

THE
Margaret McCain
LECTURE SERIES

Inaugural Lecture by
Bruce D. Perry, M.D., Ph.D.

Maltreatment and the Developing Child:

How Early Childhood Experience Shapes Child and Culture

Dr. Perry is an internationally recognized authority on child trauma and the effects of child maltreatment. His work is instrumental in understanding the impact of traumatic experiences and neglect on the neurobiology of the developing brain. He presented the inaugural Margaret McCain lecture on September 23, 2004



We seek to make the world a better place. No matter our profession or vocation, we share the desire – and the ability – to make a difference in a child's life.

Humans are complex creatures. While having the capacity to be humane, we also have the capacity to be cruel. Why? What determines whether a child grows up to be compassionate, thoughtful, and productive? Or, impulsive, aggressive, hateful, and non-productive? Is it genetic?

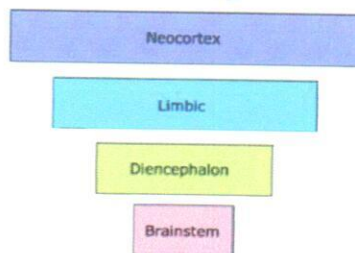
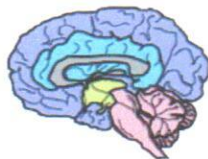
Likely not. Human beings become a reflection of the world in which they develop. If that world is safe, predictable, and characterized by relationally and cognitively enriched opportunities, the child can grow to be self-regulating, thoughtful, and a productive member of family, community, and society. In contrast, if the developing child's world is chaotic, threatening, and devoid of kind words and supportive relationships, a child may become impulsive, aggressive, inattentive, and have difficulties with relationships. That child may require special educational services, mental health or even criminal justice intervention.

The challenge for us is to help each child reach his or her potential to be humane. To better understand how, we

must appreciate the remarkable malleability of our species and the unique role played by the human brain.

The Developing Brain

The human brain mediates our movements, our senses, our thinking, feeling and behaving. The amazing, complex neural systems in our brain, which determine who we become, are shaped early.



The brainstem controls heart rate, body temperature, and other survival-related functions. It also stores anxiety or arousal states associated with a traumatic event. Moving outward towards the neocortex, complexity of functions increases. The limbic system stores emotional information and the neocortex controls abstract thought and cognitive memory.

In utero and during the first four years of life, a child's rapidly developing brain organizes to reflect the child's environment. This is because neurons, neural systems, and the brain change in a "use-dependent" way. Physical connections between neurons – synaptic connections – increase and strengthen through repetition, or wither through disuse. It follows, therefore, that each brain adapts uniquely to the unique set of stimuli and experiences of each child's world. Early life experiences, therefore, determine how genetic potential is expressed, or not.

As the brain organizes, the lower more regulatory systems develop first. During the first years of life, the higher parts of the brain become organized and more functionally capable. Brain growth and development is profoundly "front loaded" such that by age four, a child's brain is 90% adult size! This time of great opportunity is a biological gift. In a nurturing environment, a child can grow to achieve the full potential pre-ordained by underlying genetics. We can promote this by fostering conditions of optimal development.

Optimal Development

A child is most likely to reach her full potential if she experiences consistent, predictable, enriched, and stimulating interactions in a context of attentive and nurturing relationships. Aided by many relational interactions – perhaps with mother, father, sibling, grandparent, neighbour and more – young children learn to walk, talk, self-regulate, share, and solve problems.

Every child will face new and challenging situations. These stress-inducing experiences per se need not be problematic. Moderate, predictable stress, triggering moderate activation of the stress response, helps create a capable and strong stress-response capacity, in other words, resilience. The first day of kindergarten, for example, is stressful for children. Those embedded in a safe and stable home base overcome the stress of this new situation, able to embrace the challenges of learning.

Disrupted Development

While most children experience safe and stable upbringings, we know all too well that many children do not.

The very biological gifts that make early childhood a time of great opportunity also make children very vulnerable to negative experiences: inappropriate or abusive caregiving, a lack of nurturing, chaotic and cognitively or relationally impoverished environments, unpredictable stress, persisting fear, and persisting physical threat. These adverse effects could be associated with stressed, inexperienced, ill-informed, pre-occupied or isolated caregivers, parental substance abuse and/or alcoholism, social isolation, or family violence. Chronic exposure is more problematic than episodic exposure.

