



The Wise Brain Bulletin

News and Tools for Happiness, Love, and Wisdom

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Mindfulness:

A Promising Approach to Overcoming the Challenges of Asperger's Syndrome

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After years of a casual academic interest in Buddhism created mainly by reading popular books written by the Dalai Lama, my interest turned more serious about a year ago and I began to practice meditation on a routine basis. The daily stress and constant worrying associated with the raising of twin boys with special needs (Asperger's Syndrome) combined with uncertainty in my career had taken a toll. I could sense that my mind was out of control with a despair and negativity that was both foreign to me and unhealthy. I had to take control of my thoughts. My relatively limited background in Buddhist reading led me to believe that I needed to make a serious effort to meditate on a daily basis and make the attempt to incorporate the precepts of Buddhism into my daily living. Like almost everyone, I still have far to go. However, the initial benefits were encouraging and pushed me to study more.

Surprisingly, what struck me the most in my studies was how much the practice of mindfulness could potentially benefit my children. My boys were diagnosed with

Greetings

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Asperger's Syndrome at the age of three. They both possess incredible brains—that much is clearly evident to anyone who has interacted with them. Their reading skills, amazing memory and recall, innate sense of music and uncanny ability to detect patterns are rare if not unprecedented. And yet, they are disabled by a host of sensory issues, anxieties, obsessions and misunderstandings of the world that threaten to disable them and keep us from participating in even the simplest childhood activities. As their father, I feel a tremendous pressure to guide their amazing potential into useful lives, and through the study of mindfulness I think I may have found a path to help them.

Intuitively, I can tell I'm on the right track. Several times over the last year the boys have confirmed the rapid fire nature of their minds and the need to bring some order

and control. One of the boys once told me that he “rocked in his bed” so that he couldn't hear his mind, which was keeping him awake by racing off downstairs. (When asked what his mind was saying he replied, “I don't know. I don't speak brain.”) And recently my other son told me that he has difficulty sleeping because he can't stop thinking about his nightmares and that “the part of the brain that lets other people not think about their nightmares must be broken in my brain.”

What Is the Current State of the Science?

While I'm a believer in listening to and following one's gut instincts, I'm also a biologist by training and so I was interested in the science of what's going on here. Recently I read two seemingly unrelated books that both spoke to the potential benefit of studying the effects of mindfulness meditation on individuals on the autism spectrum. The first was *Animals in Translation* by Temple

Grandin, an amazingly successful individual with autism who was featured in the award-winning HBO film “Thinking in Pictures.” The book discusses some of the physiological characteristics of the autistic brain and how the responses to stimuli in individuals with autism are similar to the responses seen in Dr. Grandin’s decades of work with animals.

By sheer coincidence the next book I happened to read was *Buddha’s Brain: The Practical Neuroscience of Happiness, Love, and Wisdom* by Rick Hanson (with Richard Mendius). The book discusses the physiological changes that can be brought about in the brain through the practice of meditation. I was struck by the similarity in the areas of the brain discussed in these two books. For instance, much of Dr. Grandin’s book talks about the fear response and inability of the frontal lobe to control the immediate fearful response of the amygdala, resulting in a near constant state of fight-or-flight response in individuals with autism (a situation I’ve seen in my own children). *Buddha’s Brain* discusses the dampening of this response by activation of the parasympathetic nervous system with deep



breathing exercises. Additionally, both books discuss the negativity bias and the history of brain evolution among other aspects of anxiety and stress.

I was quite pleased to see my scientific reading match what I was intuitively feeling my boys most needed. Encouraged, I set out to see what research or writing was available discussing this exciting possibility for help for individuals with autism.

I was shocked by the results. I found only one book, Asperger's Syndrome and Mindfulness by Chris

Mitchell. It is an

insightful book written

by an individual with

Asperger's which

confirmed this as a

possible path to resolve

many of the difficulties

I see my children

facing. However, it was

only one book.

Knowing that the

scientific study of

meditation was

increasing rapidly

and becoming more

and more accepted in

mainstream scientific

circles I searched

Pubmed, the National

Institutes of Health

(NIH) database of

peer-reviewed research



articles. A search for meditation yielded 2,060 articles. Autism: 16,983. But autism and meditation combined yielded a grand total of ZERO. I was stunned. I checked my spelling. I tried other words. The results were the same: Zero. But yet, many of the problems that confront individuals with Asperger's were there. Meditation and anxiety: 293 articles. Meditation and cognition: 245. Meditation and OCD: nine. These are all recognized problems in the ASD population, yet no one appears to be tackling them with meditation within that population. And it isn't because they aren't considered important problems. A review of NIH grants showed 228 active grants for the study of autism and the 2008 Federal Interagency Autism Coordinating Committee report showed that \$54 million dollars was spent on treatment and intervention research grants. However, none of the research is currently employing meditation or mindfulness, with the exception of one using mindfulness-based stress reduction for parents of children on the spectrum. Much of the research focus seems to be in the effort of pharmacologically medicating these problems into submission, but I'd much prefer the meditating approach to the medicating one.

