Meditation and Mindfulness Practices for the PCS Patient

Brenda Lovette, M.S. CCC-SLP, RYT-500
Financial Disclosure

- Full time employee at Emerson Hospital
- Sole proprietor of private practice: Healthy Expression
- Receive royalties/stipend for continuing education courses on Northern Speech Services, Motivations Inc, and SpeechPathology.com
- Receive royalties for publications through Lash Associates
Learning Objectives

1. Describe the impact of meditation and mindfulness on the body, mind, and brain.
2. Identify the role for meditation and mindfulness in the management of PCS.
3. Demonstrate 2-3 mindfulness techniques for patients or for personal wellness.
## Agenda

<table>
<thead>
<tr>
<th>Meditation and Mindfulness for the PCS Patient</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guided Practice &amp; Intention Setting</td>
<td>5 min</td>
</tr>
<tr>
<td>Meditation and Mindfulness Defined</td>
<td>10 min</td>
</tr>
<tr>
<td>Impact of Meditation on the Body, Mind, and Brain</td>
<td>20 min</td>
</tr>
<tr>
<td>Guided Practice</td>
<td>10 min</td>
</tr>
<tr>
<td>Rationale and Application for the PCS Patient</td>
<td>35 min</td>
</tr>
<tr>
<td>Status of Meditation for Neuroplasticity Group at Emerson</td>
<td>5 min</td>
</tr>
<tr>
<td>Guided practice</td>
<td>10 min</td>
</tr>
<tr>
<td>Mindfulness for the Clinician</td>
<td>5 min</td>
</tr>
<tr>
<td>Practice Teaching/Educating</td>
<td>10 min</td>
</tr>
<tr>
<td>Questions and Comments</td>
<td>10 min</td>
</tr>
</tbody>
</table>
Guided Practice and Intention Setting

"Every action, thought, and feeling is motivated by an intention..."
- Gary Zukav
Guided Practice: *Breath Awareness*
Intention Setting

My Intention: Leave you feeling empowered and clear on how MM may fit into your clinical practice and your LIFE

Your Intention: What would you like to get out of this course?
Mindfulness and Meditation, defined

"Every action, thought, and feeling is motivated by an intention..."
- Gary Zukav
What’s the difference?

<table>
<thead>
<tr>
<th>Mindfulness</th>
<th>Meditation</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Paying attention, on purpose, to the present moment, non-judgmentally.”</td>
<td>“To engage in mental exercise such as concentration on one’s breathing or repetition of a mantra for the purpose of reaching a heightened level of awareness.”</td>
</tr>
<tr>
<td>- Jon Kabot Zinn</td>
<td></td>
</tr>
</tbody>
</table>

The mindset

The technique
The Many Meditation Techniques ("brands")

- Mindfulness Based Stress Reduction (MBSR)
- Vedic, Mantra, Transcendental Meditation (TM)
- Compassion Meditation (Meta Meditation/Loving Kindness)
- Prayer
- Gratitude Practices
- *Pranayama
- *Yoga
- Etc…

All share commonalities: focused attention and passive attitude
Meditation: train your monkey mind
Myths and Facts

Meditation does not mean “clearing your mind”

When we can become an observer of our mind stuff, we begin to separate ourselves from our thoughts
- I AM angry, versus I FEEL angry

Stressful experiences are often difficult because of our stressful thoughts
Is Stress Bad?

- Sympathetic and Parasympathetic Nervous System
- Allostasis vs Homeostasis
- Some evidence to suggest that stress is good!
  - Kelly McGonagall
  - Reflect on your life: how has conflict/stress/challenge resulted in growth?
- However, prolonged stress response in the absence of danger can cause wear and tear (Alostatic Load)
- Learned hyper-response to perceived danger (PTSD, PCS)
The Mind Body Connection

Turn of 16th Century – Rene Descartes proposed that body and mind are separate substances (“Dualism”)

Now, we are starting to see the connection again

• Stress related disease
• Placebo/Nocebo Effect
• Social/health outcomes

Three legged stool (Benson)
1. Surgery
2. Pharmaceuticals
3. Self-care
Effects of Meditation on the...

