



School of Continuous
Professional Development

THE TELEMEDICINE MUSCULOSKELETAL EXAMINATION

Edward R. Laskowski, MD, FACSM, CAQSM, FSEM
Professor, Department of Physical Medicine and Rehabilitation and Division of
Sports Medicine, Department of Orthopedics

laskowski.edward@mayo.edu
[@DrEdSportsMed](#)



OBJECTIVES

- Outline general considerations when conducting a virtual musculoskeletal physical examination
- Describe virtual physical examination techniques to assist in the examination of the shoulder, hip, knee, ankle, and cervical and lumbar spine
- Conduct a virtual musculoskeletal physical exam of the cervical and lumbar spine and the major joints

TELEMEDICINE

- Initially intended to improve health care to patients in remote settings
- COVID-19 has caused explosive growth: during the **first four months of the COVID-19 pandemic**, telehealth visits accounted for **23.6%** of all interactions – compared with **0.3%** of contacts in 2019 (JAMA, 2021)
- Medicare visits held via telehealth increased **63-fold** from 2019 to 2020
- Broad clinical scope: provides **convenient, safe, time and cost-efficient care**
- Many institutions are now relying more heavily on telehealth services to **continue to provide medical care** to individuals

TELEMEDICINE IN MUSCULOSKELETAL CARE

- Musculoskeletal complaints frequently present to health care providers; framework important for virtual musculoskeletal (MSK) exam
- We developed a specific set of guidelines, both written and visual, to enhance the information obtained when evaluating the **shoulder**, **hip**, **knee**, **ankle**, and **cervical** and **lumbar** spine



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Telemedicine Musculoskeletal Examination

The Telemedicine Musculoskeletal Examination

Edward R. Laskowski, MD; Shelby E. Johnson, MD; Randy A. Shelerud, MD;
Jason A. Lee, DO; Amy E. Rabatin, MD; Sherilyn W. Driscoll, MD;
Brittany J. Moore, MD; Michael C. Wainberg, DO; Carmen M. Terzic, MD, PhD

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TELEMEDICINE MUSCULOSKELETAL EXAMINATION

- Written and visual aids to enhance the information obtained when evaluating the shoulder, hip, knee, ankle, and cervical and lumbar spine
- Accompanying videos are included to facilitate and demonstrate specific physical examination techniques which the patient can perform on their own
- Most tests are based on validated physical exam maneuvers performed during face-to-face patient encounters, but have been modified to enable the patient to self-perform the maneuvers

TELEMEDICINE MUSCULOSKELETAL EXAMINATION: GENERAL CONSIDERATIONS

- Examiner will look at the video image of the patient, but also should occasionally look directly at the camera as that is the equivalent of looking the patient in the eyes.
- Examiner should tell patient that at times the examiner may need to look away to take notes or view various computer screens.
- There may be an audio lag, so try to give the patient two seconds or so after they stop speaking before talking.

TELEMEDICINE MUSCULOSKELETAL EXAMINATION: GENERAL CONSIDERATIONS

- Uniform history taking and examination **sequence promotes efficiency and avoids errors of omission**
- The patient is requested to **use one finger to point to the maximal area of pain** and to delineate any radiating pain.
- Consider **demonstrating exam maneuver** for the patient, as appropriate.

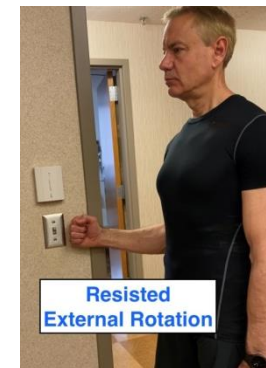
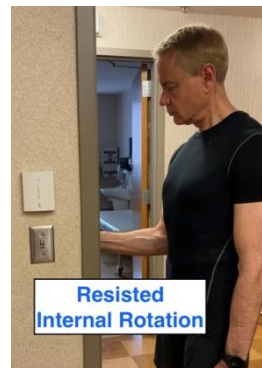
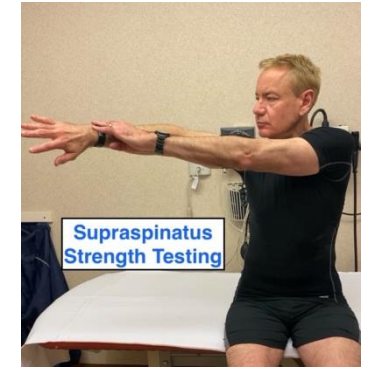
TELEMEDICINE MUSCULOSKELETAL EXAMINATION: GENERAL CONSIDERATIONS

- Adequate room to perform full range of motion of the joints in all planes, gait, and sit to stand transitions.
- The room should be as free of distractions as possible, with uncluttered background and adequate lighting.
- If possible, an additional person to adjust the camera to accommodate different patient positions (i.e., standing, lying, full-body view, etc.).
- If this is an exam of a small child, toys that the child will reach for and manipulate and/or hold for comfort could be utilized.

