learning performance
- Poor diet has been linked to childhood behavioral problems like ADD, ADHD, Autism, dyslexia, OCD
  - Affects up to 20% of children
- Over 60% of children affected with ADD/ADHD have a hypersensitivity to food (a food allergy)
  - This creates inflammation in both the body and the brain
- 2-3X more common in boys then girls
- Children with ADHD are more sensitive to sugar
  - increased sugar → increased insulin release → falling blood sugars → brain secretes glutamate → can cause agitation, depression, anger, anxiety, panic attacks
- Are the drugs to treat these any safer??
  - Studies have shown the Ritalin causes cancer in lab animals
- The Gut/Brain connection
  - We are actually born with two brains

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Research linking gut health

- Mood and behavior
- Weight gain & metabolism
- Hormonal changes
- Immunogenicity (allergies)
- Inflammation
- ADD/Autism spectrum
- Vaccines
- Antibiotics

Gluten: A serious problem for many

- ✖ Many studies suggest that this may be the root cause of all neurological and psychiatric conditions. A gluten free diet has been shown to drastically improve symptoms of many of these disorders
- Gluten is a protein and part of all grains
- Historically, gluten was always generally digestible, but hybridization in the common modern grains has rendered all modern day WHEAT, RYE, BARLEY to be TOXIC and NON-DIGESTABLE to human gut.
- All other grain glutens ARE digestible, yet share some similarities with toxin gluten, or may be contaminated.
- Due to toxic gluten, a child's gut can become irritated and inflamed from being exposed to this in the foods they eat.
- Large undigested protein parts bombard the intestinal walls – punching holes through the delicate lining. Erosion and inflammation ensues.

Gluten: A serious problem for many

- Without complete digestion of nutrients into small particles, larger particles (food parts, microorganisms, toxins) enter the body and trigger immune system(IS) activation.
- The IS will raise levels of cytokines, interleukins and other inflammation chemicals that irritate the gut wall and weaken it, which leads to advanced destruction of the lining walls and cause an allergic reactions
- Those inflammatory chemicals circulate throughout your entire body – and may trigger joint/muscle/nerve pain and behavioral problems/learning difficulties
- HEAL THE GUT! HEAL THE GUT! HEAL THE GUT!

Gluten: A serious problem for many

Two breakthrough studies were published in recent years:

• 2006: 132 young participants diagnosed with celiac disease were followed beginning at initial diagnosis and implementation of gluten-free diet. ADHD symptoms were measured at baseline and 6 months after dietary intervention.

"The data indicate that ADHD-like symptomatology is markedly overrepresented among untreated CD patients and that a gluten-free diet may improve symptoms significantly within a short period of time."
More attention to details, completion of tasks, concentration, ability to remain seated, less distractibility and hand fidgeting, less noise-making and blurting out. (Niederhofer & Pittschieler, 2006)

• 2011: 67 people diagnosed with ADHD were screened and 10 found to have celiac disease, i.e. 1 out of 7. These participants all showed a reduction in symptoms after at least 6 months on the gluten-free diet.

Celiac positive participants "showed a significant decrease in mean symptoms of ADHD including: no close attention to details, easily distracted, and often blurts out answer before the question is completed." (Niederhofer, 2011)

Other factors to consider

- **Too few bacteria** – toxicity in the gut can cause symptoms of Autism, ADHD, Depression, and other mental disorders. Reducing gut inflammation is imperative when addressing mental health issues. Consider supplementing with a potent probiotic
- **Animal Sourced omega 3 deficiency** – kids low in omega 3 fatty acids are more likely to be hyperactive, become depressed, have learning disorders, and have behavioral problems. Supplementing with fish/krill oil has been shown to reduce this by 60%
- **Food Additives and GMO ingredients** – food additives/ food colorings have been shown to worsen ADHD. Glyphosate, the active ingredient in Monsanto's roundup herbicide, limits body's ability to detoxify chemicals that may result in brain disorders that can affect behavior



Bad "inflaming" diets

- Commonly contain wheat, rye, or barley based grain CHO's rich in phytic acid, and agitating proteins like toxic GLUTEN.
- High dairy intake
- High acidity in sweetened, preserved foods and beverages
- Low levels of fresh fiber content
- Low water intake or low H2O content foods
- High vegetable oil containing foods containing refined veggie oils (>> omega 6) and polyunsaturated fatty acids
- Grain fed meats like beef or pork and certain farmed fish
- Low probiotic levels in foods

