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Task Oriented Training at Home (TOTE Home)

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Course Description and Outcomes

- This course will describe how to deliver task oriented training for hemiparesis after stroke in the home environment with the guidance of Motor Learning and Occupational Adaptation theories. It will go beyond using repetition with functional tasks and emphasize evidence supporting problem solving abilities needed for adaptation and ultimately increased function over time.

- As a result of this course, participants will be able to:
  1) Identify key components of the Motor Learning and Occupational Adaptation theories in relation to task oriented training
  2) Describe adaptation through real life examples of client problem solving in task oriented training performed at home
  3) Recognize the evidence behind the research on a task oriented training program delivered at home including the use of novel outcome measures
Motor Rehabilitation after Stroke

TOTE Home – Intervention

- **Motor Learning theory**
  - Task oriented training – Modeled after ASAP
    - Weinstein, et al., 2013 and 2016. Interdisciplinary comprehensive arm rehabilitation evaluation (ICARE)
  - Task and movement analysis
    - Lang and Birkenmeier, 2014
  - Constraint induced movement therapy
    - Wolf, et al., 2006 and 2008. Extremity and Constraint Induced Movement Therapy and Evaluation (ExCITE)
  - Experience dependent neuroplasticity principles
    - Kleim & Jones, 2008
TOTE Home – Intervention

○ Theory of Occupational Adaptation
  Schkade & Schultz, 1992; Schultz & Schkade, 1992
  ○ Adaptation
  ○ Relative Mastery

TOTE Home – Intervention

○ Home environment (Spencer, 2002)
  ○ Collaborative ordering of real-world tasks
  ○ Generalization
  ○ “Homework” assignments
Task Oriented Training and Evaluation (TOTE Home)

**Aim:** effectiveness of UE - TOTE at home

**Research questions:**
TOTE Home effective?
Lasting effects?

**Methodology**

<table>
<thead>
<tr>
<th>Screen</th>
<th>Session 1</th>
<th>Sessions 2-31</th>
<th>Session 32</th>
<th>Session 33</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Session</strong></td>
<td>Baseline</td>
<td>TOTE home</td>
<td>Post TOTE home</td>
<td>Follow-up (1 month)</td>
</tr>
<tr>
<td>Minimal movement</td>
<td>FMA</td>
<td>30 tx sessions</td>
<td>FMA</td>
<td>FMA</td>
</tr>
<tr>
<td>MMSE</td>
<td>MAL</td>
<td>(3x/wk for 10 wks)</td>
<td>MAL</td>
<td>MAL</td>
</tr>
<tr>
<td>CESD-R</td>
<td>FTHUE</td>
<td></td>
<td>FTHUE</td>
<td>FTHUE</td>
</tr>
<tr>
<td>COPM</td>
<td>SIS</td>
<td></td>
<td>SIS</td>
<td>SIS</td>
</tr>
<tr>
<td>SAFER-Home</td>
<td>SAFER-Home</td>
<td></td>
<td>SAFER-Home</td>
<td>SAFER-Home</td>
</tr>
<tr>
<td>Revisit COPM</td>
<td>Orientation to “TOTE home”</td>
<td></td>
<td>COPM</td>
<td>COPM</td>
</tr>
<tr>
<td><strong>Target Behaviors</strong></td>
<td>Accelerometry</td>
<td>Accelerometry</td>
<td>Accelerometry</td>
<td>Accelerometry</td>
</tr>
<tr>
<td><strong>Target Behaviors</strong></td>
<td>Self-Efficacy</td>
<td>Self-Efficacy</td>
<td>Self-Efficacy</td>
<td>Self-Efficacy</td>
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<tr>
<td><strong>Rating Scale</strong></td>
<td>Rating Scale</td>
<td>Rating Scale</td>
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<td>Rating Scale</td>
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</tbody>
</table>

“Homework”
Participant rates effectiveness
OT rates engagement
Participants

Participant #1

“If I take my time, I can do better.”

“I can do more with my hand now!”
Participant #2

“I got so into doing the work that I forgot I was sick!”

