Healing Our Heroes Part 2: Using & Practicing Treatment Techniques to Support Family Resiliency Naturally

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Today’s Presenters

Patricia Gerbarg, M.D.

• Assistant Clinical Professor in Psychiatry, New York Medical College
• Practices Integrative Psychiatry, combining standard and complementary treatments
• Research focuses on mind-body practices for reducing the effects of stress and trauma, particularly in survivors of mass disasters

Richard Brown, M.D.

• Associate Professor of Clinical Psychiatry at Columbia University College of Physicians and Surgeons
• Has authored over 100 scientific articles, books, and book chapters on pharmacological treatments, clinical studies, and complementary and integrative treatments in psychiatry
• Developed a comprehensive neurophysiological theory of the effects of yoga breathing on the mind and body, particularly its benefits in anxiety, depression, and post-traumatic stress disorder (PTSD).
Professional Disclaimer

• Dr. Richard P. Brown and Dr. Patricia L. Gerbarg receive no payment for this webinar
• Dr. Richard P. Brown and Dr. Patricia L. Gerbarg receive payment for publication of books on Integrative Psychiatry as well as reimbursement for travel expenses, workshops, and honoraria when lecturing.
• Dr. Brown and Dr. Gerbarg received research funding for:
  1. A study of breathing practices for relief of stress following the Horizon Gulf oil spill from the Dept. of Mental Health of Mississippi.
  2. NCCAM grant for a Brain GABA in depression study.
• Dr. Richard P. Brown and Dr. Patricia L. Gerbarg co-authors citations in this presentation.
• Dr. Brown consults on a research project for Humanetics and holds a patent on the use of 7-keto DHEA for treatment of PTSD.

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Using Breath and Movement Techniques to Relieve Stress and Trauma

Experiential Practices: Breathing, Movement, & Open Focus

Richard P. Brown, MD
Associate Professor in Clinical Psychiatry
Columbia University College of Physicians and Surgeons

Patricia L. Gerbarg, MD
Assistant Professor in Clinical Psychiatry
New York Medical College
The Autonomic Nervous System is the Foundation of our Mind-Body-Spirit

Sympathetic System
- Threat seeking & response approach (reward/fight), avoidance (flight), burns energy
- Dopamine

Parasympathetic System
- All safe, relax & recover, emotional regulation, bonding, restores energy reserves, calm, heal, recharge
- Serotonin/Norepinephrine

Behavior & Emotion

(Gray’s Motivational Theory, Beauchaine, T., 2001)
Breath and Emotion

• Bi-Directional
• Specific emotions induce breath patterns
• Voluntary changes in breath pattern induce specific emotions

(Philippot P & Blairy S. 2003)
Activation of the Parasympathetic System (PNS)

• Vagus nerve: main pathway of PNS
• Vagus nerve is bidirectional
• Breathing activates afferent pathways that stimulate vagus nerve
• Voluntary change in pattern of breath can alter the activity of vagus nerve
Vagal Activity

• 20% of the vagus nerves regulate heart, lungs, digestion, glands, immune function (efferent)

• 80% of vagus nerves carry messages from the body up to the brain (afferent)
Vagus Nerve Involved in:

- Social bonding
- Empathy & love
- Gut feelings & instincts
- Perception & observation
The diagram illustrates various parts of the brain and their connections. The key components labeled include:

- **Cerebral Cortex**
- **Corpus Callosum**
- **Prefrontal Cortex**
- **Thalamus**
- **Limbic System**
  - Amygdala
  - Hippocampus
- **Hypothalamus**
- **Parabrachial Nucleus**
- **Nucleus Tractus Solitarius**

**Vagus Nerve**

- Slows heart rate
- Slows respiratory rate
- Calms and slows gastrointestinal tract
Coherent Breathing

- Coherent Breathing: gentle breathing at 4.5 – 6.0 breaths per minute
- With equal inhalation and exhalation
- In and out through the nose
- Without force or pressure
Trauma: Disrupts Connectedness

- Distorts social awareness
- Defensive reactions displaces social engagement
  - Fight/flight
  - Immobilization (dissociation) with fear
- Interferes with healthy reciprocal co-regulation of physiological state
  - Cannot feel safe or establish trusting relationships
  - Difficulties being close, touched, or touching others
  - Unable to self-soothe
## Perceived Environmental Condition

