Disconnected Kids, Understanding and Correcting Functional Disconnection in Autism

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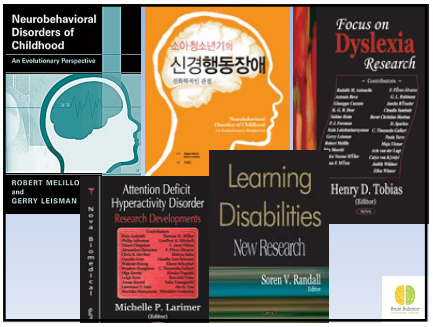
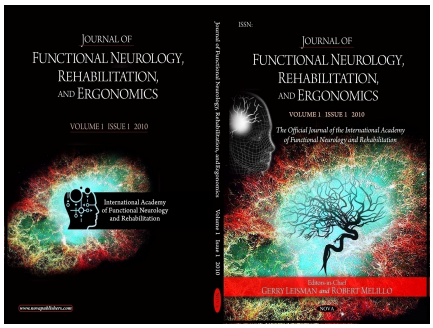
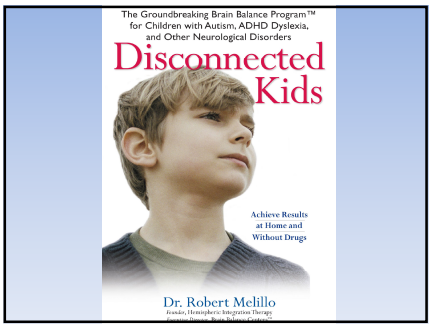
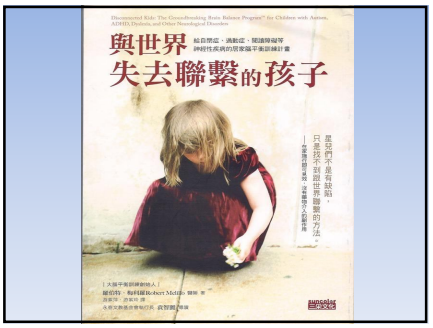
Dr Robert Melillo

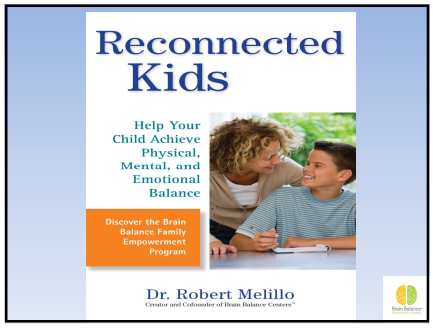
- Is the creator of the Brain Balance program TM, is an internationally recognized author, professor researcher with an expertise in neurology, rehabilitation, neuropsychology and childhood developmental disorders.
- He holds a Masters in Neuroscience ,Masters in Clinical Rehabilitation Neuropsychology, PhDc in Clinical Rehabilitation Neuropsychology, Doctorate in Chiropractic , Diplomate in Neurology, Fellowship American College of Functional Neurology ,Fellowship American Board Childhood Developmental Disabilities, former Associate Professor Functional Neuroanatomy Touro College, Professor Clinical Neurology and Childhood Developmental Disorders ,Executive Director FR Carrick Research Institute and Children's Autism Hope Project ,President International Association Of Functional Neurology and Rehabilitation ,Co-Editor Of Peer Reviewed Journal Functional Neurology ,Rehabilitation And Ergonomics ,Author "Disconnected Kids" as well as several texts and scientific papers Utilized in many graduate courses in Medicine, Psychology ,and education ,.He is the Co-Founder Brain Balance Achievement Centers



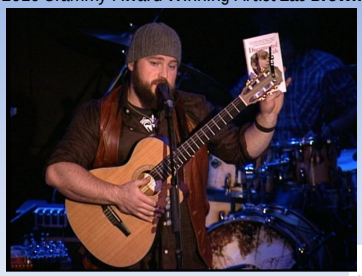








2010 Grammy Award Winning Artist **Zac Brown**



What is Autism?

- Can you describe any of the leading scientific theories of what is actually happening in the brain of an autistic child?

What is the Brain Balance program?