How Can Mindfulness Help?

Specifically, I can see four main areas of struggle for people with Asperger's that could be helped through the practice of mindfulness meditation, although I anticipate as the practice evolves numerous other benefits would become apparent. I would love to see more extensive research in the following areas:

- **Emotional Regulation:** Functional and structural abnormalities of the amygdala have been identified in individuals with autism and Asperger's leading to difficulties recognizing and regulating emotions. The emotional pinball "game" that results in wildly inappropriate highs and devastating lows often leads to anger, anxiety and sadness. Mindfulness meditation can achieve some level of control over the fast-response of the amygdala by creating parasympathetic

activation to dampen the sympathetic nervous system/hypothalamic-pituitary-adrenal axis feedback loops. Research by Dr. Nirbay Singh, which is currently in press and soon to be published by Research in Autism Spectrum Disorders (which will soon bring the Pubmed search total to ONE), demonstrated that adolescents with Asperger's syndrome can successfully use a mindfulness-based procedure to control aggressive behavior.

- **Executive Function:** Impaired executive function in individuals with Asperger's can result in the person being uninhibited and impulsive, often causing behavioral challenges that make school and workplaces difficult. Deep-breathing exercises have been shown to activate the prefrontal cortex which is responsible for executive function. This is the basis of deep-breathing exercises currently recommended by psychologists to calm individuals having attacks of anxiety. The ability of mindfulness meditation to activate the prefrontal cortex might be



capable of increasing the executive function of individuals with Asperger's by preventing meltdowns and panic attacks before they begin.

- **Empathy:** One of the most commonly identified deficits in children with Asperger's Syndrome is a lack of empathy, which has been linked to insufficient mirror-type networks and a limited ability for Theory of Mind. Research into mindfulness meditation has identified that increased awareness of your emotional and bodily states can activate your insula and anterior cingulate cortex and allow for an increased awareness of others' feelings and emotions. Additionally, increased prefrontal and temporal lobe activity might be able to improve the ability for Theory of Mind. Perhaps just the practice of taking time to think about the feelings of others may increase prefrontal cortex activity and assist in the development of true empathy.

- **Sleep:** Parents of children on the autism spectrum frequently report that their children have difficulty sleeping. One of the most common nutritional interventions recommended among children on the spectrum is the use of melatonin to aid in falling asleep. Recent studies, including several by Dr. Malow at Vanderbilt University, have shown success in treating insomnia in children with autism with the use of melatonin supplementation. It has also been shown that long-term meditators have a higher baseline level of melatonin, suggesting that meditation might be able to aid in a major quality of life issue for children with autism and their families.

How Can We Bring Mindfulness Meditation to Children on the Spectrum?

Once research has identified the potential techniques and benefits of mindfulness, how will we bring these strategies to the larger community of children, adults, and professionals? The support of licensed therapists and neuroscientists will be

critical. In addition to any cultural sensitivity individuals might have about the practice of mindfulness meditation, often times parents have already been down many avenues to try and help their children. They are just plain tired and worn out from the battle and before they commit to another avenue they want to see some evidence. It will be the job of the scientific community and the community of therapists who already have an understanding of the difficulties and challenges this population faces to come together and provide that research and guidance.

For example, the practice of mindfulness is being used to teach concentration, attention and empathy to students in the San Francisco Bay Area by the Mindful Schools program; additionally, the Mind Body Awareness Project is teaching mindfulness in Oakland area juvenile detention centers, and both programs are reporting positive results. Expanding programs already in place to target individuals with Asperger's Syndrome would be one option for how to carry this work forward and offer even more benefits to the greater community.



Within the mainstream mental health community, control of the mind and body through deep-breath relaxation is already a commonly used tool. My boys' mainstream psychologist in our exceptionally conservative North Carolina town has already taught them how to take ten deep breaths (what he calls "turtle breaths") in stressful situations or to reset themselves following a meltdown. This technique has been taught to and embraced by their teachers in the classroom setting and hopefully the professionals involved with helping them, including teachers, administrators, and specialists, will see these as tools to be tried with other children experiencing similar issues.

