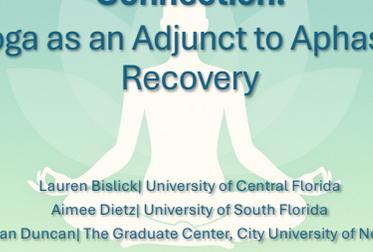


## Building the Mind-Body Connection: Yoga as an Adjunct to Aphasia Recovery



Lauren Bislick | University of Central Florida  
Aimee Dietz | University of South Florida  
E. Susan Duncan | The Graduate Center, City University of New York

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## Introductions



- Lauren Bislick, Ph.D., CCC-SLP, CBIS
- Associate Professor, University of Central Florida
- Director, UCF Aphasia House & Aphasia and Related Conditions (ARC) Lab



- Aimee Dietz, Ph.D., CCC-SLP, RYT 200
- Associate Professor, University of South Florida
- Director, Language Recovery & Communication Technology (LaRCT) Lab



- E. Susan Duncan, Ph.D., CCC-SLP, RYT 200
- Associate Professor, The Graduate Center, CUNY
- Director, Language Imaging & Brain Research (LIBRe) Lab

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## Disclosures

- Honoraria From Project Bridge 
- Supported by the Orlando Health Community Grant Program 
- UCF Aphasia House 
- Seed Funding
  - University of Cincinnati 
  - Georgia State University 
  - University of South Florida 



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### Learning Objectives

<b>Explain</b>	• Explain how yoga, meditation, and mindfulness relate to stress and resilience
<b>Describe</b>	• Describe adaptations that support participation of people with aphasia
<b>Summarize</b>	• Summarize research on yoga for people with aphasia
<b>Discuss</b>	• Discuss integration of yoga and meditation into clinical or community practice

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### Agenda

- Introductions and disclosures
- Background on yoga, mind-body practices, and meditation
- Statement of the problem and rationale
- History of Team Yoga and promoting accessibility
- Team Yoga studies
- Clinical application and future directions
- Audience Q&A

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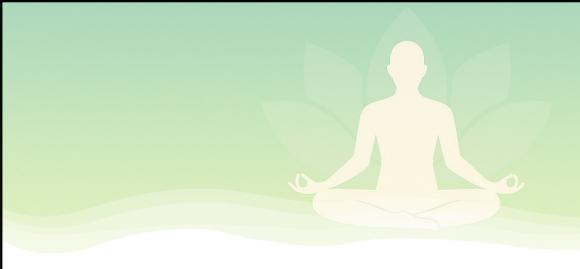
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### Background on Yoga, Mind-Body Practices, & Meditation

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### Mind–Body Practices

- Diverse group of procedures promoting health by targeting **brain-body interactions** (NCCIH)
  - **Psychological** only: meditation, mindfulness
  - **Physical** only: acupuncture, massage
  - **Combination**: yoga, tai chi, dance therapies, breathwork
- Generally **under-researched** (and **under-funded**)
  - Small sample sizes, less controlled studies
  - Evidence base = emerging
- **Complementary & integrative medicine**
  - Increasingly used in rehabilitation medicine and treatment of chronic conditions

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### Evidence for Mind–Body Practices

- Often aim to influence both **physiological stress** and **cognitive-emotional regulation**

**Meta-analyses** suggest:

- **Stress reduction**: ↓ cortisol, lower resting heart rate and blood pressure; ↑ heart rate variability (Pascoe et al, 2017)
- **Sleep improvement**: ↑ sleep quality in older adults (Makhfudli et al, 2024; Li et al, 2025)
- **Pain management**: ↓ pain intensity in chronic neuropathy (Babos et al, 2024)
- **Inflammation**: ↓ inflammatory markers; ↑ anti-inflammatory, antiviral, and immune-activating factors (Lee et al, 2025)
- **Brain effects**: changes within default mode and ventral attention networks (Han et al, 2023)
- **Mental wellness**: ↓ anxiety, depression (Babos et al, 2024; Dong et al, 2024; Li et al, 2025)

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### Yoga as a Mind–Body Practice

- **5,000-year tradition** joining movement, breath, and mindfulness
  - Traditionally also deeply rooted ethical/spiritual principles and beliefs
- Contemporary use → **mental & physical health benefits**
  - **Adjuvant** to facilitate gains in clinical aphasia therapy
  - **Standalone** intervention targeting general well-being and quality of life in people with aphasia
- **Key components**: Asanas (movement), Pranayama (breath), Dhyana (meditation)
- **Mechanisms**: circulation, oxygenation, autonomic regulation, attention control, neuroplasticity

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## State of Mind-Body Practices in Aphasia