IT STARTS WITH THE PARENTS

- **Have regular family meals** - Try to aim for meals at the same time each day and have the whole family sit together.
- **Cook more meals at home** - Eating home cooked meals healthier. Restaurant meals tend to have more fat and sugar
- **Get the kids involved** – Involve the kids in grocery shopping, preparing meals, selecting what goes in their lunch. Children more lucky to eat "real" food as opposed to eating out
- **Have a variety of healthy snacks**. Growing kids love to snack, so have healthy options available. (fruits, veg, yogurt,
- **Limit portion sizes**: Don't insist your child cleans the plate and never use food as a reward or bribe
- Don't abandon sweets entirely – Having no sweets in the house is an invitation for cravings and overindulging
- Don't be scared of fats – fats are incredibly healthy

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IT STARTS WITH THE PARENTS

- **Desserts and sweets.** Limit portions of cookies, candies and other baked goods. Instead try fruit-based desserts.
- **Cereals**. Limit sugary cereals. Look for whole-grain cereals, such as oatmeal, that don't have added sugar — or salt. Add nuts, fruit or cinnamon if you want to jazz it up.
- **Yogurts**. An 8-ounce serving has about 12 grams of natural sugar. Many flavored yogurts also have a significant amount of added sugar. Avoid those and instead opt for plain yogurt and add your own sweetness by blending in frozen berries or other fruits.
- **Beverages**. Stick to water (most of the time). Limit juices, sports drinks and other flavored beverages.
- **Bottom line**: Check the ingredient list on anything that comes in a package. Ingredients are listed by decreasing weight. If you see sugar by any name near the top of list, reconsider.

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Active Kids= Healthy Kids

Concerns Around Posture, Back Health, and Mobile Culture

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It Starts With Our Children:

- ONLY 7% of children in Canada get the minimum baseline recommendation of **60 minutes** of moderate to vigorous PA/Day.
- Did you know that children aged 5-17 years spend **67% of their waking life** in a sedentary position!
- That equates to an average of **7 hours per day** staring at a screen!!

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Keeping Our Kids Healthy!!

According to *Archives of Disease in Childhood*:

- By age 7, a child born today will have spent **one full year of 24hr days** watching screens
- By 18 yoa, that equates to **3 years of screen time**
- Children spend more time watching TV than they spend in school

This coincides with a childhood obesity increase from 5% to 15% in the 1980s and 1990s!!

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Screen Time Considerations

Social media, TV, computer games are all contributing to postural shifts noted in young people.

The Canadian Paediatric Society advises the following:

- Children under 2 yoa **shouldn't have ANY screen** time
- School-aged children should be restricted to **no more than 2 hours** of recreational screen time

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Why is posture important?
Consider this with our children...

"Poor posture can *diminish blood flow to the brain* and cause impairments in creative thinking and emotional control, slow reaction time, magnify feelings of panic and helplessness, and may even cause depression."

"Posture is *affected by, and affects, every aspect of our lives*… With good posture, exercise is more enjoyable, digestion improves, the mind is clearer, senses sharper, and problems seem more manageable. In contrast, poor postures-tense, slumped, struggling positions-sabotage your every thought and movement."

-Robert K. Cooper, Ph.D, -"The Performance Edge"

Poor Posture and Neck Pain
AKA "Text Neck"

- Results from consistent flexion of the next
- Can result in decreased blood flow to the brain/concentration and focus
- Noted in particular in region associated with sensory input/perception areas
- Huge headache contributor
- Brain-Body connection/Balance

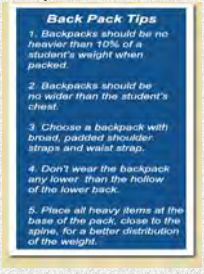
Common Posture Concerns:
Backpack Health

- Carrying a heavy load unevenly or improperly can result in poor posture distorting the spinal column, causing muscle strain, headaches, neck and arm pain, and even nerve damage.
- More than 50 per cent of young people experience at least one episode of low back pain by their teenage years

http://www.albertachiro.com/siteware/files/2012_pack_it_light_wear_it_right_backpack_kit.pdf

How Do We Help?

