



Emotional Brain Training A Scientific Solution to Stress

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Emotional Brain Training:

Self-directed positive emotional plasticity
to rewire self-regulation.

Stress Physiology

Neuroplasticity

Attachment Theory



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Current paradigm:
Treat the symptoms of stress.



Emerging paradigm:
Rewire the stress response



EBT History

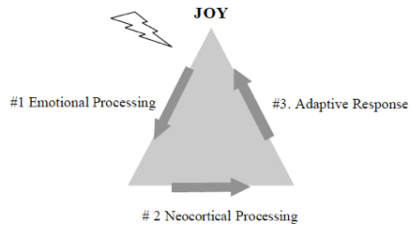
- 1979 Adolescent health training program
- 1987 Family and Community Medicine - Adults
- 1999 Psychiatry - Neuroplasticity
- 2004 Physiology - Stress & Reward
- 2008 Center for Emotional Brain Training Research



Neuroscience Concept #1:
It's not us. It's our wiring.

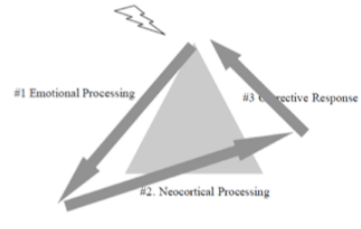
Homeostatic Circuit

Effective processing - Encode reasonable expectations and adaptive responses - Negative feedback loop - Natural shut-off



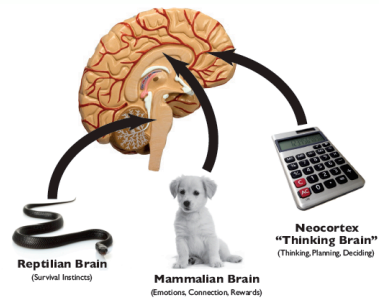
Allostatic Circuit

Ineffective processing - Encode unreasonable expectations and maladaptive responses - Positive feedback loop - No natural shut-off



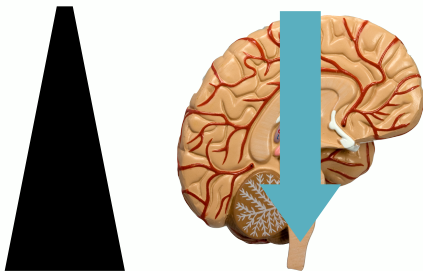
Neuroscience Concept #2:
Wiring triggers brain states.

The Triune Brain



Stress

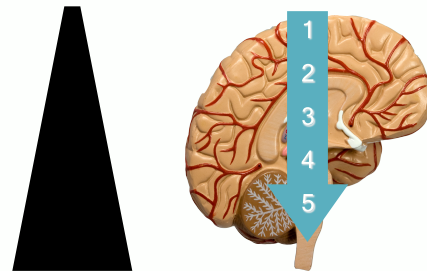
Dominant Area



Perry, BD (1999) Memories of Fear: How the Brain Stores and Relieves Physiological States, Feelings, Behaviors and Thoughts from Traumatic Events. The Child Trauma Academy, 1 - 19.

Stress

Dominant Area



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Brain State-specific Characteristics

State (#)	Cognitive	Emotional	Relational	Behavioral
1 - great!	Abstract	Joyous	Intimate	Optimal
2 - good	Concrete	Balanced	Companionable	Healthy
3 - little stressed	Rigid	Mixed	Social	Moderate
4 - stressed	Reactive	Unbalanced	Needy/Distant	Unhealthy
5 - stressed out	Irrational	Terrified	Merged/ Disengaged	Addictive

Mitrovic, I, et al (2011) *Rewiring the Stress Response: A New Paradigm in Health Care Hypothesis*

Brain State-specific Rewards

State (#) In stressed states, the brain defaults to hedonic rewards

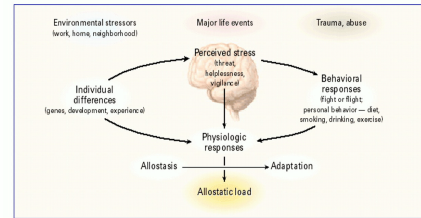
1 - great!	Sanctuary	Authenticity	Integrity	Intimacy	Spirituality
2 - good					
3 - little stressed					
4 - stressed					
5 - stressed out	Overeating	Drinking	Smoking	Drugs	Overspending

Mitrovic, I, et al (2011) *Rewiring the Stress Response: A New Paradigm in Health Care Hypothesis*



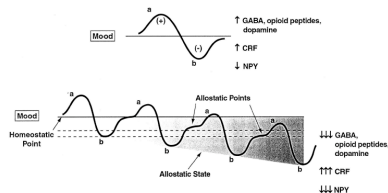
Neuroscience Concept #3: Brain states become persistent.