Body

Mind

Brain
Effect on the Body…

The Relaxation Response: The opposite of Fight, Flight, Freeze

- Herbert Benson

Measureable physiological markers
- Activates parasympathetic nervous system
- Reduces cortisol (marker of stress)
- Reduces blood pressure
- Reduces heart rate
- Reduces muscle tension
- Improves heart rate variability

Two crucial elements
- Object to focus on
- Passive attitude

Blood Cortisol Levels

Participants: 30 second-year medical school

Practice: 4 day mindfulness training program

Measures: Serum cortisol levels pre and post meditation and mental health questionnaire

Results: Statistically significant decrease in cortisol level after meditation program.

“If you are anxious, you can’t learn. It’s like dropping seeds on concrete. With a quiet mind, people take things in.”

-Herbert Benson

Generalized Anxiety Disorder

Participants: 93 individuals with generalized anxiety disorder

Practice: MBSR vs. Stress Management Education (control)

Measures: Hamilton Anxiety Scale, Clinical Global Impression of Severity & Improvements, Beck Anxiety Inventory

Results: MBSR improved stress reactivity and coping

Meditation & Cognition

✔ Memory
Alexander et al., 1989; Newberg et al., 2010a; Grant et al. 2010, Innes et al., 2012 & 2017, Eyre et al. 2016

✔ Executive functions
Alexander et al., 1989; Newberg et al., 2010a

✔ Attention
Alexander et al., 1989; Pagnoni & Cekic, 2007; van Leeuwen et al., 2009; Prakash et al., 2012

✔ Language
Alexander et al., 1989; Newberg et al., 2010a; Marshall et al., 2014, 2015 & 2018

Effect on the Brain…

Brain Imaging of Meditators

- Increased cortical thickness
- Decreased activity in the amygdala
- Increased grey matter in the hippocampus and the temporo parietal junction
- Increased cerebral blood flow in the prefrontal cortex, thalamus, putamen, caudate nucleus and midbrain
- Increased gyrification (Lazar, 2005)
- Structural enlargements in prefrontal network involved in ventromedial prefrontal cortex and inferior frontal sulcus (Chau et al. 2018)
- Bold signal in anterior cingulate and dorsal lateral prefrontal cortices were higher (executive and attention areas) (Mahone et al., 2018)
- Bold signal was lower in pons and cerebellum (arousal areas) (Mahone et al., 2018)
- Larger gray matter volume in rostral anterior cingulate cortex (rACC) (Hernandez et al., 2017)
- Association between depth of silence and functional connectivity between B anterior insula and rACC
- Mental silence associated with brain regions and networks of top-down attention and emotional control
Preserved cortical thickness with aging

Effect on the Brain…

Short Term Meditators:

- Increased functional connectivity between the amygdala and a region implicated in emotion regulation (ventromedial prefrontal cortex)

- Meditation training may improve affective responding through reduced amygdala reactivity, and heightened amygdala–VMPFC connectivity

- Potential mechanism by which MBSR effect emotion regulation

That was a lot of complex information..

But, you know what this *feels* like!
Mind-Body Connection

STRESS

Amygdala → Hypothalamus → Frontal Lobe

Relaxation Response

Executive Strategies

Identify Thoughts Emotions

© 2018 Jennifer Llado & Brenda Lovette
Functional Implications

- Meditation sets up the brain to be rewired in a way that promotes learning, growth, and perspective (*neuroplasticity!*).

- Strengthens ability to integrate brain networks more readily (not getting stuck in a thought loop).

- Note: There’s no bad brain function!
  - But, we can be more effective and content when our brain functions are balanced.
Guided Practice: *Body Scan*
Meditation and Post Concussion Symptoms

“Meditation is like a gym in which you develop the powerful mental muscles of calm and insight.” – Ajahn Brahm
## PCS Symptoms

<table>
<thead>
<tr>
<th>Somatic</th>
<th>Cognitive</th>
<th>Affective</th>
</tr>
</thead>
<tbody>
<tr>
<td>Headache</td>
<td>Endurance</td>
<td>Fatigue</td>
</tr>
<tr>
<td>Dizziness</td>
<td>Attention</td>
<td>Emotional Lability</td>
</tr>
<tr>
<td>Nausea</td>
<td>Executive Function</td>
<td>Anxiety</td>
</tr>
<tr>
<td>Visual Disturbances</td>
<td>Confusion</td>
<td>Irritability</td>
</tr>
<tr>
<td>Balance</td>
<td>Brain Fog</td>
<td>Sadness</td>
</tr>
<tr>
<td>Phonophobia</td>
<td>Processing Speed</td>
<td></td>
</tr>
</tbody>
</table>
Theoretical Rationale for the PCS patient

Our patients:

• Report pain

• Demonstrate cognitive challenges
  • Attention
  • Insight
  • Executive Function
  • Emotional Regulation

• Benefit from symptom management techniques (including rest)

• Have mood changes (depression/anxiety)

• Sleep disturbances (difficulty falling and staying asleep)

• Benefit from feeling autonomous and productive
Rationale for the PCS patient

- Activity Tolerance & Symptom Management
- Pain
- Cognition
- Mood and Emotional Regulation
- Fatigue and Sleep
- Quality of Life & Chronic Symptoms
You are about to hear about some research...

