Yoga and ALS
It’s All in the Breathing

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Respiration and ALS

- Most patients experience respiratory decline over their disease course
- Respiratory insufficiency adversely affects QOL in patients and caregivers, caloric balance and longevity
- Respiratory failure is the most common cause of death (Lyall et al, 2000)
- Some patients present with FVC well over 100% predicted
  - These patients have had hobbies that promote good lung function
What is Yoga?

- Yoga is an ancient system of physical, psychological and spiritual balance.
- Yoga practices include a variety of:
  - Physical movements (“asanas”)
  - Breathing techniques (“pranayamas”)
  - Awareness and meditation techniques (“dhyanas”)
- This body/mind balance is the basis of health and well-being (Olivo, 2009)
Yoga Breathing Techniques in Health and Disease

Health Benefits

- Anti-inflammatory, anti-stress, antioxidant (Olivo, 2009)
- Enhances well-being, mood, attention, and stress tolerance (Brown/Gerbarg, 2005)

Mechanisms

- Balances autonomic nervous system
- Calms stress response system
- Contributes to neuroendocrine release of hormones (Brown/Gerbarg, 2005)
Yoga Breathing Techniques in Health and Disease

Studies have shown:

- Improved pulmonary function/respiration/oxygen saturation in COPD (Pomidori, 2009)
- Benefits for psychological and stress-related disorders (Brown, 2005)

No published research on the effects of yoga in ALS
Study Hypothesis

Teaching patients and caregivers yoga breathing techniques in a clinic setting may:

- Reduce stress
- Promote relaxation
- Maximize lung function

These effects may improve QOL and increase longevity
Objectives of Study

➢ To promote yoga breathing patterns in a clinic setting by teaching patients and caregivers yoga breathing techniques to:
  ● Reduce stress
  ● Promote relaxation
  ● Maximize lung function
  ● Improve QOL
Yoga Breathing Techniques
The Wave Breath

- Focuses on diaphragmatic breathing:
  - Trains individuals to release abdominal and chest tension that may interfere with complete respiration
- Strengthens all muscles involved in breathing
- Increases lung capacity
- Has a general calming effect
Seven Color Breath

- Directs awareness to seven energy centers corresponding to major endocrine organs and nerve plexuses
- Represents physical, emotional, psychological, energetic and spiritual aspects of each individual
- Accesses the autonomic nervous system, initiates the relaxation response, and trains individuals in alternate methods of controlling the body
Inclusion Criteria

- Definite or probable ALS
- Age 18 y to 85 y
- Early and intermediate stage of disease as measured by FVC > 75%, no more than 12% drop from sitting to lying
- ALS/FRS-R score ≥ 40
- Availability of caregiver in home
- Willingness to participate
Exclusion Criteria

- Non-invasive ventilation use
- Feeding tube
- Lack of primary caregiver
- Bed bound patients
- Shortness of breath at rest
- Major systemic disease (liver, kidney or lung disease, active cancer)
Protocol

- 15 ALS patients and their primary caregivers will be recruited through Vermont ALS Clinic
- Subjects will be followed for 1 year through ALS Clinic
- Participants will be asked:
  - Current age
  - Smoker/nonsmoker
  - Family hx of ALS, Parkinson’s, or Alzheimer’s
  - Hx of other major systemic disease
- Patients will be asked Bulbar or spinal onset, age at onset
Protocol

- Baseline and follow up visits for patients will include:
  - Height, weight, blood pressure, pulse, and respiration
  - ALS-FRS R Score
  - FVC sitting and lying, NIF, SNIF

- Both patients and care givers will complete:
  - McGill QOL single item question: How do you rate your quality of life?
  - Stress questionnaire
Protocol

- Certified therapeutic yoga instructor will teach 2 yoga breathing patterns

- Participants will:
  - Practice the breathing patterns for 10 minutes twice a day
  - Keep a log
  - Check in every 2 weeks by phone or email
Protocol

- Follow up visits:
  - 2 weeks, 6 weeks,
  - 12 weeks, 24 weeks,
  - 36 weeks, and 48 weeks
Summary

- Yoga breathing may be an early intervention in ALS
  - Low cost
  - Non-invasive
- Yoga breathing may:
  - Extend optimal respiratory function
  - Reduce stress
  - Promote relaxation and improve quality of life for both patient and caregiver