“more like a man, not like a baby”

Participant #3

“She’s the boss”

“I’ll do it when I get well”

“I need to get off my lazy butt”
Participant #4

“Everyday I feel more confident!”

“I feel like my old self, but with improvements!”

Statistical Analysis

- Visual inspection and Graphic analysis of target behaviors –
  - Self-Efficacy ratings and Accelerometry recordings
  - Charts
  - Graphs
- OLS regression
  - Within phase (level, trend, slope)
  - Between phase characteristics (effect size)
- g-index – calculates effect size based on scores in the desired zone
- SSD for R (Auerbach & Zeitlin, 2014)
- Change scores and descriptives of other outcome measures taken at baseline, post intervention, and follow-up (COPM, FMA, MAL, SIS, WMFT, FTHUE)
- Narrative summary of fieldnotes
Target Behaviors
Accelerometry

Actigraph’s Bluetooth® Smart wGT3X-BT wireless activity monitor

FitBit® Flex™

FitBit Steps
Actigraph Steps
FitBit vs Actigraph

Average Number of Steps

- Left: FitBit vs Actigraph
- Right: FitBit vs Actigraph

* p<.01

Target Behaviors
Brief Self-Efficacy Rating Scale

Brief Self Efficacy Rating Scale
On a scale of 0 - 10, how confident are you that you can

(circle specific PRIORITY activity)

Circle a number below to indicate your confidence level.

<table>
<thead>
<tr>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>no confidence</td>
<td>moderate confidence</td>
<td>complete confidence</td>
<td></td>
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</tr>
</tbody>
</table>
Canadian Occupational Performance Measure (COPM)

Stroke Impact Scale (SIS) – Recovery question
The purpose of this test is to examine how much and how well you use your more-affected arm when you are not in our laboratory. You will use two separate rating scales to describe how much and how well you use your weaker arm while you are doing specific activities.

"Considering your activities during the past week, did you use your weaker arm to... (state the activity)?"

"Using the Amount Rating Scale, tell me how you would rate the amount you used your weaker arm to... (state the activity)."

"Using the How Well Rating Scale, tell me how you would rate how well you used your weaker arm to... (state the activity)"
# Functional Test for the Hemiparetic Upper Extremity (FTHUE)

<table>
<thead>
<tr>
<th>Level</th>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pt is unable to complete higher level tasks</td>
</tr>
<tr>
<td>2</td>
<td>A. Associated reaction</td>
</tr>
<tr>
<td></td>
<td>B. Hand into lap</td>
</tr>
<tr>
<td>3</td>
<td>C. Arm clearance during shirt tuck</td>
</tr>
<tr>
<td></td>
<td>D. Hold a pouch</td>
</tr>
<tr>
<td></td>
<td>E. Stabilize a pillow</td>
</tr>
<tr>
<td>4</td>
<td>F. Stabilize a jar</td>
</tr>
<tr>
<td></td>
<td>G. Stabilize a package</td>
</tr>
<tr>
<td></td>
<td>H. Wringing a rag</td>
</tr>
<tr>
<td>5</td>
<td>I. Hold a pan lid</td>
</tr>
<tr>
<td></td>
<td>J. Hook and zip a zipper</td>
</tr>
<tr>
<td></td>
<td>K. Fold a sheet</td>
</tr>
<tr>
<td>6</td>
<td>L. Blocks and box</td>
</tr>
<tr>
<td></td>
<td>M. Box on shelf</td>
</tr>
<tr>
<td></td>
<td>N. Coin in coin gauge</td>
</tr>
<tr>
<td>7</td>
<td>O. Cat's cradle</td>
</tr>
<tr>
<td></td>
<td>P. Light bulb</td>
</tr>
<tr>
<td></td>
<td>Q. Remove rubber band</td>
</tr>
</tbody>
</table>

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## What’s the next step? How could you use this info?

- Motor Learning and Occupational Adaptation
  - Experience dependent neuroplasticity
  - Self-efficacy
  - Adaptation and Mastery
- Methodology – SSD
- Principle outcomes
  - Accelerometry
  - Self-efficacy scale
  - OSIS recovery question, FTHUE
- Adjunct or “primers” to TOT
Thank you!!!!

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