- There are hundreds of studies on these topics
- Researching is inherently challenging...
  - Variables when working with human participants
  - Small sample sizes
  - Variety within the types of meditation techniques
  - Funding
Activity Tolerance & Symptom Management

- Patients report difficulty with tolerating daily tasks related to home, work, academic, and community activities.
- Report symptom escalation in the setting of cognitive challenge, sensory input, etc..
- Symptom threshold (2 points from baseline)
  - Requires predictive awareness, insight, and application of strategies (pace and break)
- Rehabilitation includes gradual increase in activity tolerance
Activity Tolerance & Symptom Management
Pain

- One of the most common PCS symptoms
- Patients often try many medications/interventions with mixed results
Pain Management

**Participants:** 10 Iraq and Afghanistan Veterans with TBI

**Methods:** Eight weeks of 2 sessions per week, one hour each) Mindfulness Meditation (MM) with home program recommendations

**Results:**
- Pain intensity and Pain Interference were reduced in the MM group
- Improvements were maintained one month later
- * Decreasing pain is not a principle focus of acceptance based therapies

Pain Interference

- “How much has pain interfered with general activity, mood, walking ability, normal work, relations with other people, sleep and enjoyment of life”

- MM encourages sustained attention on pain sensations from a nonjudgmental perspective, without evoking unpleasant emotions and cognitions

Shift in How Pain is Perceived

- Reduce cognitive load
- Increase coping skills
- Reduce interference in daily life

Greater adaptability in regulating behaviors, thoughts and emotions

Patient Perspective: Pain
Cognitive Symptoms

- Attention
- Memory
- Executive function (emotional regulation)

- Treatment (SLP) targets cognitive retraining and development of strategies – Meditation may be an appropriate modality for both
Cognition

**Participants:** 22 participants with mTBI (post onset >7 months) ages 18-62

**Frequency/Duration:** 10 week group modeled after MBSR with modifications for mTBI

**Measures:** Perceived QOL Scale, Perceived Self Efficacy Scale, Neurobehavioral Symptom Inventory, Neuropsychological Tests, Self-report Problem Solving Inventory, Self-report Measure of Mindfulness

**Results:** Clinically meaningful improvements in QOL, self-efficacy and smaller but significant effects on working memory and attention

Patient Perspective: Cognitive Symptoms
Mood and Emotional Regulation

- Anxiety & Depression
- Emotional Regulation as an executive function skill
  - Self monitoring
  - Apply executive strategies (solution focused thinking, reaction versus response)
Depressive Disorder Following TBI

Participants: 559 adults with complicated to mild TBI

Measures: Patient Health Questionnaire Depression and Anxiety modules & European Quality of Life Measure. Interviews conducted at 1 month, 6 months, 8 months, 10 months and 12 months post TBI

Results: 53.1% met criteria for major depressive disorder (MDD) at least once in the follow period.

“Assessment and tx of TBI typically focus on physical and cognitive impairments, yet psychological impairments represent significant causes of disability.”

Emotional Regulation

**Participants:** 25 participants ages 18-62 (10 stroke, 5 TBI, 7 autoimmune, 3 others with post injury period of >10 months

**Frequency/Duration:** 10 week group with weekly 2-hour sessions of the Mindful Attention Program (MAP)

**Results:** Clinically meaningful improvements noted in emotional regulation, moment-to-moment awareness and on measures of central-executive aspects of working memory and regulation of attention

**Conclusions:** “A Mindfulness Attention Program designed for brain injury can positively impact emotional regulation with a mixed brain injury population.”

