“Things are out of control and we don’t know what to do”

Integrative Approach in School
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Thoughts
- Why are we discussing this?
- Why is all this happening?
- We all know what we see.
- Medicines separation of mind and body
- How do we address this?
- What are we doing?

Integrative Modalities
- Broad Categories
  - Conventional Med
  - Nutrition/Diet
  - Exercise/Physical Activity
  - Whole systems (TCM,Ayurveda,Naturopahty, Homeopathy)
  - Botanical med
  - Energy Medicine (Reiki, Healing touch, Qi Gong etc)
  - Supplements
  - Spirituality
  - Manual Medicine (OMM, Chiropractic, Massage, PT, Zero balancing, reflexology etc)
  - Mind-Body Medicine (Hypnosis, Biofeedback, Guided imagery, Creative therapy etc)

How much is out there?
- Over 60 billion dollars a year on anxiety disorders!
  - Economic burden of anxiety disorders: 1998 was $63.1 billion, including direct health care costs, indirect costs such as lost wages caused by missed work, decreased work productivity, increased medical morbidity, and suicide (Langlieb, 2005).
- Anxiety disorders: lifetime prevalence of 25.1% in 13-18 year olds
- ~ 40 million American adults age 18 years and older (about 18%) with anxiety disorder in a given year.

So what happens with stress/anxiety
- Stress response:
  - Change in glucocorticoids, catecholamines, IL6
  - Impacts
    - Cognitive function, fear, anger, wake-sleep, thyroid axes
    - GI,CV and immune response
  - Metabolic/Immune responses:
    - Corticotropin RH, stimulate gluconeogenesis, hepatic glucose secretion
    - Impact on TH-1 and th-2
      - "Stress and disorders of the stress system." Chrousos GP
Conditions associated with stress

**Acute**
- Allergic reactions
- Asthma
- Eczema
- Fear reactions
- Hypertension
- Indigestion (constipation, diarrhea)
- Migraine
- Pain
- Panic attacks
- Psychosis
- Urticarial

**Chronic**
- Anxiety
- Autoimmune disorders
- Behavioral maladjustment (poor planning and decision making)
- Cardiovascular disease
- Cognitive dysfunction
- Depression
- Growth delay
- Irritable bowel syndrome
- Loss of libido
- Metabolic disorders (obesity, metabolic syndrome, type 2 diabetes)
- Neurovascular degenerative disease
- Osteopenia
- Polycystic ovarian syndrome
- Reduced fertility
- Sleep disorders

Stress in Chronic conditions

- Primary Cause of headaches
- Highly associated with abdominal pain
- Autoimmune conditions and long term symptoms
- Abdominal pain and IBD

Sleep disorders

- Sleep disorders
  - Epidemic proportions
    - > 40 million Americans with insomnia.
    - Affect up to 25% of children
      - Vriend, 2011.
    - Increased risk for accidents, disrupting concentration/performance at school/work
    - Increased risk for cardiovascular disease, cancers, metabolic disorders, autoimmune disorders, infection, and obesity.
    - Critical factor in chronic inflammatory processes with increased inflammatory response in children with sleep disorders such as obstructive sleep apnea
      - Kim, 2011
- Depression (Anxiety comes from our future and depression from out past):
  - Important public health issue in the United States estimated total annual cost of $247 billion.
  - A total of 13%-20% of children living in the United States experience a mental disorder in a given year
  - Suicide: second leading cause of death among children aged 12-17 years in 2010.
  - Lifetime prevalence of depression: 6 to 11 years – 2.3 percent 12 to 17 years – 7.1 percent

Review of Chronic pain epidemiology

- 40 % of children experience pain at least weekly
- 20-35 % of children experience chronic pain
  - Most common
    - Headache
    - Abdominal pain
    - Musculoskeletal/Back pain
      - Pain 2011 MacDonald et al

Pain in children in Germany

- 83% had experienced pain over 3 months (35% pain more than once a week)
- 31 % for more than 6 months
  - Headache 60 %
  - Abdominal pain 43%
  - Musculoskeletal pain 34%
- Associated with sleep issues/eating problems/school absence/social issues
  - Pediatrics 2005 Schmucker et al
Who is looking for integrative care?

