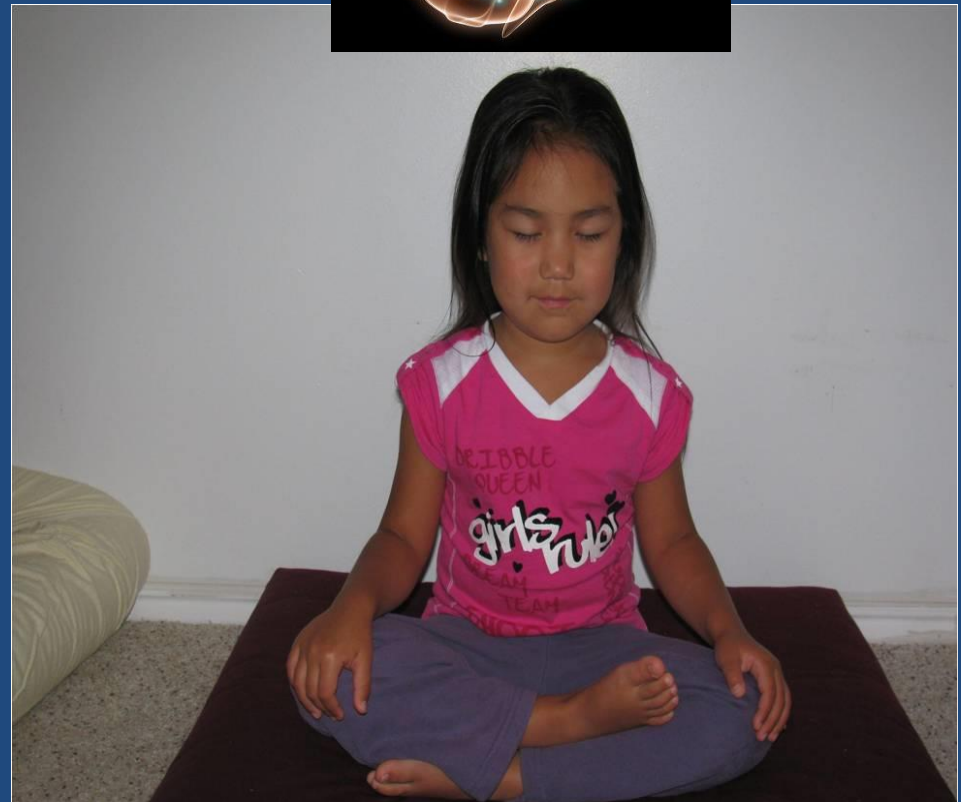


# Decolonizing The Mind: Using Mindfulness Research and Traditional Indigenous Ceremonies to Delete the Neural Networks of Colonialism

Introduction to Building Research Capacity: Historical Trauma and CBPR

AIHEC Behavioral Health Institute  
Stone Child College  
Box Elder, Montana

MICHAEL YELLOW BIRD, MSW, PHD  
PROFESSOR, SOCIOLOGY AND  
ANTHROPOLOGY  
DIRECTOR, TRIBAL AND INDIGENOUS  
PEOPLES STUDIES



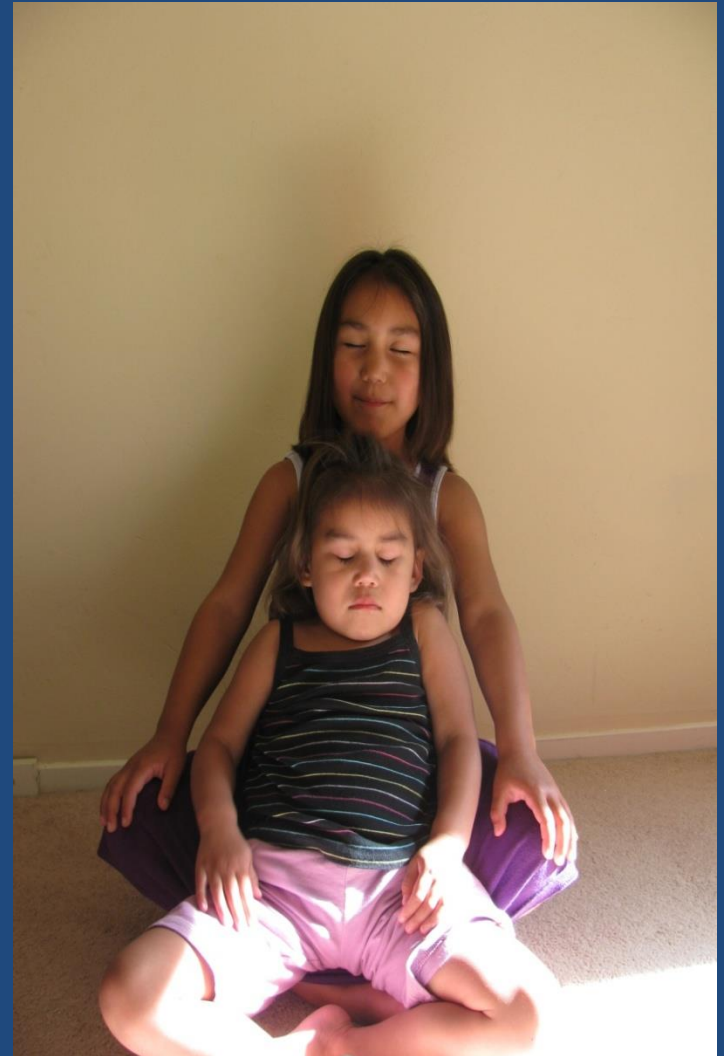
# Presentation

- Define Mindfulness
- Purpose of Mindfulness
- Mindfulness Practice: Mountain
- Trauma, Stress, Adverse Experiences  
in the Brain
- Mindfulness
  - Neurobiology and Benefits
  - Breath Awareness Exercise
- Decolonization
  - Neurodecolonization
  - Traditional Contemplative Practices



# Key Points of Workshop

- 1) Neuroscience research confirms that mindfulness practices can positively change our brain's structure and function.
- 2) Mindfulness practices improve awareness and concentration; ease the effects of trauma; raise optimism and fortify emotional self-regulation; create a sense of calm; increase resilience; and reduce conflict.
- 3) Mindfulness practices are easy to implement into school curriculum; the cost of implementation low; they are culturally neutral; and the evidence-base shows that they work to improve health and well being.
- 4) Mindfulness practices are an essential part of traditional tribal practices, behaviors, ceremonies.



potential:

“very single person has

very single human being  
can experience that —

”

David Lynch

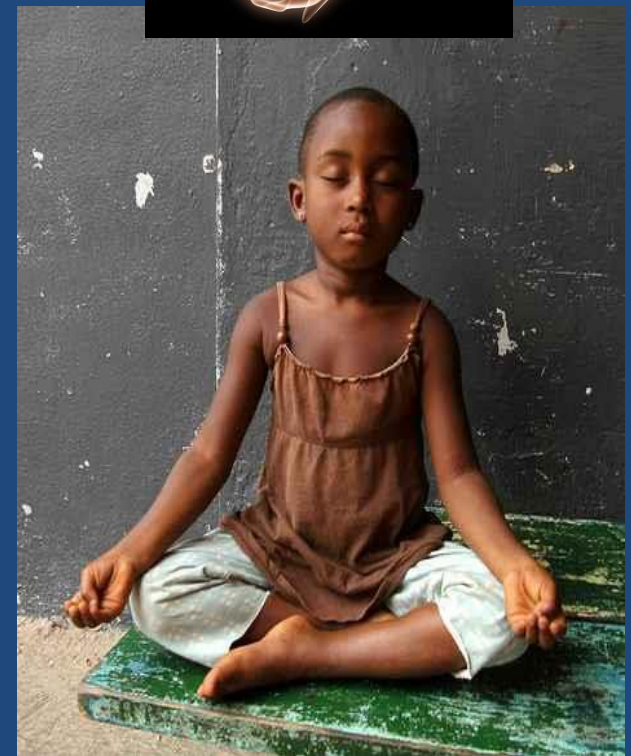




# Mindfulness Defined

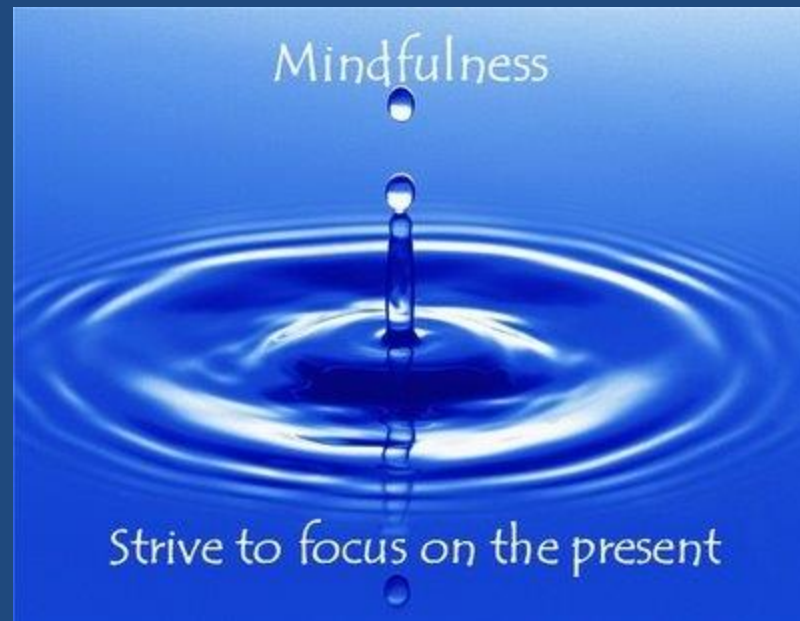
**Mindfulness:** Being deeply aware of what is happening from moment to moment outside and inside us, without judging or attaching to the content, feelings, and emotions that arise.

