Healing the Body & Brain
Strategies to improve outcomes

Stacy Bender-Fayette
Social and Emotional Learning Specialist
Peacemaker Resources

Joanna Wallenberg
LICSW
Peacemaker Resources

What do we do?

- Provide Social & Emotional Learning (SEL) instruction in area schools
- Students Teaching Attitudes of Respect (STAR) Program
- SEL Curriculum (STAR and PreK-6)
- Professional Development
- Cultural Responsiveness
Setting Intentions

Participate with open-mindedness & presence

So the Question is:

How do we create conditions that foster Resilience and Post-Traumatic Growth?

- Understand Trauma & Resilience
- Relationships
- Mindfulness
- Self-Awareness
- Self Care
Connect

Types of ACEs

<table>
<thead>
<tr>
<th>ABUSE</th>
<th>NEGLECT</th>
<th>HOUSEHOLD DYSFUNCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical</td>
<td>Physical</td>
<td>Mental Illness</td>
</tr>
<tr>
<td>Emotional</td>
<td>Emotional</td>
<td>Mother treated violently</td>
</tr>
<tr>
<td>Sexual</td>
<td></td>
<td>Substance Abuse</td>
</tr>
</tbody>
</table>

Source: Robert Wood Johnson Foundation
**ACES are Common**

- 26% have 1 ACE
- 16% have 2 ACEs
- 9.5% have 3 ACEs
- 12.4% have 4+ ACEs
- 36% have experienced 0 ACEs
- 64% have at least 1 ACE

Source: Robert Wood Johnson Foundation

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**ACE Score & Health Problems**

As the number of ACEs increases, so does the risk for negative health outcomes

0 ACEs  | 1 ACE   | 2 ACEs  | 3 ACEs  | 4+ ACEs

Source: Robert Wood Johnson Foundation
**Conception**

**Brain**
Hormones, chemicals and cellular system prepare for life in a dangerous world.

**Individual Adaptation**
- Edgy
- Hot-Tempered
- Vigilant
- Impulsive

**Outcome**
Individual survives worst conditions.

**Conception**

**Brain**
Hormones, chemicals and cellular system prepare for life in a safe world.

**Individual Adaptation**
- Laid-back
- Relationship Oriented
- Thinks things through

**Outcome**
Individual lives peacefully during best conditions; vulnerable in worst conditions.

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Dr. Martin Teicher, Harvard University

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Image from: iStock Photo
Brain Hand Model

Amygdala “Guard Dog”
Prefrontal Cortex “Wise Owl”
Flip your lid!

Adapted from Dr. Dan Siegel’s Work

Now What?
Healing the Body & Brain

Physical Impact of Trauma

Brain Waves
Prefrontal wave of sensing brain waves in sensing part of the brain leads to anxiety, unable to concentrate, and sadness. Resolution: meditation.

Neurotransmitters
Vulnerable to addiction because dopamine transmitter frequently developed or damaged. Risk less motivation for eating, creates fatigue. Low serotonin causes depression.

Hormones
Hypothalamic high cortisol and ghrelin, enough growth and stress by hypothalamus. Long term damage to overall body and other hormones (thyroid, adrenals, serotonin).

Toxin Elimination
Intestines and kidneys are able to absorb toxins (inorganic or unhealthy foods). Resolution: cell boosts, cleanse.

Nervous System
Supersensitive sympathetic nervous system. Parasympathetic nervous system is engaged having less ability to engage with others and work.

Immune System
Resistance in cortisol or lower cortisol creates uncontrolled inflammation. Cause of many diseases (cancer, arthritis, etc.) Resolution: meditation/crystal/whole food, walking in nature, 481 901.

Cellular Change
Stressors damage or make cancer prone: nervous system which permanently ages and releases reproduction of cells. 80% cancer. Resolution: good support.