Ultimately, though, it will up to the parents. For this approach to be successful I believe it will have to be a family venture. It will need to become more than just the latest attempt at a fad therapy for the kids, but a way of life for the whole family. In the process, the parents, like my wife and I, will see that not only can this help their children, but they themselves can benefit from mindfulness.

Over the last year, I have introduced the concept of meditation to the boys through my own example and with the help of two good children's books (Peaceful Piggy Meditation by Kerry Lee Maclean and Each Breath a Smile by Thich Nhat Hanh).

At the age of six it is much too early to speak to the success of my venture. In fact, it has yet to truly begin, but they have started to take deep breaths on their own in order to calm

themselves. They are also quick to remind me that I should be meditating instead of yelling, demonstrating that they at least understand the concept and benefits.

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for Neuroscience and Contemplative Wisdom***

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The next step for my own children will be to cultivate awareness that this principle of mindfulness could be deployed beyond its current use as a response to troublesome situations. We will next try to teach them to use these techniques to exert some control over their thoughts and their racing minds in order to avoid these “emergencies.” Accepting the fact that there will be struggles, mindfulness will also help them to move beyond the meltdowns, anxiety and stressful situations and learn to live more within the current moment, not dwelling on the past or worrying about the future.

Spreading the practice of mindfulness to persons living with the challenges that come with having Asperger’s Syndrome will truly require a great collaborative effort. So, to anyone teaching mindfulness meditation or studying the neuroscience of mindfulness meditation, I urge you to seek out individuals with Asperger’s Syndrome. Research into using mindfulness meditation to impact emotional regulation, executive function and empathy in these individuals would be a fantastic beginning, but certainly not an ending. I believe strongly that a great benefit could be achieved by a significant number of people and that much could be learned about the human brain in the process. Children and adults living with Asperger’s Syndrome have a tremendous amount of potential good to offer the world and a tremendous amount to teach the world as well. Let’s help them help us.

Tips for Implementing Mindfulness Meditation in Children with Asperger’s

- **Begin by teaching the child to take deep calming breaths.** Start with a visual prompt, such as numbered picture cards the child can flip through as he/she counts breaths. Alternatively, they could move marbles from one cup to another with each breath.

- **Provide a dedicated space free of distractions for use in meditation.** Take into account any sensory issues the child might have when you set up the space. For instance, instead of using a beeping timer to indicate the end of meditation time you may want to consider a visual method of timing such as an hour-glass or a light if the anxiety of potentially loud noises could adversely affect the child.
- **Write out clear and literal instructions (or use pictures) to describe how to do the meditation.** Written rules or pictograms are extremely helpful as teaching tools for children with Asperger's who are visual learners. Post the instructions in the meditation space to remind the child of the expectations daily since success one day doesn't always guarantee success the next without a helpful reminder.
- **Make meditation a regular part of the child's daily routine.** Children with Asperger's respond well to routine and while in some cases we attempt to limit their dependence on routine, in this case we can utilize this inclination of theirs to establish a lasting daily practice.

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Words of Wisdom

*As human beings, our greatness lies not so much in being able to remake the world
- that is the myth of the 'atomic age' - as in being able to remake ourselves.*

Gandhi

*When you find peace within yourself, you become the kind of person
who can live at peace with others.*

Anonymous

*If you could get rid of yourself just once, the secret of secrets would open to you.
The face of the unknown, hidden beyond the universe would appear
on the mirror of your perception.*

Rumi

He who lives in harmony with himself lives in harmony with the universe.

Marcus Aurelius

*Sometimes your joy is the source of your smile,
but sometimes your smile can be the source of your joy.*

Thich Nhat Hanh

*To be mindful of social phenomena is thus to identify more clearly hatred, greed, and
delusion as well as the seeds of wisdom and compassion both around us and in us.*

Donald Rothberg

*To enjoy good health, to bring true happiness to one's family, to bring peace to all,
one must first discipline and control one's own mind.*

*If a man can control his mind he can find the way to Enlightenment,
and all wisdom and virtue will naturally come to him.*

The Buddha

*If you want others to be happy, practice compassion.
If you want to be happy, practice compassion.*

The Dalai Lama

Shortcuts to Inner Peace: A System for Stress Management

© Ashley Davis Bush, LCSW

Sylvia, my client of several months, sat across from me, clearly agitated. This forty-something woman, mother of two teenage boys, going through a divorce but still living under the same roof with her soon-to-be-ex, crossed her denim clad legs exclaiming, “I’m SOOOO stressed out!”

