Outcome Measures for Total Joint Arthroplasty
Summary of Outcome Measures for TJA

**PRE-OP:**
Numeric Pain Rating Scale (NPRS), Blaylock Risk Assessment Screening Score (BRASS), Lower Extremity Functional Scale (LEFS), Timed Up and Go (TUG), 2 minute walk test (2MWT)

**ACUTE:**
NPRS, Blaylock, ROM, gait pattern, independent in/out of bed

**IN-PATIENT REHAB:**
NPRS, FIM, ROM, LEFS, TUG, 2 minute walk test, Patient Specific Functional Scale (PSFS)

**IN-HOME CARE/OUTPATIENT REHAB:**
NPRS, LEFS, ROM, TUG, 2 min walk test, PSFS
Numeric Pain Rating Scale (NPRS)
What is the NPRS?

-The NPRS Measures the subjective intensity of pain.
-The NPRS asks the person in pain to assign a number, from zero to ten, to the severity of their pain.
How do I perform the NPRS?

-It is important to properly instruct the person in how to rate their pain:

Use the following statements to ask the person to rate their pain.
  ◦ 1. I would like you to rate your pain on a scale from zero to ten.
  ◦ 2. ‘Zero’ means you have no pain at all.
  ◦ 3. ‘Ten’ means the worst possible pain you can image.
  ◦ 4. What number would you give to your pain?

-Patients then verbally select a value that is most in line with the intensity of pain that they have experienced in the last 24 hours
How do I perform the NPRS con’t...

-A variation of this technique is to provide the instructions, then ask the person to point to the number that represents their pain:

”In the last 24 hours, on a scale of 0 – 10, where 10 is the worst pain that could possibly be, where would you rate your pain, on average?”
What do NPRS scores mean?

- The higher the score, the worse the pain level
- The values on the pain scale correspond to pain levels as follows:
  
  1 – 3 = mild pain  
  4 – 6 = moderate pain  
  7 – 10 = severe pain

**Minimal Detectable Change** – 3 points (for lower extremity pain)

**Minimally Clinically Important Difference** – translated into % for post-op orthopaedic pain

- 35% reduction on the NPRS had a rating of “minimal relief”
- 67% reduction had a rating of “moderate relief”
- 70% reduction had a rating of “much relief”
- 94% reduction had a rating of “complete relief”
Pros of NPRS

- Quick and easy, no training required
- Free, no equipment necessary
- Can be used for both acute and chronic pain conditions
- Tested on a variety of populations
- Demonstrates good psychometric properties
Cons of NPRS

-No well established gold standard for clinically important pain levels because pain is so subjective

-Pain is multifactorial – NPRS may not identify patients with pain caused by anxiety, worry, functional limitations etc
References


Blaylock Risk Assessment Screening Score (BRASS)
What is the BRASS?

-The Blaylock Risk Assessment Screening Score (BRASS) index is a risk screening instrument which can be used early after admission to identify those patients in need of discharge planning.

-Meant to be performed within 48 hrs of admission.

-The Brass uses information from the following categories:
  ◦ Age
  ◦ Living situation/social support
  ◦ Number of active medical problems
  ◦ Number of drugs
  ◦ Cognition
  ◦ Functional status
  ◦ Behaviour pattern
  ◦ Mobility
  ◦ Sensory deficits
Circle all that apply and total. Refer to scoring index for recommendations regarding discharge planning.

<table>
<thead>
<tr>
<th>Age</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<td>65 years or less</td>
<td>0</td>
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<tr>
<td>65-64 years</td>
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<tr>
<td>65-76 years</td>
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<td>80+ years</td>
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<table>
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<tr>
<th>Functional Status</th>
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<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>Independent in activities of daily living and instrumental activities of daily living</td>
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<td>Dependent in:</td>
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<tr>
<td>Eating/Feeding</td>
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<tr>
<td>Bathing/Grooming</td>
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<td>Toilet</td>
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<td>1</td>
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<td>Transferring</td>
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<td>Incontinent of bowel function</td>
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<td>1</td>
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<tr>
<td>Incontinent of bladder function</td>
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<tr>
<td>Meal Preparation</td>
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<td>1</td>
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<tr>
<td>Responsible for own medication administration</td>
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<table>
<thead>
<tr>
<th>Living Situation/Social Support</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>Lives only with spouse</td>
<td>0</td>
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<tr>
<td>Lives with family</td>
<td>1</td>
<td></td>
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<tr>
<td>Lives alone with family support</td>
<td>2</td>
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<tr>
<td>Lives alone with friend's support</td>
<td>3</td>
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<tr>
<td>Lives alone with no support</td>
<td>4</td>
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<tr>
<td>Nursing home/residential care</td>
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<table>
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<tr>
<th>Number of Previous Admissions/Emergency Room Visits</th>
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<th>3</th>
<th>4</th>
<th>5</th>
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<td>None in the last 2 months</td>
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<td>One in the last 3 months</td>
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<td>Two in the last 2 months</td>
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<tr>
<td>More than two in the last 3 months</td>
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<table>
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<th>Number of Active Medical Problems</th>
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<th>5</th>
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<tbody>
<tr>
<td>Up to three medical problems</td>
<td>0</td>
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<tr>
<td>Three to five medical problems</td>
<td>1</td>
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<tr>
<td>More than five medical problems</td>
<td>2</td>
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</table>

