Teaching Yoga and Movement for People with Neurological Conditions

Danielle Kipnis MA, CYI-200, CPT
Agenda

01 What is “Trauma-informed” Yoga and Movement?
02 Overview of Common Neurological Disorders
03 Movement Sequencing for Special Populations
04 Break-out Groups and Practice
Trauma-Informed Best Practices

- MUSIC AND SCENTS
- SPACE FOR REFLECTION
- GUIDED
# Common Neurological Conditions

## Neurodegenerative Disorders

<table>
<thead>
<tr>
<th>What is it?</th>
<th>Main Symptoms</th>
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</table>
| Parkinson Disease | • Progressive neurodegenerative disorder  
• Loss of dopamine  
• Possible causes:  
  ◦ genetic and environmental factors  
  ◦ not well understood |
| | • Motor impairment  
  ◦ Bradykinesia, rigidity, tremor, gait dysfunction, and postural instability  
  ◦ Cognitive impairment  
  ◦ Mood disorders |
| Multiple Sclerosis | • Progressive immune-mediated disease of CNS  
• Inflammation damage to  
  ◦ Myelin, nerve fibers, and cells that make myelin  
• Onsets around age 35 |
| | • Varies with lesion location  
  ◦ Sensory loss, muscle cramping and spasticity, ataxia  
  ◦ Autonomic dysfunction  
  ◦ Overwhelming fatigue, anxiety, depression, irritability, cognitive impairment |
# Common Neurological Conditions

## Brain Injury

### Stroke
- **What is it?**
  - Ischemic
    - Artery blockage due to clot (embolic) or plaque (thrombotic)
  - Hemorrhagic - artery burst or tear

- **Main Symptoms**
  - Varies with damage area
  - Middle Cerebral Artery – most common
    - Frontal, temporal, and parietal lobe affected
    - Movement and speech impairment, hemiparesis, flat affect

### Traumatic Brain Injury
- **What is it?**
  - Forceful jolt or blow to the head
    - Penetrating – object pierces skull and enters brain
    - Non-penetrating

- **Main Symptoms**
  - Physical
    - Headache, seizure, blurred vision, nausea
  - Cognitive/behavioral
    - Loss/change of consciousness, confusion, irritability
  - Perception
    - Vertigo, loss of balance, light sensitivity
Common Neurological Conditions

Functional Neurological Disorder

What is it?

- Wide range of involuntary symptoms often associated with experienced trauma, stress, or co-morbid psychiatric symptoms
- Dysfunction within and across different brain circuits
- Miswiring and misfiring in the nervous system, rather than damage
  - “Computer software” rather than a “hardware” issue

Main Symptoms

<table>
<thead>
<tr>
<th>What is it?</th>
<th>Functional Neurological Disorder</th>
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<tbody>
<tr>
<td><strong>Main Symptoms</strong></td>
<td><strong>What is it?</strong></td>
</tr>
<tr>
<td>FND Symptoms</td>
<td>What is it?</td>
</tr>
<tr>
<td>Abnormal Muscle Control</td>
<td>What is it?</td>
</tr>
<tr>
<td>Fatigue</td>
<td>What is it?</td>
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<tr>
<td>Cognitive Difficulties</td>
<td>What is it?</td>
</tr>
<tr>
<td>Chronic Pain</td>
<td>What is it?</td>
</tr>
<tr>
<td>Dystonia</td>
<td>What is it?</td>
</tr>
<tr>
<td>Weakness</td>
<td>What is it?</td>
</tr>
<tr>
<td>Gait Impairment</td>
<td>What is it?</td>
</tr>
<tr>
<td>Trauma</td>
<td>What is it?</td>
</tr>
<tr>
<td>Environment</td>
<td>What is it?</td>
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</tbody>
</table>

Psychiatric Conditions: Stress, Environment
Common Neurological Conditions

How can exercise help?