<table>
<thead>
<tr>
<th>Safety</th>
<th>Danger</th>
<th>Life Threat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parasympathic</td>
<td>Sympathetic</td>
<td>Unmyelinated Vagus</td>
</tr>
<tr>
<td>Myelinated Vagus</td>
<td>↓ HRV</td>
<td>↓ HRV</td>
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<td>↑ HRV</td>
<td>↑ Defensive</td>
<td>↑ Defensive</td>
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<tr>
<td>↓ Defensive</td>
<td>↓ Social Engagement</td>
<td>↓ Social Engagement</td>
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<tr>
<td>↑ Social Engagement</td>
<td>Mobilization</td>
<td>Immobilization</td>
</tr>
<tr>
<td>Immobilization</td>
<td>Behavioral activation /</td>
<td>Immobilization with fear</td>
</tr>
<tr>
<td>without fear</td>
<td>Behavioral inhibition</td>
<td></td>
</tr>
</tbody>
</table>

### Flexible, Adaptive

- Emotion regulation
- Bond, connect, love
- Intimacy, soothe, heal,
- Cooperative, empathy

### Approach-Avoid

- Emotion dysregulation
- Hypervigilence
- Over reactivity
- Anger, fear

### Freeze

- Disconnect
- Dissociate
- Numbing

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Adapted from S Porges, 2015, 2017
Mental States in Combat

- Combat requires that soldiers disconnect from their emotions and from other people.
- Combat requires a defensive mental state.
- Being in this state becomes a problem when soldiers return home if they are unable to shift back into a non-defensive mental state.
- The defensive mental state can severely impair the soldier’s ability to experience normal feelings and to feel emotionally connected to others, leading to feelings of not ‘belonging,’ isolation, frustration and anger.
Questions

• How do breathing practices access and transform trauma in the mind and body?

• How do breathing practices permanently resolve physical and mental symptoms of trauma?
Interoception Provides Substrate for Emotional Awareness

- Interoception is the perception of “feelings” (e.g. visceral, genital, vasomotor, muscular, air hunger, pain, temperature, sensual touch) reflecting internal state of the body
- Primary representation in dorsal posterior insula → meta-representation anterior insula → map & regulate internal states

(Craig 2003; Critchley 2005; Damasio 1994, 1999)
Interoceptive afferent pathways project to dorsal posterior insula (interoceptive cortex) (R – SNS; L – PNS) and medial frontal region (anterior cingulate cortex, ACC).

Polyvagal Theory

• Physiological state characterized by ↑ vagal influence on HRV supports social engagement & bonding
• Any stimulus that ↑s feeling of safety can recruit neural circuits that support social engagement system and inhibit defensive limbic structures
• Interoception enables social behavior by distinguishing safe from dangerous

Hypothesis: Oxytocin/Vasopressin

• It is known that electrical vagal nerve stimulation (VNS) increases oxytocin and prolactin release

• Visceral feedback afferent vagal stimulation → hypothalamus PVN OX release →↑feelings of safety, bonding, love

Vagal GABA Theory of Inhibition

• Gamma-aminobutyric acid (GABA) is the brain’s main inhibitory neurotransmitter

• Evidence suggests that vagal nerve stimulation can increase GABergic activity

(Streeter C, Gerbarg PG, RB Sape, DA Ciraulo, Brown RP. Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostatics in epilepsy, depression, and post-traumatic stress disorder Medical Hypotheses. 2012)
Hypothesis: Breathing Stimulates Vagal Activation of GABA Pathways from Pre-Frontal Cortex and Insula that Inhibit Amygdalar Overactivity.
Effects of Iyengar Yoga and Coherent Breathing on Mood and Brain GABA Levels in Patients with Major Depressive Disorder: Phase 1 Randomized Controlled Dosing Study

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Richard P Brown, Patricia Gerbarg, et al.
Phase 1: Effects of Treatment with Yoga and Coherent Breathing on Mood and Brain GABA Levels in patients with MDD

• Phase 1: 12-week feasibility and dosing study before Phase 2 randomized controlled trial.
• 30 Subjects with mild to moderate MDD
• Mass Resonance Spectroscopy measurement of GABA Levels in Thalamus
• Respiratory Sinus Arrhythmia (a component of Heart Rate Variability, is accurate index of vagal influences on the heart)
• Mood Scales
Summary Phase 1 Dosing Study

- The 12-week yoga intervention was associated with significantly decreased depressive symptoms in both the HDG and LDG.