<table>
<thead>
<tr>
<th>Number of Drugs</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<tbody>
<tr>
<td>Fewer than three drugs</td>
<td>0</td>
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<tr>
<td>Three to five drugs</td>
<td>1</td>
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<tr>
<td>More than five drugs</td>
<td>2</td>
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<table>
<thead>
<tr>
<th>Cognition</th>
<th>0</th>
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<th>3</th>
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<tr>
<td>Oriented</td>
<td>0</td>
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<tr>
<td>Disoriented to some spheres (person, place, self, time) some of the time</td>
<td>1</td>
<td></td>
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<tr>
<td>Disoriented to some spheres (person, place, self, time) all of the time</td>
<td>2</td>
<td></td>
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<tr>
<td>Disoriented to all spheres (person, place, self, time) and some of the time</td>
<td>3</td>
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<tr>
<td>Disoriented to all spheres (person, place, self, time) all of the time</td>
<td>4</td>
<td></td>
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<tr>
<td>Comatose</td>
<td>5</td>
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</table>

<table>
<thead>
<tr>
<th>Sensory Deficits</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>0</td>
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<td></td>
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<tr>
<td>Visual or hearing deficits</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>Visual and hearing deficits</td>
<td>2</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Total Score:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Scoring Index:</td>
<td></td>
</tr>
<tr>
<td>0-9</td>
<td>Probable outpatient physiotherapy or occupational therapy follow up</td>
</tr>
<tr>
<td>10-19</td>
<td>May require CCAC services</td>
</tr>
<tr>
<td>Signature:</td>
<td></td>
</tr>
<tr>
<td>Date:</td>
<td></td>
</tr>
</tbody>
</table>
Online copy of Blaylock

-A copy of the Blaylock tool is available at:

http://regionalhealthprogramsww.com/HealthCareProviders/CarePathways/FracturedHip
What do the scores mean

-Score of 0 - 10 – few needs for discharge planning and low demand for discharge planning resources (i.e. probable outpatient PT/OT)

-Score of 10-19 – patients are affected by more complicated problems & may require more extensive discharge planning, but likely do not need institutionalization (i.e. may require CCAC services)

-Score of >19 – patients with severe problems who need extensive discharge planning, with high probability of further institutionalization (i.e. ALC for rehab/restorative/LTC). Scores >19 also strongly correlated with mortality rate.
Pros of BRASS

- BRASS scores have high correlation with problems experienced after discharge.
- BRASS has high specificity to predict patients with problems after discharge.
- The BRASS index is a good predictor instrument for indicating patients who will not be discharged home.
- Provides specific recommendations for discharge planning compared to other discharge screening tools that just indicate if discharge planning is required.
- Some studies state that the BRASS is quick (3 mins or less) to use.
Cons of BRASS

- Some clinicians feel the BRASS is long and time consuming to complete
- BRASS is unable to identify patients who will likely be readmitted or return to ER
References


Blaylock Discharge Planning Risk Assessment Screen. South Bruce Grey Health Centre. Available at:
Lower Extremity Functional Scale (LEFS)
What is the LEFS?

- The LEFS is a questionnaire containing 20 questions about a person’s ability to perform everyday tasks
- The LEFS can be used by clinicians as a measure of patients’ initial function, ongoing progress and outcome, as well as to set functional goals
- The LEFS can be used to evaluate the functional impairment of a patient with a disorder of one or both lower extremities
- A copy of the LEFS can be found at: http://www.physio-pedia.com/images/a/a0/LEFS.pdf
What does the LEFS look like?