Repeated episodes of stress cause wear and tear (allostatic load).



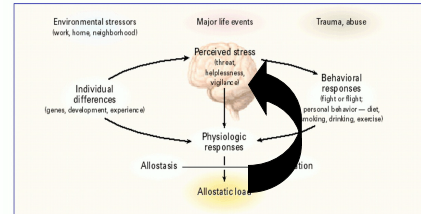
McEwen, B. S. Protective and Damaging Effects of Stress Mediators. *New England Journal of Medicine*. 338: 171-179, 1998.

Reward centers become dysregulated. Emotional set point decreases.



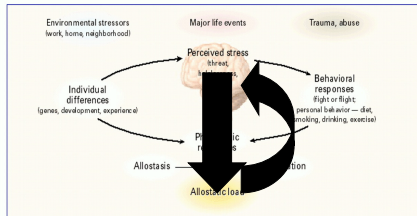
Koob, G. Alcoholism: Allostasis and Beyond. *Alcoholism: Clinical & Experimental Research*. Vol 27, No 2 (2003): 232-243.

Chronic stress may “cannibalize” protective brain structures.

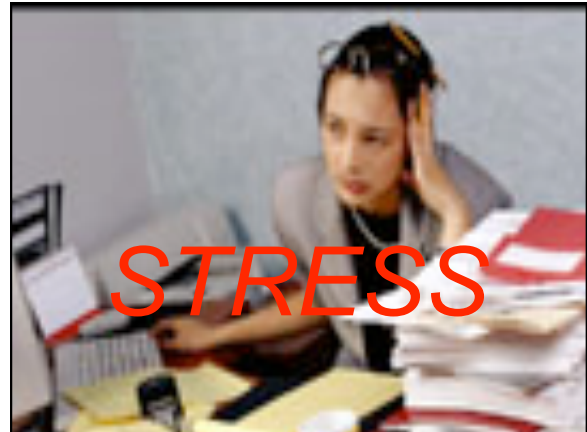


McEwen, B. S. Protective and Damaging Effects of Stress Mediators. *New England Journal of Medicine*. 338: 171-179, 1998.

The brain adopts a fixed allostatic state.



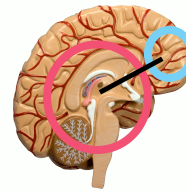
McEwen, B. S. Protective and Damaging Effects of Stress Mediators. *New England Journal of Medicine*. 338: 171-179, 1998.



Neuroscience Concept #4: We can create new wiring.

Positive emotional plasticity

- Use-dependent neuroplasticity. Two opposing circuits cannot fire at the same time.
- Actively switch from stressed states to balanced states: strengthen effective wiring and weaken ineffective wiring.



Train thinking brain (vmPFC) to rewire the emotional brain

Dyadic Attunement and Regulation.



Many times throughout the day:

- Compassionately observe/stay attuned.
- Appraise emotional state (1 to 5 scale).
- Accept or change state -- to get to Brain State 1.

Self-Attunement and Self-Regulation: Check In Tool



Many times throughout the day:

- Compassionately observe/stay attuned.
- What number am I?
- Accept or change state to get to Brain State 1.

Check In

- Deep breaths
- Body at 1
- Warmly observe yourself
- Feel a wave of relaxation
- What number am I?

Balance

1 Feeling Great!

2 Feeling Good

3 A Little Stressed

4 Definitely Stressed

5 Stressed Out!

Stress

Dyadic-Regulation

Balance

1 Loving connection

2 Feelings? Needs?

3 Express Feelings

4 Feelings/Expectations

5 Reassurance

Stress



Tools of Self-Regulation

Balance

1 Sanctuary Tool

2 Feelings Check Tool

3 Emotional Housecleaning

4 Feelings/Expectations

5 Reassurance

Stress



Accept State or Get to 1

- 1**

Sanctuary Tool

 - Deep breaths
 - Connect with the sanctuary within
 - Feel compassion for myself
 - Feel compassion for others
 - Feel compassion for all living beings
 - Surge of joy!
- 2**

Feelings Check

 - How do I feel?
 - What do I need?
 - Do I need support?
- 3**

Emotional Housecleaning

 - I feel angry that...sad...afraid...guilty...
 - I feel grateful that...happy...secure...proud...
- 4**

The Cycle Tool

 - JUST THE FACTS
 - I feel angry...sad...afraid...guilty...
 - Unreasonable/Reasonable Expectation?
 - Grind In (20 times)
- 5**

Damage Control

 - Do Not Judge. (Myself or Others)
 - Minimize Harm.
 - Know it Will Pass. (It's just a wire)

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Accept State or Get to 1

- 1**

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Accept State or Get to I

- Sanctuary Tool**
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 - Surge of joy!
- Feelings Check**
 - How do I feel?
 - What do I need?
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Tool for Rewiring Stress Circuits

Accept State or Get to I

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Stressed?

