Information & Instructions for Minimal Data Set for Knee Osteoarthritis

Clinical Question
Is aquatic physical therapy more effective in improving functional mobility in geriatric patients with knee osteoarthritis (OA) than traditional land-based physical therapy?

DEMOGRAPHIC DATA

Dates: Use MM/DD/YYYY format. If patient cannot recall “Date of OA Diagnosis,” contact patient’s physician.

Sex, Age, Height, and Weight: Mark the appropriate box for “Sex.” Note age, height, and weight of patient. Knee OA is more common in older, obese, females.¹

Extremity: Note if knee OA is present in patient’s left knee, right knee, or both (B).

Diagnostic Tests: Note if patient has had previous diagnostic testing specific for knee OA. X-Rays, CT Scans, and MRIs provide different perspectives regarding structures within the joint.

History of Knee Injuries: Note if patient has had previous knee injuries that may influence knee OA.

Pain Medications Specific for Knee Osteoarthritis (OA): Note if patient is currently receiving pain medications for knee OA which may influence his/her response to the physical therapy (PT) interventions prescribed.

Assistive Device: Note if patient is currently using an assistive device for ambulation.

CLINICAL DATA

Treatment: Choose from the “Intervention” list (labeled A-E) the treatments used during each treatment session. If a treatment is used that does not meet any of the categories listed, complete the “Other” category and specify what treatment was used.

Goniometric Measurements: Use the landmarks below for goniometer placement.

Fulcrum: Lateral epicondyle of femur
Proximal arm: Lateral midline of femur (greater trochanter as reference)
Distal arm: Lateral midline of fibula (lateral malleolus as reference)

Normal range of motion (ROM) for knee flexion is 150° and for knee extension is 0°.
Goniometry at the knees has high intratester reliability (ICC=0.99 for knee flexion and ICC=0.98 for knee extension) and high intertester reliability (ICC=0.90 for knee flexion and ICC=0.86 extension).²
**Manual Muscle Test (MMT):** Patient lies prone to test for knee flexion and patient is seated to test for knee extension. Stabilize patient’s distal thigh and apply resistance above patient’s ankle. Record all measurements using the numeric scale below.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Normal</td>
</tr>
<tr>
<td>4</td>
<td>Good</td>
</tr>
<tr>
<td>3</td>
<td>Fair</td>
</tr>
<tr>
<td>2</td>
<td>Poor</td>
</tr>
<tr>
<td>1</td>
<td>Trace activity</td>
</tr>
<tr>
<td>0</td>
<td>No activity</td>
</tr>
</tbody>
</table>

Manual muscle testing at the knee examines muscle strength in flexion and extension, and has high test retest reliability (ICC=0.96 to 0.98).³

**Timed Up and Go (TUG):** Without losing balance or falling, the patient is asked to stand up from a chair, walk three meters, turn around, walk back, and sit back down in the chair as quickly as they can. The test takes no more than approximately one to five minutes to administer and does not require special equipment or training. Record the time required for the patient to complete the test in minutes and/or seconds, and note if the patient used an assistive device. The TUG is reported as a reliable measure of assessing functional mobility in both frail and elderly adults (ICC = 0.99) as well as community-dwelling older adults (ICC = 0.97).⁴⁵ Knee OA is more common in elderly and older adults.¹

**NORMATIVE REFERENCE VALUES BY AGE FOR THE TUG TEST**⁶

<table>
<thead>
<tr>
<th>AGE GROUP</th>
<th>TIME IN SECONDS</th>
<th>(95% CONFIDENCE INTERVAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 – 69 years</td>
<td>8.1</td>
<td>(7.1 – 9.0)</td>
</tr>
<tr>
<td>70 – 79 years</td>
<td>9.2</td>
<td>(8.2 – 10.2)</td>
</tr>
<tr>
<td>80 – 99 years</td>
<td>11.3</td>
<td>(10.0 – 12.7)</td>
</tr>
</tbody>
</table>

**Western Ontario and McMaster University (WOMAC) Osteoarthritis Index:** The WOMAC is a questionnaire consisting of three sections labeled pain, stiffness, and physical function with 5, 2, and 17 questions respectively for a total of 24 questions. The patient is asked to answer each question by ranking the level of pain, stiffness, and difficulty the patient experiences during certain activities from 0-4 with higher numbers indicating more restriction. Each section is summed for a subscore and each subscore is summed for a raw score. The raw score is then multiplied by 100 and divided by 96 for a WOMAC score. Higher scores indicate worse overall functional status. The WOMAC is reported as a reliable tool for assessing overall functional status in patients with osteoarthritis (Cronbach’s alpha >0.85).⁷
SCORING THE WOMAC QUESTIONNAIRE8-9

<table>
<thead>
<tr>
<th>Response</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>Mild</td>
<td>1</td>
</tr>
<tr>
<td>Moderate</td>
<td>2</td>
</tr>
<tr>
<td>Severe</td>
<td>3</td>
</tr>
<tr>
<td>Extreme</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section</th>
<th>Minimum Subscore</th>
<th>Maximum Subscore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain</td>
<td>0</td>
<td>20</td>
</tr>
<tr>
<td>Stiffness</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Physical Function</td>
<td>0</td>
<td>68</td>
</tr>
</tbody>
</table>

**Raw Score** = Sum of individual subscores (0 – minimum, 96 – maximum)

**WOMAC Score** = Raw Score x 100/96 (0 – minimum, 100 – maximum)

**Interpretation of WOMAC Score**
Higher scores represent worse pain, stiffness, and functional restrictions.

**References**


Developed By: Faustina Tran Date: June 3, 2011
KNEE OSTEOARTHRITIS DATA COLLECTION FORM

Date of PT Evaluation: ____/____/_______
Therapist Name: ________________________

Patient Name: _________________________

Sex: □ Male □ Female Age: _____ Height: ___ ft. ___ in. Weight: _____ lbs.