- **Yoga:** First published study in **2007** (Lynton et al)
  - 3 participants; 36 hours of yoga over 12 weeks
  - Improvements in **dexterity** and **language measures**
- **Meditation/mindfulness:** Several **small studies** demonstrate **feasibility with limited impact**
  - Typically short (~ 5 day) interventions
  - Panda et al (2021): Perceived benefits in **self-acceptance, resilience, and sense of calm** with a meditation group
- **Breathwork:** **Limited evidence** to date
  - One study found significant decrease in anxiety, increases for some language scores after 4 weeks (not well maintained 6 weeks later; Marshall et al, 2014)
  - Reduced self-reported stress and severe → moderate AOS (Freesstone et al, 2024)

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Statement of the Problem and Rationale

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### Why this Matters

- **>50%** of stroke survivors with aphasia may have **depression**
  - Higher than general stroke population (Edelkraut et al., 2022, Zanella et al., 2023)
- **44%** may have significant **anxiety** (Morris et al., 2017)
  - Double the level in general stroke population
  - Prevalence remains elevated even years after stroke (Knapp et al., 2020)
- **Lower rates of functional independence/participation** compared to stroke survivors without aphasia (Spaccavento et al, 2014; Grefkes & Fink, 2020)
- **Decline of social networks** for people with aphasia (Northcott et al., 2016)
- All associated with **higher levels of perceived stress and lower QoL**

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12

## Why Yoga for Aphasia?

- **Movement supports communication**
  - And yoga reconnects people with their bodies
- Demonstrated stress reduction of yoga can **free up resources** for communication
- Supports “**living well with aphasia**” philosophy
- Opportunities for participation can **strengthen resilience**
  - Improved coping and confidence → navigate daily challenges more confidently and effectively
- **Adaptable** across linguistic and physical abilities

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## History of Team Yoga and Promoting Accessibility/Adaptions

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14

## The Very Beginning

Started with a seed grant at the University of Cincinnati (2017)

### GOALS

#### 1. Develop and test the feasibility of an adapted yoga program to:

- reduce the physical, linguistic, and interpersonal communication challenges experienced by people with aphasia
- while improving the coping skills and relationship quality.

#### 2. Provide interdisciplinary mentoring to students and junior faculty.

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15

### Terri—The Force Behind Our Journey



In honor and remembrance of Terri Kersey  
1970-2019

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### Barriers to Yoga Participation for People with Aphasia



- Communication**
    - fast paced
    - complex language
  - Environment**
    - transportation
    - instructors unaware of aphasia
  - Personal**
    - frustration, fatigue, mobility limitations
- (Ross, Howe, & Jenstad, 2022)
- ✓ Yoga-based stroke studies excluded people with aphasia  
(Thayabaranathan et al., 2017)
  - ✓ Need for aphasia-friendly design and trained instructors

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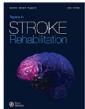
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### PhotoVoice as a Tool—But of Course..



Topics in Stroke Rehabilitation

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/doi/10.1080/10741029.2020.1811111>

**A scoping review of PhotoVoice for people with post-stroke aphasia**

Aimee Dietz, Chitrani R. Mamlekar, Katrina L. Bakas, Michael J. McCarthy, Dana Harley & Tamilyn Bakas

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## Adaptations Along the Way

- Modified postures
- Instructor training in supported communication
- Visuals
  - photos of adapted poses
  - supported comprehension
- Virtual delivery to overcome COVID barriers
  - Chair Yoga\*
- Use of motor imagery
- Orientation
  - during
  - before



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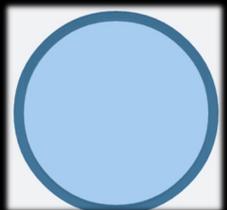
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## Yogic Breathing



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## 2018 BRIDGE Meeting (Hinkley & Brice)

**Cincinnati**

- Aimee Dietz
- Terri Kersey
- Greg Kersey



**Attendees**

- Lauren Bislick-Orlando
- E. Susan Duncan-Louisiana
- J. Chase Rushlow-Orlando
- Deanna Rushlow-Orlando



21

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## The Dubbing of Team Yoga

**bridge**  
Involving everyone in research

2018 Project BRIDGE meeting  
(Jackie Hinkley & Alejandro Brice)

**Research Question**  
*"In people with aphasia and co-survivors, will 8-weeks of aphasia-friendly yoga demonstrate benefits on quantitative and qualitative measures of stress, pain management, and relationship mutuality?"*

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## Yoga as Therapy for People with Aphasia

**PERSPECTIVES** **SIGN**

**Viewpoint**

**Yoga as Therapy for People With Aphasia**

Aimee Diaz,<sup>1</sup> E. Susan Duncan,<sup>2</sup> Lauren Blalock,<sup>3</sup> Sarah Stegman,<sup>4</sup> Jenae Collins,<sup>5</sup> Chitrai Manikar,<sup>6</sup> Rachel Gleason,<sup>7</sup> and Michael J. McCarthy<sup>8</sup>

- In 2020 we proposed that a therapeutic yoga program may have multiple benefits for people with aphasia
  - quality of life
  - social integration
  - resilience/coping
  - cognition
  - neurological function
- These changes may **indirectly** support improvements in **language function**.

