Supporting Research

THE GUIDING PRINCIPLES OF MINDFUL PRACTICES

When students feel well, they are more engaged owners of their own education and more cooperative participants in the classroom. Countless recent research studies confirm these guiding principles of Mindful Practices' programming.

The Problem: THE DETIORIATING STATE OF STUDENT WELLNESS

Multiple factors conspire to undermine student wellness and, in turn, complicate student behavior:

- Currently approximately 1/3 of US children and adolescents are overweight or obese (Wang & Beydoun, 2007; Bisceglie, 2008).
- Obesity rates have doubled among children and tripled among teens in 10 years, resulting in nearly 8 million overweight young people (Woods, A.M., & Weasmer, J., 2006).
- The prevalence of overweight children in the United States is continuing to increase, especially among Mexican-American and non-Hispanic black adolescents (Ogden 2002; Gordon-Larson et al., 2000; Popkin & Udry, 1998; Kumanyika et al., 2008).
- Obesity has become the 2nd leading preventable cause of disease and death in the United States (Wang & Beydoun, 2007).
- "Obesity is a hallmark of type 2 diabetes, with up to 85% of affected children either overweight or obese at diagnosis" (American Diabetes Association, 2000).
- The diabetes epidemic is attributable largely to "the increased rate of obesity in children" (Ludwig & Ebbeling, 2001; Fagot-Campagna et al., 2000).
- 47% of students in private and public education in the United States attended PE classes on one or less days in a given week (National Center for Chronic Disease Prevention and Health Promotion, 2007).
- 30% of children age 10-17 did not exercise or participate in physical activity for at least 20 minutes on 3 or more days during the past week in 2005 (U.S. Department of Health and Human Services, 2005).
- Nationwide, 24.9% of students did not participate in 60 or more minutes of any kind of physical activity on any day in the previous week (Center for Disease Control and Prevention, 2008).
- "58% of students are exceeding the American Academy of Pediatrics (AAP) guidelines by spending more than 2 hours a day watching television or playing computer/video games" (Eaton et al., 2006).
- Attention deficit-hyperactivity disorder is estimated to impact up to 7% of children, resulting in "maladaptive behavior" (Rappley, 2005).
- There has been a rapid increase in diagnosis of ADHD over the past fifteen years (Graham, 2007).
- Incidences of bullying and violence in schools are substantial: "A total of 29.9% of the sample reported moderate or frequent involvement in bullying, as a bully (13.0%), one who was bullied (10.6%), or both (6.3%)." (Nansel, 2001)

Lack of physical activity, lack of access to outdoor space, poor nutrition, increased problems with attention-deficit, peer stressors, among other stressors, all grimly affect student emotional and physical health. "The problem is that schools face the dilemma of too many priorities and too little time, which create a barrier to widespread advances in school wellness" (Biscelglie, 2008).

If physical activity and wellness spurn productivity and positive thinking (Woods, A.M., & Weasmer, J., 2006, WestEd, 2003), it follows logically that inactivity and ill health undermine productivity and spawn negativity, qualities that seriously undermine student behavior and cooperation.

WHAT DOES IT MEAN TO "BE WELL"?

In her article in *American Psychologist*, "In Pursuit of Wellness," E.L. Cowen defines two clusters of wellness indicators:

- The first, "earthy indicators such as eating well, sleeping well, and doing one's mandated life tasks well" (Cowen, 1991).
- The second set of "somewhat more ethereal includes…a feeling of purpose and belongingness and a basic satisfaction with oneself" (Cowen, 1991).

Mindful Practices works to reinstate health on what Cowen calls both the "earthy" and "ethereal" levels by focusing on three pillars of wellness that, in concert, research has shown to improve student behavior.

PILLAR ONE
IMPROVING BEHAVIOR BY IMPROVING THE HEALTH OF THE BODY

(Giving Students Control of their Physical Wellness)

The national mandate to increase physical activity among youth in order to curb the obesity trend with its health-related problems is clear. In 2000, The American Diabetes Association urged school programs to "promote healthy food choices and increased physical activity"(ADA, 2000). Other studies echo recommendation:

- "To prevent the development of overweight and obesity throughout the life course, population-based strategies that improve social and physical environmental contexts for healthful eating and physical activity are essential" (Kumanyika et al., 2008).
- "Using a nationally representative sample, we found that obesity in adolescence is linked with poor physical quality of life" (Swallen et al., 2005).

A "poor physical quality of life" is logically associated with feelings of negativity, which can translate into negativity in the classroom. Participation in yoga-based activities improves one's overall feeling of physical well-being: "The coordination of body movements and stretching in combination with deep breathing improves the body's overall circulation. This results in a release of tension as well as increasing levels of blood and oxygen throughout the entire body that in turn affect the central and autonomic nervous systems" (Peck, 2005). Calm nervous systems mean students who are more composed, more at ease, and, presumably, more cooperative.

In addition, yoga practice produces positive physiological changes in heart rate, blood pressure, respiratory rate, breath holding time, and auditory and visual reaction times (Ospina, 2007), quieting restless behavior and improving reaction times. A study published

in the journal *PLoS One* (Dusek JA, Otu HH, Wohlhueter AL, Bhasin M, Zerbini LF, et al., 2008) demonstrated that relaxation practices and meditation actually work on the cellular level, turning on genes that control inflammation and protect against damage to cells and tissues, improving immune function and overall physical well-being.