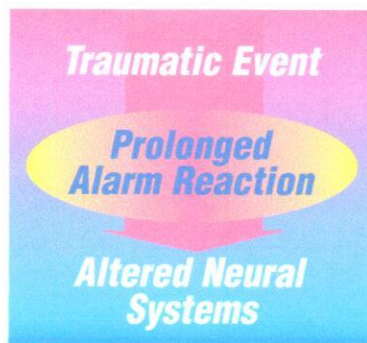
In the most extreme and tragic cases of profound neglect, such as when children are raised by animals, the damage to the developing brain – and child – is severe, chronic, and resistant to interventions later in life.



These images illustrate the negative impact of neglect on the developing brain. The CT scan on the left is from a healthy three-year-old with an average head size. The image on the right is from a three-year-old child suffering from severe sensory-deprivation neglect. This child's brain is significantly smaller and has abnormal development of cortex.

The Adaptive Response to Threat

When a child is exposed to any threat, his brain will activate a set of adaptive responses designed to help him survive. There is a continuum of adaptive responses to threat and different children have different adaptive styles. Some use a hyperarousal response (e.g., fight or flight) and some a dissociative response (essentially “tuning out” the impending threat). In most traumatic events, a combination of the two is used.



A child adopting a hyperarousal response may display defiance, easily misinterpreted as wilful opposition. These children may be resistant or even aggressive. They are locked in a persistent “fight or flight” state. They often display hypervigilance, anxiety, panic, or increased heart rate.

A hyperarousal response is more common in older children, males, and in circumstances where trauma involves witnessing or playing an active role in the event.

The dissociative response involves avoidance or psychological flight, withdrawing from the outside world and focusing on the inner. The intensity of dissociation varies with the intensity of the trauma. Children may be detached, numb, and have a low heart rate. In extreme cases, they may withdraw into a fantasy world. A dissociative child is often compliant (even robotic), displays rhythmic self-soothing such as rocking, or may faint if feeling extreme distress. Dissociation is more common in young children, females, and during traumatic events characterized by pain or inability to escape.

Differential “State” Reactivity

A child with a brain adapted for an environment of chaos, unpredictability, threat, and distress is ill-suited to the modern classroom or playground. It is an unfortunate reality that the very adaptive responses that help the child survive and cope in a chaotic and unpredictable environment puts the child at a disadvantage when outside that context.

When children experience repetitive activation of the stress response systems, their baseline state of arousal is altered. The result is that even when there is no external threat or demand, they are physiologically in a state of alarm, of “fight or flight.” When a stressor arises, perhaps an argument with a peer or a demanding school task, they can escalate to a state of fear very quickly. When faced with a typical exchange with an adult, perhaps a teacher in a slightly frustrated mood, the child may over-read the non-verbal cues such as eye contact or touch.

Compared to their peers, therefore, traumatized children may have less capacity to tolerate the normal

demands and stresses of school, home, and social life. When faced with a challenge, for example, resilient children are likely to stay calm. Normal children in the same situation may become vigilant or perhaps slightly anxious. Vulnerable children will react with fear or terror.

Fear Changes the Way We Think

Children in a state of fear retrieve information from the world differently than children who feel calm.

In a state of calm, we use the higher, more complex parts of our brain to process and act on information. In a state of fear, we use the lower, more primitive parts of our brain. As the perceived threat level goes up, the less thoughtful and the more reactive our responses become. Actions in this state may be governed by emotional and reactive thinking styles.

As noted above, when children experience repetitive activation of the stress response systems, their baseline state of arousal is altered. The traumatized child lives in an aroused state, ill-prepared to learn from social, emotional, and other life experiences. She is living in the minute and may not fully appreciate the consequences of her actions. Add alcohol to the mix, or other drugs, and the effect is magnified.

Decreasing the Alarm State

It is important to understand that the brain altered in destructive ways by trauma and neglect can also be altered in reparative, healing ways. Exposing the child, over and over again, to developmentally appropriate experiences is the key. With adequate repetition, this therapeutic healing process will influence those parts of the brain altered by developmental trauma. Unfortunately most of our therapeutic efforts fall short of this.