- **Neuroprotective**
  - Most effective way to slow disease progression
  - Increases in structural and functional networks
  - Increase BDNF (neurotropic factors)

- **Decrease co-morbidities**
  - Task specific, repetition, reinforcement
  - Balance training → reduce fear of falling and fall risk

- **Motor skill re-learning**
  - Task specific, repetition, reinforcement
  - Balance training → reduce fear of falling and fall risk

- **Mind-body modalities**
  - Address non-motor symptoms
  - Postural stability
  - Functional mobility
  - Improve self-acceptance

(Hebert et al., 2016; Kipnis et al. 2022; Motl, 2014; Simpson et al., 2011)
Sequencing for Special Populations

What is Your Objective?

1. Consider the Specific Disorder
   - Limitations
   - Disease- and person-specific needs
   - Disease-specific exercise targets

2. Consider the “Essence” of the Modality
   For example, let’s describe these aspects of exercise:
   - Aerobic
   - Strength
   - Flexibility
   - Balance/Coordination
# Sequencing for Special Populations

## Examples

### Personal Training for Person with PD

| Limitations          | • Freezing of gait  
|                      | • Bradykinesia  
<table>
<thead>
<tr>
<th></th>
<th>• Balance deficits</th>
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<tr>
<td><strong>Disease-Specific Needs</strong></td>
<td>• Emphasize aerobic exercise and balance training</td>
</tr>
</tbody>
</table>
| **Person-Specific Needs** | • Beta blocker  
|                      | • Medication timing  
|                      | • Physical abilities |
| **Disease-Specific Targets** | • Consider non-walking/running activities (i.e. biking, dance, boxing)  
|                      | • Use external cues  
|                      | • Adapt movements with props (i.e. chair, wall) to minimize risk of falls |
Sequencing for Special Populations

Examples

Yoga for Person Post-Stroke

| Limitations | • Motor learning impairment  
|             | • Weakness on one side      |
| Disease-Specific Needs | • Emphasize exploration of movement in new body |
| Person-Specific Needs  | • Depression  
|                       | • Need to remain seated    |
| Disease-Specific Targets | • Use movements that resemble ADLs (i.e. chair)  
|                         | • Target weak areas (i.e. tree pose)  
|                         | • Adapt movements with props (i.e. chair, wall) to minimize risk of falls |
Sequencing for Special Populations

Example Yoga Session

**Breathing exercises**
- Palms up and down
- Arms up and down (2 or 1)
- Moving side bends
- Moving seated cat/cow
- Moving seated twist

**Posture/sequence variations**
- Sun A variations
  - Fully Seated – arm movements
  - Using a chair
- Cat/cow variations
  - Fully seated
  - Standing using a chair
- Warrior 1 and 2
  - Use a chair for support (also Triangle and Side Angle)
  - Moving in and out to find breath or holding shape

**Posture/sequence variations cont’d**
- Forward Fold variations
  - Seated
  - Standing to chair back or seat
- Static Balancing
  - Tree pose
  - Warrior 3 with chair
  - Half moon with chair or table
- Dynamic Balance
  - Stepping forward to Tree pose
- Seated Stretching variations
  - Figure four
  - Cross leg twist
  - Neck stretching
  - Shoulder stretching
Let’s Practice!

15-minute adapted yoga session
Sequencing for Special Populations

Side Bending

Cat and Cow

Seated Twist

Hip Opening

OR

Standing Forward Fold

Figure Four
Sequencing for Special Populations

Forward Folds
Sequencing for Special Populations

Sun Salutation

[Series of images showing each step of the Sun Salutation]
Sequencing for Special Populations

Warrior and Lunges
Sequencing for Special Populations

Balancing and Inversions
Let’s Practice!

• Create groups

• Choose an imaginary client with a neurological condition (or other)

• Choose a modality to train them

• Design a 30-minute session
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<td>Disease-Specific Needs</td>
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<td>Person-Specific Needs</td>
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<td>Disease-Specific Targets</td>
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<tr>
<td>Session Plan / Movement Adaptations</td>
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THANK YOU!

Questions?

Contact information:
Dk3086@tc.columbia.edu
www.daniellekipnis.com