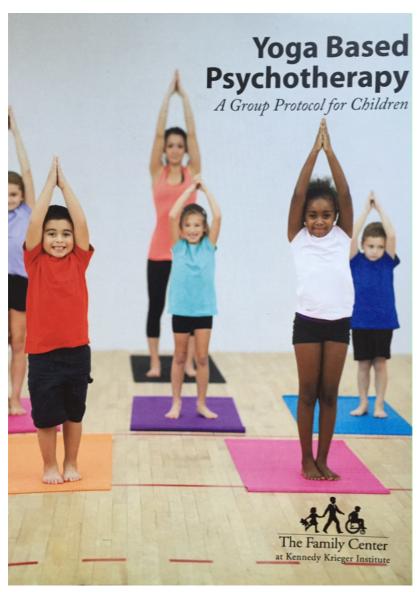
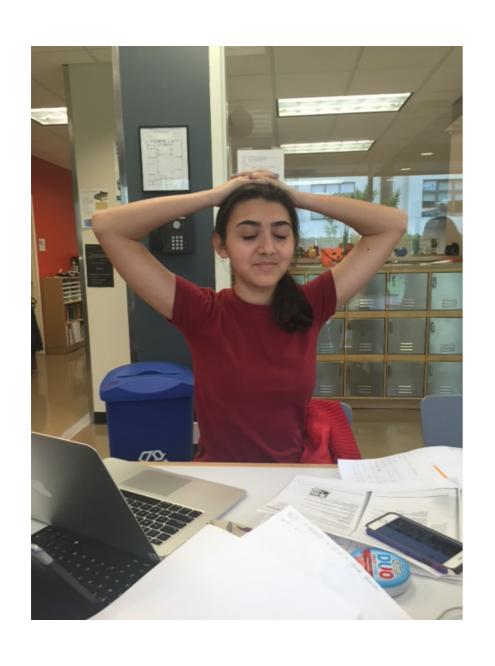
# Yoga Off the Mat: Quality and Evidence-Informed Yoga-Based Self-Regulation in Schools





Abena Brown-Elhillali, Ph.D., RYT, The Family Center at Kenney Krieger Institute, Baltimore, MD Elizabeth Reese Ph.D., E-RYT, RCYT, Founder, Yogiños: Yoga for Youth® and Director, New Territory Montessori School, Houston, TX

## Yoga Off the Mat: Presentation Overview



- I.Self-Regulation Needs for Students.
- 2. Neurobiological Effects of Childhood Stressors, Trauma and ACE's.
- 3. Yoga-Based Self-Regulation.
- 4.Learning from the Past and Moving Forward.