We can also be good role models: in all our interactions with children we can be attentive, respectful, honest, and

caring. Children will learn that not all adults are inattentive, abusive, unpredictable, or violent.

It is paramount that we provide environments which are relationally enriched, safe, predictable, and nurturing. Failing this, our conventional therapies are doomed to be ineffective.

If a child is in a therapeutic relationship, we can help him better understand the feelings and behaviours that are the legacy of abuse and neglect. Information helps. A traumatized child may act impulsively and misunderstand why – perhaps believing she is stupid, bad, selfish or damaged. We can also teach adults in a child's life about how traumatized children think, feel, and behave.

Among the possible therapeutic options to help maltreated and traumatized children are cognitive-behavioural therapy, individual insight-oriented psychotherapy, family therapy, group therapy, play or art therapy, eye-movement desensitization and re-programming (EMDR), and pharmacotherapy. Each of these has some promising results and many disappointments.

Therapy with maltreated children is difficult for many reasons. In the long term, the wisest strategy is to prevent abusive, neglectful, and chaotic caregiving. In that way, fewer children will require therapy.

Prevention and Solutions

We are the product of our childhoods. The health and creativity of a community is renewed each generation through its children. The family, community, or society that understands and values its children thrives; the society that does not is destined to fail. To truly help our children meet their potential, we must adapt and change our world. Some ways to do this follow:

1) Promote education about brain and child development

We must as a society provide

enriching cognitive, emotional, social, and physical experiences for children. The challenge is how best to do this. Understanding fundamental principles of healthy development will move us beyond good intentions to help shape sensitive caregiving in homes, early childhood settings, and schools. Research is key. Public education must be informed by good research and by the implementation and testing of educational and intervention programs. An important component of public understanding must be awareness of the power of the media over children.

What to do? Integrate key principles of brain development, child development and caregiving into public education. We presently require more formal education and training to drive a car than to be a parent. More research in child development and basic neurobiology is needed to guide sensible changes in policy, programs and practice.

2) Respect the gifts of early childhood

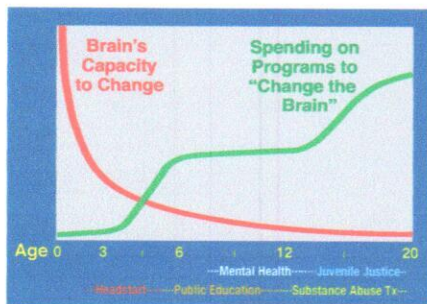
Enriching environments do exist. Many homes and high-quality, early childhood educational settings provide the safe, predictable, and nurturing experiences needed by young children. Unfortunately, we often squander the wonderful opportunity of early childhood.

At a time when the brain is most easily shaped – infancy and early childhood – we spend the fewest public dollars to influence brain development. However, expenditures on programs designed to change the brain dramatically increase for later stages of development (e.g., mental health, substance abuse or juvenile justice interventions).

Investing in high-quality early childhood programs could avoid the expensive, often inefficient or ineffective, interventions required later. Unfortunately, these expensive interventions can be reactive, fragmented, chaotic, disrespectful and, sadly, sometimes traumatic. Our public systems may recreate the mess that

many abused and neglected children find in their families.

What to do? Innovative and effective early intervention and enrichment models exist. Integrate them into the policy and practices in your community. Help the most isolated, at-risk young parents connect with community resources, both pre-natally and post-partum. Demand and support high standards for child care, foster care, education, and child protective service.



3) Address the relational poverty in our modern world

We are designed for a different world than we have created for ourselves. Humankind has spent 99 percent of its history living in small, intergenerational groups. A child's day brought many opportunities to interact with the variety of caregivers available to protect, nurture, enrich, and educate. But, the relational landscape is changing.

Today, with our smaller families, we have less connection with extended families and fewer opportunities to interact with neighbours. Children spend a great deal of time watching television. While we in the western world are materially wealthy, we are relationally impoverished. Far too many children grow up without the number and quality of relational opportunities needed to organize fully the neural networks to mediate important socio-emotional characteristics such as empathy.

What to do? Increase opportunities for children to interact with others, especially those who are good role models. Simple changes at home and

school can help: limiting television use, having family meals, playing games together, including neighbours, extended family and the elderly in the lives of children, and bringing retired volunteers into schools to create multi-age educational activities.