- Integrative Clinic: three biggest diagnosis
  - Headache
  - Abdominal pain
  - Musculoskeletal pain
    - Pain 6-7/10
    - Multiple co-morbidities: fatigue/anxiety/stool changes/sleep issues
    - 71% on prescription meds
      » J Altern Comp Med 2013 Kemper

So What Can We Do

- Address the issue
  - Always assume stress plays a role, how can it not.
  - Don’t be afraid to recommend Modalities

- Modalities
  - Biofeedback
  - Guided imagery
  - Hypnosis (self-hypnosis)
  - Numerous forms of meditation and deep relaxation (MBSR, PMR, breath work)
  - Mindfulness in all we do (eat, drink, sleep, exercise etc)
  - See the Health!

Yeah but does it Work?

- The ancients thought so
- Almost all cultures include mind body therapies in there treatments
  - TCM: Tai chi/ Chi Kung, breath work
  - Ayurveda: yoga, breath work
  - American Indian: Sweat lodges, breath work
- Almost all teach some form of breath work.
- Historically the mind was closely connected to the body
- Our Western beliefs focused on reduction theory and thus the brain/mind was considered separate.

Can we change our Brain: Neuroplasticity

- Neuroplasticity refers to structural and functional changes in the brain that are brought about by training and experience. The brain is the organ that is designed to change in response to experience. Neuroscience and psychological research over the past decade on this topic has burgeoned and is leading to new insights about the many ways in which the brain, behavior and experience change in response to experience. This basic issue is being studied at many different levels, in different species, and on different time scales. Yet all of the work invariably leads to the conclusion that the brain is not static but rather is dynamically changing and undergoes such changes throughout one’s entire life. ” —Mind-Life Institute


- Amygdala as a brain structure crucial in stress responses.
- Hyperactive amygdala function observed during stress conditions
- MRI study: relationship between changes in perceived stress with changes in amygdala gray matter density following a stress-reduction intervention.
- Perceived stress was rated on the perceived stress scale (PSS)
- Anatomical MR images were acquired pre- and post-intervention. Following the intervention, significantly reduced perceived stress.
- Reductions in perceived stress correlated positively with decreases in right basolateral amygdala gray matter density.
- Neuroplastic changes are associated with improvements in a psychological state variable.
Headaches

- "Behavioral treatments possess the most evidence for successful headache management. They have a long history of randomized trials showing efficacy and are considered the first line preventive options." - Nicholson et al. Curr Treatment Options Neuro 2011

Abdominal pain

- 56% pain-free initial response with 75% pain-free at 6 months
  - Groups taught CBT: 72% pain-free post intervention

- 25% decrease in pain scores and 30% decrease in absenteeism

Mindfulness

- Meta-analysis:
  - 39 studies- 1,140 subjects
  - Mindfulness therapy for anxiety, depression and other medical and mental health conditions.
  - Improvement of symptoms for those with anxiety and depression
  - Mindfulness-based therapies were noted to be a promising intervention with minimal down side
    - (Hofmann, 2010; Vollestad, 2011).

Can we change our Genes

- Shortening of the telomere (nucleoprotein end caps on chromosomes) increases vulnerability of aging cells to DNA damage and dysregulation
- Shortened telomeres may lead to inadequate replacement of damaged or dead cells from their respective precursor cell populations, IE aging.
- Studies show stress life style changes can directly impact telomerase activity, thus improving telomere function.