## Self-Regulation Needs for Students... and Conference Participants.;-)

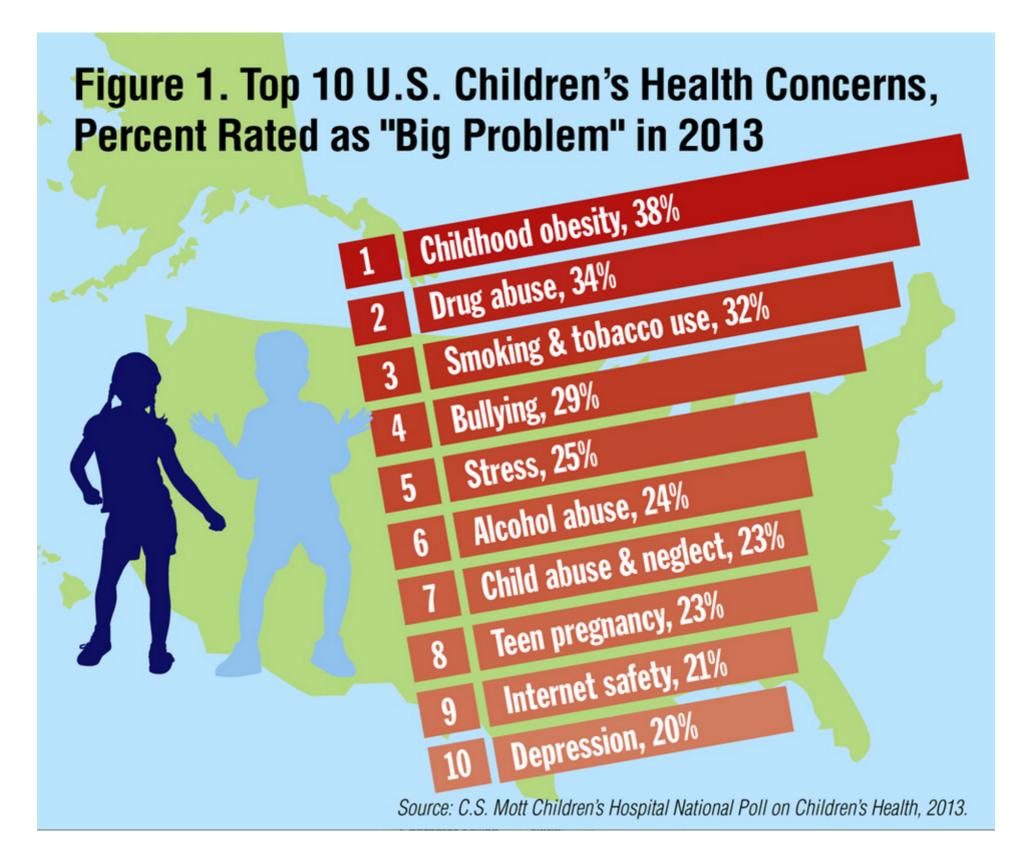


How are you feeling right now?