It refers to living deeply and richly in the present moment and not responding to life in a distracted and mechanical manner



# Have a purpose

“I am meditating in order to generate in my mind more positive energy, and to decrease the negative energy for the benefit for myself and all others.”



# Mindfulness training in MSW program Humboldt State University, 2010-2011





# Mindfulness at Fort Lewis College, Durango, Colorado, March 2016





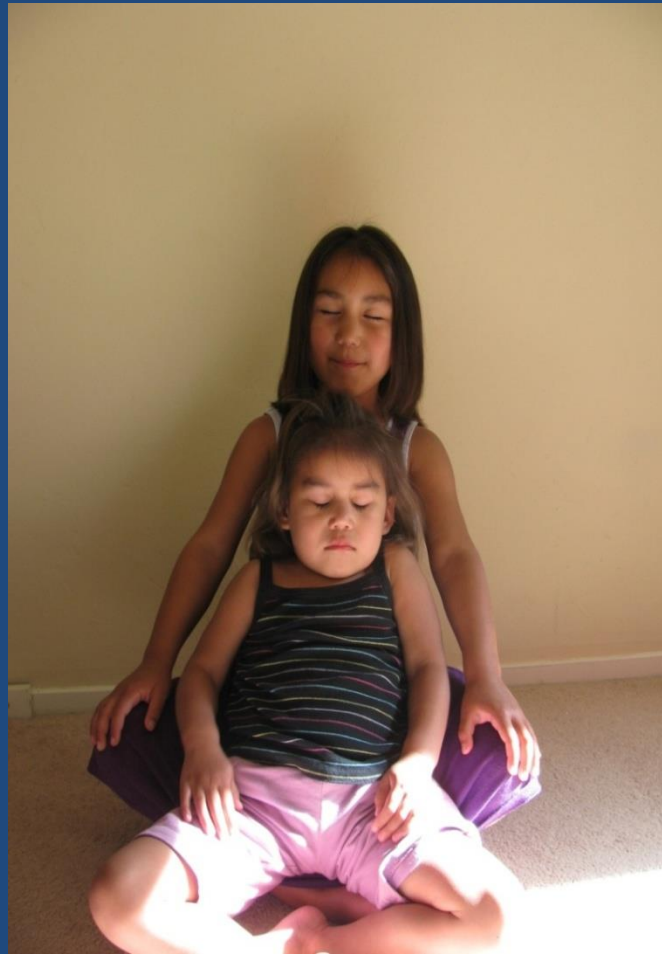
# Mindfulness at North Dakota State University, Fargo, ND, April 2016



# Mindfulness at the Yellow Bird House, Arcata, California, 2012



# Arundhati and Solana, Arcata, California, 2013





# Arundhati Yellow Bird Practicing Mindfulness Meditation, Fargo, ND, Summer 2015





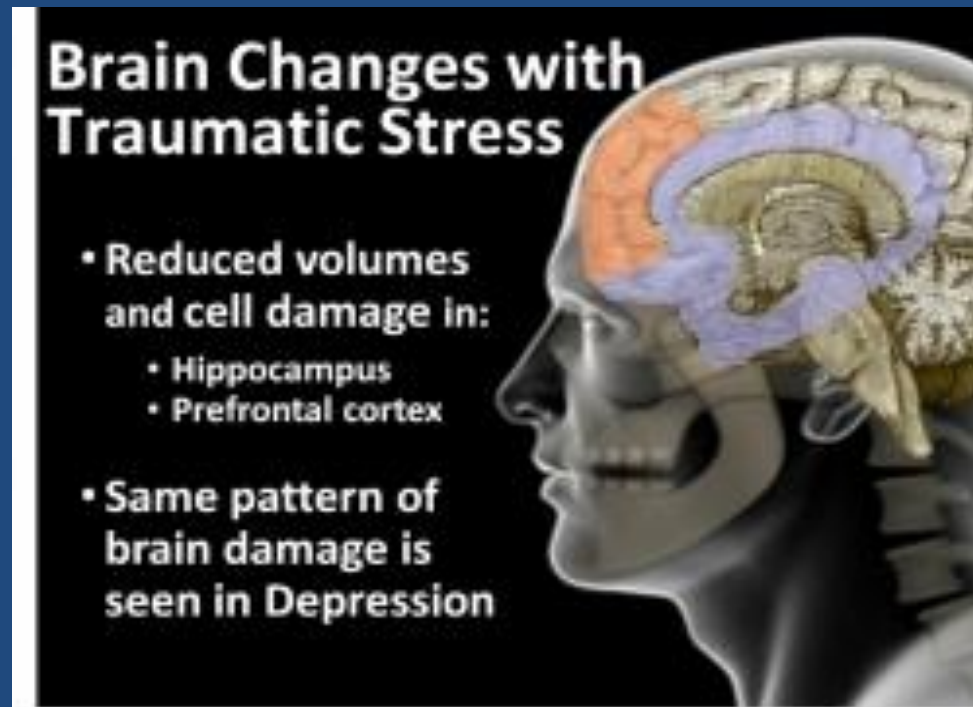
# Mindfulness Practice

Mountain  
Mindfulness  
Meditation  
Exercise



# Trauma, Stress, Adverse Experiences



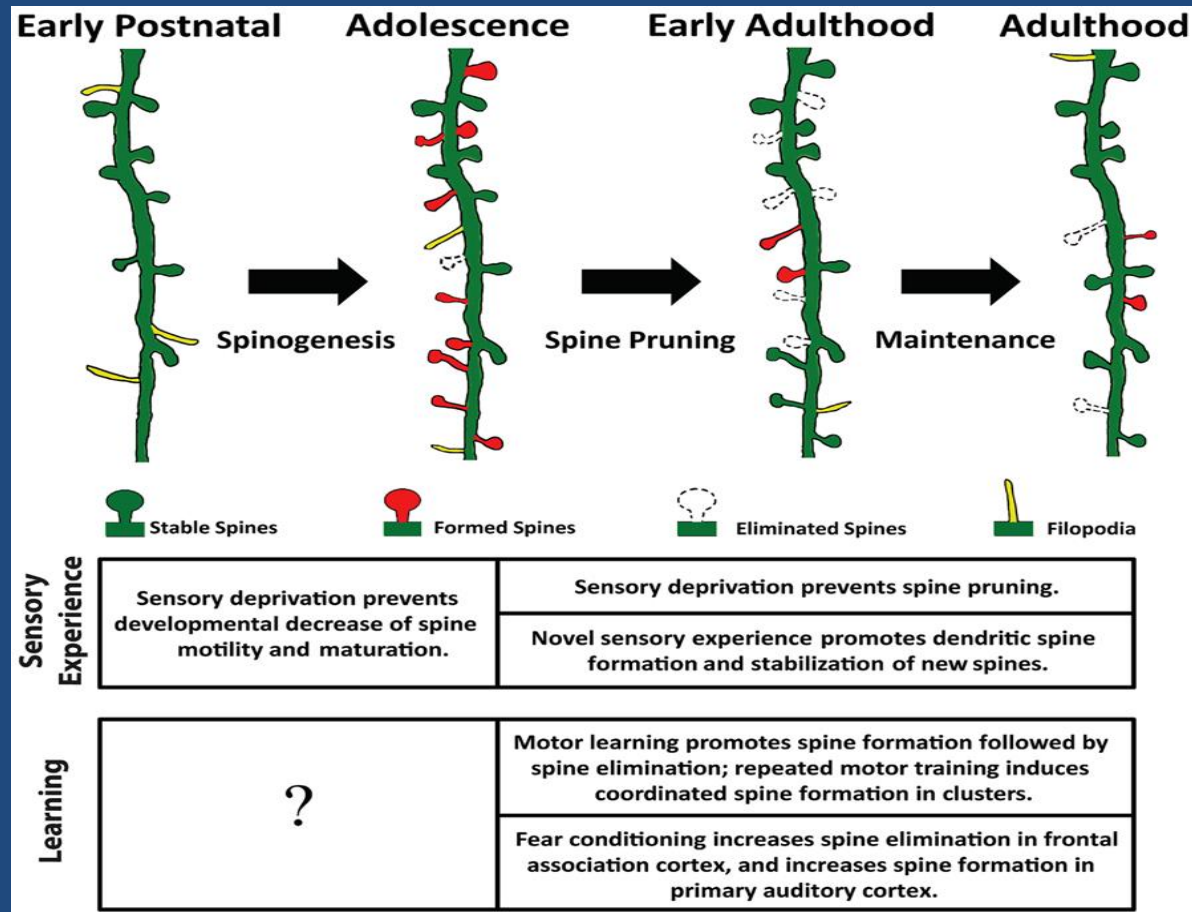


The brain that does not bounce back from the trauma, stress, or adverse experiences can trigger a “hardwiring” of anxiety, fear, trauma, hopelessness, and disorganization.

