RESILIENCE AFTER BRAIN INJURY: EVIDENCE, INNOVATIONS, AND WAYS FORWARD

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LEARNING OBJECTIVES

• Resilience vs. recovery framework

• 10 empirical factors of resilience

• Mindfulness-based tools for cultivating resilience

• How to access resilience-based programs for people with TBI & caregivers
TRAUMATIC BRAIN INJURY

• Common, complex, difficult to treat
• Untreated TBI most expensive public health problem globally
• Community integration primary rehab goal, yet
  – Access barriers to holistic, rehab services
  – Emphasis on ‘fixing what’s wrong’
• Social isolation, symptoms & co-morbidities persist, lower QOL

McColl et al., 2001, McCabe et al., 2007, Abrahamson et al., 2017, Mozayeni et al., 2019
RESILIENCE VERSUS RECOVERY

**Resilience**  
reˈsiləns/  
noun  
1. process of adapting well in the face of adversity, trauma, tragedy, threats, and significant sources of stress

**Recovery**  
reˈkəvərɪ/  
noun  
1. a return to a normal state of health, mind, or strength  
2. process of regaining possession or control of something stolen or lost
Ability to adapt positively to adversity and find a way *forward*
RESILIENCE

✓ Coping, psychological adjustment, motivation

✓ Symptoms & functional outcomes
  – Study of mTBI (n=74), less PPCS, PTSD, fatigue, depression, higher QOL

✓ Participation in jobs, education, leisure, relationships
  – Cross-sectional study (n = 245 people) with mild-severe TBI, 4.6 years post-injury, found resilience significantly predicted higher participation (along with shorter PTA, more time post-injury, higher education, younger age)
  – Longitudinal study (n=195) resilience significantly associated with participation over first year post-injury

• Quality of Life (objective and subjective)
  – Adverse effects of low resilience stronger influence on well-being than do the positive effects of high resilience

• Moderators: social support, nonminority status, lower anxiety and disability level, greater life satisfaction

Losoi et al, 2015; Rapport et al, 2020; Kreutzer et al, 2018; Wardlaw et al., 2018; Marwitz et al. 2018
POST-TRAUMATIC GROWTH

Success in coping or strengthening perceptions of self, others, and meaning after trauma

• Alternative view of trauma → “Building what's strong” vs. “fixing what's wrong”

• Up to 50% of people with ABI in research samples
  • Self views – appreciation of personal strengths, greater awareness of new possibilities in life
  • Relationships – greater connection and compassion for others who have suffered
  • Meaning - changing views about what’s important and life’s possibilities

• Meta-analysis on PTG after brain injury
  • Subjective beliefs about changes, employment, education, older age, longer time post-injury, less depression
  • Severity of injury very small effect size – most severe reported similar PTG levels
  • Social integration & forming new identities proposed as pivotal

Tedeschi & Calhoun, 1995; Hawley and Joseph, 2008; Grace et al., 2015; Joseph 2012)
“The type of people who may tend to experience PTG are those who would actively approach difficulty rather than avoid it. Someone who is open to change, open to the novelty and serendipity of life. People who can accept that bad things happen, that they can no longer do certain things, but who focus on engaging in the things that they can still do. And people who are open to new opportunities... possibilities and choices that may not have presented themselves before the tragedy.”

- Dr. Richard Tedeschi
IMPLICATIONS FOR REHAB SERVICES

Resilience and PTG do not make everything all better or stress disappear.

Shown to improve a range of important health and QOL outcomes after brain injury.

Integrate evidence-based strategies for promoting resilience.
10 EMPIRICAL FACTORS OF RESILIENCE

Altruism
Realistic optimism
Facing fears
Social connection
Role Models
Spirituality
Physical fitness
Brain health
Cognitive and Emotional flexibility
Meaning and purpose

Emotional
Social
Cognitive
Physical

RESILIENCE AND ADJUSTMENT INTERVENTION

Manualized, 7-session program, delivered 1:1 by clinicians

Guiding assumptions

- People who learn to adopt traits key to resilient living will find increasing success in their recovery and growing life satisfaction.

- Achieving emotional wellness after TBI requires clear understanding of symptoms, commonly encountered challenges, and recovery process.

- People who are more aware of their strengths and limitations are more likely to lead productive and meaningful lives.

- Developing resilience enhancing skills for problem-solving, goal setting, communication, and managing stress and intense emotions enhances abilities to be productive and maintain quality relationships.