Relaxation response

- Two steps are usually required to elicit the relaxation response:
  - Repetition: The repetition of a word, sound, prayer, phrase or muscular activity.
  - Passive Return: When thoughts unexpectedly intrude, there is a passive return to the repetition.
- The relaxation response counters the harmful effects of the stress response, referred to as allostatic loading

"A number of well-defined behavioral and relaxation interventions now exist and are effective in the treatment of chronic pain and insomnia. The panel found strong evidence for the use of relaxation techniques in reducing chronic pain in a variety of medical conditions as well as strong evidence for the use of hypnosis in alleviating pain associated with cancer. The evidence was moderate for the effectiveness of cognitive-behavioral techniques and biofeedback in relieving chronic pain. Regarding insomnia, behavioral techniques, particularly relaxation and biofeedback, produce improvements in some aspects of sleep, but it is questionable whether the magnitude of the improvement in sleep onset and total sleep time are clinically significant."


Gene analysis of 20 subjects and 20 controls

- Subjects did RR
- Showed alterations in cellular metabolism, oxidative phosphorylation, generation of reactive oxygen species and response to oxidative stress
Anti-Inflammatory Diet

- 2 Principles:
  - Optimal diet for longevity and health
  - Nutrition as a primary treatment modality
- Frequently overlap
  - General overall recommendations
  - Specific diseases
- Chronic inflammation as a root cause to large categories of diseases (cardiovascular, Cancers, neurologic disease) Ex: CVD disease with increased CRP and inflammation as primary vascular component.

- Nutrition: Pro-inflammatory VS Anti-inflammatory.
- Principles of anti-inflammatory diet
  - Varied
  - Fresh food (decrease processing and refining
  - Increase fruits and vegetables
  - Don’t eliminate macronutrient categories (just eat good forms)
  - Food better than supplements-most plants have multiple interactions and are better than isolating individual part (IE fiber and food, green tea vs isolated polyphenols etc)

Fats: Increase mono-unsaturated fats, increase Omega 3’s, decrease omega 6’s, avoid transfats/partial hydrogenated fats
Carbohydrates: decrease glycemic load (goal to decrease glycosalation). Diabetes as a model of accelerated aging with insulin as a multi-factorial player
Proteins: what they are attached to, more plant proteins, less animal
PHYTONUTRIENTS!

My favorite Herbs/Supplements for Anxiety

- Omega 3s
- Vitamin D
- Valerian
- L-Theanine
- Magnesium
- Hops
- Chamomile/Lemon balm
- Sometimes SAMe or St Johns wort
- B vitamins.

So how do we do it?

- First, recognize the issues. We can’t stick our head in the sand and say “well we got through it”
- Recognize the marked difference in prior teaching patterns vs now. Children now failing kindergarten, AP classes in sophomore year, lack of recess, shrunken lunches, etc
- ADD/OCD conflicts
- Stop the “Next year” phenomenon. Next year can be completely different for each child and it never really is the “the next year”

Cont.

- Practice relaxation techniques and use them as needed at school
  - Ex: practice self hypnosis/biofeedback at home and use at school to control events, get a machine at school-inexpensive
- Incorporate breaks for calming the mind
  - Yoga
  - Breathwork
  - Reading to use imagination
  - Gear it toward each child
- Address the need for practice with the parents
- Change the electronic narrative: recognize it may make things worse.
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<td>- Look at food offered at lunches</td>
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<td>- What is in our vending machines</td>
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<td>- Create healing environments</td>
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<td>- Colors</td>
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<td>- Temperatures</td>
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<td>- Lighting</td>
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<td>- Rounded vs angles</td>
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<td>Do you imagine the universe is agitated? Go into the desert at night</td>
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<td>and look out at the stars. This practice should answer the question.</td>
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<td>The superior person settles her mind as the universe settles the</td>
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<td>stars in the sky. By connecting her mind with the subtle origin, she</td>
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<td>calms it. Once calmed, it naturally expands, and ultimately her mind</td>
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<td>becomes as vast and immeasurable as the night sky.</td>
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