## THE LOWER EXTREMITY FUNCTIONAL SCALE

We are interested in knowing whether you are having any difficulty at all with the activities listed below because of your lower limb problem for which you are currently seeking attention. Please provide an answer for each activity.

Today, do you or would you have any difficulty at all with:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Extreme Difficulty or Unable to Perform Activity</th>
<th>Quite a Bit of Difficulty</th>
<th>Moderate Difficulty</th>
<th>A Little Bit of Difficulty</th>
<th>No Difficulty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1  Any of your usual work, household, or school activities.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2  Your usual hobbies, recreational or sporting activities.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>3  Getting in or out of the bath.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>4  Walking between rooms.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>5  Putting on shoes or socks.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>6  Squatting.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>7  Lifting an object, like a bag of groceries from the floor.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>8  Performing light activities around your home.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>9  Performing heavy activities around your home.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>10 Getting into or out of a car.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>11 Walking 2 blocks.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>12 Walking a mile.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>13 Going up or down 10 stairs (about 1 flight of stairs).</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>14 Standing for 1 hour.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>15 Sitting for 1 hour.</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>16 Running on even ground.</td>
<td>0</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>17 Running on uneven ground.</td>
<td>0</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>18 Making sharp turns while running fast.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>19 Hopping.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>20 Rolling over in bed.</td>
<td>0</td>
<td>1</td>
<td>2</td>
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</tbody>
</table>

**Column Totals:**

Minimum Level of Detectable Change (90% Confidence): 9 points

What do the scores mean?

- Patient chooses scores for each question between 0 (extreme difficulty) and 4 (no difficulty)
- The lower the score, the greater the disability
- Minimal detectable change is 9 points
- Minimal clinically important difference is 9 points
- Standard error of measure is +/- 5.3 points
Pros of LEFS

- Self administered, easy to use
- Inexpensive, no equipment required
- Shown to have good reliability, sensitive to change
Cons of LEFS

- For TJA population, patients may not be performing many of the activities described in the LEFS, and will likely not perform them after TJA either (i.e., running on uneven ground, hopping)

- Likely not appropriate on patients with cognitive impairment
References


Timed Up and Go (TUG)
What is the TUG?

- The TUG assesses mobility, balance, walking ability, and falls risk in older adults.

- The TUG quantifies the functional mobility level as the time in seconds it takes an individual to rise from a chair, walk 3 metres, and return to the chair.

- Likely the most internationally used test by PT’s.
What equipment do I need for the TUG?

- Stopwatch
- Standard armchair (approximately 46 cm in height)
- Paper/pencil
- Distance of 3 meters marked on floor
- Patient’s regular gait aid, and appropriate footwear
How do I perform the TUG:

• Begin the test with the subject sitting correctly (hips all of the way to the back of the seat) in a chair with arm rests.

• The chair should be stable and positioned such that it will not move when the subject moves from sit to stand.

• The subject is allowed to use the arm rests during the sit – stand and stand – sit movements.

• Place a piece of tape or other marker on the floor 3 meters away from the chair so that it is easily seen by the subject.
How do I perform the TUG cont’d:

• Give the patient the instructions: “On the word GO you will stand up, walk to the line on the floor, turn around and walk back to the chair and sit down. Walk at your regular pace.”

• Start timing on the word “GO” and stop timing when the subject is seated again correctly in the chair with their back resting on the back of the chair.

• The subject wears their regular footwear, may use any gait aid that they normally use during ambulation, but may not be assisted by another person. There is no time limit. They may stop and rest (but not sit down) if they need to.
How do I perform the TUG cont’d:

• The subject should be given ONE practice trial that is not timed before testing.

• Record the date and time (example below) so change can be tracked over time.

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<thead>
<tr>
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<th>1</th>
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</table>

To watch an example of how to perform the TUG, go to:

http://www.youtube.com/watch?v=dsTfqk9ZTiw
**Normative Data:**

<table>
<thead>
<tr>
<th>Normative Reference Values by Age(^{13})</th>
<th>(95% CI)</th>
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</thead>
<tbody>
<tr>
<td>60 – 69 years</td>
<td>8.1 (7.1 – 9.0)</td>
</tr>
<tr>
<td>70 – 79 years</td>
<td>9.2 (8.2 – 10.2)</td>
</tr>
<tr>
<td>80 – 99 years</td>
<td>11.3 (10.0 – 12.7)</td>
</tr>
</tbody>
</table>

**SEM for Hip Fracture Population:** limited info, but one article suggests 1.3 seconds, but this was based on median of 6 months post fracture

