Yoga Practice: Tools for Enhancing Interoception, Autonomic Nervous System Regulation, and Resilience in Caregivers

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Self-Regulation

- Self-regulatory strategies may decrease allostatic load and improve health and well-being for a wide array of conditions such as: IBS, anxiety, neurodegenerative, depression, PTSD, chronic pain
  - Muehsam et al. (2017); Schmalzl, Powers, & Henje Blom (2015); Streeter, Gerbarg, Saper, Ciraulo, & Brown (2012); Taylor et al. (2010)

- Yoga therapy may build self-regulatory skills and strategies through both top-down and bottom-up processes and mechanism to decrease allostatic load and improve physical and mental health and well-being for diverse populations such as chronic pain, depression and PTSD.
  - Streeter et al. (2012); Schmalzl, Powers & Henje Blom (2015); Gard et al. (2014)
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Explanatory Framework for Yoga Therapy

Yoga Therapy: Self-regulatory strategies

Bottom-up strategies

- Movement, Breath and Body focused meditation and intentional practices:
  - Influence the musculoskeletal nervous and cardiovascular systems and affect the HPA and SNS activity, immune function and emotional well-being
    - Muehsam et al. (2017); Taylor et al. (2010)
- Build interoceptive awareness, sensitivity, accuracy to facilitate regulation
- Change the relationship to sensation of the body and mind and response to the outside
Interoception

- Link between top-down and bottom-up processes, connects affect, attention and physiology – Cuenen, Vlaeyen, & Van Diest (2016); Craig (2015); Strigo & Craig (2016)
- Role in how we receive, interpret and respond to bodily cues and includes integration with cognition, beliefs, memory and emotion—Farb et al. (2015)
- Capacity to self-regulate is proposed to be depending on the accuracy of the interoceptive process and the adaptability of the system to respond to inner and outer stimuli and needs—Farb et al. (2015)
- Interoceptive processing important in: pain, emotion regulation, addiction, empathy, autonomic regulation, return to homeostasis in response to stress and adversity --Cuenen et al. (2016); Farb et al. (2015); Porges (2011); Haase et al. (2016)
Interoception and resilience

- Interoception is proposed to be a key to resilience.
  - Links internal state to restoration of homeostatic balance
  - Low resilient individuals- lower levels of interoceptive awareness and higher insular and thalamic activation in response to stressor indicating mismatch between attention to and processing of interoceptive information. This mismatch between inadequate awareness and increased activation to adverse stimuli may be contributing to lower levels of resilience
    - Haase et al. (2016)
- Resilience: capacity to bounce back and adapt in response to adversity or stress such that psychophysiological resources are conserved
  - Higher resilience- faster cardiovascular recovery after emotional stress, less perceived stress, greater motivation in recovery, better adjustments to diagnoses such as dementia
    - Resnick, Galik, Dorsey, Scheve, & Gutkin (2011); Tugade & Fredrickson (2004); Whitson et al. (2016); Haase et al. (2016); Tugade and Fredrickson (2007)
Polyvagal Theory

- Describes the autonomic neural platforms from which physiological states emerge and emotional/behavioral attributes are made accessible.
  - Resilience- capacity to access and move between neural platforms
- Vagus nerve is largely afferent and responsible for interoception as well as parasympathetic activation and as such is important for regulation and resilience through activation strategies
  - Lower vagal tone: associated with poor self-regulation, less behavioral flexibility, adverse health outcomes
  - Breath- NA is affected by breath while DMN is not
    - Porges (2011); Hayano & Yasuma (2003)
Yoga Practice

- Influence autonomic function through bottom-up strategies to enhance
  - Interoception
- Reappraisal of BME stimuli through curiosity, nonjudgement, acceptance
- Alter relationship and reaction to BME phenomena essential to resilience and self-regulation and well-being in diverse populations
Yoga and resilience

- Yoga has been shown to
  - Improve measures of psychological resilience such as self-concept and decreased dysfunctional coping mechanisms – Dale 2011
  - Improved vagal function
    - Chu et al. (2017); Khattab, Khattab, Ortak, Richardt, & Bonnemeier (2007); Sarang & Telles (2006); Telles, Sharma, Gupta, Bhardwaj, & Balkrishna (2016); Tyagi & Cohen (2016); Tsuji et al. (1994)
  - In Caregivers
    - Reverse patterns of gene expression to decrease inflammation and support immune system in caregivers of dementia patients Black et al 2013
    - Improve quality of life, attention, vitality and self-compassion of family caregivers of Alzheimer’s patients as well as decreasing stress, anxiety, depression and cortisol levels Danucalov et al. (2017); Danucalov et al. (2013)
Practice

- Body Scan: 5-7 min
  - 5 min discussion
- Asana: 12-15 minutes
  - 5 min discussion
- Pranayama: 8 min- diaphragmatic breath and nadi shodhana
  - 5 min discussion
Resources


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