“Have you ever tried meditation?” I asked. This was a question that I usually asked clients at some point in our work together. Studies have demonstrated that relaxed meditative states sooth our stress response and stimulate feelings of calm (e.g., Tange et al. 2007). And after practicing meditation for quite a few years myself, I was convinced that it could help her.

But I was also ready for her response.

“Hah!” she barked. “You know I don’t have time for that!” She was a single mom with a full time job, a house to run, and a to-do list that never ended. She really did seem too busy to meditate.

I knew that her lifestyle was stressful, that chronic activation of her sympathetic nervous system (SNS) was no doubt taking its toll. So I persisted, “I could teach you techniques that you could do in three minutes . . . even one minute.”

Sylvia responded, slowly, “You know, I have to be honest. Even if I had the time, I don’t think I would do it. I’ve tried meditation and quite frankly, it’s a little boring. When I close

my eyes and sit quietly, my mind wanders. I just think of the million and one things I've got to do and then I get even more stressed."

Hmmm. I appreciated her honesty with herself and with me. It wasn't the first time that I had heard this from a client (or a friend). Sylvia seemed stuck in a spiral of stress reactions and negativity. Her high cortisol levels were unlikely to induce a mellow mental state. Perhaps I had hit a dead end.

I mused to myself that what I really needed were some fast, easy tools that would stimulate the parasympathetic nervous system (PNS) and generate some of the same benefits achieved by lengthy meditations: stillness, calm and a feeling of inner peace. I knew that current neuroscientific research was suggesting that even small changes in our mental habits, if used persistently and mindfully, create new neural pathways in the brain (Siegel 2010), new ways of perceiving, new habits of thought.



But how would I ensure persistent and continuous use of any tool with a woman who barely had time to use the bathroom? Hmm . . . come to think of it, she did actually find the time to go to the bathroom, multiple times a day.

“Well let’s see,” I brainstormed, “You have time to wash your hands after you use the bathroom, right?” She laughed, “Yeah, usually!” “What if I gave you a tool to use – a shortcut – something to calm yourself that isn’t a formal meditation but that you could do when you washed your hands?” I ad-libbed. “She smiled . . . she laughed, “That would be perfect.”

And thus, in one of those in-the-session improv moments, I gave her the instruction to say the words “I go with the flow” (or “I flow with life’s direction” or even “I trust the divine flow of the Universe”) each and every time she washed her hands. And, I specifically advised her not to say this mantra hastily, by rote, but to use the moment as a restorative, reflective pause . . . to really absorb the moment of acceptance and calm. And I also suggested that she use warm water, a further boost to activating her PSN.

When Sylvia came back the next week, she was happy to report that she had been able to integrate the “Go with the Flow” tool successfully into her day and that it was fun, easy and actually made her feel better. “Do you have any more shortcuts like that?” she asked.

The Shortcuts

And so I was inspired to sit down and outline some ‘shortcuts to inner peace.’ I looked for restorative tools that would activate the PNS and/or redirect neural pathways through the intentional creation of positive emotional experiences. Drawing on techniques from Eastern and Western traditions, such as yoga, Buddhism, cognitive-behavioral therapy, and positive psychology, I assembled ways to dampen the fight-or-flight stress response and stimulate the mind/body to disengage from strong reactivity to external circumstances.

What I realized, however, was that while there are many great tools out there for reducing stress, if we forget or fail to use them then they're about as helpful as a bottle of unopened vitamins collecting dust in the back of the pantry. Yet, we've all noticed that we are more likely to take our morning vitamin if we pair it with the habit of eating breakfast. Likewise, Sheila remembered to use the "Go with the Flow" shortcut because it was triggered by washing her hands, an already established activity.

We all know how potent a trigger can be in our emotional world: sounds or smells that evoke childhood impressions, words or phrases that recreate trauma. I wanted to harness the power of the trigger in a positive way, to create automatic responses that were as reliable as saying "Bless you" after hearing someone sneeze.

Habits are established neuronal pathways. When we intentionally respond to a trigger in a new way, new neuronal pathways are formed. Over time, our brains' usual 'wired' response to a trigger actually changes.

These shortcuts to inner peace, then, are ways to form new, healthy wiring via habits that stimulate calm and reinforce positive mental states. The strategy of linking tools to triggers sets the stage for weaving restorative pauses consistently throughout the day.

Below are a few more shortcuts that when used alone or together create a daily thread of peacefulness and calm.

Perspectives on Self-Care

Be careful with all self-help methods (including those presented in this Bulletin), which are no substitute for working with a licensed healthcare practitioner. People vary, and what works for someone else may not be a good fit for you. When you try something, start slowly and carefully, and stop immediately if it feels bad or makes things worse.