- Brain Balance Centers are specialized supplemental learning centers that are focused on helping children with specific learning disabilities and behavior problems.
- Our goal is to help improve and optimize each child's ability to learn academically and socially .
- The Brain Balance Program is a comprehensive individualized program that focuses on identifying a child's specific weaknesses in all aspects of sensory detection and processing, motor planning and coordination, cognitive skills ,behavior, and academic achievement.
- We also assess the child's unique feeding behavior, diet and nutritional needs.
- All of this is individualized to the child and focused on addressing the actual underlying cause of all of these issues, a Functional Disconnection

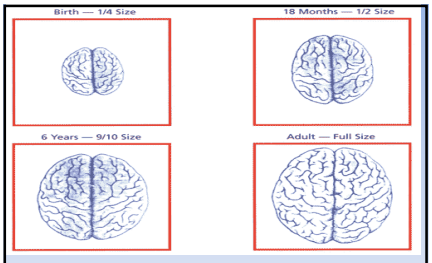
THE EPIDEMIC

- 10 years ago Autism was considered a rare disorder diagnosed in aprox 1 out of 10,000 children
- Most recent CDC study places prevalence at 1 in 110,and 1 in 70 boys.
- Most recent studies(May 2011) out of Korea with a more extensive population based study shows prevalence to be 1 in 38.
- According to researchers . "The results of the study indicated a prevalence estimate for ASD to be 2.64% of the population; a number nearly three times previous estimates."
- It is believed that a population based study in the US would reveal even a higher number of children than seen in the Korean study

THESE PROBLEMS ARE NOT GENETIC THEY ARE ENVIRONMENTAL or EPIGENETIC!!!!

Epimutations are inheritable which is why these issues run in families

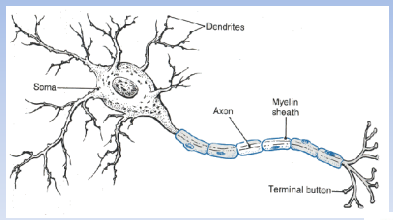
- This means that they are potentially **Correctable!!!!!**



A CHILD IS BORNE WITH ONLY 25 % OF BRAIN ,IT WILL GROW TO 90% OF ADULT SIZE BY 3 YRS. ENVIRONMENTAL FACTORS TURN ON GENES THAT INCREASE THE SIZE OF THE BRAIN. THIS IS NOT DUE TO INCREASING THE NUMBER OF CELLS

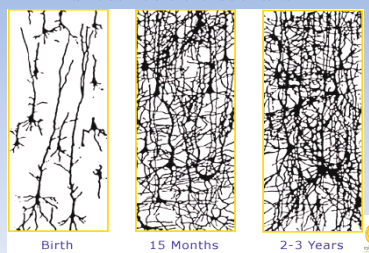
NEUROPLASTICITY

GROWTH OF THE BRAIN, EACH CELL BECOMES LARGER AND MORE INSULATED



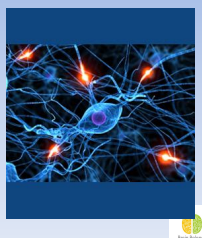
NEUROPLASTICITY

MAJORITY OF GROWTH IS DUE TO INCREASED FUNCTIONAL CONNECTIVITY



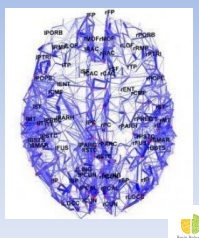
WHY ARE HUMANS SO MUCH MORE INTELLIGENT THAN ANY OTHER ANIMAL ON THE PLANET?

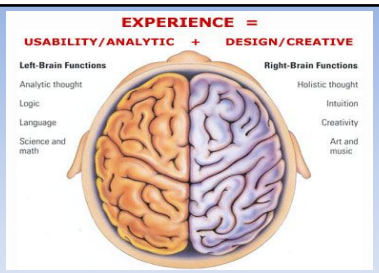
- GENES ?
- LARGE BRAIN PER BODY SIZE ?
- WHAT IS THE UNIQUE ABILITY OF THE HUMAN BRAIN THAT GIVES RISE TO INTELLIGENCE ,CONSIOUSNESS AND SELF AWARENESS ?
- 1. TIMING and COORDINATION



BRAIN DEVELOPMENT,SYNAPTOGENESIS AND FUNCTIONAL CONNECTIVITY

- As the neurons become larger and more insulated by glial cells, they increase the speed of their impulse transmission;
- more networks can be activated simultaneously increasing the coordination and integration of large cortical networks.
- Initially this increased coordination occurs with short range intracortical connections to increase integration and coherence within the individual hemispheres.

