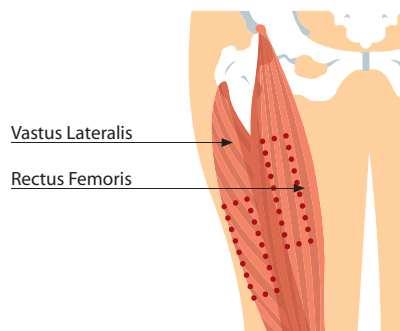


IM injections: How's your technique?

Good injection technique can mean the difference between less pain and injury. **Angela Cocoman and John Murray** explain

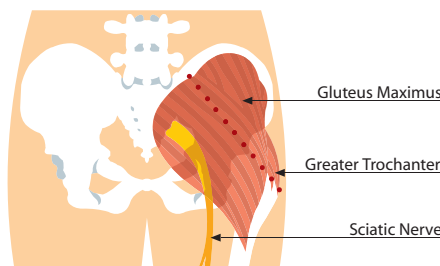
Giving an IM injection into the Vastus lateralis site

- To find the thigh injection site, make an imaginary box on the upper leg. Find the groin. One hand's width below the groin becomes the upper border of the box
- Find the top of knee. One hand's width above the top of the knee becomes the lower border of the box
- Stretch the skin to make it tight
- Insert the needle at a right angle to the skin (90°) straight in
- Up to 2ml of fluid may be given into this site



IM injection into the Gluteus medius site (buttock)

- Find the trochanter. It is the knobby top portion of the long bone in the upper leg (femur). It is the size of a golf ball
- Find the posterior iliac crest. Many people have 'dimples' over this bone
- Draw an imaginary line between the two bones
- After locating the centre of the imaginary line, find a point one inch toward the head. This is where (X) to insert the needle
- Stretch the skin tight
- Hold the syringe like a pencil or dart. Insert the needle at a right angle to the skin
- Up to 3ml of fluid can be given in this site



THE ADMINISTRATION of intramuscular injections is a common nursing intervention in clinical practice.¹ This article aims to, raise awareness in relation to the injection sites used for intramuscular injection and, to highlight best practice in relation to IM injection administration.

The importance of good injection technique cannot be understated. It should not be forgotten that among potential complications of IM injection are abscess, cellulites, tissue necrosis, granuloma, muscle fibrosis, contractures, haematoma and injury to blood vessels, bones and peripheral nerves.² Although IM injection is a commonplace nursing practice, there is a dearth of guidelines for nursing staff in this area.^{3,4} It has been outlined that there are no working policies or procedures on administering injections to which nursing staff can refer.³ Furthermore, the technique and preparation by certain staff may not be substantiated by evidence.⁴

Sites of the thigh (*Rectus femoris* and *Vastus lateralis*)

The uptake of drugs from the thigh region is slower than from the arm but faster than from the buttock, thus facilitating better drug serum concentrations than is possible with the gluteal muscles.⁵

The thigh may be utilised when other sites are contraindicated or by clients who administer their own medication, as it is readily available in the sitting or lying back position. However, the main disadvantage is that injections in the *Rectus femoris* site may cause considerable discomfort.⁶

This site can be used for infants, children and adults. Needle length used is usually 2.5cm or less.

The dorsogluteal site

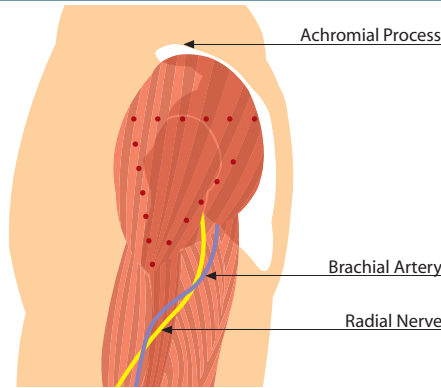
This site is commonly referred to as the outer upper quadrant and is contraindicated in children.

