Ankle Reflexes[1,2]

Narrative Section

Historical Vignette - Did you know that the reflex hammer's history is rooted in wine? The story of the reflex hammer dates back to 1761 when Josef Leopold Auenbrugger first described the art of percussion adapted from his father's method of tapping wine casks to measure the level of remaining wine. Percussion was initially performed with a hammer, but it fell out of use when the fingers were used as pleximeter and hammer. The hammer would later be adapted by physicians for the deep tendon reflexes when Erb and Westhal described the diagnostic utility of the knee-jerk reflex, about 1875.

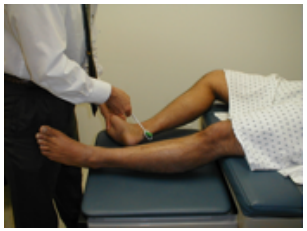
Clinical Vignette and Usefulness - Mr. Jones presented with progressive weakness in both legs and arms. The examination showed bilateral weakness in all 4 extremities. There was normal sensation below the clavicle, normal cranial nerves, and normal mentation. Deep tendon reflexes were very brisk, and there was ankle and patellar clonus. The Babinski and Hoffman reflexes were present with 3+ reflexes in all 4 extremities. The distinct constellation of findings suggested a transverse cord lesion. The differential would have been different had the reflexes been normal or absent.

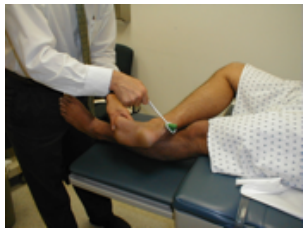
[1] Chi J *et. al.* "The Five Minute Moment." *Am J Med.* **2016 Aug;** 129 (8): 792-795.

[2] Lanska, DJ. "The History of Reflex Hammers." *Neurology.* **1989 Nov;** 39: 1542-1549.

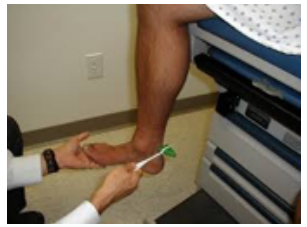
Physical Manuever

Model Proper Technique - two techniques can help elicit the ankle reflex in a bed bound patient. The first involves both legs fully extended and the examiner placing two fingers across the plantar surface of the metatarsal heads. With the foot cocked up, strike the hammer against the two fingers, looking for the brisk ankle contraction. Alternatively, the patient can outwardly rotate the hip, flex the knee. The examiner positions two fingers on the metatarsal heads. This time, though, strike the Achilles tendon directly to observe the contraction. Finally, in a patient who is unable to relax their lower extremities, cross the foot being examined over the lower part of the other leg and strike the Achilles tendon as before.





In a seated patient, have the patient relax the ankle while the examiner applies slight tension to the Achilles tendon by lifting the under the foot. Strike over the Achilles tendon to see the tendon contraction (S1 level) and the resulting plantar flexion of the foot.



Interpretation - An explanation of reflex grading: 0 absent, 1+ slight but clear response, 2+ brisk and normal response, 3+ very brisk exaggerated response, 4+ clonus.

Caveat and Common Errors - When first using the reflex hammer, many learners tend to hold the hammer too high. This lowers the torque and can lead to a reflex that is falsely absent because adequate pressure is not applied quickly. Holding the hammer in too tight a fashion impairs the stroke.