**MDC for Hip Fracture Population:** same study suggests 2.5 seconds, but once again patients were median 6 months post fracture
Data for Falls Risk:

Cut-off Values Predictive of Falls:\textsuperscript{13}

<table>
<thead>
<tr>
<th>Population</th>
<th>Cut-off Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Community Dwelling Frail Older Adults</td>
<td>&gt; 14 associated with high fall risk</td>
</tr>
<tr>
<td>Post-op hip fracture patients at time of discharge</td>
<td>&gt; 24 predictive of falls within 6 months after hip fracture</td>
</tr>
<tr>
<td>Frail older adults</td>
<td>&gt; 30 predictive of requiring assistive device for ambulation and being dependent in ADL's</td>
</tr>
</tbody>
</table>
Pros of the TUG:

- Easy and free to perform, with minimal equipment
- Takes less than 5 minutes
- Requires minimal training
- Plenty of normative data to compare patients to
- Can be performed in a variety of settings – hospital, home, clinic
- Has been trialled in large number of patient populations (Parkinson’s, SCI, CP, OA, etc)
- Results correlate with gait speed, balance, functional level, the ability to go out, and can follow change over time.
Cons of the TUG:

- The TUG may demonstrate less reliability among patients suffering from cognitive impairment.

- Intrarater reliability may be affected by subject performance when completing multiple assessments (i.e. patients quickly become familiar with this test resulting in the first test affecting the second test).

- Predictive values of poor TUG scores can be inaccurate as the score is influenced greatly by type of walking aid.

- Difficulty obtaining accurate values and comparing these values as each study does the test differently (i.e. one practice run, three practice trials).

- Limited information regarding SEM/MDC/MCID on hip fracture population.
References:


Rehab Measures: Timed Up and Go. Available at:

2 Minute Walk Test (2MWT)
What is the 2MWT?

- Measurement of endurance by assessing walking distance over 2 minutes
- The 2MWT assesses aerobic capacity, functional mobility, and gait
What do I need to perform the 2MWT?

- ensure the hallway free of obstacles
- stopwatch
- recommended patients walk in a quiet, flat, indoor, straight 30 m corridor
- turnaround marked with a cone
- corridor must be marked by coloured tape at every 3 m
How do I perform the 2MWT?

- Individual walks without assistance for 2 minutes and the distance is measured
- Start timing when the individual is instructed to “Go”
- Stop timing at 2 minutes
- Assistive devices can be used but should be kept consistent and documented from test to test
- If physical assistance is required to walk, this test should not be performed
- A measuring wheel is helpful to determine distance walked
- Should be performed at the fastest speed possible
- No conversations should occur during the test
- The tester should stand behind the patient so as not to influence pace
- Standardized encouragement is allowed at 1 minute intervals in even tone of voice
- No other words of encouragement or body language should be used
How do I perform the 2MWT cont’d...

Patient Instructions should be as follows:

“Cover as much ground as possible over 2 minutes. Walk continuously if possible, but do not be concerned if you need to slow down or stop to rest. The goal is to feel at the end of the test that more ground could not have been covered in the 2 minutes.”
Recording info:

2 Minute Walk Test
Name:___________________________________________________________

Assistive Device and/or Bracing Used:______________________________________________

Date:________
Distance ambulated in 2 minutes: _______________

Date:________
Distance ambulated in 2 minutes: _______________
What do 2MWT scores mean?

-The farther the distance, the better the patient is with regards to aerobic capacity, gait pattern, and function

**SEM:** 6.3 m or 20.7 ft (for older adult population)

**MDC:** 12.2 m or 40 ft (for older adult population)

**MCID:** not yet established

**Normative data:** Not yet established for lower extremity orthopaedic conditions. In retirement dwelling older adults 2MWT average is 150.4 m (+/- 23.1 m)
Pros of 2MWT

- Quick and easy to use, minimal equipment
- Excellent psychometric properties
- 2MWT is better tolerated than 6MWT in elderly population
Cons of 2MWT

- No normative data/SEM/MDC/MCID for lower extremity orthopaedic population
- 2MWT times affected by gait aid used
- Potential for training effect (i.e. times improved with practice as patient more familiar with test)
References


Two Minute Walk Test. Rehab Outcome Measures (2013). Available at:

Range of Motion - Goniometry
What is goniometry?