Just the Facts!
What are you stressed about?

angry
sad
afraid
guilty

Unreasonable expectation?
It's just a wire. Let's nab it!

Reasonable expectation?
Create a new wire.

Rewire Stress Circuits

- Stress is a moment of opportunity to rewire circuits.
- Stress reactivates the circuit and makes synapses fluid.
- Use Cycle Tool during "reconsolidation window."

Vivid awareness of two opposing expectations.

The brain spontaneously erases one of the circuits.

Time Point	Reconsolidation Index (approx.)
10 min	-0.05
6 hr / no reminder	0.12

D Schiller et al. Nature 463, 45-53, 2010.

State-specific memory

Circuits are stored in brain area that was dominant when the experience occurred and retrieved easily ("on line") when in that brain state again.

A diagram shows a wooden cabinet with five drawers labeled 1 through 5. To the right is a sagittal cross-section of a human brain, with a red circle highlighting a specific area in the hippocampal region, indicating where state-specific memory is stored.

Rewire Brain State 5 Circuits
false associations ("Survival Circuits")
"I get my safety (x) from _____ (y)."

Survival Circuits

Freedom
"I get my X (safety) from Y (external solution)."

1 Behavioral
X _____
Y _____
Stage | 2 3

2 Emotional
X _____
Y _____
Stage | 2 3

3 Relational
X _____
Y _____
Stage | 2 3

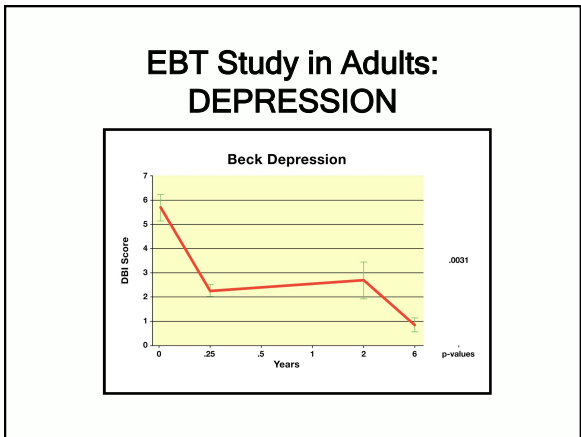
"I get my safety from food."
"I get my safety from thinking."
"I get my safety from distancing."

Rewire Brain State 4 Circuits:
false generalizations
Examples: "I am bad." "I cannot love."

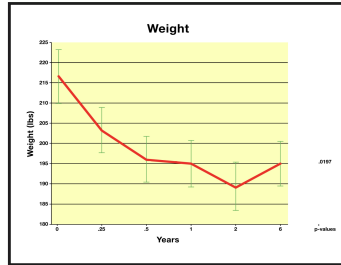
The 7 Core Circuits of Emotional Evolution

Stage	Stress Circuit	Joy Circuit
1 Existence	I do not exist.	I do exist.
2 Essence	I am bad.	I am not bad.
3 Power	I do not have power.	I do have power.
4 Purpose	I cannot do good.	I can do good.
5 Love	I cannot love.	I can love.
6 Desire	I am not worthy.	I am worthy.
7 Wisdom	I cannot have joy.	I AM joy!

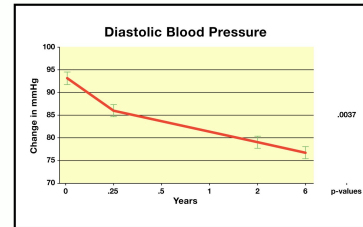
Emerging paradigm:
Rewire the stress response



EBT Study in Adults: WEIGHT



EBT Study in Adults: Diastolic Blood Pressure



EBT Ideas

- Joy swamps stress.
- Stress is a moment of opportunity.
- Everyone goes to Brain State 5!
- It's JUST a wire!

EBT Courses

➤ EBT Basics: Wired for Joy

7 lessons - on line or in small group training. 24-hour access to web-based tools.

Examples:
UCSF student elective, Chancellor's Council on Faculty Life

➤ Advanced EBT - 6 EBT Kits

6 courses of progressive training to rewire stress circuits. Improve brain's emotional set point. EBT Providers facilitate small group training.

Examples:
UCSF EBT Groups for faculty and staff for worksite wellness. Lunchtime EBT and after work EBT.

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Information on EBT research and training:

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