Orthopedics
UNIVERSITY OF COLORADO

THE VIRTUAL PHYSICAL EXAM
PROVIDER INSTRUCTIONS

Begin by completing your standard patient history as you would with a live patient visit. A great deal of information can be gained from discussing the patient's symptoms and complaints.

ITEMS THE PATIENT WILL NEED

- A standard kitchen or dining chair
- A gallon of milk or heavy book
- A full sized sheet of scrap paper
- An rubber band or hair tie

THE NECK AND UPPER EXTREMITIES

Inspection

Ask the patient to stand up and back away from their camera. Once they are in full view, ask them to point specifically to the affected regions on their body.

- If their pain radiates to a specific area, as them to trace their pain with one finger from where it begins to where it radiates.

Careful observation by the provider can identify areas of tenderness by watching muscle contractions as the patient palpates areas of pain.

For post-operative visits, evaluation of the incision is essential as an early assessment for possible infection.

Palpation

The ability to assess a patient via palpation is obviously limited during a Telehealth visit.

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Sensory Exam

Given the obvious inability to assess light touch, two point discrimination, pressure or vibration, we must rely on the patient to describe areas of decreased or absent sensation or the presence of paresthesia. We suggest; the top of the shoulder (C5), the top of the thumb (C6), top of the long finger (C7), the top of the small finger (C8), and the medial elbow (T1).

The provider should use carefully worded questions and a description of anatomic landmarks to define dermatomal patterns concordant with the patient's symptoms.

Motor Exam

Direct assessment of a patient's strength is limited when conducting clinical visits via Telehealth. The provider must be creative in the maneuvers he or she asks the patient to perform in order to determine the presence or absence of motor weakness.

Begin by asking the patient to sit at a table with a kitchen or dining room chair. This will be useful in providing balance during certain maneuvers.

Deltoid (C5)

1) Ask the patient to retrieve a full gallon of milk or heavy book.
2) Instruct the patient to keep his/her upper arm close to their torso while holding the milk in one hand (Figure 2A).
3) Instruct the patient to slowly raise the object to the side until it is level with his/her shoulder (Figure 2B).
   - If they can fully raise the object, grade the patient at 5/5.
   - If they can raise the object but only partially, grade the patient 4/5.
   - If they cannot raise the object but can perform the maneuver without the object (i.e. against gravity), grade the patient 3/5.

Biceps (C6)

1) Ask the patient to retrieve a full gallon of milk or heavy book.
2) Instruct the patient to keep his/her upper arm close to their torso while holding the milk in one hand (Figure 3A).
3) Instruct the patient to slowly raise the object towards their shoulder while bending at the elbow (biceps curl) (Figure 3B).
   - If they can fully raise the object grade the patient at 5/5.
   - If they can partially raise the object grade the patient 4/5.
   - If they cannot raise the object but can fully flex their arm at the elbow without any weight grade the patient 3/5.

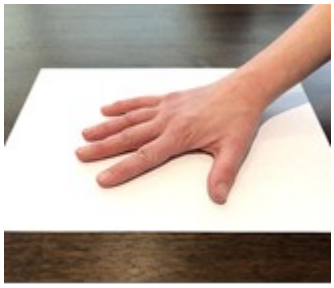
Triceps & Wrist Flexion (C7)

1) Ask the patient to stand facing a nearby wall. They should be approximately 18 inches away from the wall
2) Instruct the patient to place their palms on the wall, level with his/her shoulders and their elbows fully extended (Figure 4A).
3) The patient should begin by slowly leaning into the wall while flexing his/her elbows (Figure 4B).
4) Next, instruct the patient to straighten his/her arms until they are back to the fully extended position.
   - If the patient can lean all the way to the wall and return to the fully extended position grade them 5/5.
   - If they can lean forward but not all the way to the wall, grade them 4/5.
   - If they cannot perform this maneuver in any fashion, grade them 3/5.

***Alternatively, you may ask the patient to raise themselves from a seated position while pushing off the armrests of a chair. However, be aware that a patient can avoid using his/her triceps by leaning forward until their center of gravity is over their lower body and then use their leg and lower back muscles to force them in to an upright position.*

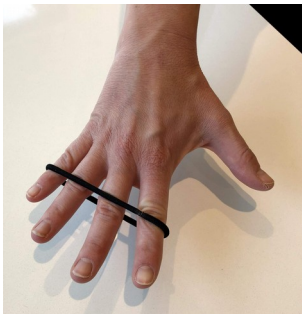
Finger Flexion & Grip Strength (C8)

1) Ask the patient to retrieve a full sized sheet of scrap paper (Figure 5A).
2) Using one hand, instruct the patient to crunch the paper into a small, tightly packed ball (Figure 5B).
   - If they can create a compact ball, grade the patient 5/5.
   - If they can compact the paper, but only loosely, grade the patient 4/5.
   - If they cannot compact the paper but can make a fully closed fist, grade the patient 3/5.



Finger Abduction (T1)

1) Ask the patient to retrieve a rubber band or elastic hair tie
2) Instruct the patient to place the elastic band around their index to (small) pinky fingers (Figure 6A).
3) In full view of the camera, ask the patient to fully separate his/her fingers while resisting the elastic band (Figure 6B).
   - If they are able to fully abduct their fingers, grade the patient 5/5.
   - If they can only partially abduct their fingers, grade the patient 4/5.
   - If they cannot abduct their fingers against the elastic band, but can do so without, grade the patient 3/5.