TELEMEDICINE MUSCULOSKELETAL EXAMINATION: INTRODUCTION



TELEMEDICINE MUSCULOSKELETAL EXAMINATION: PICTURES

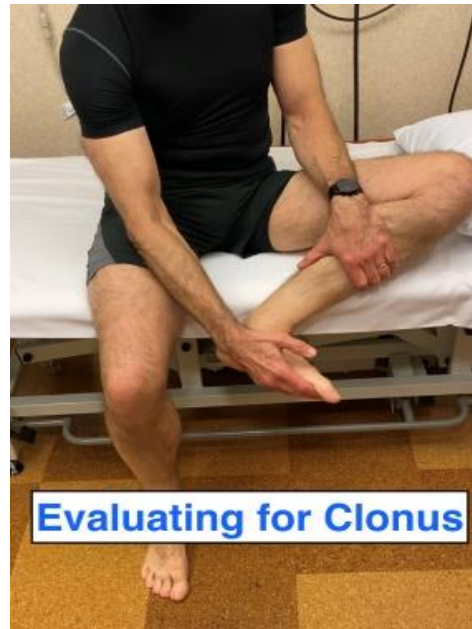


TELEMEDICINE MUSCULOSKELETAL EXAMINATION

- The patient can use the side of their hand, a long-handled, rubber-headed spatula, or the edge of a smartphone to check their knee jerk reflexes. Demonstration of the maneuver can be helpful. The knee jerk is easiest to elicit if the knee is extended past 90 degrees with heel on the floor as shown. Patient can try to elicit own knee jerks and ankle jerks with feet on the ground, or legs crossed. If using spatula, hold spatula at the end of the handle, and strike below patella with the edge/side of the spatula.



TELEMEDICINE: SELF-PERFORMED MANEUVERS



TELEMEDICINE: SELF-PERFORMED MANEUVERS



Seated
FABER



Hip Internal
Rotation



Hip External Rotation

THE FUTURE

- Patients seem to like telehealth:

COVID-19 TELEHEALTH IMPACT STUDY (AMA and others, May 2021)

- 79% were very satisfied with the care received during their last telehealth visit.
- 81% said the provider was thorough.
- 84% were confident their personal information was secure and private during the visit.
- 83% believed the quality of the patient-physician communication was good.
- 73% will continue to use telehealth services in the future.
- 41% would have chosen telehealth over an in-person appointment for their last visit, even if both required a copay.

THE FUTURE

- Telemedicine consults produced results that were just as effective for patients being treated for conditions like **diabetes, respiratory illnesses, chronic pain, heart problems and neurological disorders**

(Albritton et al, Annals of Internal Medicine, 2022)

- **American Medical Association (AMA):** Telehealth is fundamental to care: AMA says virtual care has been “transformational” and calls on senators to continue telehealth flexibilities for at least two years 9/2022
- Since Public Health Emergency ended, physician ability to provide telehealth services without a license in state in which patient is located varies by state

TELEMEDICINE MUSCULOSKELETAL EXAM: SUMMARY

- Telemedicine has played an important role in the delivery of medical services and is likely to be of **continued importance** and use even after the current pandemic
- A virtual musculoskeletal examination can enhance the information obtained when evaluating shoulder, hip, knee, ankle, and cervical and lumbar spine complaints
- **Exam can be modified** according to the capabilities of the **patient and examiner**
- The future: further **refinement and validation of patient performed examination maneuvers; continued work on legal/licensing aspects**

THE TELEHEALTH MUSCULOSKELETAL EXAM



MSK EXAM VIDEOS

| Title | MC# | External link |
|---|-----------|---|
| The Telemedicine Musculoskeletal Examination playlist (includes all segments below in one link) | MC1440-06 | https://mayoclinic.org/pe?plid=1_958vdyeb |
| Prepare for Your Telemedicine Musculoskeletal Exam | MC1440-07 | https://www.mayoclinic.org/pe?mc=MC1440-07 |
| Prepare for Your Shoulder Exam | MC1440-08 | https://www.mayoclinic.org/pe?mc=MC1440-08 |
| Prepare for Your Spine Exam | MC1440-09 | https://www.mayoclinic.org/pe?mc=MC1440-09 |
| Prepare for Your Hip Exam | MC1440-10 | https://www.mayoclinic.org/pe?mc=MC1440-10 |
| Prepare for Your Knee Exam | MC1440-11 | https://www.mayoclinic.org/pe?mc=MC1440-11 |
| Prepare for Your Ankle Exam | MC1440-12 | https://www.mayoclinic.org/pe?mc=MC1440-12 |

THANK YOU!

