

TKA Program

OUTCOME INSTRUCTIONS

University of Colorado Anschutz Medical Campus, Physical Therapy & Rehabilitation
RESTORE Team

REMINDER: Outcome measures are taken at pre-op appointment, post-op evaluation, and every 2 weeks until discharge from PT. The primary endpoint is 4 weeks post-op.

Quick Tipsp. 2

Timed Up and Go (TUG)p. 3

30 Second Sit to Stand (30-STS)p. 4

Quadriceps Strength with TINDEQp. 5

Passive Knee Flexionp. 6

Passive Knee Extensionp. 7

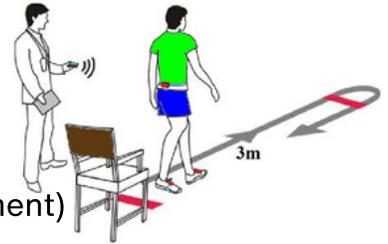
TKA Program Outcomes: Quick Tips

REMINDER: Outcome measures are taken at pre-op appointment, post-op evaluation, and every 2 weeks until discharge from PT.

The primary endpoint is 4 weeks post-op.

TUG

- 3 meter course, starting at patient's toes
- Walk quickly and safely
- Start and end seated
 - Start timer when back leaves the chair (or equivalent trunk movement)
 - End timer when bottom returns to the chair
- Can use arms
- Can use assistive devices; document in EMR



30-STS

- Cannot use arms; must be placed across chest
- If they cannot stand once or must use arms, score is 0
- If patient is more than halfway to standing when timer stops, count it as a stand



Quad strength (Tindeg)

- Padded ankle strap placed 2 finger widths above lateral malleolus
- Knee 60 degrees from full extension when slack is out of Tindeg and straps
- Show patient app screen for visual feedback
- Kick gradually; monitor for use of momentum and redo if present
- Cannot use arms; must be placed across chest



Passive Knee Flexion

- Stationary arm of goniometer along femur
- Flex knee until natural end range of motion or patient tolerance
- Apply a light overpressure
- Foot on plinth



Passive Knee Extension

- Prop a bolster or towel under heel
- Stationary arm of goniometer along femur
- Extend knee until natural end range of motion or patient tolerance
- Apply a light overpressure
- Negative values represent hyperextension



Timed Up and Go (TUG)

Equipment Needed: chair (height of approx. 18"), stopwatch, marker (tape)

Procedure:

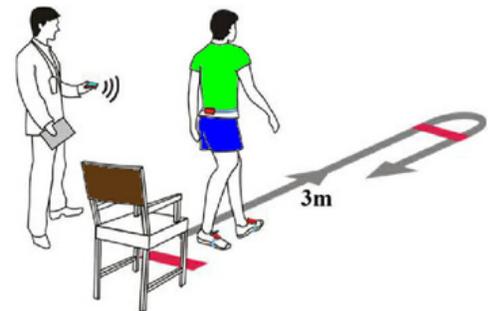
1. Place chair against the wall or have someone stand behind it, keeping the chair in place, and have the patient sit in the chair with their trunk vertical.

2. Measure 3 meters (9 feet, 8 inches) on the floor from the patient's toes (approximately 1 foot in front of chair) and mark with visible marker on the floor (tape and cone, if possible). Use a pre-marked course, when possible.

3. Instruct patient:

*“When I say “Go” please stand up from the chair and walk **quickly and safely** to the marker, once both feet pass the marker, turn around and return to sitting in the chair. The time will start when your back leaves the chair and will stop when your bottom returns to the chair.”*

4. Start the timer when their back leaves the chair (or equivalent trunk movement), and stop the timer when their bottom returns to the chair.



Important Notes:

- Patient should start with a vertical trunk
- If the patient cannot reach the back of the chair when sitting upright, start the timer upon their initiation of forward trunk movement (equivalent to trunk leaving the back of a chair). You could also fill the gap between the back of the chair and the patient with a pillow.
- An assistive device may be used if it is unsafe for the patient to perform the test without one. Document AD use in EMR.
- Walking speed should be as quick as possible while remaining safe (no running)
- Perform a practice trial followed by one repetition, recording the fastest time of the 2 trials
 - If the patient is familiar with the TUG and the first trial goes well, you may record this time and not do a second trial.

30 Second Sit to Stand (30-STS)

Equipment Needed: chair (height of approx. 18"), stopwatch

Procedure:

1. Place the same chair as was used for the TUG against the wall or have someone stand behind it, keeping the chair in place.

2. Instruct patient:

“For this test, you are going to stand up and sit down as many times as you can in 30 seconds with your hands across your chest. Go as quickly and safely as you can.”

3. Have the patient perform one practice stand to ensure they can safely perform the movement.

- If the patient is familiar with the 30-STS, you may skip this step and proceed with the test.

4. On the signal to begin, start the stopwatch and count the total number of chair stands (up and down equals one stand) completed in 30 seconds.