# Stress and the Brain

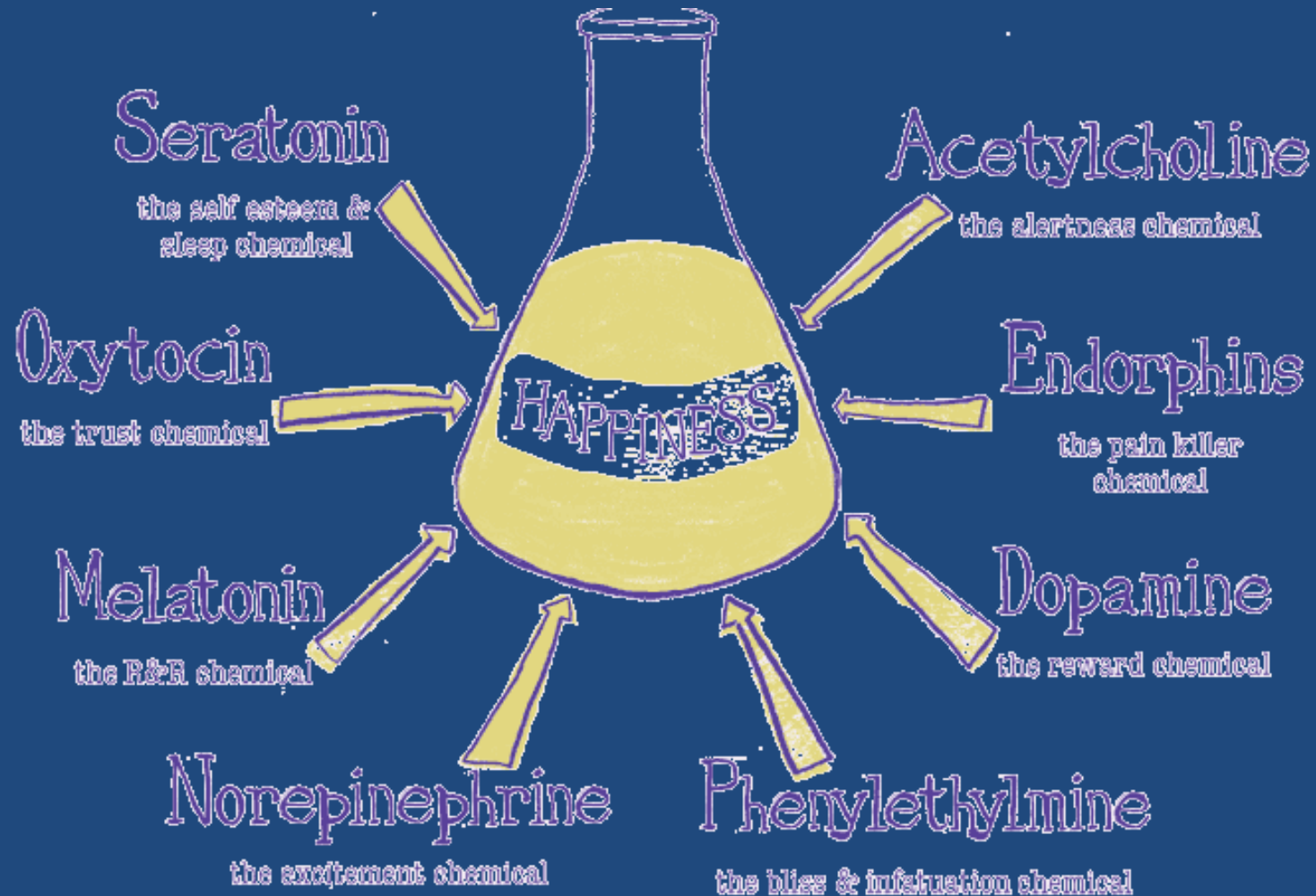
Chronic stress chemicals floods the brain with an enzyme (protein kinase C) that breaks down delicate the dendritic spines of the neurons in the prefrontal cortex (Dendritic spines are associated with memory and learning).

They can  
Repair when  
stress is  
eliminated





# Healthy Brain Chemistry

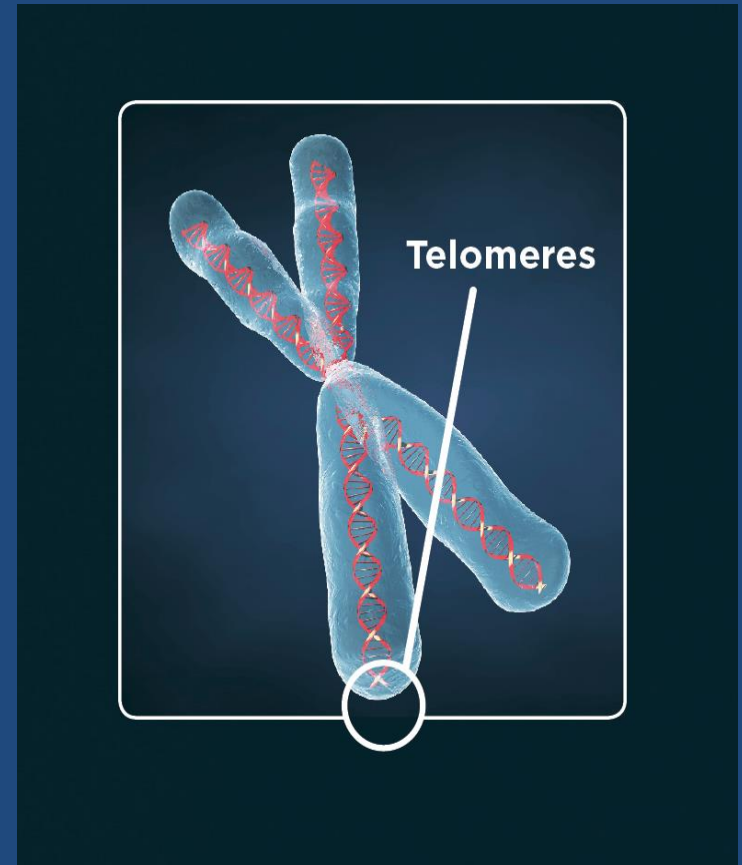


# Stress, Depression, and Telomeres

Ruth Buczynski, PhD, 2015, NICABM

In one study, “Middle-aged people who were physically active not only had higher aerobic capacities, but also longer telomeres than those who were sedentary. They had telomere lengths that were similar to people much younger than they were.”

In another study, “Telomere lengths were shortest for both depressed and healthy participants who were showing chronic stress. Many of the depressed participants exhibited disturbed cortisol regulation, which may explain why they had a higher overall probability of having shorter telomere lengths.” (Norrback, et al., 2015).



# Trauma Paradigm



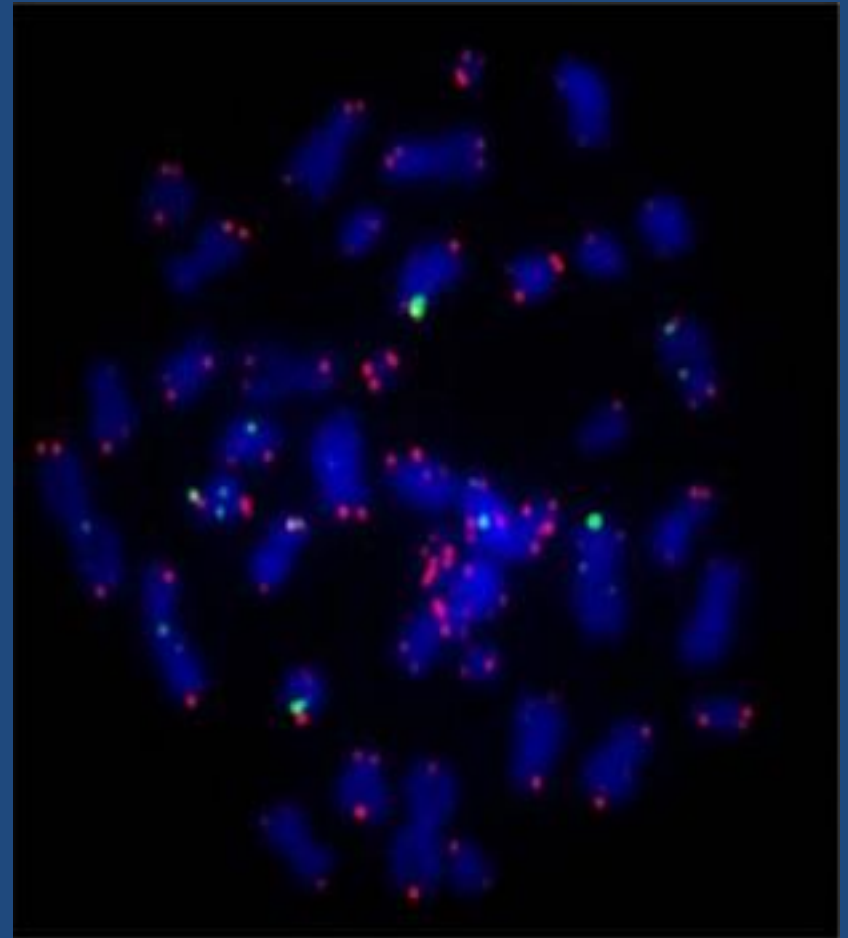
# Telomeres Show Signs of Early-Life Stress

Shaikh-Lesko, New Scientist, April 7, 2014

“Telomere length in children is associated with a stressful home environment, and genes that encode certain neurotransmitters may heighten the effect of that stress.”

In a study of family stability, “Children living in the most stressful environments had telomeres that were on average 40 percent shorter than those of the children studied who were living in the most nurturing settings.”