### Mindful Movement

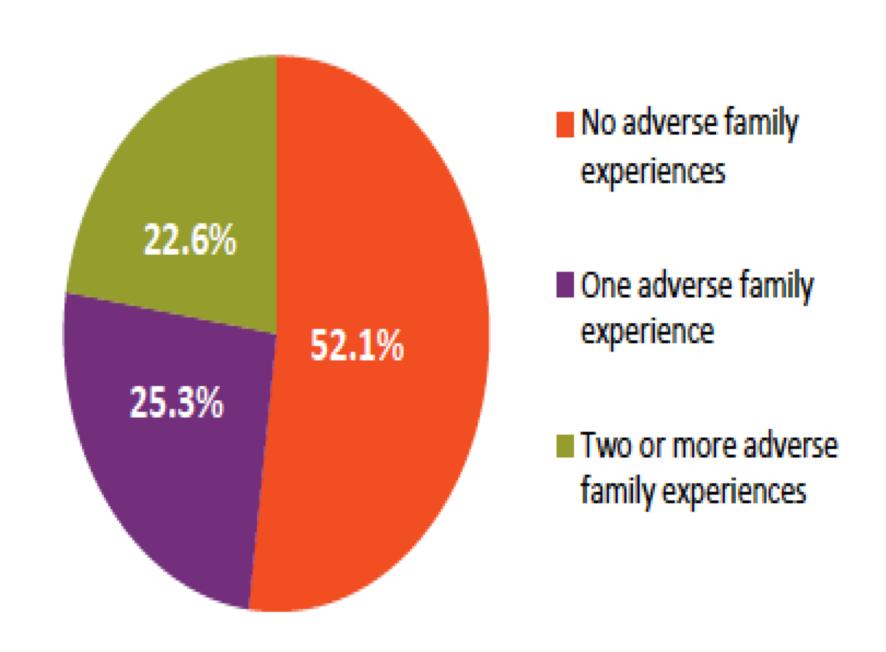


### Current Challenges among Youth



### Current Challenges:

Adverse Child Experiences Among US Children Age 0-17

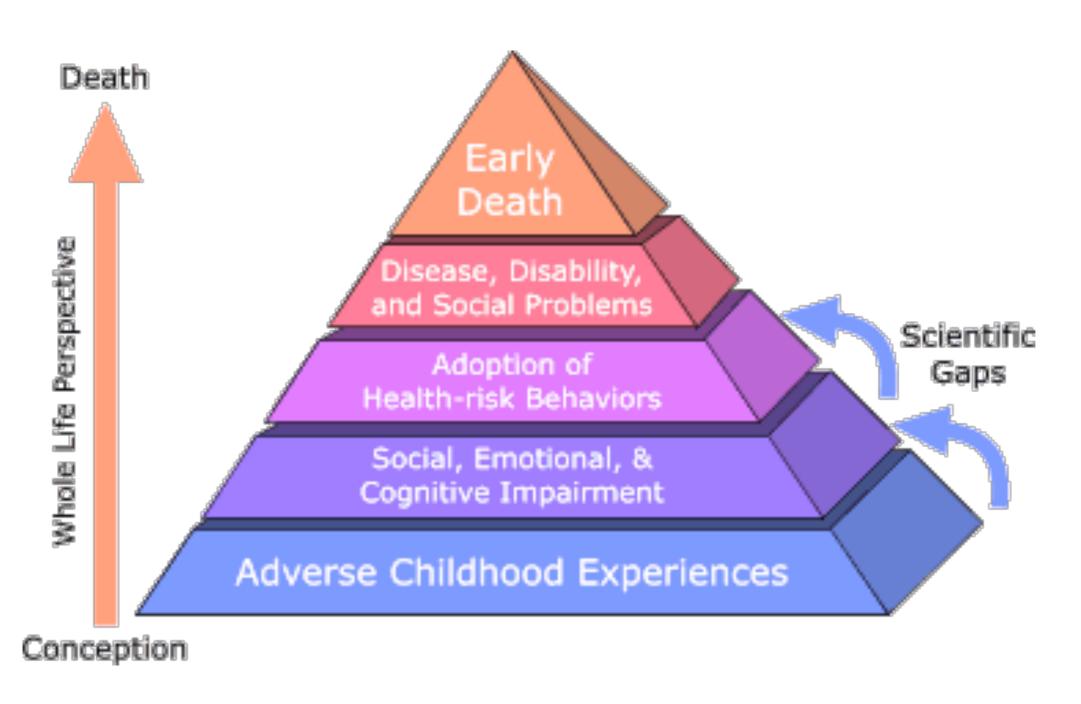


Source: <a href="http://acestoohigh.com">http://acestoohigh.com</a>, 2015

### Adverse Childhood Experiences

- Childhood adversities increase as a child grows older, and decrease as family income rises.<sup>1</sup>
- ACEs are still experienced by more than one in three children under the age of six.<sup>1</sup>
- Even in higher income families, more than one in four children have ACEs.<sup>1</sup>

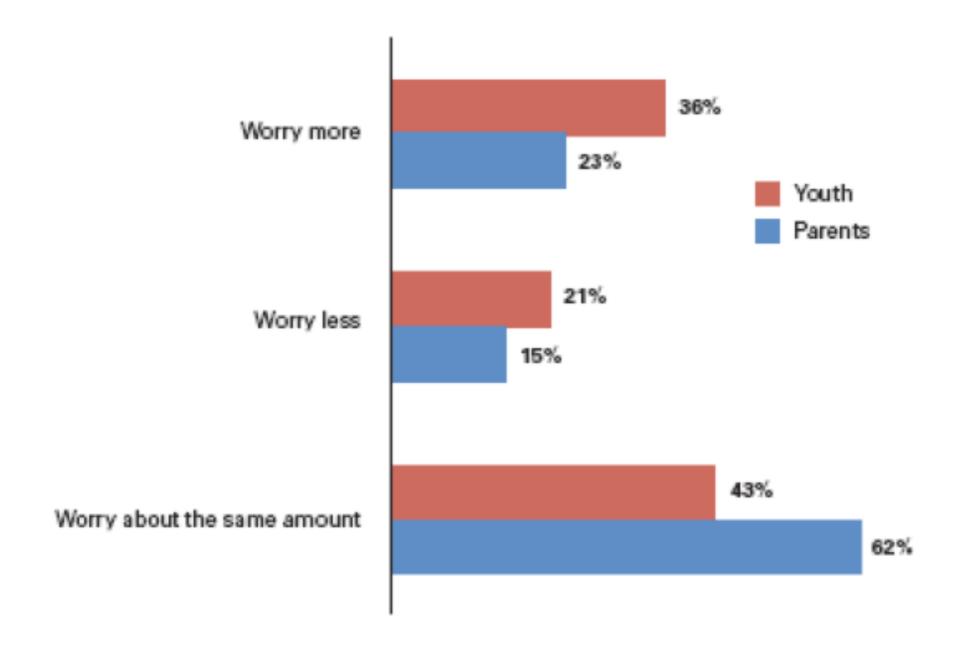
### The Effects of Simple or Complex Trauma: The Adverse Childhood Experience (ACE) Study



Source: Chapman DP, Anda RF, Felitti VJ, Dube SR, Edwards VJ, Whitfield CL. (2004). Epidemiology of Adverse Childhood Experiences and Depressive Disorders In a Large Health Maintenance Organization Population. *Journal of Affective Disorders*, 82(2):217-225.

#### Stress Levels in Families

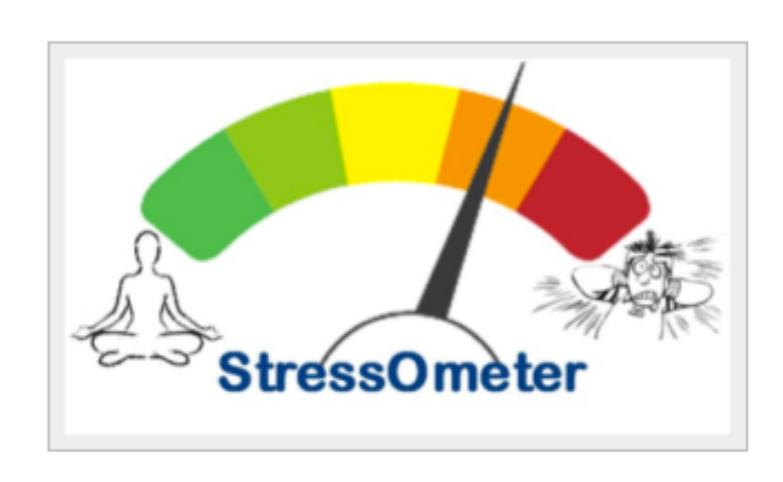
#### CHANGE IN STRESS LEVEL SINCE LAST YEAR