Important Notes:

- Patient cannot use arm rests, **hands must be placed across chest**
- If a patient is more than halfway to standing when the timer reaches 30 seconds, this final stand is counted in the total
- The patient can stop and rest if they become tired. The time keeps going
- If a person cannot stand even once or if they use UE support, then the score for the test is zero

Quadriceps Strength with TINDEQ

Equipment Needed: TINDEQ, phone or tablet with TINDEQ app, examination table, goniometer

Procedure:

Setup

- Attach Tindeq to plinth at a location as close to ankle height as possible when leg is in a relaxed position
- Place padded ankle strap two finger widths above lateral malleolus
- Patient seated on long edge of the table, knee joint line at edge of the table,
- Adjust strap length so that there is no slack in the strap and Tindeq when patient's knee is at **60 degrees** from full extension
- Press button on Tindeq device to turn on (**Blue light** means on and paired with app)
- **Make sure Tindeq app is set to pounds** (Press Training Programs > Unit > pounds)
- Press **Live Data** and then **Scan** in app
- Have patient relax leg (no force on Tindeq) while you press **Tare** on the app



Testing

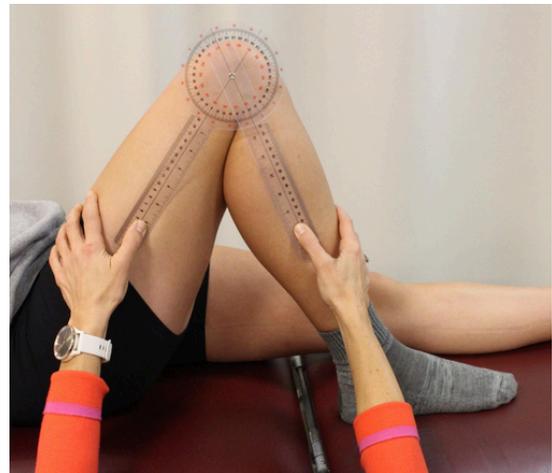
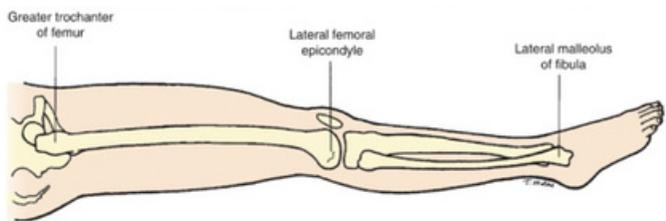
- Have patient cross arms across chest; use of upper extremities is not allowed
- Patient should extend knee to take slack out of Tindeq strap prior to each effort
- Monitor for use of momentum
- Show patient the app screen during effort for visual feedback
- Have patient perform 1 warm-up trial at 50% effort
- After warm up, have patient perform **2** trials at max effort
- In between each effort, have patient relax
- Record the maximum load attained (out of the two trials)

Passive Knee Flexion

Equipment Needed: Goniometer, examination table

Procedure:

1. Have the participants lie on their back on a flat surface, such as an examination table
2. Place the axis of the goniometer at the lateral femoral epicondyle
3. Align the stationary arm with the femur, pointing towards the greater trochanter, and the movable arm pointing towards the lateral malleolus
4. While continuing to hold to goniometer, grasp the patient's thigh and shin. Flex their knee by bringing their heel toward their buttock until you reach the natural end range of motion or to patient tolerance
5. Apply a light overpressure, if tolerated, and then record the angle shown on the goniometer



Important Notes:

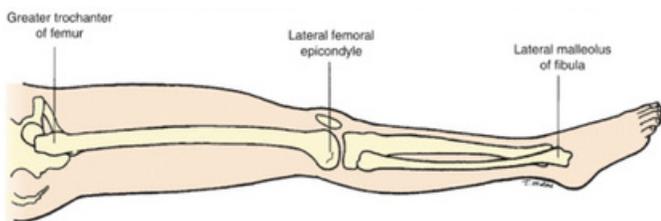
- Standardization: **foot on plinth**
- Administer at beginning of therapy session after a light warm up

Passive Knee Extension

Equipment Needed: Goniometer, examination table

Procedure:

1. Have the participants lie on their back on a flat surface, such as an examination table, and prop a towel under the heel of the leg whose measurement you are taking
2. Place the axis of the goniometer at the lateral femoral epicondyle
3. Align the stationary arm with the femur, pointing towards the greater trochanter, and the movable arm pointing towards the lateral malleolus
4. While continuing to hold to goniometer, grab onto the distal femur and the distal tibia and apply a light overpressure
5. Once the knee is passively extended to its limit, record the angle shown on the goniometer



Important Notes:

- This is NOT a measure of quadriceps function
- Standardization: **towel prop or bolster under heel**
- Therapist provides light overpressure
- **Negative values represent hyperextension**
- Administer at beginning of therapy session after a light warm up