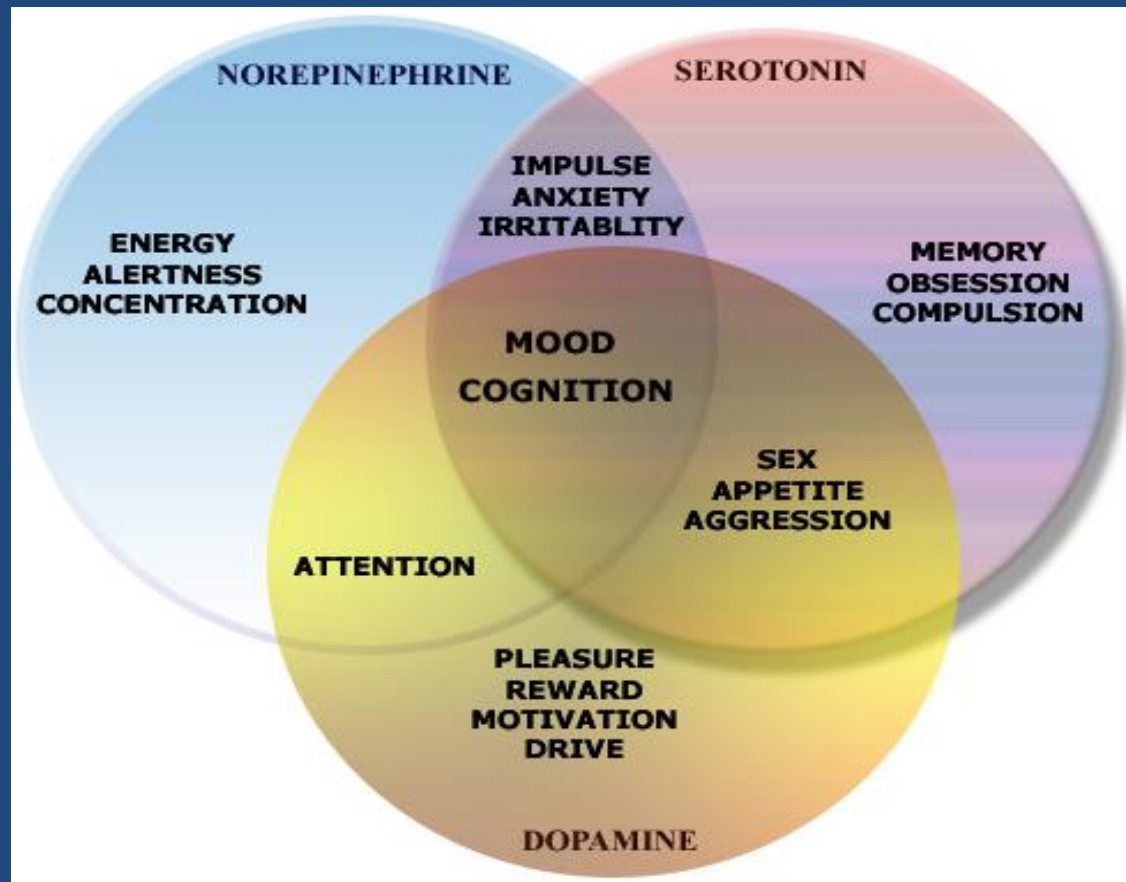
(Daniel Notterman, Penn State, 2007).





# Chronic Stress and the Brain

Chronic stress distorts key brain chemicals: serotonin (sleep), dopamine (pleasure), and noradrenaline (energy levels).



# Fearful 'Memories' Passed Between Generations Through Genetic Code.

An Important study suggests traumatic events that happen to a parent could be passed down through their genes onto their children. **Epigenetics**: suggests that this inheritance changes the way our genes express.

“Parental olfactory experience influences and neural structure in subsequent generations”

(*Nature Neuroscience*, 2013)



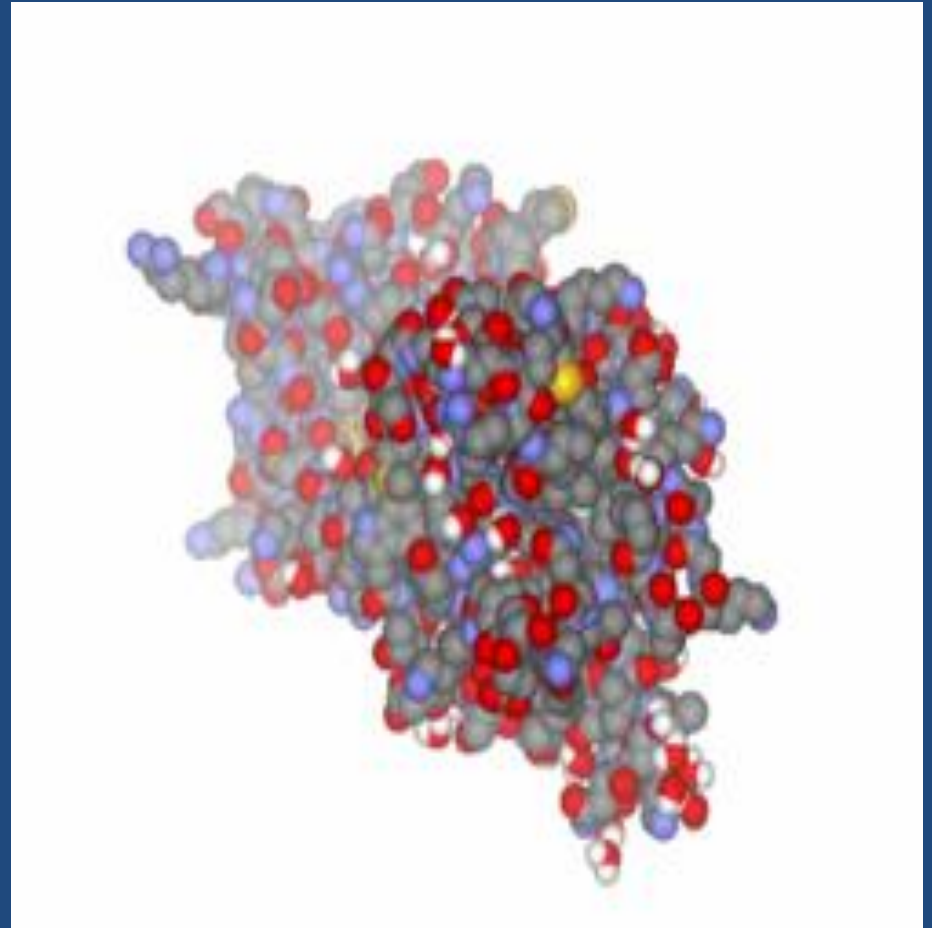
# Mother may pass daughters a brain wired for depression

“Mother may pass on vulnerability to depression in much the same way they give their daughters green eyes or curly hair – girls might inherit a brain structure that’s predisposed to mood disorders, a small US study suggests” (Reuters, February 18, 2016)

<http://www.reuters.com/article/us-health-neuroscience-mothers-depressio-idUSKCN0VR2WN>

# The Bullied Brain: Brain-Derived Neurotrophic Factor

6). BDNF is part of a cascade of proteins, produced in the brain that promotes neuron growth and stops neurons from dying.





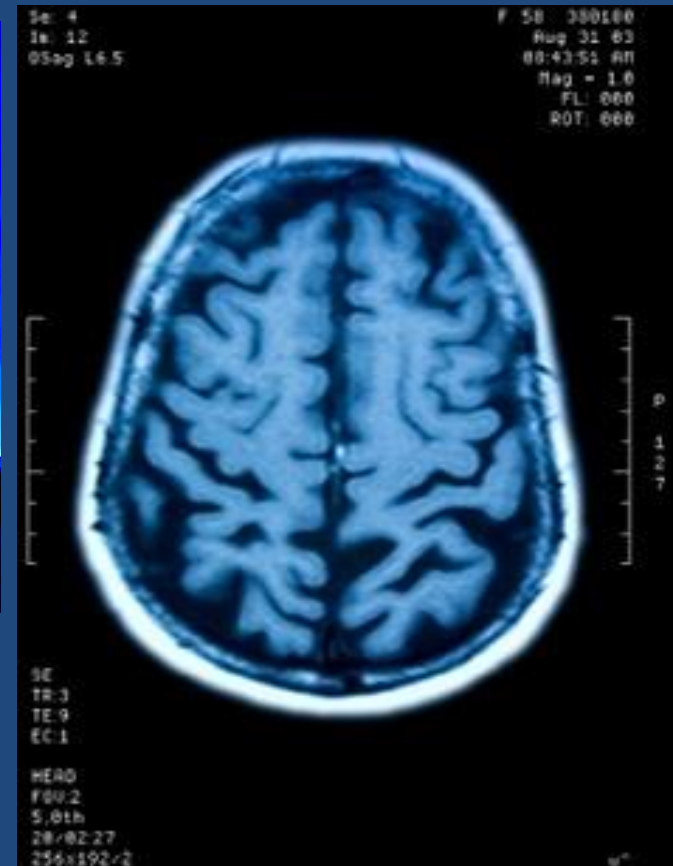
# The Costs of Bullying in the Brain: Bully Mice

Bigger, aggressive white mice bullied smaller brown mice created social stress for smaller brown mice. The prolonged stress of being bullied created an increase of BDNF in the brain.

This activated genes in the front part of the brain which produced high levels of social anxiety, withdrawal, depression.



(University of Texas, Southwestern Medical Center, 2006)



# The Neurobiology of Mindfulness

The neuroscientific investigation of mindfulness focuses on the neural systems that are utilized to achieve meditative states and to determine the effects that regular practice of mindfulness has on brain structure.

# Breath Awareness

**Purpose:** “I am meditating in order to generate in my mind more positive energy, and to decrease the negative energy for the benefit for myself and all others.”

**Set One:**

“Breathing in, I calm body and mind.”

“Breathing out, I let go.”

**Set Two:**

Breathing in, “Dwelling in the present moment.”

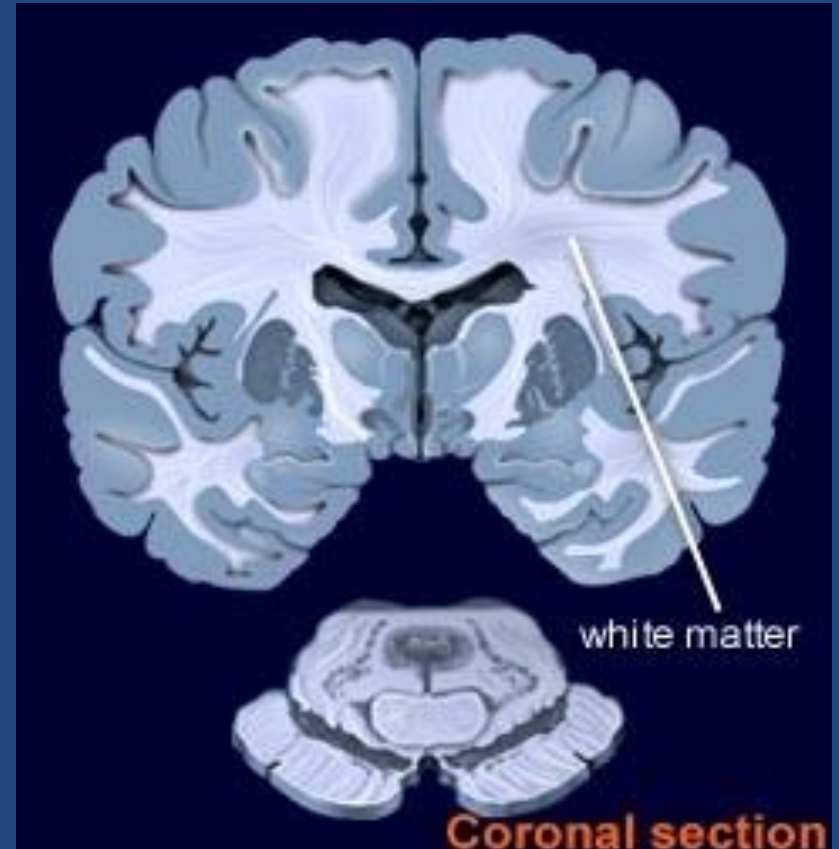
Breathing out, “This is the only moment.”