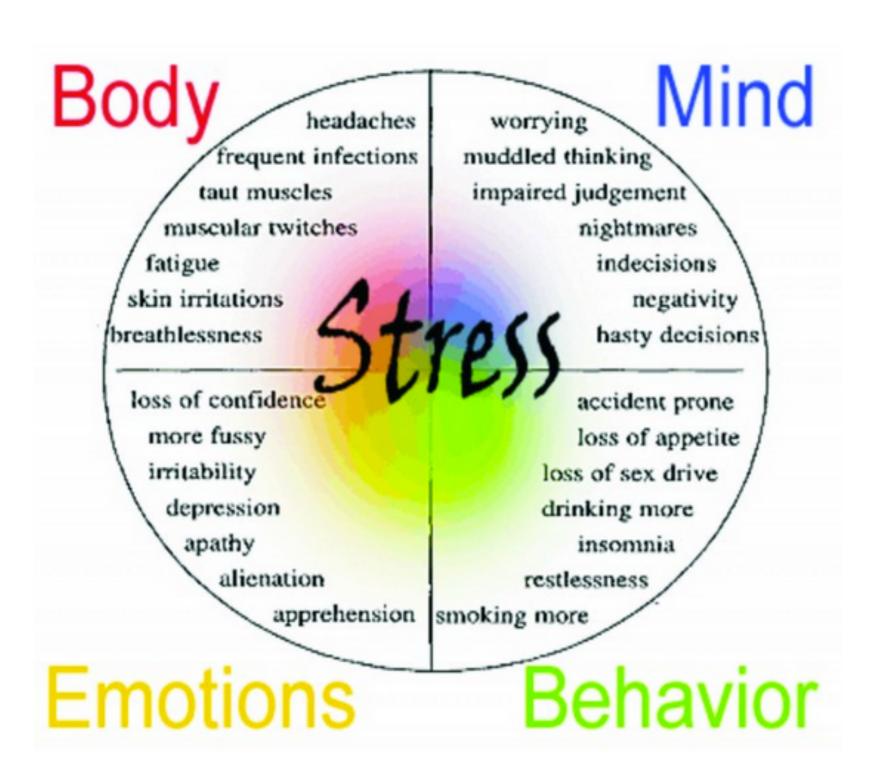
### **Current Challenges Among Schools**

The greatest challenges<sup>2</sup> facing public schools serving 49.4 million students<sup>3</sup> with 56,000+ schools using Title 1 funds<sup>4</sup> include:

- Poverty
- Family Matters
- Bullying
- Students Attitude/ Behaviors
- Students Health



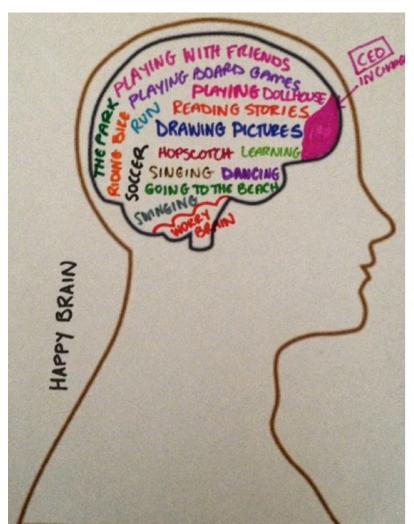
## Stress Affects the Body, Mind, Emotions and Behavior