4) Foster healthy developmental strengths

Certain skills and attitudes help children meet the inevitable challenges of life. They may even inoculate children against the adverse effects of violence. A child who develops six core strengths will be resourceful, successful in social situations, resilient, and may recover quickly from stressors and traumatic incidents.

When one or more core strengths does not develop normally, the child may be vulnerable (for example, to bullying and/or being a bully) and may cope less well with stressors. These strengths develop sequentially during the child's life, so every year brings opportunities for their expansion and modification.

What to do? The major providers of early childhood experiences are parents. Supporting and strengthening the family will increase the likelihood of optimal childhood experiences. Also important will be peer and

teacher interactions. Specific ways to foster strengths at home and at school are suggested on The ChildTrauma Academy's website: www.ChildTrauma.org

Conclusion

The effects of maltreating and traumatizing children have a complex impact on society. Because our species is always changing, better understanding of these issues would help us develop more effective solutions.

The human brain is designed for life in small, relationally healthy groups. Law, policy and practice that are biologically respectful are more effective and enduring. Unfortunately, many trends in caregiving, education, child protection and mental health are disrespectful of our biological gifts and limitations, fostering poverty of relationships. If society ignores the laws of biology, there will inevitably be neurodevelopmental consequences. If, on the other hand, we choose to continue researching, educating and creating problem-solving models, we can shape optimal developmental experiences for our children. The result will be no less than a realization of our full potential as a humane society.

Dr. Bruce Perry's Six Core Strengths for Children: A Vaccine Against Violence

ATTACHMENT:	being able to form and maintain healthy emotional bonds and relationships
SELF-REGULATION:	containing impulses, the ability to notice and control primary urges as well as feelings such as frustration
AFFILIATION:	being able to join and contribute to a group
ATTUNEMENT:	being aware of others, recognizing the needs, interests, strengths and values of others
TOLERANCE:	understanding and accepting differences in others
RESPECT:	finding value in differences, appreciating worth in yourself and others

For more information on the Six Core Strengths, visit the "Meet Dr. Bruce Perry" page at <http://teacher.scholastic.com/professional/bruceperry>

Margaret Norrie McCain



The Honourable Margaret N. McCain was co-chair with Dr. Fraser Mustard of the highly regarded Early Years Study: Reversing the Real Brain Drain (1999) and is the Children's Champion at Voices for Children. Among her many accomplishments, she is a founding member of the Muriel McQueen Fergusson Foundation in New Brunswick whose mission is the elimination of family violence through public education and research.

I am delighted that Dr. Bruce Perry was invited to give the inaugural Margaret McCain Lecture because he is a person whose work I have long admired. His research and writing on the effects of family violence on children have had an enormous influence on me. In fact, they led to my decision to focus my time and energy on early child development. Dr. Perry should be listened to by all politicians and policy makers at the highest levels. The information he presents is powerful and irrefutable and it could change dramatically the lives of children and families.

Margaret N. McCain

The Lecture Series

In September, we held the first of an annual series of lectures addressing topics of interest shared by Margaret and our Centre, such as the early years and the effects of violence on children. All proceeds go to the Centre's Upstream Endowment campaign. We are delighted that Margaret has agreed to lend her name to our new lecture series. We greatly admire her dedication to children's interests. We are also pleased that Dr. Bruce Perry agreed to be the inaugural speaker. An audience of over 300 watched his lecture at the London Convention Centre. His approach is in harmony with our own in many ways: begin early, apply a developmental framework, understand how children cope with adversities, support caregivers to support children, and help professionals understand how children think, feel and learn. For those not able to join us for the inaugural lecture, we are providing here a summary of Dr. Perry's talk. We hope you can join us at the next lecture.

Linda Baker

Ph.D., C.Psych., Executive Director
Centre for Children & Families in the Justice System.



Margaret is seen here between Dr. Peter Jaffe and Dr. Linda Baker

...a Note from the Series Editor

Researchers repeatedly find statistical correlations between living with violence – at home and in the community – and problematic outcomes in children. The most sophisticated studies show us how the correlations are mediated and moderated by factors themselves correlated with violence, including economic poverty, child maltreatment, emotional and physical neglect, parental substance abuse, parental stress, and parental mental illness.