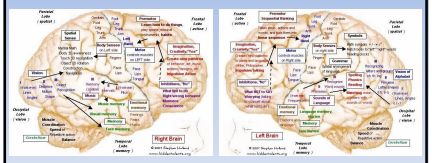




2. THE ASYMMETRICAL HUMAN BRAIN

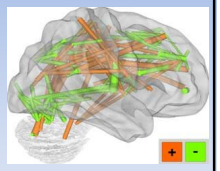
LATERALIZED FUNCTIONS

COMBINING THEM IN UNIQUE WAYS GIVES HUMANS UNIQUE INTELLECT



BRAIN DEVELOPMENT,SYNAPTOGENESIS AND FUNCTIONAL CONNECTIVITY

- As this coordination and synaptogenesis continues, long range connections will form
- and this will increase the size of the corpus callosum where many of these fibers will cross to connect with areas on the opposite hemisphere.
- This is all part of the normal process of cortical maturity. We think this is the process that is affected and delayed in most if not all neurobehavioral disorders.



What is The actual Problem?

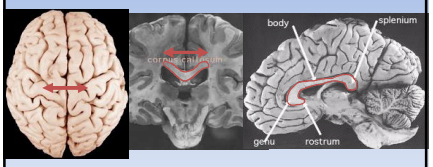
- Recent research has shown that ASD, ADHD,Dyslexia,LD,OCD etc.,are all the result of a common single underlying problem.
- That problem is known in the scientific community as a Functional Disconnection .It has also been referred to as developmental disconnection, desynchronization and underconnectivity and weak central coherence.
- All these names mean the same thing ,the primary problem in all of these disorders lies in the inability for large cortical networks to coordinate and bind in time and space.
- This poor coordination leads to the inability to integrate and bind information from multiple areas of the brain simultaneously
- The reason for this is an underlying processing imbalance where certain cortical networks are processing information at a much faster speed then other networks.
- The networks that are processing quickly function at a normal to above normal level, while information from other slower networks is essentially ignored.

What is The actual Problem?

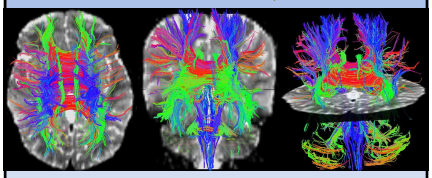
- This leads to a anatomical imbalance where certain areas of the brain are physically larger or more mature then others.
- This is mirrored by an imbalance in electrical and metabolic activity ,along with an uneveness of skills that is characteristic of all of these disorders.
- Areas that cannot synchronize and bind in space and time cannot share information therefore they do not develop connections so they appear underconnected.
- The most significant disconnection appears to be between the two hemispheres themselves in that the most underdeveloped and underconnected area of the brain is the actual corpus callosum.
- However there is no sign of any pathology, injury, degeneration or localized lesion of any kind. Inflammatory changes are distributed equally which seem to make the inflammation a result of the Functional Disconnection not the cause.

Left and Right Cortex

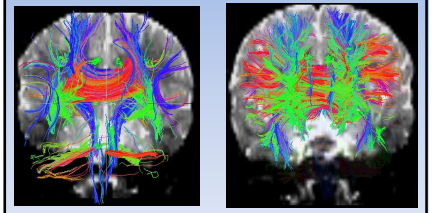
- *two cooperating hemispheres usually connected by corpus collusum*



CASE 1



CASE 2



What is The actual Problem?

- The makeup of all of the child ' s issues can be explained by a combination of unusually strong skills in one hemisphere combined with unusually weak skills in the other hemisphere.
- ADHD,ASD,OCD,Tourettes are a result of a weak right hemisphere
- Dyslexia,LD,processing Disorders and Language disorders are a result of a weak Left hemisphere

Socioeconomic Inequality in the Prevalence of Autism Spectrum Disorder: Evidence from a U.S. Cross-Sectional Study

- References
- Maureen S. Durkin1,2,3*, Matthew J. Maenner1,3, F. John Meaney4, Susan E. Levy5, Carolyn DiGuiseppi6, Joyce S. Nicholas7, Russell S. Kirby8, Jennifer A. Pinto-Martin9, Laura A. Schieve10
- **Background**
- This study was designed to evaluate the hypothesis that the prevalence of autism spectrum disorder (ASD) among children in the United States is positively associated with socioeconomic status (SES).

- **Results**
- Prevalence increased with increasing SES in a dose-response manner, with prevalence ratios relative to medium SES of 0.70 (95% confidence interval [CI] 0.64, 0.76) for low SES, and of 1.25 (95% CI 1.16, 1.35) for high SES. (P<0.001). Significant SES gradients were observed for children with and without a pre-existing ASD diagnosis, and in analyses stratified by gender, race/ethnicity, and surveillance data source. The SES gradient was significantly stronger in children with a pre-existing diagnosis than in those meeting criteria for ASD but with no previous record of an ASD diagnosis (p<0.001), and was not present in children with co-occurring ASD and intellectual disability.
- **Conclusions**
- The stronger SES gradient in ASD prevalence in children with versus without a pre-existing ASD diagnosis points to potential ascertainment or diagnostic bias and to the possibility of SES disparity in access to services for children with autism. Further research is needed to confirm and understand the sources of this disparity so that policy implications can be drawn. Consideration should also be given to the possibility that there may be causal mechanisms or confounding factors associated with both high SES and vulnerability to ASD.