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**Team Yoga Studies**

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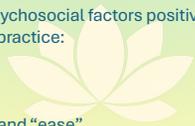
## Partner Experiences

AJSLP  
Clinical Focus

**Finding "Zen" in Aphasia: The Benefits of Yoga as Described by Key Stakeholders**

Lauren Blalock,<sup>1\*</sup> Aimee Dietz,<sup>2\*</sup> E. Susan Duncan,<sup>3\*</sup> Pilar Garza,<sup>4\*</sup> Rachel Ostrom,<sup>5\*</sup> Dana Harley,<sup>6\*</sup> Greg Koenig,<sup>7\*</sup> Tom Krasner,<sup>8\*</sup> Charles R. Swartzberg,<sup>9\*</sup> Melissa J. McCarthy,<sup>10\*</sup> Vicki Beck,<sup>11\*</sup> Deanna Rustlow,<sup>12\*</sup> J. Chase Rustlow,<sup>13\*</sup> and Stephanie Van Allen<sup>14\*</sup>

- Narrative study (2022):
  - Team members identified psychosocial factors positively impacted by their own yoga practice:
    - stress
    - sleep quality
    - pain management
    - communication "effort" and "ease"




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## Feasibility Study

AJSLP

Research Note

**The Feasibility and Benefits of a Virtual Yoga Practice for Stroke Survivors With Aphasia**

Lauren Blalock,<sup>1\*</sup> Aimee Dietz,<sup>2\*</sup> E. Susan Duncan,<sup>3\*</sup> and Karen Cornelius<sup>4\*</sup>

Pilot work (2023)

- Purpose:
  - feasibility of a virtual, adapted, aphasia-friendly yoga program for stroke survivors with aphasia
  - impact of yoga on resilience, stress, sleep quality, pain, and word retrieval/fluency
  - participant motivation and perceived benefit of participating in a yoga program




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## Feasibility Study

**Participants:** N=7; ≥ 6 months post

-  8-week
-  45-minute sessions
-  Led by a registered yoga teacher and student of yoga therapy
-  Sessions included asanas, breathwork, meditation, social interaction

**Patient-reported outcome measures:**

- Resilience (UWRS) (Amtmann et al., 2020)
- Stress (mPSS) (Hunting Pompon et al., 2018)
- Sleep (PROMIS SD) (Yu et al., 2011)
- Pain (PROMIS PI) (Amtmann et al., 2010)

**Language (CAT) (Swinburn et al., 2005):**

- Fluency
- Naming

**Semi-structured interviews:**

- Motivation
- Perception




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27

## Feasibility Study

**Results:**

- **Feasibility:** No attrition, no technical issues, accessible instruction, all reported a positive experience and desire to continue
- **PROMs:** ↓ stress and sleep disturbance (**MEDIUM** effect)  
pain interference (**SMALL** effect)  
↑ resilience (**LARGE** effect)
- **Language:** no change in fluency or naming
- Semi-structured interviews → thematic analysis:
  - Motivation: **mental wellness; physical benefits; grounded**
  - Perceived benefits: **community; goals met; keep doing yoga; grounded**

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## Cohort Study



Research Note  
**Benefits of a Virtual, Adapted Yoga Practice for People With Aphasia: A Pilot Cohort Study**  
Lauren Blöchl,<sup>1</sup> Alinga Dietz,<sup>2</sup> Karen Cornillia,<sup>3</sup> E. Susan Duncan,<sup>4</sup> Amy E. R. Engelhorst,<sup>5</sup> and Michele K. Hart<sup>6</sup>

Cohort study (2025)

- Purpose:
  - **Replicate** our feasibility study via a **delayed cohort design** to further examine the impact of yoga on stress, resilience, sleep disturbance, and pain management.
  - **Expand** our outcome measures to include a self-report measure of **aphasia impact**.
  - Reach a geographically and linguistically **more diverse group** of participants.
  - Assess **participant feedback** about the structure of the yoga program to **inform programmatic development**.