Date of OA Diagnosis: ____/____/_______ Extremity: □ L Knee □ R Knee □ B

Diagnostic Tests: □ X-Ray □ CT Scan □ MRI

History of Knee Injuries: □ Yes □ No

Pain Medications Specific for Knee OA:
□ Yes, Type(s) & Dosage: _____________________________________________________________
□ No

Assistive Device (AD):
□ Yes, Type(s): __________________________________________________________________
□ No

________________

Intervention

A. Aquatic Stretching Exercises
B. Aquatic Strengthening Exercises
C. Land-Based Stretching Exercises
D. Land-Based Strengthening Exercises

E. Other: __________________________________________________________________________

________________

Evaluation

Treatment: ________________________________________________________________________

Knee Flex ROM Knee Ext ROM Knee Flex MMT Knee Ext MMT

TUG Assistive Device WOMAC Score

□ Yes □ No __________________

Comments:
________________________________________
________________________________________
________________________________________
________________________________________
Western Ontario and McMaster University (WOMAC) Osteoarthritis Index\textsuperscript{10}
Date Completed: ____/____/_______
Patient Name: ____________________ Age: ___ Sex: □ Male □ Female

The following sections are to be completed by the patient:

 SECTION 1: PAIN

The following questions concern the amount of pain you are currently experiencing in each knee. For each situation, please mark the amount of pain you have experienced in the past 48 hours.

1. Walking on a flat surface
   - Left: □ None □ Mild □ Moderate □ Severe □ Extreme
   - Right: □ None □ Mild □ Moderate □ Severe □ Extreme

2. Going up or down stairs
   - Left: □ None □ Mild □ Moderate □ Severe □ Extreme
   - Right: □ None □ Mild □ Moderate □ Severe □ Extreme

3. At night while in bed
   - Left: □ None □ Mild □ Moderate □ Severe □ Extreme
   - Right: □ None □ Mild □ Moderate □ Severe □ Extreme

4. Sitting or lying
   - Left: □ None □ Mild □ Moderate □ Severe □ Extreme
   - Right: □ None □ Mild □ Moderate □ Severe □ Extreme

5. Standing upright
   - Left: □ None □ Mild □ Moderate □ Severe □ Extreme
   - Right: □ None □ Mild □ Moderate □ Severe □ Extreme

 SECTION 2: STIFFNESS

The following questions concern the amount of joint stiffness (not pain) you have experienced in the past 48 hours in each knee. Stiffness is a sensation of restriction or slowness in the ease with which you move your joints.

6. How severe is your stiffness after first waking in the morning?
   - Left: □ None □ Mild □ Moderate □ Severe □ Extreme
   - Right: □ None □ Mild □ Moderate □ Severe □ Extreme

7. How severe is your stiffness after sitting, lying, or resting later in the day?
   - Left: □ None □ Mild □ Moderate □ Severe □ Extreme
   - Right: □ None □ Mild □ Moderate □ Severe □ Extreme

 SECTION 3: PHYSICAL FUNCTION

The following questions concern your physical function, your ability to move around and to look
after yourself. For each of the following activities, please indicate the degree of difficulty you have experienced in the past 48 hours in each knee. What degree of difficulty do you have with:

<table>
<thead>
<tr>
<th>Activity</th>
<th>Left</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Extreme</th>
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</thead>
<tbody>
<tr>
<td>8. Going down stairs</td>
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<tr>
<td>9. Going up stairs</td>
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<tr>
<td>10. Rising from sitting</td>
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<td>11. Standing</td>
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<td>12. Bending to the floor</td>
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<tr>
<td>13. Walking on a flat surface</td>
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<tr>
<td>14. Getting in and out of a car</td>
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<tr>
<td>15. Going shopping</td>
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<tr>
<td>16. Putting on socks/stockings</td>
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<td>17. Rising from bed</td>
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<td>18. Taking off socks/stockings</td>
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<tr>
<td>19. Lying in bed</td>
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</tbody>
</table>
20. Getting in/out of bath
   | Left   | None | Mild | Moderate | Severe | Extreme |
   | Right  | None | Mild | Moderate | Severe | Extreme |

21. Sitting
   | Left   | None | Mild | Moderate | Severe | Extreme |
   | Right  | None | Mild | Moderate | Severe | Extreme |

22. Getting on/off toilet
   | Left   | None | Mild | Moderate | Severe | Extreme |
   | Right  | None | Mild | Moderate | Severe | Extreme |

23. Heavy domestic duties (such as mowing the lawn, lifting heavy grocery bags, vacuuming)
   | Left   | None | Mild | Moderate | Severe | Extreme |
   | Right  | None | Mild | Moderate | Severe | Extreme |

24. Light domestic duties (such as tidying a room, dusting, cooking)
   | Left   | None | Mild | Moderate | Severe | Extreme |
   | Right  | None | Mild | Moderate | Severe | Extreme |

The following are to be completed by the therapist only:

Raw Score: ____
WOMAC Score: Raw Score ____ x 100/96 = ______
Comments/Interpretation:

Therapist Name: ________________________________ Date: ___/___/_______