Predictors of Cognitive Test Patterns in Autism Families

Journal of Child Psychology and Psychiatry
Volume 40, Issue 7 , pages 1117–1128, October 1999
S.E.Folstein[1], S. L. Santangelo[2], S.E. Gilman[3], J. Piven[4], R. Landa[5], J. Lainhart[6], J. Hain[7], M. Wzorek

Abstract

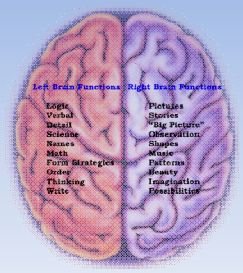
In a case-control study of cognitive performance, tests of intelligence, reading, spelling, and pragmatic language were administered to the parents and siblings of 90 community-ascertained probands with autism (AU group) and to the parents and siblings of 40 similarly ascertained probands with trisomy 21 Down syndrome (DS group). The two samples were comparable for age and parents' education; both groups were well-educated and had above-average intelligence. AU parents scored slightly but significantly lower on the WAIS-R Full Scale and Performance IQ, on two subtests (Picture Arrangement and Picture Completion), and on the Word Attack Test (reading nonsense words) from the Woodcock-Johnson battery. There were no differences between AU and DS siblings. As in earlier studies, AU parents, more often than DS parents, reported a history of early language-related cognitive difficulties; we were not able to replicate this in siblings. AU parents who reported such difficulties scored significantly lower on Verbal IQ, spelling, and the nonsense reading test. AU parents without a history of early language-related cognitive difficulties often had a Verbal IQ that exceeded Performance IQ by more than one standard deviation. AU siblings with early language-related difficulties had similar findings: lower Verbal IQ, poorer spelling, and poorer reading scores, compared to AU siblings without such a history. Parents with a positive history also scored worse on a measure of pragmatic language, the Pragmatic Rating Scale, but not on measures of social-related components of the broader autism phenotype. We propose that cognitive differences in a subset of autism family members are manifestations of the language-related component of the broader autism phenotype, and separate from the social-related component. This is consistent with the hypothesis that there are several genes that may interact to cause autism which segregate independently and have distinguishable manifestations in family members. The hypothesis would be further supported by finding different patterns of genetic loci linked to autism in families where one or both parents has language difficulties.

The Underlying Imbalance

Imagine brain is like an orchestra,thinking ,learning and behaving is like the music

Left Hemisphere

RIGHT BRAIN VS LEFT BRAIN

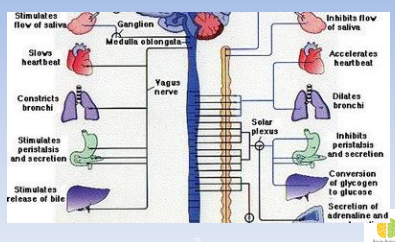


Left Brain	Right Brain
Serial processing	**Parallel processing**
Small Picture	Big picture
Verbal communication	Nonverbal communication
Small muscle control(Fine motor)	large muscle control (Gross Motor)
IQ	EQ
Word reading (phonemice awareness,Decoding)	Reading Comprehension(main idea,inference,pragmatics)
Math calculations(Basic arithmetic,operations)	Math Reasoning(word problems,geometry)
Planning (theoretical)	Doing(Practical)
Conscious actions, memory, learning	Unconscious actions, memory ,learning
Explicit memory(declarative)	Implicit memory (procedural)
Positive emotions (Approach)	Negative emotions (Withdraw)
auditory processing High-frequency sound	Low-frequency sound
visual processing Low frequency vision	High–frequency vision
Tactile processing light touch	Tactile processing deep touch
Linear and logical thinking	Understanding abstract concepts

Left Brain	Right Brain
Curious, impulsive actions	Cautious, safe actions
Like routine, sameness ,familiarity	Likes newness, novelty
Activates immunity	Suppresses immunity
Literal	Metaphorical /alternate meaning
Spatial awareness (Local)	Spatial (Global)
Sense of taste ,smell (good)	Senses of taste ,smell (negative)
Social display ,emotional motivation	Social rules,emotional skills,empathy
Intention	Attention
Motor	Sensory
Top Down	Bottom up
Biographical Narrative	Biographical Memory
Silogistic (cause and effect)	Present in the now
Explaining	Describing
Practical /Deliberate	Intuition(gut feelings)
Teleceptive	Interoceptive
Unconnected to body,digestion,autonomic regulation	Connected to body,digestion,and autonomic regulation
Smell processing Left nostril (pleasant)	Smell processing,right nostril (Unpleasant)