Environment turned on or off a adaptation to environmental. Resolution: take awareness, Resolution: take awareness, Resolution: take awareness, Resolution: take awareness.
Shifting Attitudes

Adapted by Elaine Miller-Karas from a slide by Jane Stevens at ACEs Connection

<table>
<thead>
<tr>
<th>Traditional</th>
<th>Trauma-Informed</th>
<th>Resiliency-Informed</th>
</tr>
</thead>
<tbody>
<tr>
<td>● People are bad</td>
<td></td>
<td></td>
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<tr>
<td>● People need to be punished</td>
<td></td>
<td></td>
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<tr>
<td>● People just don’t care</td>
<td></td>
<td></td>
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<tr>
<td>● We need to stop making excuses for people</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● What is Wrong with You?</td>
<td></td>
<td></td>
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<tr>
<td>● People are suffering</td>
<td></td>
<td></td>
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<tr>
<td>● People need an effective intervention</td>
<td></td>
<td></td>
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<tr>
<td>● Many people care but lack understanding and skills</td>
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<td></td>
</tr>
<tr>
<td>● We need to learn how trauma impacts a child’s and adult’s development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● What Happened to You?</td>
<td></td>
<td></td>
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<tr>
<td>● People are resilient</td>
<td></td>
<td></td>
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<tr>
<td>● People need our compassion as they learn new skills</td>
<td></td>
<td></td>
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<tr>
<td>● Any person can learn self-regulation skills based on science</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● We need to learn how skills of well-being can reduce suffering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● What is Right with you?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>● What are your Strengths?</td>
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</tbody>
</table>

Resilience

In the context of exposure to significant adversity, whether psychological, environmental, or both, resilience is both the capacity of individuals to navigate their way to health-sustaining resources, including opportunities to experience feelings of well-being, and a condition of the individual’s family, community and culture to provide these health resources and experiences in culturally meaningful ways.

Michael Ungar
Five Major Areas of Resiliency - Dr. Sexton

- Self Awareness
- Mindfulness
- Self Care
- Purpose
- Relationships

Relationships

Brain Architecture
Shrinkage in prefrontal cortex, corpus callosum, and hippocampus. Enlarged and more reactive amygdala. Resolution: safe and stable nurturing relationships, walk in nature, touch, exercise.

Hormones
Prolonged high cortisol and ghrelin creates greater reactivity to stress. Long term damage to cells, structures of the body, and other hormone glands (thyroid). Resolution: oxytocin.

Physical Impact of Trauma

- Brain Architecture
- Neural Pathways
- Hormones
- Toxin Elimination
- Nervous System
- Immune System
- Brain Waves
- Neurotransmitters
- Cellular Change
- Sync

Resolution: strong bonds, safe, stable, nurturing relationships, walk in nature, touch, exercise.
Kids do best when they feel safe and connected.

The relationships young people have with the adults in their schools, and with their teachers in particular, are critical to their success and to building a positive school climate.

High-quality teacher-student relationships are associated with youth feeling more safe and secure in their learning environment, fewer behavioral issues, and increased academic achievement.


Among those with 2+ ACEs, students with stronger teacher-student relationships are less likely to report:

– Past month alcohol use: 25% vs. 36%
– Past month Rx misuse: 9% vs. 16%
– Past year suicidal ideation: 21% vs. 35%
Among those with 2+ ACEs, students who feel adults in their community care about them are less likely to report:

- Past month alcohol use: 22% vs. 32%
- Past month Rx misuse: 9% vs. 14%
- Past year suicidal ideation: 19% vs. 35%
Mindfulness is paying attention in a particular way: on purpose, in the present moment, and non-judgmentally.

Jon Kabat-Zinn
Benefits of Mindfulness

Benefits in Adults
● Decreased in psychological and some physical symptoms
● Increased ability to relax
● Reduction in unpleasantness of pain
● Greater vitality
● Improved self-esteem
● Ability to cope more effectively with stress

Benefits in Adolescence
● Reductions in anxiety and depressive symptoms
● Improved self-esteem and sleep quality

Improved Immune System

Research confirms that mindfulness practices can, in fact, boost your immune system. A review of studies on mind-body therapies found that yoga, tai chi, meditation, mindfulness, and qi gong increase anti-viral related immune responses and reduce inflammation.