Backpack Modifications:

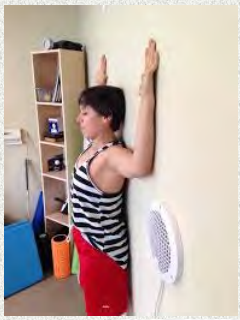


Day to Day Changes:

- Exercise every day
- Avoid slouching/hunching when sitting. Keep shoulders squared!
- Stretch before and after sports, and after each hour of sitting esp. with media
- Sleep on your side or back!
- Get adjusted!!
- Manage emotional stress!
- www.straightenupalberta.com

Kids Posture Test

- Use the wall and have three key points make contact: Buttocks, upper back and back of head
- Observe challenges
- Same tool to retrain posture AKA **Wall angel**



Creating Healthy Habits

Kids who are active are more likely to be adults who exercise!

HOW??

- Be an example!
- Family fitness goals on the fridge
- Squats/jumping jacks every commercial
- Pedometers for the family
- Get a dog!

Chiropractic Care

- Natural, drugless, & highly effective
- For all ages
- Preventative and restorative
- Pain care and illness preventing
- Restores movement (a joint that is stiff or stuck, is a sick joint)
- Will help remove restrictions caused by stress and bad posture
- Will help normalize tense muscles
- Will improve circulation to improve healing
- Educate you to help break the common bad posture cycle

- If there is anything that prevents the nervous system from working at an optimal level, it will in some way affect the body's ability to heal and regulate!!

Chiropractic works because.

- It is a safe form of gentle care for newborns, infants, children and expecting mothers, adolescents, adults!
- The gentle stimulation to the joints of the spine, produce tremendous neural input to the cerebellum and association cortex of the brain. This is primarily motion (proprioception) information that drives all the higher brain functions, and this input triggers growth and enrichment of the motor cortex (learning centers, motor speech, decision and judgment making areas).
- Unhealthy input from joints (like pain, stiffness) is corrected, and will no longer impair brain function.

Chiropractic Care

- Most popular choice of CAM's in Canada
- A rapidly growing area in pediatrics'
- Cost effective and it works!
- No Drugs, No surgeries, No side-effects!
- Kid's love getting adjusted!

Chiropractic Theory

According to Melillo and Leisman, childhood neurobehavioral disorders have many features in common:

"Attention deficit disorder (ADD), attention deficit hyperactive disorder (ADHD), pervasive developmental disorder (PDD), obsessive compulsive disorder (OCD), Asperger's syndrome, and Autism to name but a few, may be viewed as points on a spectrum of developmental disabilities in which those points share features in common and possibly etiology as well, varying only in severity and in the primary anatomical region of dysfunctional activity."

Melillo R, Leisman G. Introduction *in* Neurobehavioral Disorders of Childhood. An Evolutionary Perspective. 2004 Kluwer Academic/Plenum Publishers. New York.

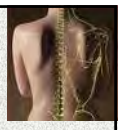
Chiropractic Theory

Melillo and Leisman state that learning to crawl and then stand and walk two legged is responsible for the development and evolution of the large human brain.

Postural muscles are the main source of brain stimulation by which motor and cognitive binding evolve.

Conclusion: Abnormalities in postural development or activity may disrupt cerebellar and cortical maturation.

Chiropractic Research



One well known study of spinal problems in children was done by Biedermann

- studied 600 children who were diagnosed with *Kinematic Imbalance due to Sub-occipital Strain* (KISS Syndrome).

He reports on improvements following gentle chiropractic care to improve the sick/stiffened joints in the neck including: torticollis, microsomy, scoliosis, motor asymmetries, and slowed motor development.

Biedermann H. Kinematic imbalances due to sub-occipital strain in newborns. J. Manual Med 1992. 6:151-156

BEACON HILL CHIROPRACTIC AND MASSAGE NORTHWEST

Massage Therapy

- Helps relax muscles made sore by bad posture
- Helps relieve pressure on joints
- Pressure points are relieved
- Relieves stress that causes poor posture

BEACON HILL CHIROPRACTIC AND MASSAGE NORTHWEST

Upcoming workshops

- Best of Me Part IV Seminar Series
- Screening of new documentary “Bought”
- Pinot and Paleo
- Healthy Aging Workshop
- Immune System Boot Camp

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