- RSA increased from pre to post yoga and breath intervention in full cohort (index of parasympathetic activity).
- RSA increased 12 weeks in full cohort in the Recovery stage.

- Thalamic GABA levels increased in LDG and in full cohort by 12 weeks.
Autonomic Imbalance: ↑ SNS  ↓ PNS
and
GABAergic Imbalance ↓ GABA
are found in

Depression
Anxiety Disorders and Insomnia
PTSD
Alcohol and other Substance Abuse
Breath-Body-Mind Programs Have Been Taught

• Fort Drum: 10th Mountain Division: active duty troops, spouses, healthcare providers, Iraq and Afghanistan Vets
• US VA Hospital Staff Trainings
• NICoE, Bethesda MD
• National Veterans Foundation
• Members of numerous military services
• Veterans of Vietnam, Bosnia, Iraq, and Afghanistan
Integrative Mind-Body Practices into Treatment

• Individual therapy
• Family therapy
• Group therapy
Breathing practices enhance psychotherapy

1. ↓ anxiety
2. ↑ tolerance for emotions and memories
3. ↑ awareness of somatic sensations
4. ↑ access to emotion schema
5. ↑ cognitive processing and integration
6. ↑ neuroplasticity
Anxiety → ↑ tolerance for emotions & memories

- Anxiety – Underlies resistance in psychotherapy
- Talking or thinking about painful memories, traumas triggers anxiety and avoidance reactions: blocking, changing subject, distraction, leaving therapy
- Fear of being unable to stop anxiety reactions: psychological and physical symptoms
- Fear of change, loss of love, anger
- Anxiety impairs ability to tolerate emotions & memories
Teach Coherent Breathing in Office

- ~ 20 min in session – teach most clients
- Pace breathing with a chime track CD or phone app
- Client experiences immediate physical relaxation and relief from anxious ruminative thoughts
- Practice at home with CD eyes shut up to 20 min B.I.D.
- During therapy sessions use Coherent Breathing to reduce anxiety as it arises
- Begin and end sessions – breathe to calm down
- Client gains confidence in ability to control anxiety → ↑ tolerance of painful memories and discussions

RP Brown & PL Gerbarg 2014
Follow-up: Check Technique

- One week after teaching Coherent Breathing
- Ask patient to show you how they are doing Coherent Breathing at home. Play the breath pacing chime track and watch how they breathe.
- Give feedback to improve and optimize their technique
Compliance with Daily Practice

• Compliance: some immediate; others 3-6 months
• As with medication – inquire about frequency and duration of practice
• Identify obstacles to daily practice
• Help patient remove obstacles to daily practice
Extend Applications of Coherent Breathing

• After 2 months home practice of Coherent Breathing, client uses CD at home to practice with eyes open and during routine activities

• Learns to use Coherent Breathing in any stressful situation – home, work, social

• Continue daily focused practice eyes closed
Iraq War Veteran & Psychotherapist working with Veterans and Their Families

“After serving in Iraq I began to experience post traumatic stress in all its complexity.”

7 Years Later

“While attending a 2-day Breath-Body-Mind workshop with Dr. Richard Brown I felt a sensation of wholeness. The feeling was fleeting, but I now knew that it could once again be achieved. I began to consistently practice what I learned from Dr. Brown. Able to calm my body and mind, I began to thrive. I began to feel life inside of me.”
“Disconnected and detached for so long, the love known only to my thinking mind began to fill my heart. For the first time I was able to embrace my 4-year-old son and truly experience shared love and motherhood. Also for the first time I felt a more profound and deeper closeness to my spouse who had long awaited our emotional bonding. I have tapped into my inner resources and have found new meaning and purpose. I have arrived and feel welcome home.”