changes happen fast: hours of mindfulness

after only 10 hours of practice (

(osner; et al, )

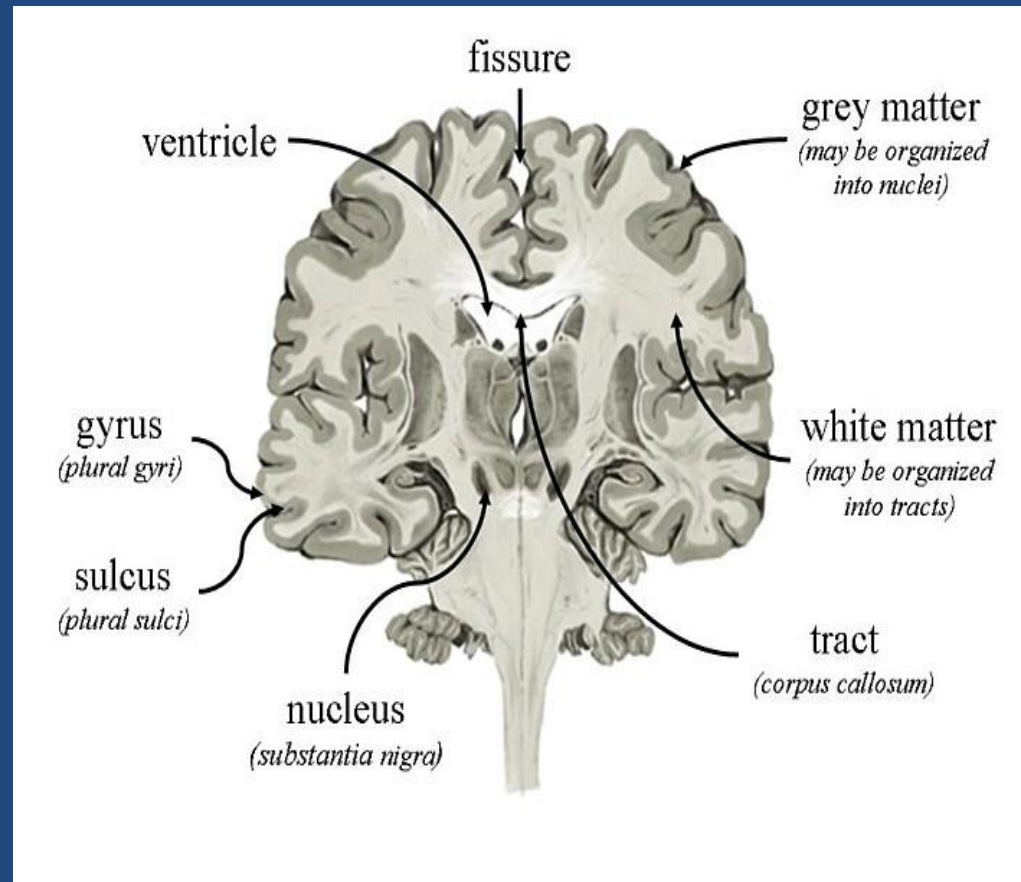




significant, lasting changes in weeks

minutes of practice per day  
for weeks changes brain

empathy, and stress (arah  
azar, et al, )  
reduction in stress –

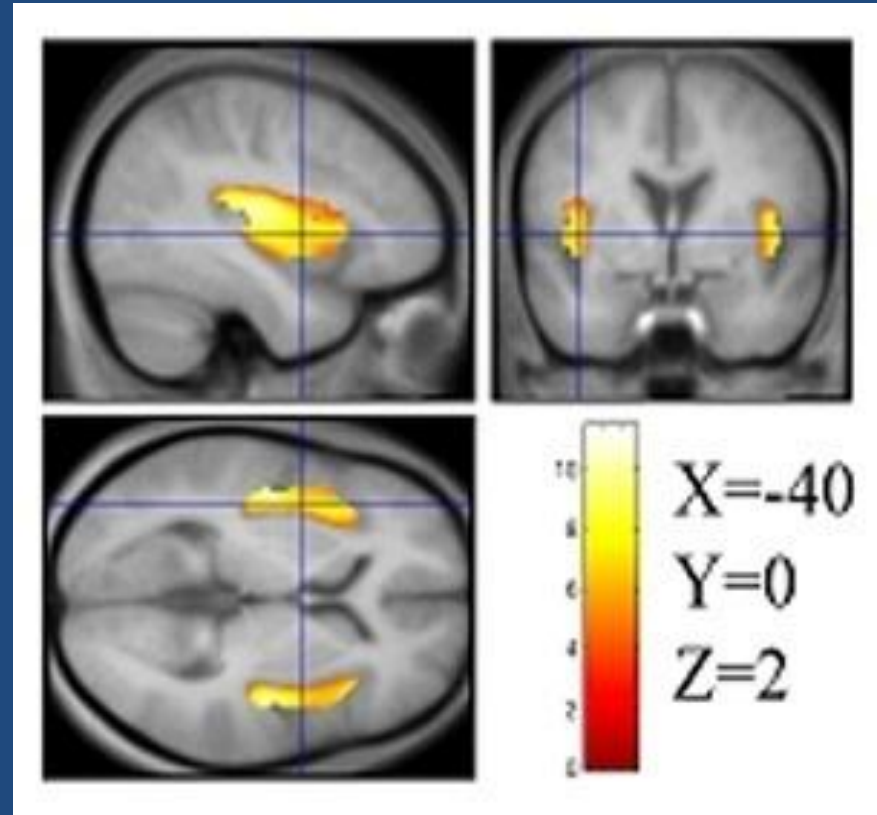


# Mindfulness mediates conflict

## Conflict-related Insula:

Mindfulness meditation activates the “insula, which is associated with interoception, the sum of visceral and “gut” feelings that we experience at any given moment,

Is a key region involved in processing transient bodily sensations, thereby contributing to our experience of ‘selfness’ ”

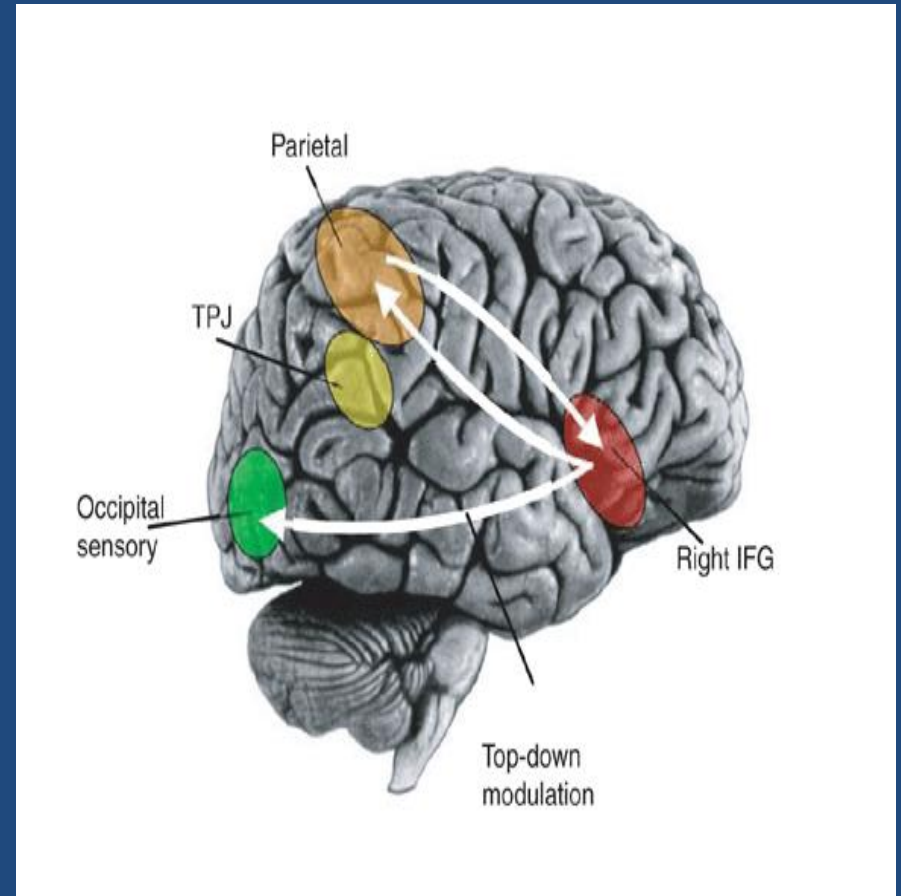


# Mindfulness increases Emotional Intelligence

The temporal parietal junction becomes activated during meditation.