Mindfulness creates space...
...replacing impulsive reactions with thoughtful responses.
Self Awareness

Neural Pathways
Need to ‘rewire’ our brain from old thought patterns and habits of mind, conscious, and unconscious. Resolution: neurofeedback, meditation/mindful action, positive self-talk

Physical Impact
of Trauma

Brain Architecture
Physical and emotional changes in brain architecture and neuroplasticity.
Resolution: neurofeedback, meditation, mindfulness, exercise, nutrition, social support

Neural Pathways
Source: neural traces from old thought patterns and habits of mind, conscious, and unconscious.
Resolution: neurofeedback, meditation, mindfulness, exercise, nutrition, social support

Hormones
Endoctrine changes and effects on the body.
Resolution: neurofeedback, meditation, mindfulness, exercise, nutrition, social support

Toxic Elimination
Detoxification and any effects on the body.
Resolution: neurofeedback, meditation, mindfulness, exercise, nutrition, social support

Nervous System
Source: neural pathways, neuroplasticity, neurochemistry.
Resolution: neurofeedback, meditation, mindfulness, exercise, nutrition, social support

Immune System
Source: physical and emotional changes, neuroplasticity, neurochemistry.
Resolution: neurofeedback, meditation, mindfulness, exercise, nutrition, social support

Cellular Change
Molecular changes and any effects on the body.
Resolution: neurofeedback, meditation, mindfulness, exercise, nutrition, social support

Brain Waves
Physiological response to stress, emotion, thought processes, and neural activity.
Resolution: neurofeedback

Neurotransmitters
Molecules used to transmit signals between neurons.
Resolution: neurofeedback

50% Genetics

40% Intentional Activities

10% Life Circumstance

Research from Sonja Lyubomirsky and the Greater Good Institute
Mirror Neurons

Mirror neurons in our brains make our emotions contagious. When we are negative, it brings down people around us, and when we are positive, we can make others positive as well.

http://www.reidyassociates.org/blog/2016/11/17/the-smile-experiment

Shawn Achor
Gratitude - Three Good Things

- Three things that went well today and my role in bringing them about
- 14 days in a row
- Within two hours of sleep onset

https://greatergood.berkeley.edu/images/application_uploads/Seligman-PosPsychProgress.pdf

Three Good Things - Results

<table>
<thead>
<tr>
<th></th>
<th>Happiness</th>
<th>CES-D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-test</td>
<td>53.4</td>
<td>33.90</td>
</tr>
<tr>
<td>(15th percentile)</td>
<td></td>
<td>(severe)</td>
</tr>
<tr>
<td>Post-test</td>
<td>69.8</td>
<td>17.20</td>
</tr>
<tr>
<td>(50th percentile)</td>
<td></td>
<td>(mild-moderate)</td>
</tr>
<tr>
<td>Change</td>
<td>+16.4</td>
<td>-16.70</td>
</tr>
<tr>
<td>(92% increased)</td>
<td></td>
<td>(94% Decreased)</td>
</tr>
</tbody>
</table>

*Results within 14.8 days on average

https://greatergood.berkeley.edu/images/application_uploads/Seligman-PosPsychProgress.pdf
Protecting Your Brain

- Writing a 2-minute email praising someone you know
- Writing down three things for which you’re grateful
- Journaling about a positive experience for two minutes
- Doing cardio exercise for 30 minutes
- Meditating for just two minutes

Name The Feeling

A new brain imaging study by UCLA psychologists reveals verbalizing our feelings makes our sadness, anger and pain less intense.

Self Care

Brain Architecture
Shrinkage in prefrontal cortex, corpus callosum, and hippocampus. Enlarged and more reactive amygdala. Resolution: safe and stable nurturing relationships, walk in nature, touch, exercise.

Immune System
Resistance to cortisol or lower cortisol creates unchecked inflammation. Cause of many diseases: asthma, arthritis, etc.) Resolution: meditation/mindful action, walking in nature, diet, rest.

Physical Impact of Trauma

Brain Waves

Neurotransmitters
Vulnerability to addiction, depression, sleep disorders, and pain. Resolution of neurochemicals.

Hormones
Enhanced hormonal balance and health. Resolution by taking care of the body, diet, and exercise.

Toxin Elimination
Improves immunity and decreases inflammation. Resolution of neurochemicals.

Nervous System

Cellular Change
Improvement of cellular processes. Resolution of neurochemicals.

Importance of Sleep

Sleep Duration Recommendations


Sleepfoundation.org | Sleep.org
The Nature Pill

Taking at least twenty minutes out of your day to stroll or sit in a place that makes you feel in contact with nature will significantly lower your stress hormone levels.

MaryCarol R. Hunter, Brenda W. Gillespie and Sophie Yu-Pu Chen

What are you taking with you today?