Amy Otzel Amy B. Otzel, M.A., M.S., LPC
Military Readjustment Specialist
Level-3 Breath-Body-Mind Teacher
http://www.innerresource.org

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Dr. Richard Brown leads breathing, movement and open focus body scan

- These practices are gentle and generally safe.
- If you have any physical limitations, do the practices with awareness of your limitations and only to the extent that you feel comfortable.
- As stress is released you may experience emotional abreactions or physical sensations such as tingling or changes in body temperature.
- If you feel that any practice is too stressful, just stop and rest.
- If you experience any uncomfortable after effects, consult your doctor or therapist.
Round 1

- 4th Golden Wheel: *Sky and Earth* from QiGong 

- HA Breath

- Coherent Breathing 5 bpm - Count 4 inhale .... 4 exhale
  2-Bells track from Respire-1 CD at www.Coherence.com

- Coherent Breathing & Breath Moving

- Open Focus Body Scan adapted from Dr. Les Fehmi
  www.openfocus.com

- Rest and Consolidate
Collect energy from the sky. Bring the energy down inside a central tube of light inside your body and spread energy to earth.
Collect energy from the earth. Bring the energy upward inside a central tube of light inside your body and spread energy to the sky.

Energy Ball
Breathe in Expand
Breathe out Contract
“HA!” Breath

Breathe in through the nose as you bring elbows back with palms up.
Breathe out through the mouth with a sharp “HA” sound as you extend arms forward, palms down (like shaking drops of water off of your finger tips).

Caution: If you have bipolar disorder, do this very gently and quietly without any force.
COHERENT BREATHING IN and OUT

Start with hands at the waist, palms up. Slowly raise hands while gently breathing IN. Turn palms out and up.

Slowly lower hands while gently breathing OUT. Turn palms out and down.
Round 2

• 4 – 4 – 6 – 2 Breathing
• Coherent Breathing 4 - 4
• Coherent Breathing & Breath Moving
• Open Focus Body Scan
• Rest and Consolidate
QiGong Breath for Calmness – Energy - Strength: 4-4-6-2

Start with hands at the waist, palms up. Slowly raise hands while gently breathing IN. Turn palms out and up.

IN ...... 2 ...... 3 ...... 4 ...... HOLD .... 2 .... 3 .... 4 ....

Slowly lower hands while gently breathing OUT. Turn palms out and down.

OUT ...... 2 ...... 3 ...... 4 ...... 5 ...... 6 ....

HOLD .... 2 ....
COHERENT BREATHING IN and OUT

Start with hands at the waist, palms up. Slowly raise hands while gently breathing IN. Turn palms out and up.

Extending arms out to the sides, slowly lower hands while gently breathing OUT. Palms rest on lower center.

IN .... 2 .... 3 .... 4 ....

OUT .... 2 .... 3 .... 4 ....

REST ...... 2
Coherent Breathing with Breath Moving

- Sit or lie down in a comfortable supported position
- Eyes closed if possible
- Begin Coherent Breathing. 
  Gently Breathe in .. 2 ..3 .. 4 and
  Gently Breathe out .. 2 ..3 .. 4
- As you breathe in, move all of your attention and breath to the top of your head
- As you breathe out, move all of your attention and breath to the base of your spine
Rest

• It is important to rest, even for just a few minutes, when you finish breathing practices.
• This allows time for your mind and your body to consolidate and remember the experience and the changes in your system.
Resources

Contact
Dr. Richard P. Brown & Dr. Patricia Gerbarg
See B-B-M Teacher page for Training Information
See Workshops/Lectures Schedule Page
Updates & Free Integrative Mental Health Newsletter

www.Coherece.com - Respire - 1 CD 2-Bells Track
www.OpenFocus.com - Meditation CDs
www.RobertPeng.com - QiGong DVDs, meditation CDs

http://www.innerresource.org
Amy B. Otzel, M.A., M.S., LPC
Military Readjustment Specialist, Level-3 Breath-Body-Mind Teacher
Resources for Further Learning

The Healing Power of the Breath
RP Brown & PL Gerbarg (Book + CD, Shambhala, 2012)

Non-Drug Treatments for ADHD

How to Use Herbs, Nutrients and Yoga in Mental Health
RP Brown, PL Gerbarg, PR Muskin (WW Norton, 2009)
Recommended Reading

- Dissolving Pain. Fehmi and Robbins, Trumpeter Press, 2010
What is one significant thing you learned today?
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Talk About it Tuesday: #MFLNchat

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Family Development

Upcoming Event

Picking up the Pieces: Helping Couples Overcome Infidelity

• Date: August 11, 2016
• Time: 11:00am Eastern
• Location: https://learn.extension.org/events/2675

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