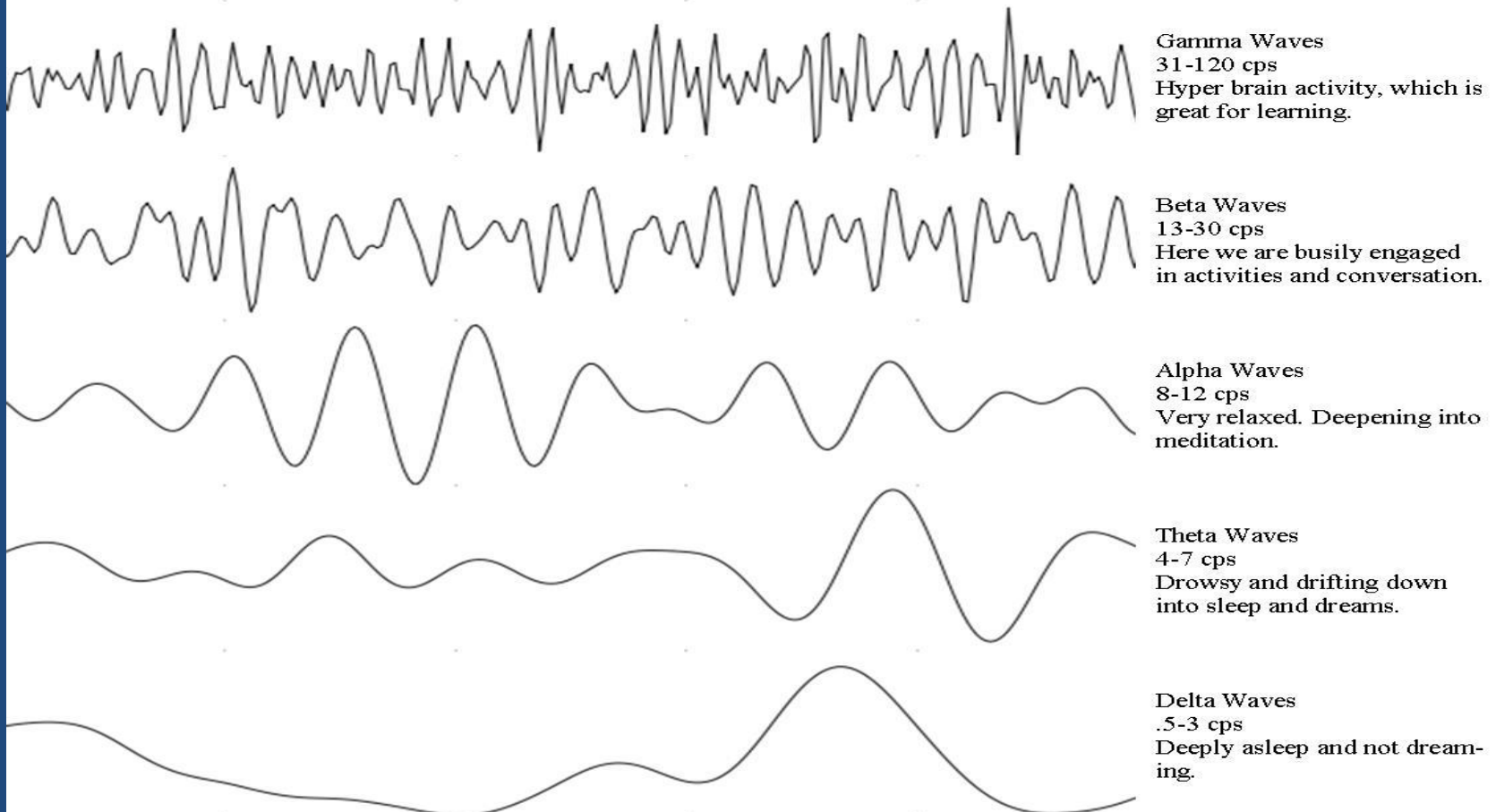
This area is associated with the ability to perceive the emotional and mental state of others.

This brain area is more active in meditators than non-meditators, even when they are not meditating.



# Mindfulness Improves Brain Waves

Brain Waves Graph





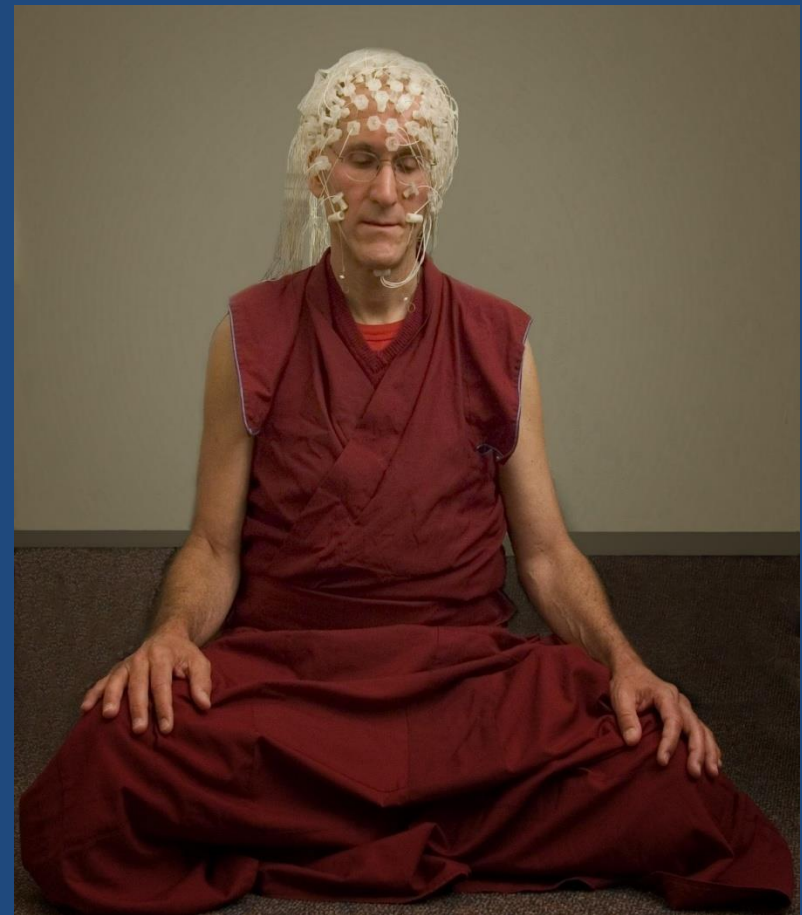
# Mindfulness improves Brain Waves

## EEG Studies of Meditative States:

Long-term meditators have higher levels of alpha and theta band activity which is associated with sleep and rest

(Aftanas & Golocheikine, 2005; Andresen, 2000; J.M Davidson, 1976; Delmonte, 1984)

Meditation practices that emphasize deep physical relaxation are more likely to produce higher theta and delta activity (deep sleep); practices that focus on intensive concentration will have higher alpha and beta power (Didonna, 2009, p. 49)



# Mindfulness Improves Brain Waves

Lutz et al, 2004 found that the ratio of gamma wave, as opposed to slow oscillatory activity was higher for Tibetan Buddhist monks than for controls during a resting baseline. When the subjects began a loving-kindness meditation the difference increased significantly.

Gamma waves are a pattern of brain waves associated with perception and neural consciousness. Long-term meditators have the ability to put the brain into a state in which it is maximally sensitive and consumes power at a lower (or even zero) rate.

# Benefits of Mindfulness:

Reducing stress, healing physical disease, improving mood disorders and behavior, eliminating addictions, and enhancing learning capacities (Baer, 2003; Rystak, 2003; Howard, 2006; Begley, 2007; Doidge, 2007; Williams, Teasdale, Segal, & Kabat-Zinn, 2007;).



# Effectiveness of Mindfulness

The effectiveness of mindfulness has groups as diverse as Fortune 500 companies, the U.S. Marines, Police, and Adult and juvenile prisons offering formal mindfulness instruction to members of their organizations.





# Benefits of Mindfulness

Mindfulness training has been successfully used to resolve anxiety, depression, obsessive compulsive disorders, and the Post-traumatic Stress Disorder (PTSD) of military veteran's and survivors of violence.



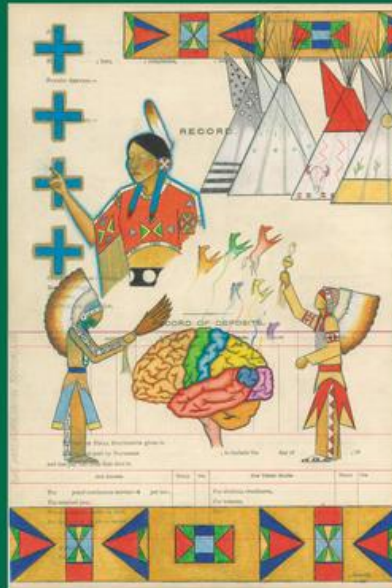
# Benefits of Mindfulness

Elementary and high schools students who learn these techniques report improvements in their concentration, focus, awareness, relaxation, self-management, memory, self-esteem, vitality, positive affectivity, optimism, and self-actualization (Brown and Ryan, 2003).



# Decolonization

## **For Indigenous Minds Only** A Decolonization Handbook



Edited by  
Waziyatawin and Michael Yellow Bird

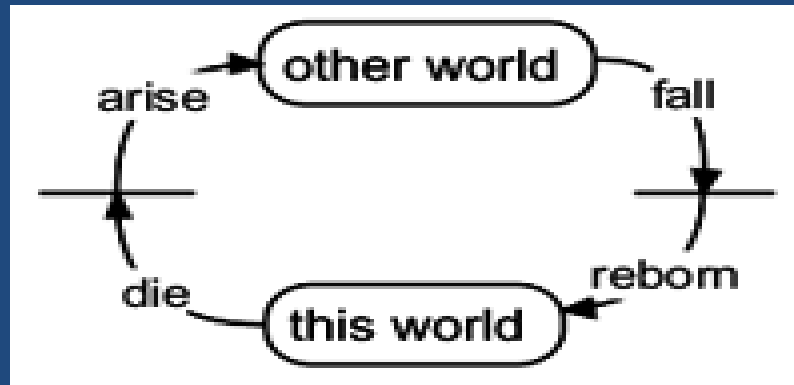
# Theory and Practice of Decolonization



**Decolonization theory:** Colonization is traumatic. Overcoming colonization creates greater well being among Indigenous Peoples

**Decolonization Practice:** includes privileging and engaging in Indigenous philosophies, beliefs, practices, and values that counter colonialism and restore well being

# What is Decolonization?



- ◎ “...the *restoration* of cultural practices, thinking, beliefs, and values that were taken away or abandoned (during colonization) but are relevant and necessary for survival and well being.
- ◎ It is the *birth* and use of new ideas, thinking, technologies and lifestyles that contribute to the advancement and empowerment of Indigenous Peoples.”