Left Brain	Right Brain
Melatonin (sleep)	**Cortisol(wake)**
TH-1 (approach/Motor)	**Th-2(Avoidance/Sensory)**
Hippocampus	**Hypothalmus PVN**
Direct pathway BG	**Indirect Pathway BG**
Ventral stream(Temporal)	**Dorsal Stream(Parietal)**
Immune activation	**Immune suppression**
Depression	**Mania**
Glutamate	**GABA**
Acetyl Choline	**Serotonin**
Dopamine	**Norepinepherine**
Proinflamatory	**Antiinflamatory**
Interferon	**IL-$**
TNF	**IL-6**
IL-2	**IL-10**
IL-12	**B-cells**
T-cells	**Inhibits PVN acute**
Excites PVN acute	**Excites PVN Chronic**
Inhibits PVN Chronic	

Autonomic Nervous System



Right Hemisphere Under Activation

(Autism/Asperger's, AD/HD, Tourette's, OCD)

- Poor gross motor skills and development (clumsy)
- Distractibility (poor attention)
- Impulsivity
- Hyperactivity
- Lack of self awareness
- Poor spatial orientation
- Poor non-verbal communication (very literal, poor eye contact)
- Inappropriate social behavior
- Emotionally reactivity (unable to control emotions)
- Anxiety
- Miss big picture
- Perseverative behavior and movements (OCD, stims)
- Poor reading comprehension and pragmatic skills
- Poor math reasoning
- Over active immune response (autoimmunity, allergies)

Left Hemisphere Under Activation (Dyslexia, Processing Disorders, Learning Disabilities, Language Disorders)

- Fine motor problems (handwriting, manipulation)
- Poor Reading (decoding)
- Delayed speech or articulation issues
- Poor auditory processing
- Poor object identification (visual or tactile)
- Poor verbal communication skills
- Poor spelling skills
- Poor memory for details ,facts ,figures
- Poor math operations
- Task avoidance (especially with academics)
- Decreased immune response (gets sick often)
- Poor motivation
- Miss small details
- Poor self esteem

Top Down VS Bottom Up

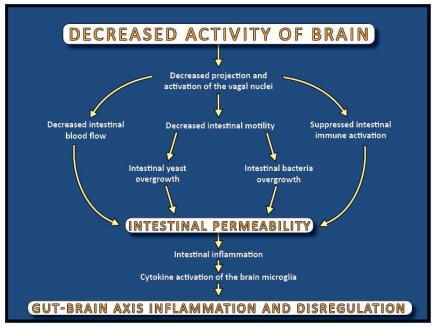
- There are two major theoretical groups in regard to most neurobehavioral disorders
- Top Down theory(Central)
- Bottom up theory(Peripheral)

The cortex regulates the immune system and the activities of a T-cell specific immunopotentiator.

- Int J Neurosci. 1988 Mar;39(1-2):177-87.
- Renoux G.
- **Abstract**
- Evidence has accumulated to demonstrate important bidirectional communications between the nervous and immune systems. The anatomic pathways of communication include the commitment of different midbrain areas to regulation of immunologic functions. Neuropeptides appear as critical mediators of neuroregulation of function of diverse immunocompetent cells. Biochemicals secreted by immunocompetent cells mediate the effects of the immune system on the nervous system. We provide suggestive evidence that the above summarized effects are under a lateralized control of the neocortex. Furthermore, the neocortex has a lateralized influence on the immunopotentiating effects of sodium diethyl dithiocarbamate (imuthiol), which compound selectively increases T-cell numbers and activities, and acts on cholaminergic pathways. Thus, a major hemispheric asymmetry in the response to a drug is revealed. These results point to an important influence of neocortex on number and function of immunocompetent cells, which role can be modified by pharmacologic agents.

Lateralized neocortical control of T lymphocyte export from the thymus I. Increased export after left cortical stimulation in behaviorally active rats,mediated by sympathetic pathways in the upper spinal cord.