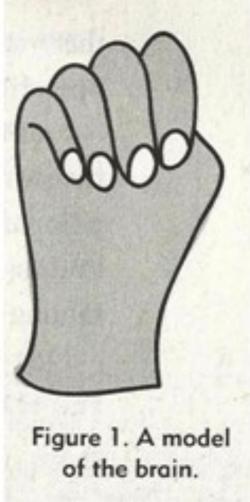


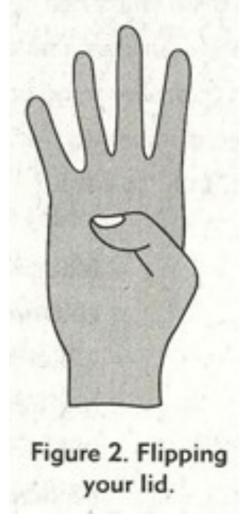


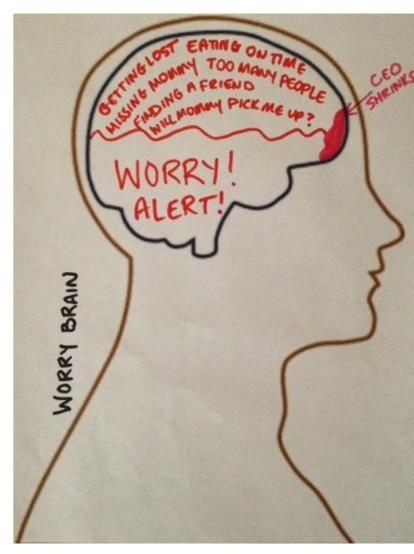
# Neurobiological Effects of Childhood Stressors, Trauma and ACE's

#### Too Much Stress and We "Flip Our Lids"









Color drawings source: <a href="http://practicalkatie.com/2012/11/05/the-worry-brain/">http://practicalkatie.com/2012/11/05/the-worry-brain/</a> Hand sketches source: <a href="http://theattachedfamily.com/?p=2942">http://theattachedfamily.com/?p=2942</a>

## ACE's/Trauma Affect the Brain and Body

#### **Emotional**

- Emotional regulation
- Physiological regulation and body awareness

#### **Behavioral**

- Increase in risktaking behaviors
- Decrease in self-care and preventative behaviors

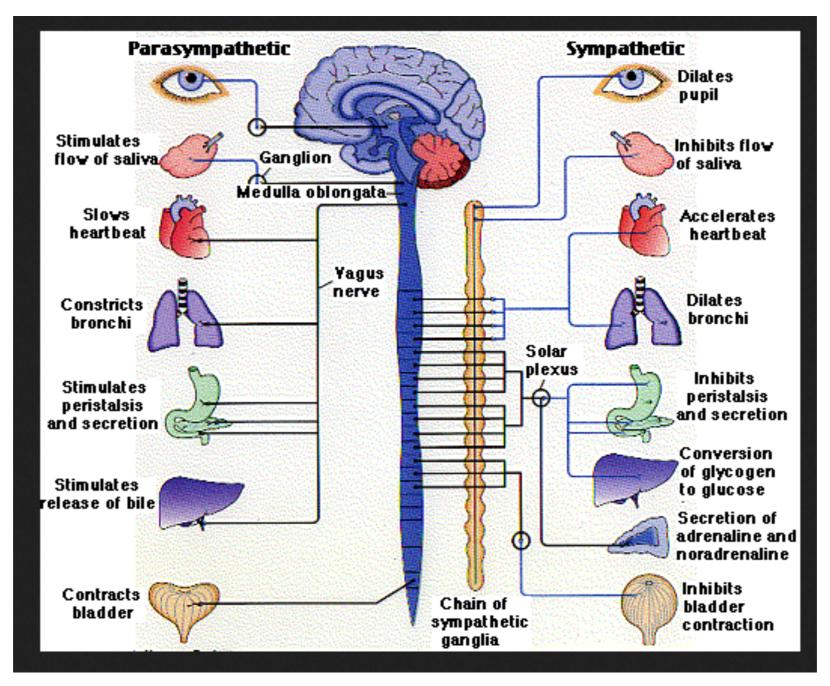
#### **Social**

- Ability to create attachments
- Ability to maintain attachments

#### **Cognitive**

- Attention and concentration
- Alterations in neurological structures

## Sympathetic Nervous System versus Parasympathetic Nervous System



What "parachutes" or tools can be used to help reduce stress and improve student's physical, intellectual, socio-emotional and behavioral success?

### Yoga-Based Self-Regulation



### The Reparative Power of Yoga

- Yoga may regulate the functioning of the Hypothalamic-Pituitary-Adrenal (HPA) Axis and Sympathetic Nervous System (SNS).
- Yoga may improve resilience to stress 6 and emotional regulation.7, 8
- Yoga has been shown to improve the functioning of the Autonomic Nervous System for males. 9, 10
- Yoga has been shown to be an effective therapeutic tool for children affected by trauma. I I
- Yoga in the classroom has been shown to improve classroom behavior, focus, attention, test anxiety and self-regulation. I 2
- Yoga in school PE programs has been shown to improve mood 13, self-confidence, physical strength and self-regulation. 14

#### The Roots of YBPG

- Trauma-Informed Treatment
- Yoga
- Integrated Movement Therapy<sup>™</sup> (IMT)
- Dance/Movement Therapy

### **Key Concepts of YBPG**



#### Starting With the Body: The Body's Emotional Memory



The body, with its physical sensations, provides the initial entry for awareness



Trauma memories may arise from the body



While developing skills in therapy, one may access and process thoughts and emotions without feeling threatened

