Objectives

• Discuss current research related to yoga and neuropsychology
• Identify the benefit of incorporating yoga into rehab services
• Understand yoga philosophy in regard to health and recovery through the 8 limbs of Raja Yoga
• Experience the core principles of yoga through participation!
Why yoga?

- Balance
- Muscle Strength
- Memory
- Attention
- Anxiety
- Flexibility
- Stress
- Pain
- Endurance
- Depression
More than stretching

....combines breathing exercises, physical postures, and meditation to calm the nervous system and balance body, mind, and spirit.
More than stretching

Yoga as a Complementary Health Approach

Why People Practice Yoga

- 58% To maintain health and well-being
- 16% To treat specific medical conditions
- 10.5% for musculoskeletal conditions
- Back pain is the number one reason people use complementary health practices

Of those that used yoga for specific conditions:
- 22% said their doctor recommended it

To learn more, visit nccih.nih.gov

1 http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2532566/
2 http://www.thelancet.com/themedglobal-burden-of-disease

December 2015
NCCIH – Funded Research

• Previously funded
  • Chronic low back pain – less disability, pain, and depression after 6 months of yoga

• Active studies
  • Cancer
  • Sleep
  • Pain
  • Generalized Anxiety Disorder
  • PTSD
  • Depression
  • Hypertension
  • Diabetes
  • HIV
  • Multiple sclerosis
Any proof that it works for TBI?

- Schmid et al., 2016 - *Disability and Rehabilitation*
  - 3 participants; 9-21 years post-TBI
  - yoga 2x/week (1-hr sessions) for 8 weeks
  - ability to stand with or without an assistive device

- Silverthorne et al., 2012 – *International Journal of Yoga Therapy*
  - 10 yoga, 4 controls
  - 30 minute group sessions for 36 weeks
  - severe physical disability

  - 1 individual, 32-yr-old female, 4 years post-TBI
  - 35 sessions over 10 months
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<tbody>
<tr>
<td>Physical</td>
<td>• improved balance</td>
<td>• decreased pain</td>
<td>• increased strength</td>
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<td></td>
<td>• decreased pain</td>
<td>• improved respiratory function</td>
<td>• improved motor planning/coordination of movements</td>
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<td>• increased ROM</td>
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<td>• increased strength</td>
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<td>• endurance/gait speed</td>
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<tr>
<td>Psychological</td>
<td>• belief that yoga had positive impact on life and improved recovery</td>
<td>• improvement in self-reported emotional well-being</td>
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<td>Cognitive</td>
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Cognitive Benefits

• Relationship between physical activity and cognitive function

• Meta-analysis examining the effectiveness of yoga in improving cognitive performance (Gothe & McAuley, 2015)
  • 22 studies
  • Attention, processing speed, and executive function showed largest benefit
  • Effect on memory was marginally significant

• Improved attentional control
Yoga for the Treatment of Neurological Disorders

- **Multiple Sclerosis** – improvement in measures of fatigue

- **Migraine** – reductions in headache frequency, duration, and intensity; medication intake; number of somatic symptoms accompanying headache

- **Epilepsy** – reduction in seizure frequency

- **Stroke** – improved balance and QOL
Psychological Benefits

- Decreased levels of cortisol
- Immediate effects on anxiety
- Increased sense of self-efficacy

- Beneficial in treating a variety of psychiatric disorders
  - Depression
  - Anxiety
  - Schizophrenia
  - Post-traumatic Stress Disorder
Mindfulness Based Treatments

- Mindfulness-Based Stress Reduction (MBSR)
  - Attention training technique
  - Awareness of thoughts, feelings, and bodily sensations
  - Body scan, meditation, yoga
- "Third Wave" therapies
  - Acceptance and Commitment Therapy (ACT)
  - Mindfulness Based Cognitive Therapy (MBCT)
  - Dialectical Behavior Therapy (DBT)
- Meditation in healthy subjects
  - Improved emotional functioning, attention, processing speed
  - Neuroimaging evidence to support changes in neuronal connectivity among regions associated with sensory and attentional processes
Mindfulness & TBI

• Azulay et al., 2013 – *J Head Trauma Rehabil*
  • 10-week group MBSR program (1 2-hr session per week)
  • 22 participants with mTBI/postconcussive symptoms
  • Improved self-efficacy
  • Improvements in attention and processing speed
  • No significant effect on verbal learning and memory

• Johansson et al., 2012 – *Brain Injury*
  • 29 individuals with TBI or Stroke
  • 8-week MBSR program – weekly 2.5 hr group sessions and 45 min home practice 6 days/week
  • Decline in self-assessment of mental fatigue
  • Improved processing speed (Digit Symbol – Coding)
Love Your Brain

• Kevin Pearce suffered a severe TBI while training for the 2010 Winter Olympics
• http://www.loveyourbrain.com/yoga
Improved QOL

- LoveYourBrain & Dartmouth College
- Quality of Life After Brain Injury (QOLIBRI)
- Significant improvements
  - overall quality-of-life
  - emotional well-being
  - self-perception
“Yoga teaches us to cure what need not be endured and endure what cannot be cured.”