-Goniometric measurements are used by PT’s to quantify baseline limitations of motion

-ROM using goniometry can decide on appropriate interventions, and document the effectiveness of these interventions
Important info for goniometry:

- ROM using a goniometer has a Standard Error of Measure of 3 degrees

- Recent article shows that physiotherapists tend to prefer end digits of 0 or 5 with total knee arthroplasty patients, therefore affecting validity of measurements

- Recommended that a standardized procedure is developed for taking measurements with a goniometer to allow for higher intertester and intratester reliability
Pros of ROM measurements

- Quick and easy to perform
- Requires minimal equipment
Cons of ROM measurements

- Reliability of goniometry is affected by many factors: joint being measured, instrumentation and technique, passive vs. active movement, different patient types, different clinicians
References


Patient Specific Functional Scale (PSFS)
What is the PSFS?

-The PSFS can be used to quantify activity limitation and measure functional outcome for patients with any orthopaedic condition

-The PSFS asks patients to identify up to 3 important activities that they are having difficulty with as a result of their condition

-The patients are then asked to rate their difficulty with activity on a scale of 0-10, with 0 being unable to perform the activity and 10 being able to perform the activity as they could before their injury/problem

-The activities identified with the PSFS can then be used to develop the client’s physiotherapy treatment plan
What does the PSFS look like?

A copy of the PSFS is available from:

The Patient-Specific Functional Scale

This useful questionnaire can be used to quantify activity limitation and measure functional outcome for patients with any orthopaedic condition.

Clinician to read and fill in below: Complete at the end of the history and prior to physical examination.

Initial Assessment:

I am going to ask you to identify up to three important activities that you are unable to do or are having difficulty with as a result of your ______________ problem. Today, are there any activities that you are unable to do or having difficulty with because of your ______________ problem? (Clinicians should allow patients to have the patient rate each activity.)

Follow-up Assessments:

When I assessed you on (state previous assessment date), you told me that you had difficulty with (read all activities from list at a time). Today, do you still have difficulty with (read and have patient score each item in the list)?

Patient-specific activity scoring scheme (Point to one number):

<table>
<thead>
<tr>
<th></th>
<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></td>
<td>Unable to perform activity</td>
<td>Able to perform activity at the same level as before injury or problem</td>
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(Date and Score)

<table>
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<th>Activity</th>
<th>Initial</th>
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<td>3.</td>
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<td>4.</td>
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<td>5.</td>
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<tr>
<td>Additional</td>
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<td>Additional</td>
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Total score = sum of the activity scores/number of activities
Minimum detectable change (95% CI) for average score = 2 points
Minimum detectable change (90% CI) for single activity score = 3 points


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Patient instructions:

Initial Assessment:
I am going to ask you to identify up to three important activities that you are unable to do or are having difficulty with as a result of your ________________ problem. Today, are there any activities that you are unable to do or having difficulty with because of your ________________ problem? (Clinician: show scale to patient and have the patient rate each activity).

Follow-up Assessments:
When I assessed you on (state previous assessment date), you told me that you had difficulty with (read all activities from list at a time). Today, do you still have difficulty with: (read and have patient score each item in the list)?
Patient-specific activity scoring scheme (Point to one number):

<table>
<thead>
<tr>
<th>Activity</th>
<th>Initial Date: Score (0-10)</th>
<th>Date: Score (0-10)</th>
<th>Date: Score (0-10)</th>
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<th>Date: Score (0-10)</th>
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</table>
What do PSFS scores mean?

- The higher the score, the better the patient feels they are able to perform an activity
- Total score = sum of the activity scores/number of activities
- Minimum detectable change (90%CI) for average score = 2 points
- Minimum detectable change (90%CI) for single activity score = 3 points
- SEM is 1 point
- Minimally clinical important difference is not available for L/E conditions, but is approximately 1 point for U/E conditions and spinal stenosis
Pros of PSFS

- Tested on wide variety of patients: Joint Replacement, Knee Dysfunction, Low back pain, Lower Limb Amputees, Multiple Sclerosis, Neck Dysfunction and Whiplash, Pubic Symphysis pain in pregnancy, Spinal Stenosis, Upper Extremity Musculoskeletal

- Quick, easy, and free (takes approximately 4 mins)

- No equipment or training required

- Good psychometric properties
Cons of PSFS

- No SEM/MCID available for joint arthroplasty or L/E orthopaedic conditions
- Likely not appropriate for use with patients with cognitive impairment
- Difficulty for patients to remember how they were at their initial visit, and this may therefore bias scores
- Possible floor effect as patients tend to pick activities that are very difficult for them, so there is no room for increased disability
References