- J Neuroimmunol. 2005 Jan;158(1-2):3-13.
- Moshel YA, Durkin HG, Amassian VE.
- **Abstract**
- Electrical stimulation of left temporo-parieto-occipital (TPO) cortex in adult male Wistar rats during their behaviorally active phase (nighttime) transiently increased circulating levels of CD4+ and CD8+ T lymphocytes. Comparable stimulation of this cortex on the right decreased circulating levels of these cells. Responses to left or right cortical stimulation were diminished or absent in behaviorally inactive rats (daytime). Since blood glucocorticoid levels were similar before and after left or right stimulation, they did not appear to account for the lateralized changes observed. These lateralized effects were mediated by spinal cord autonomic pathways emerging at TI-T7 levels. In adult thymectomized rats, CD4+ and CD8+ T cells failed to increase after left sided stimulation. The results suggest that lateralized cerebral cortical functions can acutely and differentially influence blood T cell subset numbers. The results demonstrate a direct neocortical influence on thymic export of mature T cells, mediated by the sympathetic nervous system.



Brain modulation of the Immune system

The Role of the Cerebral Cortex

White Blood Cells

Neutrophils
Monocytes
Basophils
Eosinophils
Lymphocytes
Natural Killer Cells
B-Cells
T-Cells
Cytotoxic T-Cells
T-Suppresser
Regulatory T-Cells
T-Helper

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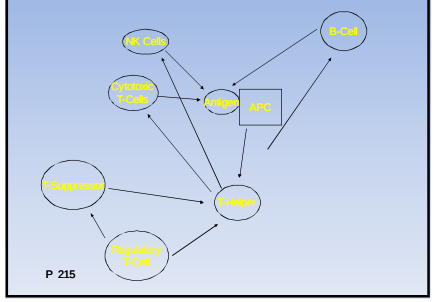

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Development of T Helper Cells

Immature T Cell (T Helper -0)

IL-12
IL-4

Th-1 Lymphocytes
Lymphocytes
IL-2, IFN, TNF
10, IL-13

Th-2
IL-4, IL-5, IL-6, IL

MACROPHAGES
CELLS

B

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Cell Mediated Immunity

Humoral Immunity

Antigenic Autoimmunity?

- First step is to identify and remove antigen
- Antibody tests
- Treat chronic infections
- Elimination diet / Challenge
- Question : What do you eliminate when the antigen is your own body?
- 1.Modify brains control of immune response
- 2. Must address the immune system directly by modifying immune response directly
- Th-1 /Th-2 Balance

What supports regulatory T cells?

- Vitamin D
- EPA/DHA
- Glutathione
- SOD

TH-1 and TH-2 Support

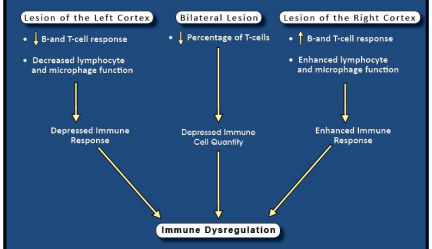
TH-1 Support

- Astragulus
- Echinacea
- Glycyrrhiza
- Melissa Officinalis
- Maitaka Mushroom
- Beta-glucan mushroom

TH-2 Support

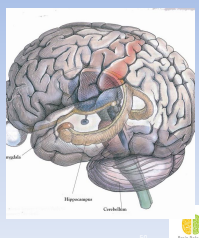
- Pine Bark Extract
- Grape Seed Extract
- Green Tea Extract
- Resveratrol
- Pycnogenol
- Caffeine
- Lycopene
- White willow bark

CORTISOL AND MELATONIN RHYTYM



Adrenal Cortisol Release is Modulated By:

- Hypothalamus-Pituitary-Adrenal Axis
  - Quantity of the release
- Hippocampus Modulation of Cortisol Rhythm
  - Coordination of the circadian release
- Pineal Modulation of Melatonin
  - Coordination of circadian release
- Mesencephalic Modulation of Autonomics
  - Amplitude of cortisol response



Cortisol circadian rhythms and response to stress in children with autism

Blythe A. Corbett[a, b, *], Sally Mendoza[c], Maryam Abdullah[b], Jacob A. Wegelin[a] and Seymour Levine[a]

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[d]Division of Biostatistics, University of California at Davis, Sacramento, CA 95817, USA
Received 18 October 2004; revised 12 May 2005; accepted 17 May 2005. Available online 7 July 2005.

Summary

Background: Autism is a severe neurodevelopmental disorder characterized by impairment in communication, social interaction, repetitive behaviors and difficulty adapting to novel experiences. The Hypothalamic-Pituitary-Adrenocortical (HPA) system responds consistently to perceived novel or unfamiliar situations and can serve as an important biomarker of the response to a variety of different stimuli. Previous research has suggested that children with autism may exhibit dysfunction of the HPA system, but it is not clear whether altered neuroendocrine regulation or altered responsiveness underlies the differences between children with and without autism. In order to provide preliminary data concerning HPA regulation and responsiveness, we compared circadian rhythms and response to a non-social, environmental stressor in children with and without autism.