Reflexes

Assessment of normal or pathologic reflexes without direct contact with the patient is essentially impossible.

Special Tests

Disdiadochokinesia

1) Ask the patient to raise their hands in full view of the camera.
2) Instruct the patient to open and close their fists as quickly as possible
   - Under normal circumstances, one should be able to perform this maneuver 20 times in 10 seconds

Romberg Test

1) Ask the patient to stand comfortably in front of the camera with his or her feet together
   - If there is concern on the part of the provider or patient regarding balance issues, it may be best to have another individual stand next to the patient in case they were to fall.
2) Instruct the patient to raise their arms to the side to the level of their shoulders (Figure 7).
3) When ready, ask the patient to close their eyes.
   - An inability to maintain balance is considered a positive Romberg and this should be interpreted appropriately based on other clinical findings.

THE BACK AND LOWER EXTREMITIES

Inspection

Ask the patient to stand up and back away from their camera. Once they are in full view, ask them to point specifically to the affected regions on their body.

- If their pain radiates to a specific area, as them to trace their pain with one finger

If the patient feels comfortable doing so, and without unnecessary exposure of sensitive areas, requesting they lift their shirt to expose regions of concern can aid in the visualization of specific problem areas.

Careful observation by the provider can identify areas of tenderness by watching muscle contractions as the patient palpates areas of pain.

For post-operative visits, evaluation of the incision is essential as an early assessment for possible infection.

Palpation

The ability to assess a patient via palpation is obviously limited during a Telehealth visit.

Sensory Exam

Given the obvious inability to assess light touch, two point discrimination, pressure or vibration, we must rely on the patient to describe areas of decreased or absent sensation or the presence of parasthesias.

The provider should use carefully worded questions and a description of anatomic landmarks to define dermatomal patterns concordant with the patient's symptoms. We suggest the proximal inner thigh (L2), the anterior surface of the thigh or medial aspect of the knee (L3), the medial ankle (L4), the dorsum of the foot over the great toe (L5), and the heel (S1).

Motor Exam

Direct assessment of a patient's strength is limited when conducting clinical visits via Telehealth. The provider must be creative in the maneuvers he/she asks the patient to perform in order to determine the presence or absence of motor weakness.

Begin by asking the patient to sit at a table with a kitchen or dining room chair. This will be useful in providing balance during certain maneuvers.

Psoas (L2-L3)

1) Ask the patient to stand. If necessary, they can rest a hand on the back of their chair to provide additional balance (Figure 8A).
2) Ask the patient to march in place while raising their knees as high as possible (Figure 8B).
3) The ability to fully raise one's knees indicates 3/5 strength at minimum and if done with ease, is likely indicative of at least 4/5 strength.

Quadriceps (L3-L4)

1) Ask the patient to use their chair for balance.
2) Instruct the patient to raise one foot off the ground (Figure 9A).
3) Begin by performing a single leg squat (to at least 45°) and then return to a full straight-legged position (Figure 9B).
   - If the patient can perform this maneuver with ease, they should be graded as 5/5.
   - If they can safely stand on one leg but cannot squat, grade the patient as 4/5.
   - If unable to perform a single leg stand, instruct the patient to sit and extend their leg until it is straight. If they can complete this maneuver, grade the patient as 3/5.

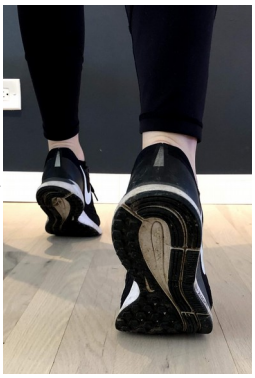
***Alternatively, if the patient cannot safely perform a single-leg a squat you can ask them to rise from a seated position without assistance. If they can rise without assistance from either a device or another individual, grade them 5/5. If they require assistance in any form, grade them 4/5.*

Tibialis Anterior (L4-L5)

1) Ask the patient to back away from their chair.
2) Instruct the patient to stand on his/her heels (Figure 10).
3) Instruct the patient to walk on their heels directly away from the computer screen
   - If the patient can perform this maneuver with ease, they should be graded as 5/5.
   - If they can safely stand on their heels but cannot walk in a dorsiflexed position, grade the patient as 4/5.
   - If unable to stand on his/her heels, ask the patient to remain seated and maximally raise their toes towards their nose. If they can execute this task, grade them as 3/5

Gastrocsoleus Complex (S1)

1) Ask the patient to use their chair for balance.
2) Instruct the patient to raise one foot off the ground.
3) With one foot raised, ask the patient to raise their heel off the ground
   - If he or she is able to perform a full calf raise, grade the patient 5/5.
   - If the patient is able to lift the heel of the ground by a small amount but immediate falls back to the ground, grade them 4/5.
   - If unable to stand on his/her toes, ask the patient to remain seated and maximally point their toes towards the ground. If they are able to complete this task, grade them as 3/5.



***Alternatively, you may ask the patient to perform a toe walk in which they walk in direct view of the camera on his/her toes (Figure 11).*

Reflexes

Assessment of normal or pathologic reflexes without direct contact with the patient is essentially impossible.

Special Tests

Heel-to-Toe Walk

1) Ask the patient to walk directly away from their camera in a heel-to-toe pattern pretending as if they were walking along a balance beam
   - Carefully observe the patient's gait. Difficulty with balance, stability and inability to perform the maneuver as described are correlated with the rest of the history and exam to identify potential pathologic conditions.