## Yoga-Based Psychotherapy Group Outcomes

Client and Caregiver Measures

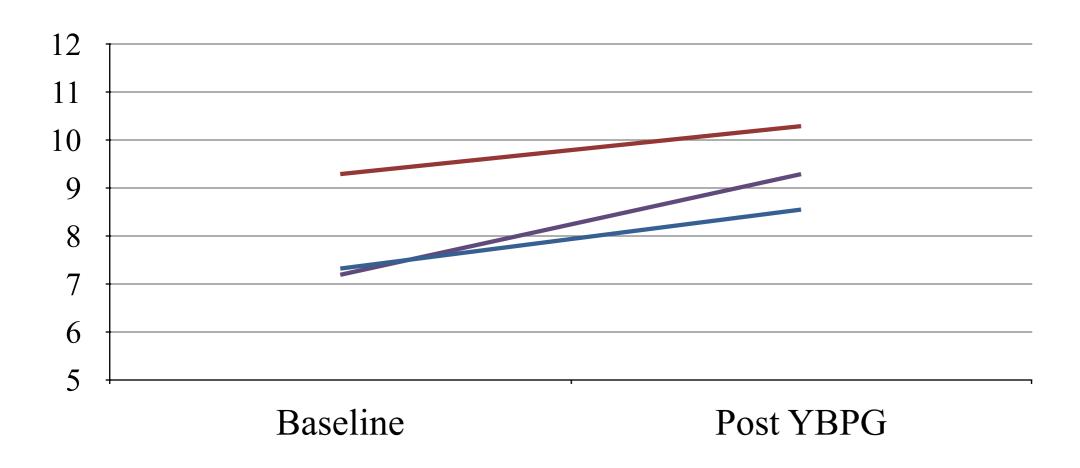
 BERS youth and parent (Behavioral and Emotional Rating Scale)

 UCLA-Post Traumatic Stress Disorder Index Scale

### YBPG BERS Outcomes (N=9)

Behavioral & Emotional Rating Scale – 2 <sup>nd</sup> Edition							
	InterS	IntraS	FamS	Affective	School	Total	
	M (SD)	M(SD)	M(SD)	M(SD)	M(SD)	M(SD)	
Baseline	7.33 (1.6)	7.2 (2.2)	8.6 (2.0)	9.3 (2.0)	7.4 (2.6)	86.2 (9.3)	
Post YBPG	8.56 (2.2)	9.3 (1.5)	10.0 (1.9)	10.3 (2.4)	8.8 (2.4)	95.4 (10.4)	

### Significant BERS Outcomes



- Interpersonal
- Intrapersonal
- Affective
- Total



## The Roots of Yogiños: Yoga for Youth®

- Sensory Processing "Opportunities"
- The 8 Limbs of Yoga
- Montessori Theory and Practice
- Multiple Intelligences (Howard Gardner)

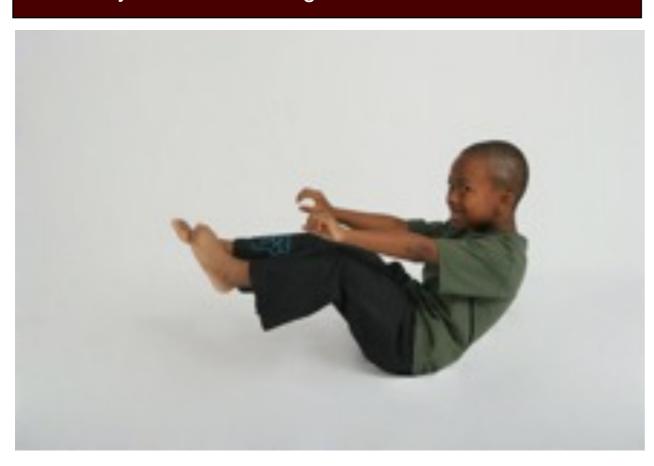


### Yogiños: Yoga for Youth®

#### Why yoga for youth?

Current brain, academic, and cardiovascular research provide evidence that yoga practices related specifically to its mindful movement and breathing techniques offer:

- •a 27% increase in GABA levels (calmness, anti-anxiety)<sup>15</sup>;
- •Improved academic achievement through learning how to improve focus and handle stress<sup>16</sup>;
- •Increased academic interest as a result of integrating movement and diverse learning styles in traditionally sedentary academic settings.







#### Why Yogiños: Yoga for Youth®?

Our own evidence-based research reveals that after just one-month of our activities, students **and** teachers experience 14:

- •new abilities to be calm and find focus;
- •awareness and abilities to integrate mindful movement and breathing into daily activities to self-regulate physical, emotional and mental levels;
- •increase in physical and emotional flexibility;
- •44% increase in core strength and 16% increase in upper body strength;
- •increased awareness and use of multiple languages;
- •increased willingness to make good choices for self, others and the environment.