- People are more likely to improve when they actively engage in recovery, and able to maintain a positive outlook.
RESILIENCE AND ADJUSTMENT INTERVENTION

• Randomized trial with 160 TBI either RAI or control group
• 7 one-hr sessions at outpatient clinic over 5-weeks
• 2-3 topics/session on skills-building, psych support, education:
  – Learning about common changes after a TBI
  – Discussing how to take an active role in TBI recovery
  – Goal setting and defining success in a flexible way
  – Learning how to solve problems and overcome challenges
  – Managing stress and difficult emotions
  – Communication skills, building relationships, and talking to others about TBI
  – Having a positive outlook on life and overcoming negative thinking

• Assessments before, after, 3 month follow-up
• Control group had very small changes

✓ RAI group significant improvements in resilience, emotional health, communication and problem-solving skills
  – Resilience increased by 35%, stress decreased by 33%, sustained at 3 mos

https://tbi.vcu.edu/interventions/rai/
LOVEYOURBRAIN PROGRAMS

- Holistic, community-based, complementary rehabilitation programs for TBI & caregivers
- Designed to improve resilience, QOL, community participation via psychosocial & mindfulness-based components

Emotional  Social
Cognitive  Physical
MINDFULNESS

“Paying attention: on purpose, in the present, non-judgmentally”

Dr. Kabat-Zinn

Lack of awareness major obstacle to resilience & QOL

• Accurate perceptions of themselves and greater willingness to change → healing and community integration

• Supports people to recognize and appreciate strengths, while being aware of limitations without over-identifying
MINDFULNESS IN MOTION: YOGA

physical movement (asana)
breathing exercises (pranayama)
meditation (pratyahara, dharana, dyana)
ethics (yamas, niyamas)
complete wellbeing (samadhi)
Brain-Based Approaches to Help Clients After Trauma

How to help clients cope with their raw emotions and defense reactions.

Top-Down Approaches

How to help clients think differently.

Bottom-Up Approaches

Comprehensive Resource Model

Sensorimotor Psychotherapy

EMDR

Yoga

CBT

MBCT
Empowering people with traumatic brain injury + concussion and caregivers to build resilience and community connection through FREE, research-backed programs:

**YOGA**
6-week yoga and meditation program in studios and hospitals across the US and Canada to support wellbeing

**MINDSET**
6-week online yoga, mindfulness, and education program to build a resilient mindset

**RETREAT**
5-day holistic health retreats to explore mindfulness, movement, nutrition, and community

**TRAININGS**
20-hour online and in-person trainings for yoga teachers and clinicians to become certified in accessible yoga for TBI

30,000+ SERVED ACROSS US, CANADA, AND GLOBE
Curricula Development

2014
Piloted Retreat and Yoga programs

2015-2017
Iterative development using participant & health professional feedback

2017-2018
Manualized curricula in preparation for scaling up

2018-2020
Expansion to new locations

2020
Online Adaptation due to COVID for Mindset program
A crossover and effect communi

Best Practic Yoga for Pe and Canada
Nirali Chauhan, M
1. The Dartmouth K.
2. LoveYourBrain F.
3. Department of Psy Foundation, Windsor.

Abstract
Background and improve fatigue or assess the feasibility psychoeducation a rural, community
Methods: This no among 15 people English-speaking, mean differences Test, NIH NeuroC recruitment and r measures.
Results: Significa wellbeing (MD 2.7 after LoveYourBrain SD 1.4) and a major

Introduction
Traumatic brain injury (TBI) is a both short- and long-term condition and society. It is estimated that living with a TBI-related disorder Cognitive and behavioral impair...
Research-backed, FREE, six-week online yoga, mindfulness, and education program

YOGA CLASS

GROUP DISCUSSION

MINDFULNESS TOOLS

1: EDUCATION
2: MEDITATION
3: YOGA
4: YOGA NIDRA
MINDSET: YOUR SUPERPOWER

• Our mindset is a belief system about our own abilities and potential

• Learn about and adopt a growth versus fixed mindset through a group process
“In a fixed mindset, people believe their basic qualities, like their intelligence or talent, are simply **fixed traits**. They spend their time documenting their intelligence or talent instead of developing them. They also believe that talent alone creates success—without effort.”

- Carol Dweck
GROWTH MINDSET

“A belief that your **basic qualities are things you can cultivate through your efforts**. Although people may differ in every which way — in their initial talents and aptitudes, interests, or temperaments — everyone can change and grow through application and experience.”

- Carol Dweck
What makes you RESILIENT? Share one thing that has helped you become more resilient following your brain injury.

How does MINDFULNESS show up in your life?

Share an INTENTION that’s important to you right now?

What’s one CHALLENGING outcome of your brain injury, and how are you GROWING from it?

What’s one POSITIVE outcome of your brain injury that maybe you didn’t expect?