# Decolonizing Methodologies Neurodecolonization

“Your worst enemy cannot harm you as much as your own thoughts, unguarded. But once mastered, no one can help you as much, not even your father or your mother.” - Buddha

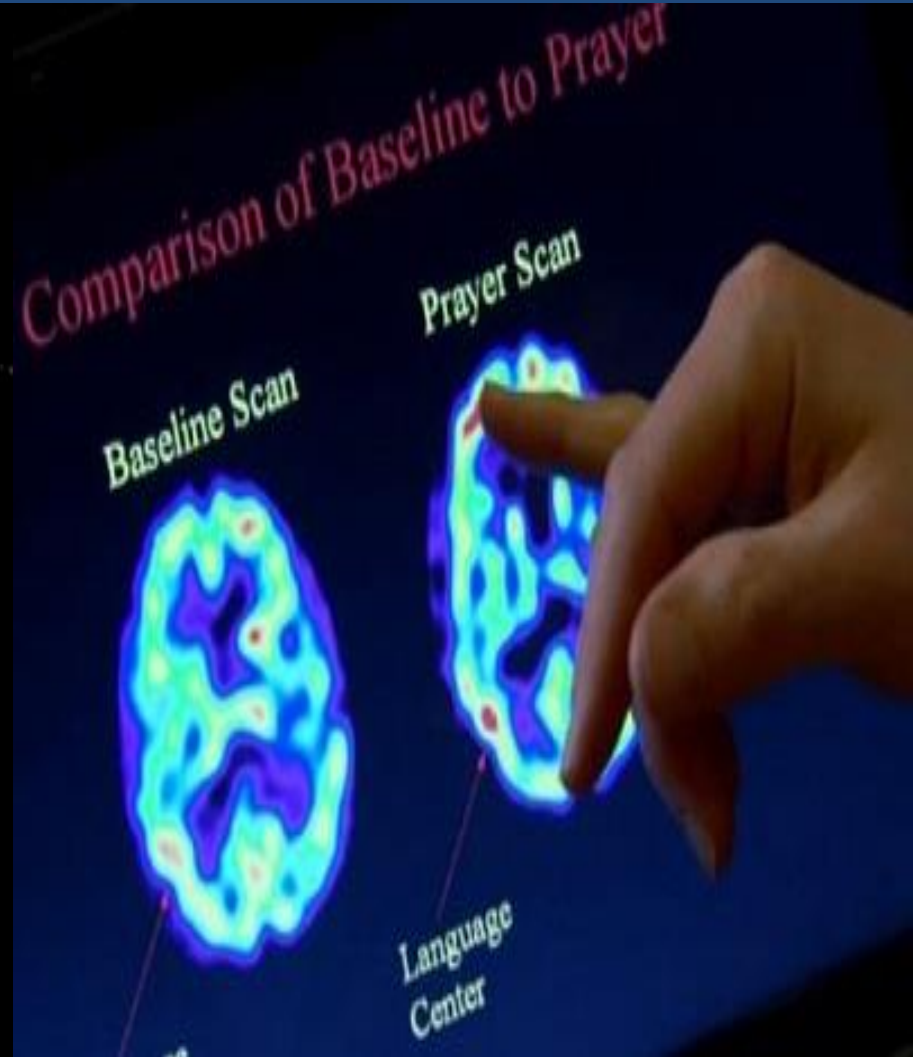
# Neurodecolonization

Refers to all the ways of understanding how our brains, genetics, and immune systems work when under the stresses of colonialism and during optimal decolonization processes.



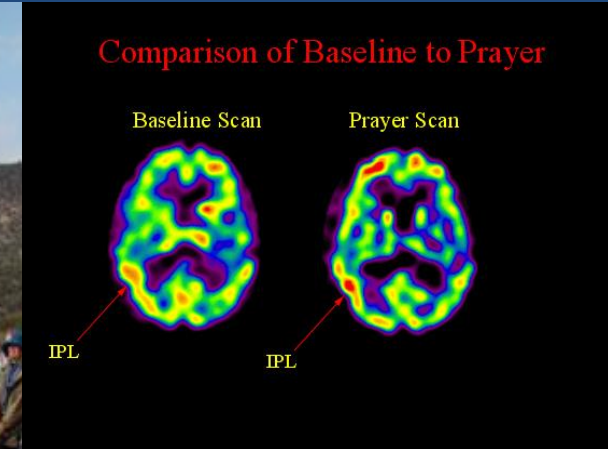
# Neurodecolonization

(Traditional ceremonies to train the mind and change the brain's capacity to heal from the trauma of colonialism)

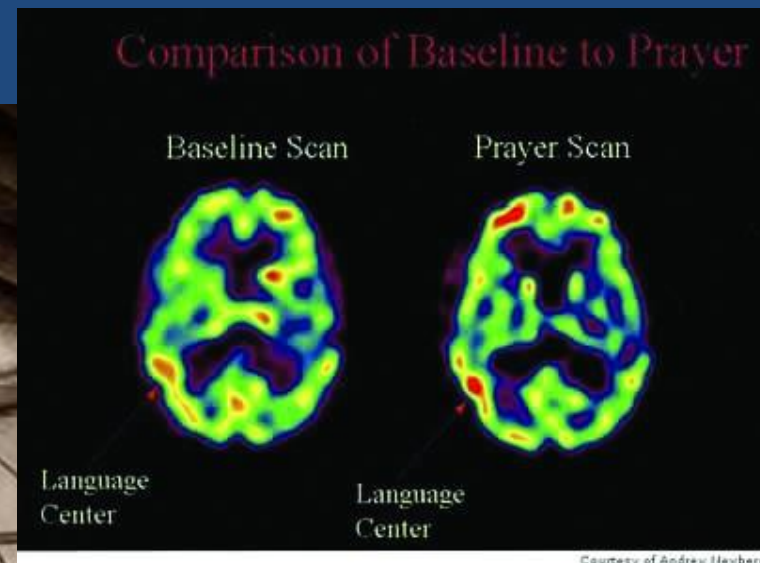
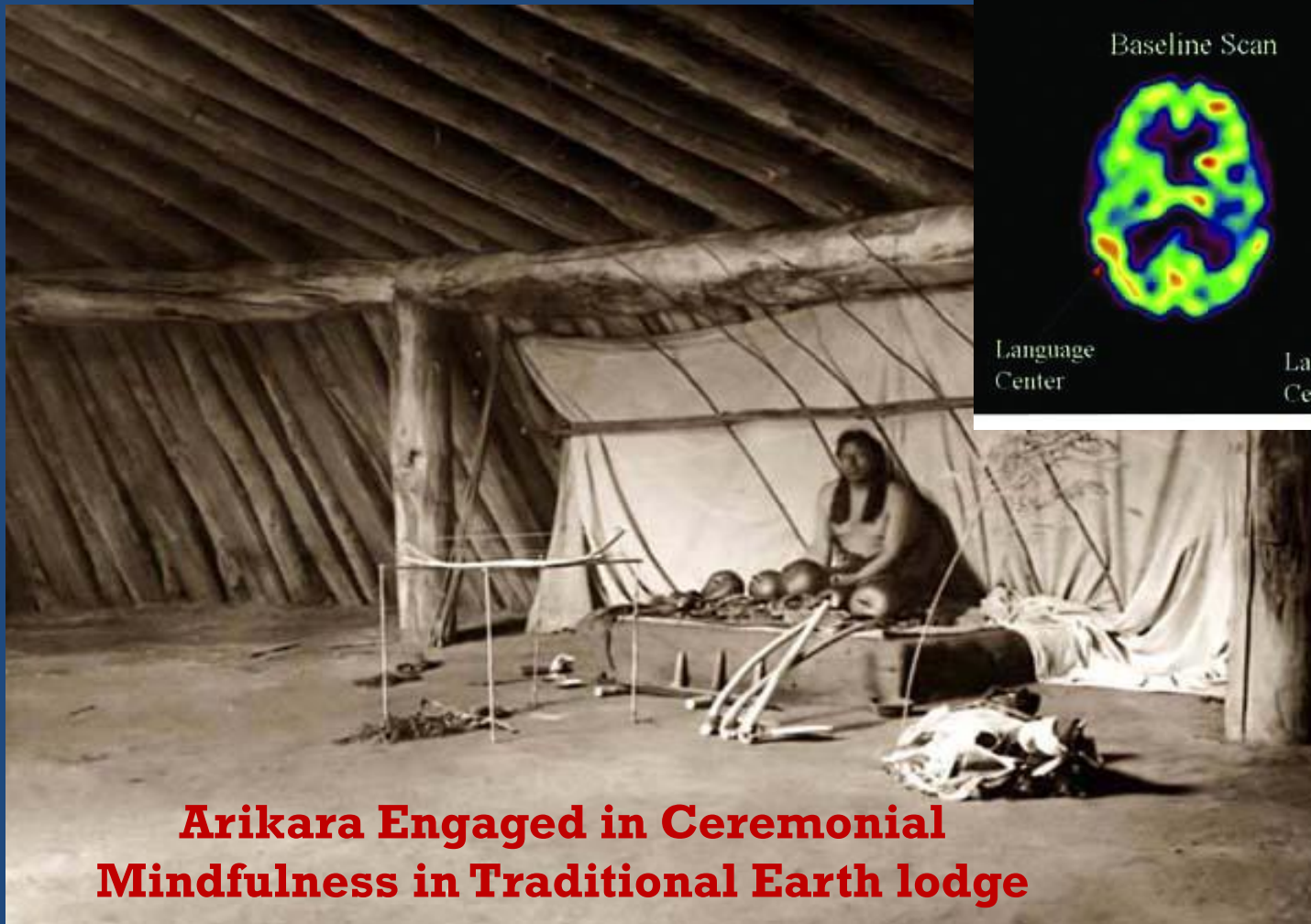