-B.K.S. Iyengar
Yoga Improves in TBI

- Improved Respiration
- Cognitive Function
- Emotional Well-being
- Calm the mind
- Re-wire the brain
- Enhances Self-Awareness
- Improves balance and physical stamina
- Reduces Stress
Yoga Does Not Fix!

- Approaching body practices as a therapy
- Yoga is a body practice
- Yoga does not “fix”
- Manual medicine’s goals are to fix
- Yoga is a neuromuscular learning taught through the 8 limbs of yoga
- Yoga may be seen strictly as an exercise, relaxation or pleasure practice
Three Recognitions of all Body Practices

• A physical, mental, emotional or energetic something is constricting, blocking, congesting, depleting, stagnating, misusing or creating imbalance in the person leading to pain, injury, instability, or limitation.

• The physical self is not concrete, it has plasticity, thus it can both be fixed and taught

• The body is the place for transformation

• If the body was not teachable, fixable, transformable we would not have a job!
Asana becomes the vehicle not only for teaching the six universal principles, but also for carrying the teaching of the 8 limbs:

- **Yama** – Social ethics
  - Ahimsa, Truth, Non-stealing, Self-restraint, Not hoarding or collecting
- **Niyama** – Personal ethics
  - Purity, Self-study, Contentment, Austerity, Devotion
- **Asana** – Postures
- **Pranayama** – Breath control
- **Pratyahara** – Withdrawal from the Senses or mastery of external influences
- **Dharana** – Holding steady or Concentration
- **Dhyana** - Meditation
- **Samadhi** – Enlightenment or Self-Realization
Six core Principals of Asana

In all yoga asana we are trying to teach these six core principles verbally and non-verbally:

- Root to Rise
- Inward to Outward
- Ground
- Expand
- Balance
- Rhythm

“Principals of yoga do not discriminate, asanas do.” Matthew Sanford
In adaptive yoga we utilize touch to reveal rather than to correct.

Reference touch teaches: (1) sukha, (2) dukha, (3) direction, (4) awareness, and (5) personal revelation.

All poses have a multiple lines of energy flowing simultaneously, so then do all references require at least two directions of energy.

References show direction of energy flow.

Our job as adaptive yoga teacher is to facilitate awareness so we can teach consciousness.
Pranayama & Meditation

- Pranayama is the science of breath. Iyengar says “it is the hub round which the wheel of life revolves.”
- In Yoga the practitioners life is said not to be measured around the number of days, but the number of his/her breaths.
- The Goal becomes slow deep breathing to improve respiration, calm the nervous system, and reduce cravings that lead to imbalances.
- Again, the path of Yoga is ultimately to free the mind of disturbances so one can concentrate and eventually meditate.
- Meditation is the 7th limb, it is the flow of an uninterrupted concentration.
Types of Yoga Often Used for TBI

- Hatha
- Yin
- Restorative
- Chair
- Adaptive
Yoga and Her Sister Science

The Science of Ayurveda in Adaptive Yoga for TBI:

- Three Gunas – Sattva, Rajas, and Tamas
- Three Doshas – Vata, Patta, and Kapha
Yoga and the Doshas

- Vata imbalances occur whenever trauma occurs
- TBI injuries are according to Ayurveda Vata Imbalances
- Vata (air/ether) is known to be the energy of change
- Imbalance vata energy can be anxious, fearful or exhausted
- Vata governs the whole nervous system
- Structuring yoga sequence for TBI
  - Centering or Grounding, Deepening of Breath, Gentle Warm-Up, Emphasis on Pelvic Region and Spine, Meditation often with Visualization on Earth Elements, Gentle belly breathing, and Svasana.
- Yoni Mudra for nervous system
Yoga and Ayurveda Emphasize Sattvic Qualities

• In Ayurveda Sattva is a state of balance and balance promotes healing.
• Yoga has two stages: The development of Sattva and the Transcendence of Sattva.
• The development is purification of body-mind.
• Transcendence is Self-realization, Self-acceptance, going beyond body-mind and reaching our True self.
Creating Sattva for TBIs through Yoga & Ayurveda

- Vegetarian Diet
- Control of emotional states
- Teaching non-attachment
- Cleanliness
- Quiet space, ocean waves, nature sounds, soft melodies
- Focus on concentration exercises, memory exercises, mindfulness
- Encouraging creativity, devotional practices, meditation
- Volunteer service
Yoga Improves TBI Wellbeing

Research supports that yoga is effectively improving patient well-being:

- Physical well-being is defined as the absence of symptom and side effect distress.
- Emotional well-being is defined as the absence of or reduction of anxiety, depression, negative mood, and emotional stress which are common causes of poor performance, fatigue, poor coping, and overall poor health.
- Spiritual well-being refers to the role of religion and spirituality in one’s life and the extent to which beliefs and practices help an individual cope with illness.
- Cognitive function comprises intellectual processes, including perception, thinking, reasoning, and memory.
Closing

“Yoga is bringing fitness in body, calmness in mind, kindness in heart and awareness in life.”

-Amit Ray
Support Group

- Sundays in April
- April 8th, 15th, 22nd, 29th
- Time: 3:00 – 4:30pm
- Led by April Follmer, LMHP & Chanell Jaramillo, PhD
- 14450 Eagle Run Drive
  #250 Omaha, NE 68116
- 402-689-0905
- Cost is $80 for all 4 sessions
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References