#### Implementation:

- Three classrooms served as experimental groups
- Participating teachers received 3-hour in-service and MOSST educational kits
- Program implemented in classrooms over a eight week period (including Spring Break)
- Teachers had freedom to choose how to implement









### Flor Fuerte • Flower Power Breath • Pranayama

Practice Flor Fuerte any time you need to relax and calm down.

Practica la Flor Fuerte en cualquier momento que quieras relajarte o tranquilizarte.

- Sit with your legs crossed.
- Reach out in front of you and pretend to pick a flower.
- Bring the imaginary flower to your nose and breathe in deeply through your nose.
- Breathe out slowly through your nose as you open your hand like a blossoming flower.
- Repeat with your other hand. Try to take 5-6 Flower Power breaths.

- Siéntate con las piernas cruzadas.
- Inclínate hacia adelante y arranca una flor imaginaria.
- Llévala a la nariz e inhala profundamente por la nariz.
- Exhala despacio por la nariz mientras abres la mano como una flor que se abre.
- Repite con la otra mano. Intenta hacer 5-6 respiraciones de Flor Fuerte.



#### Measures:

- Parents received pre- and post-surveys
- Participating teachers were asked to serve as action-based researchers documenting/journaling changes
- About every 2 weeks I observed and documented students and teachers in classrooms
- Researcher Dr. Eggleston conducted interviews of students (participant and control), teachers and parents





- Student comments as reported by Dr. Eggleston in his interview:
  - The students enjoyed yoga and some of their favorite poses were Flower Power Breath, tree pose, and eagle. Students reported that yoga helped make them feel calm and relaxed. They were able to listen to the teacher better. Students learned a lot of different poses and enjoyed sharing them with their friends and family members. Students reported that when they are angry or unhappy they do Flower Power Breath and feel happy again or, as one child stated, "yoga makes me feel my best."
- A participating teacher shared:
  - "My students are changing: the other day a student came charging at me in anger. I said, I think you need to do some breathing. She dropped to the ground, did several Yogiños Flower Power breaths, went into child's pose for about a minute, and then calmly returned to regular activity," shared Michelle Marion, Primary Leader at Cinco Ranch Montessori School.
- A parent revealed via email:
  - "I would like to let you know that once I made Yoga a part of our "home" as it is in school, BOTH of my girls go to it when they need to release, relax, or need some "quiet" time. It is good to see that they realize that they have an outlet to do something for themselves that helps THEM cope with their immediate attitude need. THANK YOU for that !!"



Variable	Yoga Group (n = 44)		
Female	64 % (n = 28)		
Male	36 % (n = 16)		
White-Caucasian	62% (n = 28)		
Minority	38% (n = 17)		
Age (mean in years)	4.38		
Range of ages	2.9 to 6.2		
Like or think yoga poses are fun	68% (n = 30)		
Students feel positive about yoga	95% (n = 43)		
Support from others to do yoga	91% (n = 41)		
My teacher makes it easier to do yoga	55% (n = 24)		

#### **Results:**

#### **BENEFITS:**

- 68% of the kids think yoga is "fun"
- 95% of the kids feel positive about yoga
- Teachers reported students handling stress and self-regulating themselves in more mindful, peaceful ways
- Parents witnessed kids cultivating calmer and more relaxed responses to stressful situations
- Holistic nature of MOSST—including trainings, products (Kits), follow-ups—determined to be part of success



#### **CHALLENGES:**

- Parents wished they had more information so they could follow-up and facilitate practice at home.
- Parents worry that some families won't approve of yoga in schools because of misinformation conflating yoga and religion.
- A teacher who attended more training on her own reflected that she thinks the original in-service should be longer or more trainings.

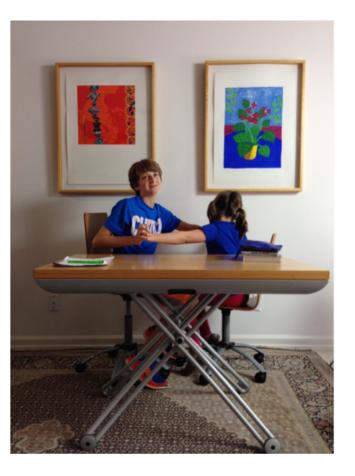
#### **Since the Pilot....:**

 Additional locations in Houston-area, San Antonio, plus Maryland, New Mexico, Colorado in planning stages

 The OHMazing® Way: An online Resource and Studio Site designed specifically for educators and parents to integrate wellness into everyday lives

