

1. Vastus Lateralis
 - a. Origin: Greater trochanter and linea aspera of femur.
 - b. Insertion: Patella via quadriceps tendon and then tibial tuberosity via patellar ligament.
 - c. Action: All four heads extend leg at knee joint; rectus femoris muscle acting alone also flexes thigh at hip joint.
 - d. How to locate: The injection site is halfway down the vastus lateralis, which is the muscle on the outside of the thigh. Markers include the greater trochanter, and the lateral femoral condyle – the injections site is about halfway between these two levels.
2. Deltoid
 - a. Origin: Acromial extremity of clavicle (anterior fibers), acromion of scapula (lateral fibers), and spine of scapula (posterior fibers).
 - b. Insertion: Deltoid tuberosity of humerus.
 - c. Action: Lateral fibers abduct arm at shoulder joint; anterior fibers flex and medially rotate arm at shoulder joint; posterior fibers extend and laterally rotate arm at shoulder joint.
 - d. How to locate:
 - i. The deltoid is a large rounded triangular shape on the outside of the upper arm, on top of the humerus, the clavicle and the scapula.
 - ii. The brachial artery and the radial nerve sit behind the deltoid and come down from the muscle.
 - iii. The injection site is a smaller triangle-shaped area, in the middle of the deltoid, above the deltoid tuberosity.

References:

- Intramuscular Injections.* (2022). The Royal Children’s Hospital Melbourne.
https://www.rch.org.au/rchcpg/hospital_clinical_guideline_index/Intramuscular_Injections/
- Tortora, G. J., & Derrickson, B. (2017). *Principles of anatomy & physiology*. Fifteenth edition; Wiley Loose-Leaf Print Companion. Hoboken, New Jersey, John Wiley & Sons, Inc.
- Department of Health and Aged Care. (2018). *Figure. Anatomical markers used to identify the vastus lateralis injection site on the anterolateral thigh.*
<https://immunisationhandbook.health.gov.au/resources/figures/figure-anatomical-markers-used-to-identify-the-vastus-lateralis-injection-site-on-the-anterolateral-thigh>
- Department of Health and Aged Care. (2018). *Figure. Anatomical markers used to identify the deltoid injection site.*
<https://immunisationhandbook.health.gov.au/resources/figures/figure-anatomical-markers-used-to-identify-the-deltoid-injection-site>