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## Cohort Study

**Participants:** N = 14; Cohort 1 (n = 7); Cohort 2 (n = 7)

**Yoga Practice:** Similar structure to feasibility study

- 8 weeks, 1 x a week
- Lead by a yoga therapist (Karen)
- Sessions were 60 minutes

**Outcomes Measures:**

- Same PROMs as feasibility study
- Addition of the Aphasia Impact Questionnaire (AIQ-21) (Swinburn, 2018)
- Post yoga program questionnaire to inform program development

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### Cohort Study

**Results:**

- Diversity: More diverse group, geographically and linguistically
- **PROMs:**
  - ↓ stress and aphasia impact (**SMALL** effect) and sleep disturbance (**MEDIUM** effect)
  - ↑ resilience (**MEDIUM** effect)
- **Post Yoga Program Questionnaire:**
  - Satisfied with the program structure and length, yoga therapist's rate of speech, and homework option
  - 7 reported wanting more challenge




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31

### Cohort Study: Qualitative Component

- Purpose: Describe the lived experiences of PWA following participation in the yoga program
  - Interpretative **phenomenological approach** to evaluate experiences
  - **Semi-structured interview** with an interview guide
    - Focus groups and/or individual interviews

10 themes identified	
Physical benefits Grounding Positive feelings Experience with yoga Adapted yoga	Independence Tell others about yoga Resilience Self-compassion Community

Hart et al., 2025, Under Revision




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32

### Higher Intensity Study

**Purpose: Investigate dosage and delivery**

- **8 hours over 4 weeks** vs. 8 hours over 8 weeks
  - 2-hour orientation session to address safety, practical, technical issues
- Led by **SLP/RYT-200** vs. yoga therapist
- Participants: N = 9; chronic
- Outcome Measures:
  - PROMs
  - Qualitative Component



Dietz et al., 2025, Submitted

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33

### Higher Intensity Study

Larger effects with more frequent practice

**Results:**

- 100% retention; only 2 absences
- **PROMs:**
  - ↓ stress, sleep disturbance, aphasia impact (**LARGE** effect)
  - ↓ pain interference (**SMALL** effect)
  - ↑ resilience (**SMALL** effect)
- Qualitative findings

9 themes identified	
Physical benefits	Independence
Grounding	Tell others about yoga
Positive feelings	Resilience
Experience with yoga and similar practices	Self-compassion
	Community

Dietz et al., 2025, Submitted

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### Implementation Study

**Purpose:** Understand the perspectives and experiences of an interprofessional rehabilitation team on the implementation of our aphasia-friendly yoga program in an inpatient rehabilitation hospital.

**Implementation Procedures :**

- 6 health care professionals
  - 2 SLPs, 2 PTs, 1 OTA, 1 RT/RYT
- **Training:** Observation → collaborative discussion → early implementation + shadowing → supported implementation → independent implementation



ORLANDO HEALTH

Bislick et al., 2025, In Preparation

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### Implementation Study

**Exploratory Qualitative Design:**

- 2 focus groups with an interview guide
  - Session 1 = 90 minutes
  - Session 2 = 60 minutes
- Transcription → checking → thematic analysis

**Results:**

8 themes identified	
• Misconceptions	• Transdisciplinary Collaboration
• Program Accessibility	• Program Facilitators & Barriers
• Positive Feelings	• Community Sustainability
• Program Benefits	• Implementation Science

Bislick et al., 2025, In Preparation

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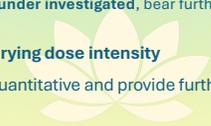
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## Conclusions

- Our work represents the **majority** of work investigating impact of yoga in people with aphasia
- **Consistent effects** noted for perceived stress (**small – large**); resilience (**small – large**); sleep quality (**medium – large**); aphasia impact (**small – large**)
  - **Small** effect on **pain**, when notable pain is present at baseline
  - **Language measures remain under investigated**, bear further consideration
- Effects appear **robust when varying dose intensity**
- **Qualitative results** reinforce quantitative and provide further avenues for investigation
- **Implementation** – promising findings with inpatient rehab




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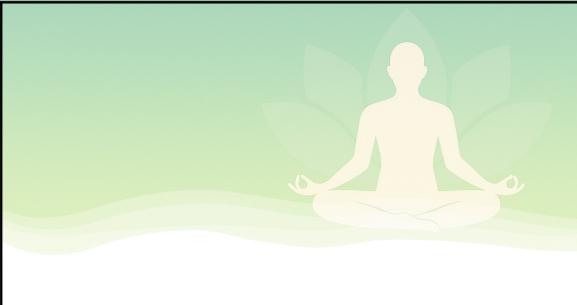
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## Clinical Application and Future Directions

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## Clinical Application and Future Directions

**Clinical and Community Application:**

- Integrate yoga or mindfulness techniques into therapy
- Collaborate with yoga instructors and therapist
- Consider implementing adapted community classes
- Use as adjunct or standalone wellness intervention
- Fits within ICAP or group therapy models

**Future Directions:**

- Larger controlled trials on yoga and meditation
- Examine mechanisms (stress biomarkers, sleep metrics)
- Further explore active ingredients
- Further integration into rehab and community settings




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41



Thank you!

Questions?

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42