Morning glories (triggered by brushing your teeth in the morning)
As you brush your teeth in the morning, think of 3 things that you will be facing in your day. Don't identify them as 'good' or 'bad', 'fun' or 'stressful', simply view them as an observer and imagine that you will

be ‘open’ to them as experiences, much as a morning glory will open to the sun. State your intention of receptivity and feel yourself relax into each one as you say: “Today, I will be open to the meeting with curiosity; Today, I will be open to the class with curiosity; Today I will be open to the phone conference with curiosity.” As you encounter the 3 things during your day, remember to be ‘open’ and to be curious. Perhaps you’ll need to exclaim, “Oh! this is how it’s going to unfold today.” Optionally, you could identify 3 positive qualities (rather than 3 events) that you wish to be receptive to, such as love, patience, or abundance.

This tool uses intention, or ‘inclining the mind’, as a means to adopt a more positive feeling throughout the day. When we consciously and repeatedly redirect our mind to positive emotions, it not only stimulates the calming effects of the PNS but the feelings become part of our emotional memory and we begin training our brains to think more positively (Hanson 2009: chap 4).

Stop, Drop and Roll (triggered by sitting at a red traffic light)

‘Stop’, ‘drop’ down into your heart, and ‘roll’ out a little good will to your fellow travelers. Look at the people in other cars in front of you, behind you, passing around you and recognize that each one of them is just like you: they want happiness and they want to be



free from suffering. To each person you focus on say or think something like:

“May you know happiness.”

“May you be free from suffering.”

“Peace be with you.”

“I hope you have a nice day.”

With each person, let the feelings of good will and love sink into your heart. You can even put your hand over your own heart for added emphasis.

This tool is inspired by the Buddhist practice of metta, or loving kindness. As a habit, it opens the heart, cultivates compassion, and increases feelings of peacefulness. The practice of loving kindness has been shown to produce positive emotions (Fredrickson et al. 2008). By stimulating the neural pathways for compassion in the brain, our attitude of loving kindness toward others becomes increasingly ‘wired’ into the brain. Warm feelings toward others also stimulate the PNS (Oatley, Kelter and Jenkins 2006:128), calming our resistance and putting us in a place where loving kindness flows more easily.



Shakedown (triggered by approaching the door when you come home from work)

Before you walk through the door, spend a moment shaking down your body, as if you are shaking off water. Shake and relax your right leg and foot; then your left leg and foot.

Shake and relax your right arm and hand then your left arm and hand. Gently shake and relax your head letting your shoulders and tongue relax. Finish with a little twist of your torso to shake off any remaining energy from your day. Take a deep breath and heave a hearty sigh (a prolonged exhalation.)

This tool uses relaxation and breath to activate the PNS and down-regulate the SNS which further relaxes the body and reduces the production of stress hormones (Hanson 2007) allowing us to leave some of our stressful energy at the door.

Rest In Peace (triggered by having your head rest on the pillow before you go to sleep)

As you are in bed starting to fall asleep, review your day and list 3 things that happened for which you are grateful. Don't just vaguely remember each instance but actively recall it and recreate the experience of it. Hold the feeling and attempt to absorb it in your heart.

Gratitude is a practice known to enhance joy, cultivate happiness, and connect us with a feeling of inner peace. This tool is a way of training our brains towards positive emotions. Much has been said of our human brain's "negativity bias". But by focusing on and re-experiencing specific aspects of our life in an intentionally positive light, we create positive emotional experiences which improve our psychological well-being (Fredrickson and Branigan 2005).

Like most people with families, friends, work and overall busy lives, I often feel that my body's stress response has the upper hand. But when I practice these and other shortcuts throughout my day, every day, they become habitual. As a result, I feel happier, calmer, and more grateful.

Simply put, linking restorative tools to daily triggers actively and positively changes our brains and nurtures our nervous systems. In response, we can't help but feel a little more at peace.



Ashley Davis Bush, LCSW has been working as a psychotherapist for the past 20 years. She is the author of several self-help books, including “Transcending Loss: Understanding the Lifelong Impact of Grief and How to Make it Meaningful” (Berkley Books, 1997) and the forthcoming “Shortcuts to Inner Peace: 70 Simple Paths to Everyday Serenity” (Berkley Books, 2011). She writes a weekly blog on her website, www.ashleydavisbush.com and maintains an interactive Facebook site for griever (Transcending Loss). Ashley lives in Epping, NH with her husband, Daniel, and their five children.

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Fare Well

May you and all beings be happy, loving, and wise.