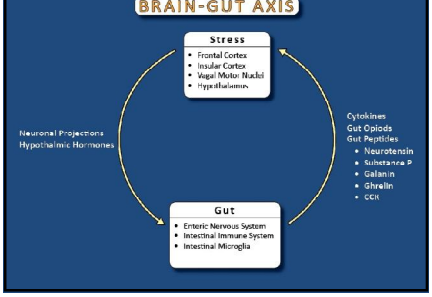
Methods: Circadian rhythms of cortisol were estimated in children with (N=12) and without (N=10) autism via analysis of salivary samples collected in the morning, afternoon and evening on 2 consecutive days. HPA responsiveness was assessed by examining the time course of changes in salivary cortisol in response to a mock MRI.

Results: Both groups showed expected circadian variation with higher cortisol concentration in morning than in the evening samples. The children with autism, but not typical children, showed a more variable circadian rhythm as well as statistically significant elevations in cortisol following exposure to a novel, nonsocial stimulus.

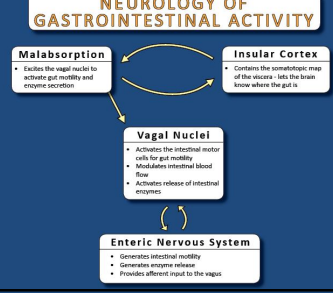
Conclusions: The results suggest that children with autism process and respond idiosyncratically to novel and threatening events resulting in an exaggerated cortisol response.

Keywords: Autism; Cortisol; Circadian variations; Stress; HPA

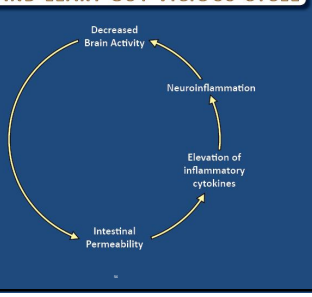
BRAIN-GUT AXIS

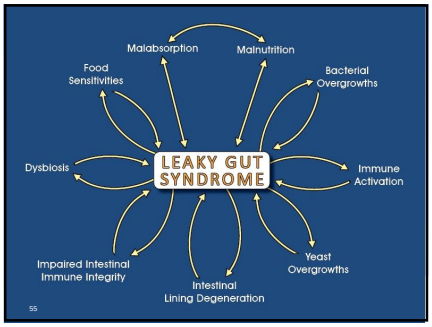


NEUROLOGY OF GASTROINTESTINAL ACTIVITY



BRAIN AND LEAKY GUT VICIOUS CYCLE





FUNCTIONAL NEUROLOGY MODEL UTILIZES OBJECTIVE FUNCTIONAL TESTING

- Motor
- Sensory
- Cognitive
- Academic
- Behavioral

- Nutrition
- Immune
- Endocrine
- Toxins
- Infection

TRADITIONAL MEDICINE

ACUTE CARE , SYMPTOM RELIEF and INFECTIUOS DISEASE

FUNCTIONAL MEDICINE

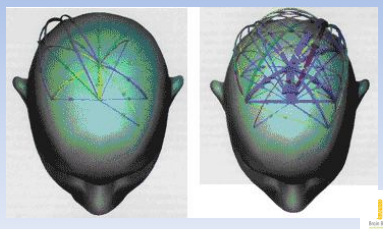
- CHRONIC ILLNESS,MEASURES METABOLIC FUNCTION BELIEVE METABOLIC DISORDERS ARE CAUSE OF BRAIN DISORDERS

• FUNCTIONAL NEUROLOGY

- CHRONIC ILLNESS, MEASURES ALL FUNCTIONS , METABOLIC, MOTOR, SENSORY, COGNITIVE, PSYCHOLOGICAL, AUTONOMIC,
- MOST DISORDERS ARE TWO WAY STREET BETWEEN BRAIN AND BODY AND BRAIN TAKES LEAD CAN CAUSE ,IMMUNE, GI, DETOX, DYSBIOSIS ETC

Nutrition is not a substitute for sensory and motor based activation of cellular immediate early gene responses leading to plasticity

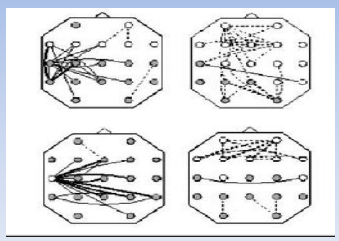
Desynchronization and Underconnectivity VS Resynchronization and Reconnectivity