 COOL in School (Chair-based Options for OHMazing® Learning)





#### Learning from the Past, Moving Mindfully into the Future

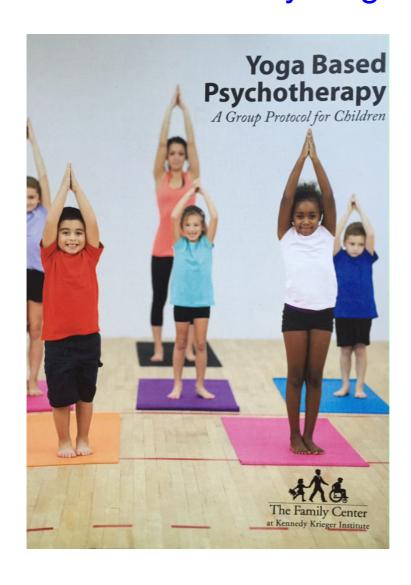


- Challenges to implementing YBSR programs
- Solutions
- Discussion

#### Contact Us!

Abena Brown-Elhillali, Ph.D., RYT Center for Child and Family Traumatic Stress at Kennedy Krieger Institute Baltimore, MD brownelhillali@kennedykrieger.org

Elizabeth B. Reese, PhD, E-RYT, RCYT Yogiños: Yoga for Youth®. Founder/CEO; New Territory Montessori School, Director Houston, TX <a href="mailto:elizabeth@yoginos.com">elizabeth@yoginos.com</a>





#### References

- I. Aces too high. Retrieved from <a href="http://acestoohigh.com/got-your-ace-score/">http://acestoohigh.com/got-your-ace-score/</a>
- 2. I0 Major challenges facing public schools. Retrieved from <a href="http://www.publicschoolreview.com/blog/">http://www.publicschoolreview.com/blog/</a>
  <a href="http://www.publicschoolreview.com/blog/">10-major-challenges-facing-public-schools</a>
- 3. The challenges facing K-12 education. Retrieved from <a href="http://biz4ed.org/edchal.htm">http://biz4ed.org/edchal.htm</a>
- 4. Selected statistics from the public elementary and secondary education universe: School Year 2013-14. Retrieved from <a href="http://www2.ed.gov/programs/titleiparta/index.html">http://www2.ed.gov/programs/titleiparta/index.html</a>
- 5. Ross, A. and Thomas, S. (2010). The health benefits of yoga and exercise: A review of comparison studies. Journal of Alternative and Complementary Medicine, 16, 3-12.
- 6. Mendelson T., Greenberg, M.T., Dariotis, J.K., Gould, L.F., Rhoades, B.L. & Leaf, P.J. (2010). Feasibility and preliminary outcomes of a school-based mindfulness intervention for urban youth. *Journal of Abnormal Child Psychology*, 38, 985-994.
- 7. Parshad, O. (2004). Role of yoga in stress management. The West Indian Medical Journal, 53, 191-195.
- 8. Abadi, M. S., & Venkatesan, J. M. S. (2008). Effect of yoga on children with attention deficit/-hyperactivity disorder. *Psychological Studies*, 53, 154-159.

#### References

- 9. Friis, A.M. and Sollers, J.J. (2012). Yoga improves autonomic control in males: A preliminary study into the heart of an ancient practice. *Journal of Evidence-Based Complementary & Alternative Medicine*, 18, 176-182.
- 10. Telles, S. et. al (2013). Changes in autonomic variables following two meditative states described in Yoga texts. The Journal of Alternative and Complementary Medicine, 19, 35-42.
- 11. Spinazzola, J. et al., (2013). Application of yoga in residential treatment of traumatized youth. Journal of the American Psychiatric Nurses Association, 17, 431-444.
- 12. Khalsa, S.B. et al., (2012). Evaluation of the mental health benefits of yoga in a secondary school: A Preliminary randomized controlled trial, Journal of Behavioral Health Service and Research, 39, 80-90.
- 13. Noggle, J.J. et al., (2012). Benefits of yoga for psychosocial well-being in a U.S. high school curriculum: A preliminary randomized controlled trial. *Journal of Developmental and Behavioral Pediatrics*, 33, 193-201.
- 14. Reese, E.B. (2012-2015). [Effects of yoga in schools prek-12.] Unpublished raw data.
- 15. Streeter C.C., et al., (2010). Effects of yoga versus walking on mood, anxiety, and brain GABA levels: A randomized controlled MRS study. Journal of Alternative and Complementary Medicine, 16, 1145-1152.
- 16. Kauts, A. and Sahrma, N. (2009). Effect of yoga on academic performance in relation to stress. *International Journal of Yoga*, 2, 39–43.