The presence of major nerves and blood vessels, the relatively slow uptake of medication from this site compared with others and the thick layer of adipose tissue commonly associated with it, makes this site problematic.⁷ The sciatic nerve and superior gluteal artery lie only a few centimetres distal to the injection site, thus great care needs to be taken to identify landmarks accurately. Palpating the ileum and the trochanter is important; using visual calculations alone can result in injection being placed too low and

Giving an IM injection into the deltoid site

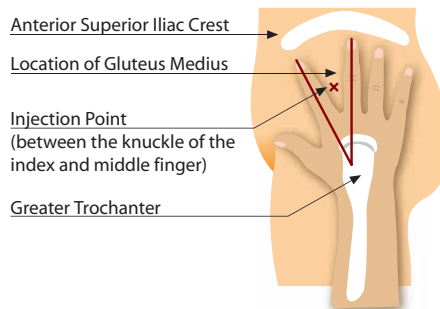
- Find the knobby top of the arm (acromion process)
- The top border of an inverted triangle is two finger widths down from the acromion process
- Stretch the skin and then bunch up the muscle
- Insert the needle at a right angle to the skin in the centre of the inverted triangle

Caution: This is a small site – give only 1-2ml or less of fluid in this site

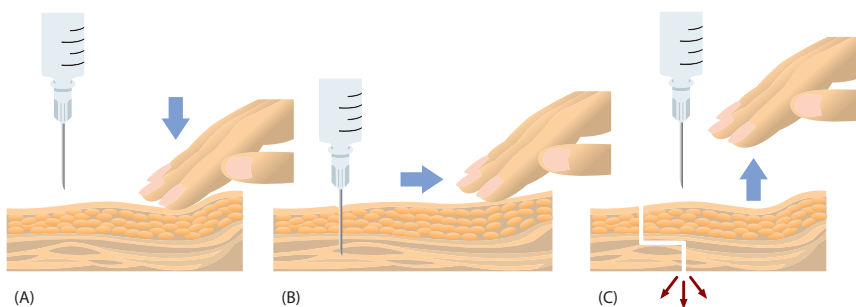


Giving an IM injection into the ventrogluteal site

- Find the trochanter. It is the knobby top portion of the long bone in the upper leg (femur). It is about the size of a golf ball
- Find the anterior iliac crest
- Place the palm of your hand over the trochanter. Point the first or index finger toward the anterior iliac crest. Spread the second or middle finger toward the back, making a 'V'. The thumb should always be pointed toward the front of the leg. Always use the index finger and middle finger to make the 'V'
- Give the injection between the knuckles on your index and middle fingers
- Stretch the skin tight
- Hold the syringe like a pencil or dart. Insert the needle at a right angle to the skin (90°)
- Up to 3ml of fluid may be given in this site⁷



Z Tracking technique



An intramuscular injection is designed to deposit medications deep into muscle tissue

injuries to other structures.⁸

Risks associated with an IM injection to the dorsogluteal site

- Contact with sciatic nerve
- Contact with the superior gluteal artery
- Too much fatty tissue – poor absorption rates.

The deltoid site

The ease of access, especially in an out-patient setting, possibly adds to the frequency with which the *deltoid* site is used for IM injections. This site is used for immunisations/non-irritating medications, hence vaccines which are usually small in volume tend to be administered into the

deltoid site.⁹ This is a relatively small area and muscle mass, especially in atrophied patients compounded by the close proximity of the radial nerve, brachial artery and bony processes to this site means that more substantial injuries can occur.

It is important to limit volume of medication based upon size of muscle, ie. 0.5-2ml.

The ventrogluteal site

The *Ventrogluteal* site provides the greatest thickness of gluteal muscle (consisting of both the *gluteus medius* and *gluteus minimus*), is free of penetrating nerves and blood vessels, and has a nar-

rower layer of fat of consistent thinness than is present in the *dorsogluteal*.¹⁰

The *ventrogluteal* site has come to attract significant attention in the nursing literature and there is wide agreement that this site is the preferable site for intramuscular injection.² There is a dearth of research in this area in Ireland as to the extent to which the *ventrogluteal* site is used.

Adminstrating an IM injection

There is a large research base for nursing practice to be guided by in relation to the administration of intramuscular injections and it is the responsibility of nurse educators to ensure that appropriately informed guidelines are devised.⁴

It has been suggested⁴ that the following points should be incorporated into clinical guidelines:

- IM injections should be administered in the *Ventrogluteal* region whenever possible
- The medication should be administered with a needle long enough to reach the muscle without penetrating underlying structures
- The patient should be positioned so as to relax the muscle
- The 'Z track' technique should be used at all times (see diagram).

These measures should ensure optimal nursing care for patients.

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