EEG COHERENCE MEASURES FUNCTIONAL DISCONNECTIVITIES IN AUTISM

- G. Leisman[1], **R. Melillo**[2,3] **Acta Paediatrica**, 2009, 98:460, 28-29.
- F. R. Carrick Research Institute, Leeds Metroplitan Univ. UK & Univ. of Haifa, Haifa, Israel, [2]F. R. Carrick Research Institute, Ronkonkoma, NY, USA
- **Background:** Theoretical conceptions of autistic spectrum disorder (ASD) suggest abnormalities in connections among distributed neural systems. EEG coherence studies had a twofold objective: to scrutinize the theory of cortical optimization in autism and detect coherence between cortical areas in specific frequency bands in autistics and controls.
  Methods: Functional connectivity was assessed with coherence between electrode pairs in narrow frequency bands among 18 adult ASDs and 18 controls in an eyes-closed resting state.
  Results: Explorative analysis in 6 frequency bands (0.5-31.5 Hz) indicated locally elevated coherence in autistics compared to a more distributed coherence. Autistics demonstrated elevated local coherence, especially in the left hemisphere, frontal, and temporal regions in the 3-6 Hz frequency range. In the 8 -10 Hz, globally reduced coherence was evident for ASDs within frontal regions and between frontal and all other scalp regions. Coherence brain maps revealed more pronounced and widespread increases in coherences in the 8-10 Hz band in the low optimized ASD individuals than in the more highly optimized controls and corroborated for both groups by multivariate permutation tests. These tests revealed additional differences between the low- and the high-proficiency group also for coherences within the 13-18 Hz and the 18.5-31.5 Hz bands. ASDs exhibited significantly greater relative power between 3 and 6 Hz.
  Conclusions: Robust patterns of over- and under-connectivity were apparent at distinct spatial and temporal scales in ASDs in the eyes-closed resting state. Autistics demonstrate underactivity of right hemisphere and overactivity of left relative to controls.

Optimization of Electrical Brain Activity in Autism



HEMISPHERIC INTEGRATIVE THERAPY IN LANDAU-KLEFFNER SYNDROME: APPLICATIONS FROM REHABILITATION SCIENCES

- Intern. J. Neuroscience, 115:1229–1240, 2005
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- Staten Island, New York, USA

- a multimodal approach using techniques
- purportedly aimed at facilitating inter-hemispheric communication was provided. At completion of the program, EEG was controlled, reading, language, and auditory processing improved and objective behavioral-social measures improved significantly

A Feasibility Study of the Effect of Hemisphere Specific Remediation Strategies on the Academic Performance Outcome of Children with ADD/ADHD

- Results:
- 60 children all labeled with ADHD by standardized testing entered the program ,all underwent objective, behavioral, motor coordination and academic testing. Children were randomly selected for this study.
- They were all retested after 12 weeks of a multimodal program focused on unilateral hemispheric stimulation.
- Approximately 85% of children showed statistically significant improvement in multiple areas after 12 weeks.
- 82% of children no longer met the criteria for ADHD based on a standardized behavioral checklist which was filled out by parents before and after program.
- Aprox 60 % of the children studied showed a minimum of a 2 grade level increase in various academic measures, An additional approximately 35% of those children studied showed a 4 grade level increase or better on average based on academic achievement testing after 12 weeks.
- 100% of children in the study in the study showed some improvement in more then one area
- 0% of children in the study showed a decrease in any area tested

Brain Balance Program

- 1.Multimodal(Most comprehensive)
- 2.Hemisphere specific(addresses primary problem)
- 3.Individualized(Specific Stimuli)
- 4.Same Time Integration (Precise Timing)
- 5.Repetative(frequency of Stimulation)
- 6.Progressively Challenging (To Limit but not beyond)
- 7.Quantatative(Based on Daily Functional assessment)
- 8.Reproducible (Protocol Driven)
- 9.Safe(All natural)
- 10.Long term effectiveness(yearly follow up testing)

How do you learn more?

- Attend Neurobehavioral courses through The Carrick Institute For Graduate Studies
- Carrickinstitute.org
- Complete Training when awarded Franchise of Brain Balance Child Achievement Centers
- Complete turnkey operation that includes Training in Brain Balance Program, Buisness operations, Marketing and Advertising, Staff Recruitment and training, Proprietary Software ,ongoing support and research and National and Global Branding.
- To find out more go to brainbalancecenters.com or contact Dr Melillo at 631 471 1900 or email him at rmelillo@brainbalancecenters.com