# The Brain on Ceremony



# Traditional Indigenous contemplative/mindfulness practices can heal the effects of Colonialism



**Arikara Engaged in Ceremonial Mindfulness in Traditional Earth lodge**

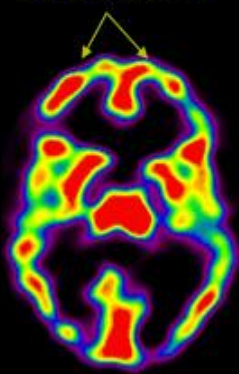


# Neurodecolonization: Sacred Object Meditation

Arikara brain on happiness, joy, optimism, feelings of well being

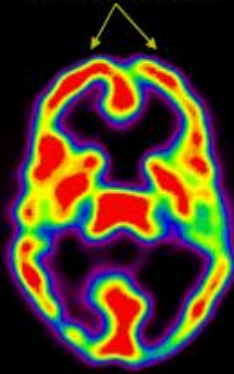
SPECT Images at Baseline and During Meditation

Attention Area

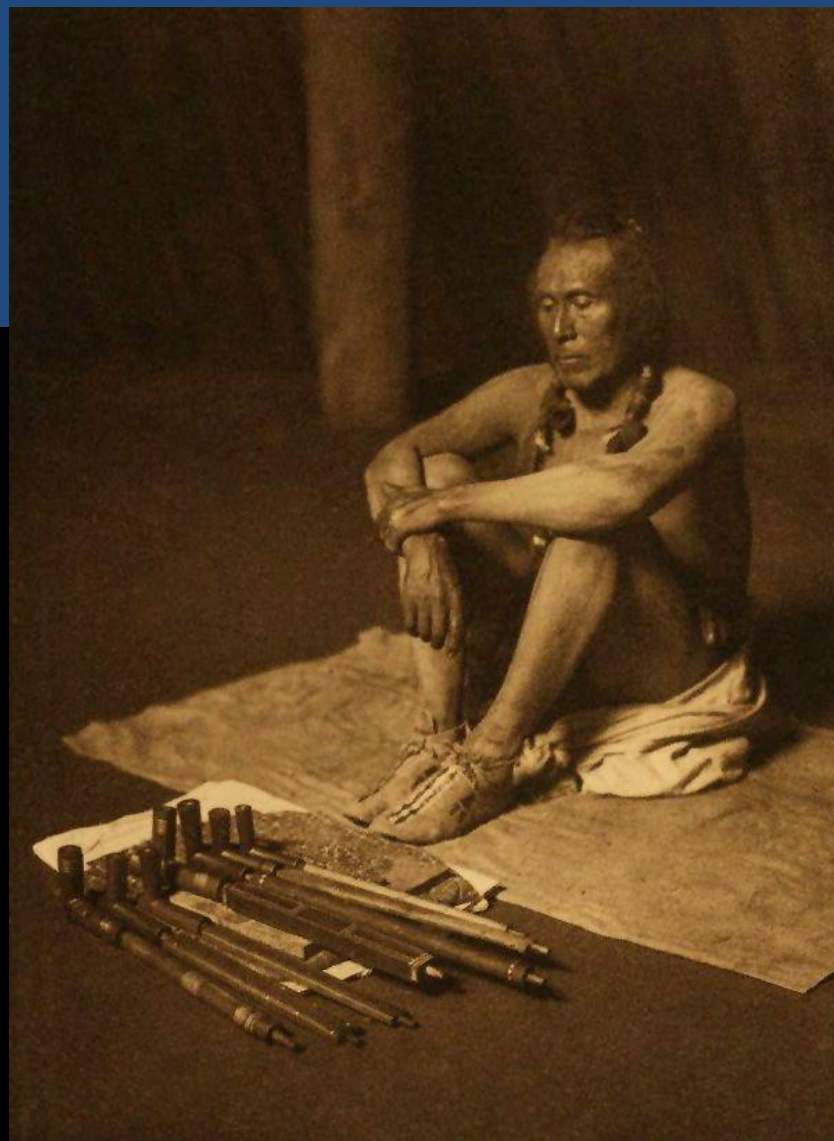


Baseline

Attention Area



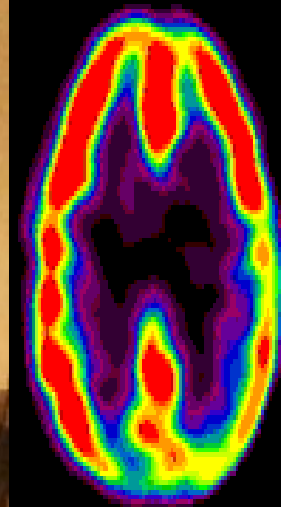
Meditation



# Singing to the Sacred Cedar



and During Meditation



Parietal Lobe

Meditation

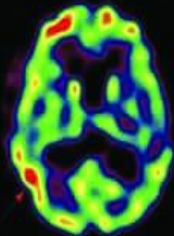
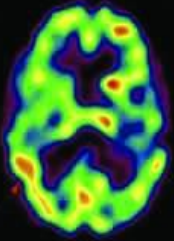


# Ojibwe Snowshoe Dance

## Comparison of Baseline to Prayer

Baseline Scan

Prayer Scan



Language Center

Language Center

Courtesy of Andrew Havberg



## Brain Waves Graph



**Gamma Waves**  
31-120 cps  
Hyper brain activity, which is great for learning.



**Beta Waves**  
13-30 cps  
Here we are busily engaged in activities and conversation.



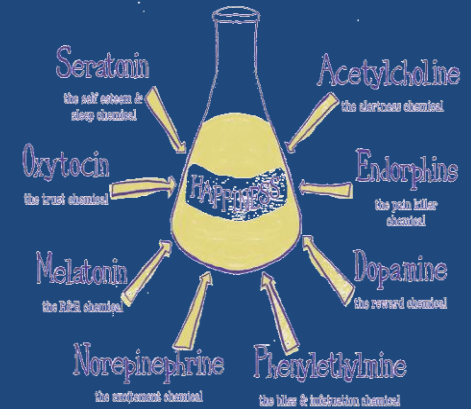
**Alpha Waves**  
8-12 cps  
Very relaxed. Deepening into meditation.



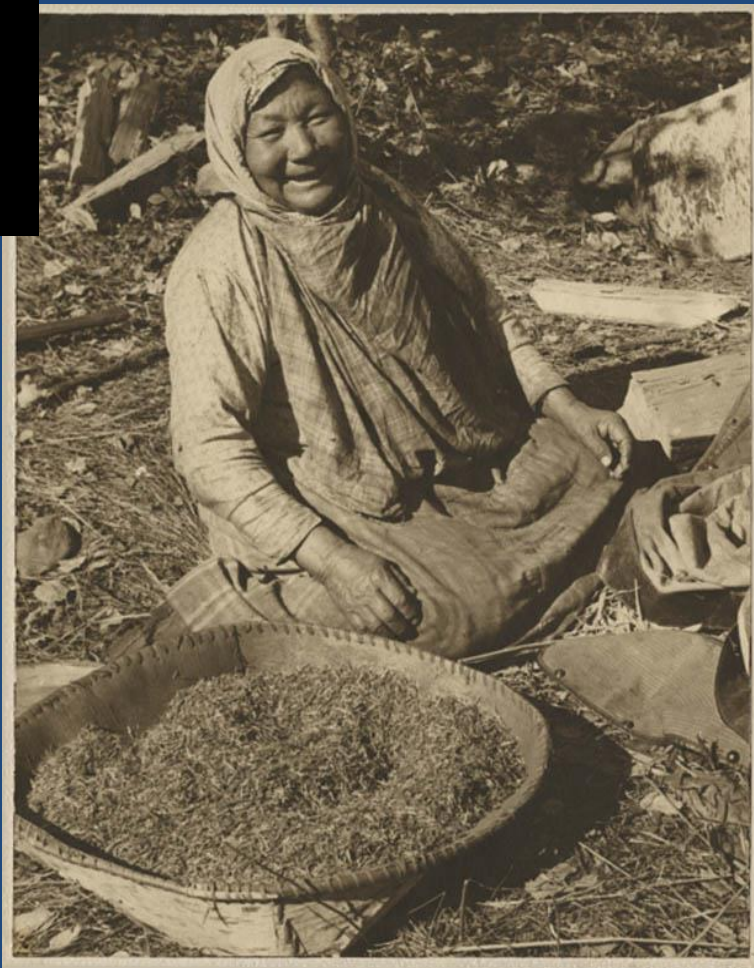
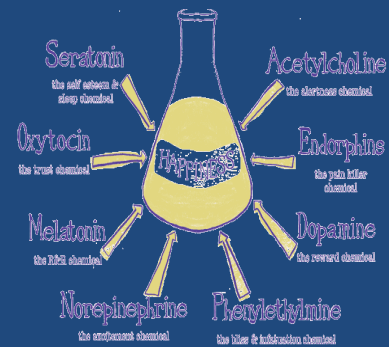
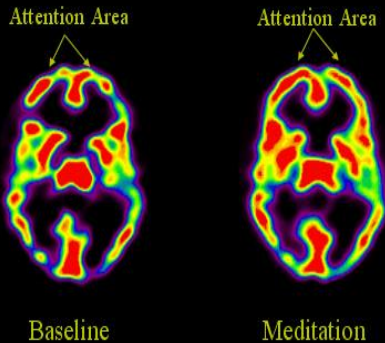
**Theta Waves**  
4-7 cps  
Drowsy and drifting down into sleep and dreams.



**Delta Waves**  
.5-3 cps  
Deeply asleep and not dreaming.



## SPECT Images at Baseline and During Meditation



## Brain Waves Graph