What’s one thing that you are GRATEFUL for?
Week 4: Power of Realistic Optimism

Realistic optimism: ability to acknowledge obstacles without getting bogged down, and see opportunities to work towards what’s possible

Tool for handling challenges

• Hope and confidence that you can make good things happen, even in rough conditions, through hard work, persistence, and choosing the right strategies

  • Strengths-based approached: “what am I learning from this?”
  • Add ‘yet’ to statements about one’s current challenges, e.g., “I can’t drive...” → “I can’t drive... yet”.
**Week 5: Power of Positive Thinking**

**Tool for addressing the negativity bias** → brain wired to pay more attention to negative rather than positive information, heightened after TBI

**Important to address Automatic Negative Thoughts (ANTS)**
- Mind Reading
- Guilty Thinking
- Fortune Telling
- Comparison
- Blaming

**Few important points:**
- Not trying to get rid of ANTS or deny problems → acknowledge and use positive self-talk to work with anxiety, depression, stress
- Positive self-talk → opportunity for self-compassion or making things less negative
FIRST-EVER ONLINE YOGA FOR TBI STUDY

We wanted to know...

Is it helpful?
Does LYB Mindset benefit health outcomes after TBI?

It is good enough?
Are people satisfied with the LYB Mindset content and design?

Does it work for TBI?
Can people with TBI & caregivers successfully participate in LYB Mindset?

How the study went...

Design: Mixed-methods, pre-post retrospective study

Eligibility: TBI, caregiver, 15+ years, capable of gentle exercise and group discussion

Data collection: self-reported demographics & 5 clinical outcomes

Analysis: Multiple linear regression, content analysis
• 1,093 people (71.0%) participated >1 class in 127 programs in 1.5 yr period
• Mean satisfaction was 9.1 out of 10 (SD 1.28)
• 411 people with TBI experienced significant improvements in:
  ✓ Quality of Life MD = 0.59, 95% CI=0.51, 0.67, p<0.001
  ✓ Resilience MD = 0.70, 95% CI=0.62, 0.78, p<0.001
  ✓ Cognition MD = 0.74, 95% CI=0.68, 0.80, p<0.001
  ✓ Positive Affect MD = 0.77, 95% CI=0.70, 0.85, p<0.001
  ✓ Emotional/Behav Dysregulation MD = 0.58, 95% CI=0.52, 0.65, p<0.001
“The hardest part for me was losing my professional ‘mind’ after my accident. I lost everything I depended on in life to feel useful, confident, and like a functioning adult. I was suddenly dependent, in an emotional firestorm, and physically challenged, a trifecta of crises. This program has brought me inner healing physically, sanity, and emotional shelter. I cannot say enough how much this program saved my life, literally. I am so very grateful to have been able to participate these six weeks. I will continue everyday to practice the 4 steps and be thankful for what I have achieved in this program.”
EXPANDING ACCESS TO RESILIENCE

5,600+ people in Mindset programs
65 Facilitators/co-Facilitators - 46% with TBI or caregiver
Affinity Groups – Caregiver, BIPOC, Veterans, Chair, Young Adult
High quality - 9.0 out of 10 rating

50 states in US
11 Canadian prov/terr
22 other countries
RESILIENCE RESOURCES

• Resilience and Adjustment Intervention
• Brainline.org – articles & videos
  • Positive Ways to Reinvent Yourself After a TBI
  • Tapping into Skills of Resilience After Brain Injury
• LoveYourBrain programs
LoveYourBrain Retreats

5-day, manualized, holistic health residential retreats
• Somatic movement
• Mindfulness
• Brain Health Nutrition
• Community Building
• Art therapy

Offered 5x per year in nature-based retreat centers in Colorado and Maine
CERTIFICATION-LEVEL TRAININGS

2,500+ yoga teachers, clinicians, advocates trained to offer resilience-based mindfulness and yoga programs for TBI

20+ hour live online lecture, experiential learning, practice teaching

• TBI & neuroplasticity, neuroscience
• Best practices for TBI-specific yoga, breathing exercises, meditation
• Psychoeducation material & group facilitation techniques
TRAININGS TO EXPAND YOUR SKILLS!
For yoga teachers, health professionals & the brain injury community

Level 1 & 2 - Yoga & Facilitation Trainings
Trauma-informed yoga, meditation, breathwork, group facilitation for TBI
March & June 2023
APPLY!
www.loveyourbrain.com/train-with-us

LYB Yoga for Health Professionals
Accessible chair/mat yoga, yoga nidra for sleep, neuroscience & research
Aug 2023
APPLY!
www.loveyourbrain.com/train-with-us
THANK YOU & QUESTIONS!

Together, we believe we can promote resilience and wellbeing after brain injury!

LET’S COLLABORATE

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REFERENCES