According to WestEd, a nonprofit research and development agency, "Our longitudinal research reveals that schools with higher percentages of students who are less engaged in risky behaviors, more likely to eat nutritiously and exercise, and report caring relationships and high expectations at school made greater progress in raising test scores" (WestEd, 2003). The research confirms conventional wisdom that there is a "strong connection between high school students' academic achievement and their overall health and well-being" (WestEd, 2003). High-achieving students are often students who model optimal student behavior. Therefore, a connection between wellness and positive behavior in the classroom appears clear.

PILLAR TWO
IMPROVING BEHAVIOR BY IMPROVING THE HEALTH OF THE MIND
(Giving Students Control of Their Thoughts & Mental Wellness)

Students across three grade levels participating in a multiple baseline design study that investigated the effectiveness of yoga to improve attention improved their attention by 150 – 270 % as compared to a control group (Peck, 2005). Improved attention means improved listening, improved ability to follow directions, and, in turn, improved focus and behavior.

According to this study, "yoga may become a promising alternative or complement to behavioral and medical interventions that are commonly used for children with attention problems.... For example, the class could engage in brief yoga exercises to help them focus prior to taking a test" (Peck, 2005). As the Peck study concludes, "It would seem sensible that children's heightened body awareness, calmness, reduced tension, and improved concentration...especially for attention problems, would be conducive to learning" – and conducive to creating a classroom culture of cooperation and composure (Peck, 2005).

Another yoga program that incorporated meditation decreased children's hyperactivity, inattention, and anxiety and improved peer relationships and sleep patterns (Harrison et al., 2004). According to results published in the *Journal of Cognitive, Affective, & Behavioral Neuroscience* (Jha et al., 2007), "mindfulness training may improve attention-related behavioral responses by enhancing functioning of specific subcomponents of attention". In this study, researchers at the University of Pennsylvania examined how meditation may modify three subcomponents of attention: the ability to prioritize and manage tasks, the ability to focus on specific information, and the ability to remain alert to one's surroundings. Their findings suggest that practicing even small doses of daily meditation may improve focus and performance in a matter of weeks (Jha et al., 2007).

Results based on a two-year study of thirty 5th and thirty 3rd grade students who had completed a mindfulness-based, stress-reduction program demonstrated an increase in student self-control, self-regulation, attention skills, and self-esteem (Napoli. 2001).

PILLAR THREE
IMPROVING BEHAVIOR BY IMPROVING EMOTIONAL HEALTH
(Giving Students Control of their Emotional Wellness)

Research conducted by Richard Davidson (2003), director of the Waisman Laboratory for Brain Imaging and Behavior at the University of Wisconsin-Madison, and published in *Psychosomatic Medicine* observed changes in areas of the brain responsible for emotional wellness. In people who are generally optimistic and during times of positive emotion, the left prefrontal cortex of the brain becomes more active than the right. In this study, the meditation group showed an increase of activation in the left-side part of the frontal region. This activity is connected to lower anxiety and a more positive emotional state. This research suggests that even a short program in meditation has positive social-emotional implications for participants (Davidson, 2003).

According to Davidson, "[Meditation] can transform the emotional brain in ways that promote higher levels of resilience [and] less vulnerability and affect the body in ways that can improve health" (Andrews, 2008). More resilient young people are young people who are better equipped to cope with conflict maturely and handle themselves with composure.

Stueck and Gloeckner's four-year study (2005) examined the results of a short-term (fifteen weeks) yoga program for 48 fifth grade students, including relaxation, yoga exercises and guided imagery with instructions for children to pay attention to their emotions and external stimuli. Students experienced significant reductions in aggression and improvement in stress-coping abilities. According to the study:

> During a pre/post comparison with three measuring times one could give proof that the training will increase emotional balance in the long term and reduce fears. Feelings of helplessness and aggression were clearly reduced. Beyond this, the participants transferred the learned breathing techniques and self-instruction to situations beyond school, in order…to improve well-being and to control negative feelings…The parents as well as the teachers estimated that the general well-being of the subjects improved due to the training…They declared their children being more calm and more balanced (71.4%) and less impulsive, aggressive, hot-tempered (38.1%) (Stueck & Gloeckner, 2005).

According to another study (Marie, 2005) conducted at one elementary school with 125 fourth and fifth graders, "Only a 4 ½ hour exposure to yoga over a period of two weeks has been shown to result in up to a 93% decrease in aggressive behavior in 4th and 5th grade children". In addition, "Unexpected benefits the children reported were less headaches, less fidgeting, and an overall improved ability to sleep" (Marie 2005). Collection and analysis of data by the Harvard School of Public Health is listed below:

RESULTS FROM STUDENTS REPORTS:
Hitting at school…….....…….…..…93% **decrease**
Hitting after-school……68% **decrease**
Being hit by someone……54% **decrease**
Being hit by a friend……..….56% **decrease**
Feeling bullied at school……41% **decrease**
Feeling angry for no reason…….…..56% **decrease**
Feeling that friends were angry at them…59% **decrease**
Ability to control anger…….……50% **increase**
(Marie 2005)

In an article discussing the results of elementary school teachers' feedback from mindfulness-training programs, "interviews with teachers revealed that teachers used the

mindfulness skills to […] deal with conflict and anxiety […] and facilitate positive changes in the classroom" (Napoli, 2004).

IN CONCLUSION

A type of physical, cognitive, and emotional exercise program aimed at improving not only students' physical well-being, but also their ability to pay attention, to self-regulate, and to be emotionally resilient, Mindful Practices is a natural fit as a behavior-modification tool.

Data in the fields of neuroscience, physiology, epidemiology, and education support the claim that yoga-based mindfulness programming has the power to quiet the nervous system, improve attention, boost mood, and reduce aggression and negativity, all factors that, in turn, have the power to have a sweeping affect on improving student behavior in the classroom.

www.MindfulPracticesYoga.com

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