Patient Perspective: Emotional Regulation
Fatigue & Sleep

- Fatigue and sleep disturbances are common in our patient population (more on this tomorrow!)
- Meditation and relaxation activities can help patients fall asleep and stay asleep
- Yoga Nidra (body scan)
**Fatigue & Sleep**

**Participants:** 18 individuals s/p stroke and 11 s/p TBI, all were rehabilitated except for symptoms of chronic fatigue. Separated into treatment and delayed treatment groups.

**Practice:** 8 week MBSR with modifications for memory/cognition.

**Measures:** Mental Fatigue Self Assessment, Comprehensive Psychopathological Rating Scale (CPRS), Neuropsychological tests for processing speed, attention, and working memory.

**Results:** Decline in mental fatigue after MBSR program for both groups (no significant change for wait list group prior to beginning program). Similar results for processing speed.

Coping with Chronic Symptoms

- Unfortunately, some of our patients have persistent symptoms after we have tried all available treatments
- Meditation may help them to cope
Our patients may…

- Learn ways to manage symptom escalation
- Improve self awareness
- Deepen their understanding of neuroplasticity
- Improve focused attention
- Improve emotional regulation (strategies and retraining)
- Reduce pain interference
- Reduce depression and anxiety
- Improve overall feeling of wellness and quality of life
- Etc??
How Can it Fit Into Our Clinical Sessions?

- Education
- Guided practice for symptom management and focused attention
- Recommendations for home program
- Referral to community resources and courses
Documentation

- Evidence-based intervention
- Meditation is a modality to address our classic rehabilitation goals
- For documentation and billing, focus on observations and outcomes (just as you would with any treatment technique)

<table>
<thead>
<tr>
<th>Goal Area</th>
<th>Sample Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain Management</td>
<td>Pt reported neck pain at beginning of session, rated 6/10 on Wong Baker Scale. After guided meditation/relaxation pt reported reduced pain, rated 3/10.</td>
</tr>
<tr>
<td>Attention</td>
<td>During basic functional activity (completing a form), pt demonstrated frequent loss of attention to task due to internal distractors. Pt participated well in guided meditation and was subsequently able to maintain focus for remainder of activity.</td>
</tr>
<tr>
<td>Emotional Regulation</td>
<td>Pt reported frequent emotional outbursts in home environment. Participated in education regarding meditation as a strategy for initiation of solution focused thinking. Expressed understanding and ID’d 2 potential opportunities for application.</td>
</tr>
</tbody>
</table>
Considerations for Special Populations

- Long time meditators
- Children
- Moderate-Severely injured
- Physical accommodations (positioning)
Resources

- Smart Phone Apps
  - Insight timer (free)
  - Calm, Headspace (subscription)
- YouTube Videos
- Local MBSR Course
- Local meditation and prayer groups
- Books/Publications
  - Palouse
  - BrainSave by Dr. Titus Chiu
In Development: Group Program

Meditation for Neuroplasticity
Program Overview

- Based on MBSR Group Program (Jon Kabat-Zinn)
  - Adaptations for BI population (shorter sits)
  - Accommodations (repetitions, written info is simplified)
  - Additions (SLP and Neuropsych concepts)
- Initial interview followed by 8 weekly sessions, 75 minutes in length
- Developed as a new clinical offering for PCS patients (chronic, plateaued)
- Plan to research outcomes
Guided Practice: Loving Kindness Meditation
Mindfulness for the Clinician

“If you think you are too small to make a difference, try sleeping with a mosquito.” - Dalai Lama
Meditation for Health Care Professionals

- Meta analysis: Mindfulness meditation has a positive impact on nurses' and nursing students' stress, anxiety, depression, burnout, sense of well-being and empathy

- Important to have a meditation practice yourself in order to teach!
- Mindfulness helps to establish “therapeutic presence”

Therapeutic Presence

- **Availability**
  - to the client

- **Openness**
  - to one’s own experience

- **Capacity to Respond**
  - objectively

Mindfulness and Therapeutic Presence

MEDITATION/MINDFULNESS practice

Strengthens attention

Enhances awareness of physical, mental, emotional states

Lays groundwork for THERAPEUTIC PRESENCE

© 2018 Jennifer Llado & Brenda Lovette
5 Pillars of Therapeutic Presence

Therapeutic Presence

Mindfulness

Intention
Emotional Intelligence
Compassion
Growth Mindset
Gratitude
Practice Teaching/Educating

Turn to your neighbor

- Person with longer hair – explain the benefits of meditation
- Person with shorter hair – guide your partner in one minute mindfulness practice

- Reflections?
Questions and Discussion