These large studies prove what front-line workers already know: children living with adult domestic violence rarely experience violence as the only life adversity. At the Centre, we call this the “adversity package”, a term used by Dr. Robbie Rossman. Dr. Perry calls it the “malignant combination of experience”.

Simply put, the more obstacles in front of a child, the harder time he or she has navigating the journey down the road of childhood, especially if progress is judged against peers racing forward unencumbered by adversities. What causally links the “adversity package” and poor child outcome? What mechanism or mechanisms is at work to reduce a child's chances for success in life?

Finding those mechanisms is the key to designing effective prevention and intervention strategies.

Some observers focus on learning and modelling, while others see psycho-dynamic factors as important. Feminist thought and gender analysis have had a great impact on our collective understanding of violence. Each view has

different implications for intervention. Dr. Perry posits another causal mechanism, hidden from view deep inside the brain. Traumatic features of a violent world – noise, chaos, fear, isolation, deprivation, neglect – alter the developing brain of fetuses, babies, and toddlers. Their brains adapt appropriately to toxic environments, but these adaptations are at odds with requirements for school and social relationships. These children are primed to survive their world, leaving them ill-prepared to achieve their full potential in our world. This document is a brief summary of Dr. Perry's stimulating lecture, pointing readers to other sources of information.

Alison Cunningham, M.A.(Crim.),
Director of Research & Planning,
Centre for Children & Families in the Justice System



Bruce Perry

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Dr. Perry served as the Thomas S. Trammel Research Professor of Child Psychiatry at Baylor College of Medicine and Chief of Psychiatry at Texas Children's Hospital in Houston, from 1992 to 2001. Dr. Perry consults on incidents involving traumatized children, including the Columbine High School shootings, the Oklahoma City Bombing, the Branch Davidian siege and the September 11 terrorist attacks. He has served as the Director of Provincial Programs in Children's Mental Health for Alberta, and is the author of more than 250 scientific articles and chapters. He is an internationally recognized authority in the area of child maltreatment and the impact of trauma and neglect on the developing brain. Dr. Perry attended medical and graduate school at Northwestern University and completed a residency in general psychiatry at Yale University School of Medicine and a fellowship in Child and Adolescent Psychiatry at the University of Chicago.

Readers interested in additional material by Dr. Perry can visit the Child Trauma Academy at:
www.childtrauma.org or www.childtraumaacademy.com (with free on-line courses)

Bruce D. Perry (2004). *Maltreated Children: Experience, Brain Development, and the Next Generation*.
New York: W.W. Norton.

Additional Resources Recommended by Dr. Perry

Marian Diamond & Janet Hopson (1999). *Magic Trees of the Mind: How to Nurture Your Child's Intelligence, Creativity and Healthy Emotions from Birth Through Adolescence*. Plume Books.

Robin Fancourt (2001). *Brainy Babies: Build and Develop Your Baby's Intelligence*. Penguin.

Alison Gopnik, Andrew N. Meltzoff & Patricia Kuhl (2000). *The Scientist in the Crib: Minds, Brains and How Children Learn*. Perennial.

Ronald Kotulak (1997). *Inside the Brain: Revolutionary Discoveries of How the Mind Works*.
Andrews McMeel Publishing.

Web Sites

Attachment Parenting International: www.attachmentparenting.org

Society for Neuroscience: www.sfn.org

National Association to Protect Children: www.protect.org

California Attorney General's Safe from the Start Initiative:
Reducing Children's Exposure to Violence: www.safefromthestart.org



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*For more information,
including directions on how
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[www.lfcc.on.ca/
upstream.html](http://www.lfcc.on.ca/upstream.html)

THE Margaret McCain LECTURE SERIES

is an initiative of:

The Centre for Children & Families in the Justice System
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The Centre is a non-profit organization dedicated to helping children and families involved with the justice system, as young offenders, victims of crime or abuse, the subjects of custody/access disputes, the subjects of child welfare proceedings, parties in civil litigation, or as residents of treatment or custody facilities.

We help vulnerable children achieve their full potentials in life, through professional training, resource development, applied research, public education, community collaboration and by providing informed and sensitive clinical services.

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