

Tendon Reflexes -

The Knee jerk

1. What it is.

A contraction of the quadriceps muscles when the patellar tendon is stretched.

2. What it tests.

A reflex arc involving the 2nd 3rd and 4th lumbar segments.

3. The stimulus



A sharp tap over the patellar tendon using a patellar hammer

4. How to elicit it

- Lie the patient flat and tell them to relax and that you will tap them just below the knee with 'this' (show them the hammer). Don't tell them it's a hammer, this can cause apprehension!
- Place your arm under one knee and lift it from the bed while supporting your hand on the patient's other knee. You can lift up both knees together if you like.
- Locate the patellar tendon between the tibial tubercle and the lower border of the patella
- Swing the patellar hammer so that it falls onto the patellar tendon
- At the same time watch for a contraction in the quadriceps muscle.

5. Grade and interpret the response

Observation	Grade	Interpretation
Not even twitch of the muscle	<i>Reflex absent</i>	Lesion of the afferent nerves, anterior horn cells or efferent nerves
Muscle twitches and knee jerks	<i>Reflex normal</i>	
Muscle twitches and leg jerks off the bed	<i>reflex increased</i>	Upper motorneurone lesion anywhere above the spinal segments involved in the reflex. Tetanus Thyrotoxicosis Nervousness
Muscle twitches and knee jerks but is slow to relax and go back to normal	<i>reflex myotonic</i>	Myxoedema, Hypothermia Myotonia

6. Confirm the finding

- Repeat the observation
- If the reflex seems increased check for clonus:
 - Suddenly and forcefully push the patella towards the patient's foot and maintain the pressure. Clonus will be felt as a repetitive contraction of the quadriceps muscles pulling the patella up.
- If the reflex seems to be absent check by getting the patient to firmly clench their fist on the same side as the knee jerk you are testing. This is called 'reinforcement' and works by increasing the excitability of the anterior horn cells.

7. Test the other side

8. What can go wrong

- You find no reflex because the patient is not relaxed. Say "Just let me hold your legs / Don't try to help me/ let the legs go to sleep"
- You find no reflex because the striking the patient's knee is painful. They have some other problem there.
- You *poked* at the tendon rather than striking it sharply. The tendon has to be stretched fairly quickly to elicit the reflex
- You have missed the tendon.