

Laboratory Techniques



Laboratory Animal Handling Technique

- Mouse
- Rat
- Rabbit
- Guinea Pig









Sexing

- Male = buck, Female = doe
- Buck - obvious external scrotum
 - ▶ Penis can be protruded by applying gentle pressure w/ thumbs and forefingers in front of & behind scrotum.
- Sex of young determined by examining urogenital region.
- Vulva of female may be seen as a pointed slit.
- Prepuce of male appears as a round, doughnut-shaped opening.







Injection Techniques

Chapter 3

- Injections with needles and syringes used to administer various substances
- Syringe construction and sizes
- Proper disposal of needles and syringes
- Common routes of injection





Intramuscular Injection (IM)

Chapter 3

- IM generally given in hind legs.
 - Most desirable site is large muscle mass (e.g., quadriceps muscle group).
 - Alternative site: muscles posterior to femur
- Do not inject too much material.





Anterior

Lateral
(outer leg)

Medial
(inner leg)

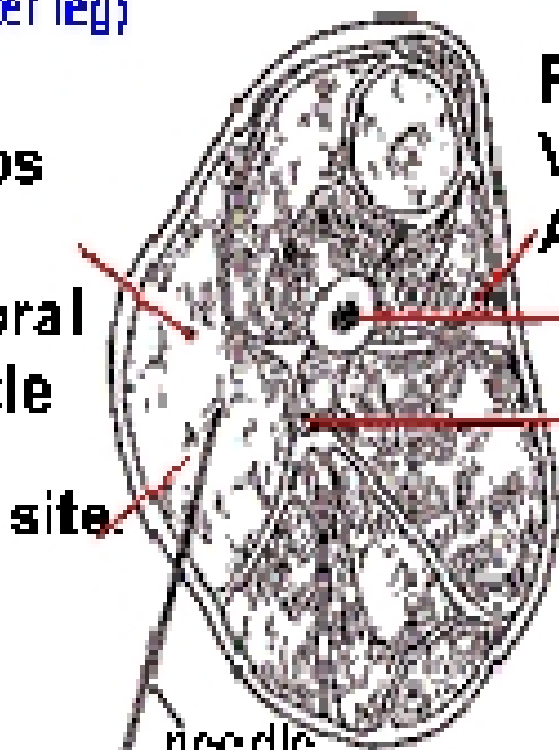
**Biceps
and
Femoral
Muscle**

**Femoral
Vein &
Artery**

Femur

**Sciatic
Nerve**

A good IM site.



needle

hub

barrel of syringe

Posterior





Intraperitoneal Injection (IP)

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- Avoid bladder and cecum.
- Aspirate prior to injection.
 - Yellow fluid: needle could be in bladder
 - Greenish fluid: needle could be in intestine or cecum
 - Blood: may have entered blood vessel





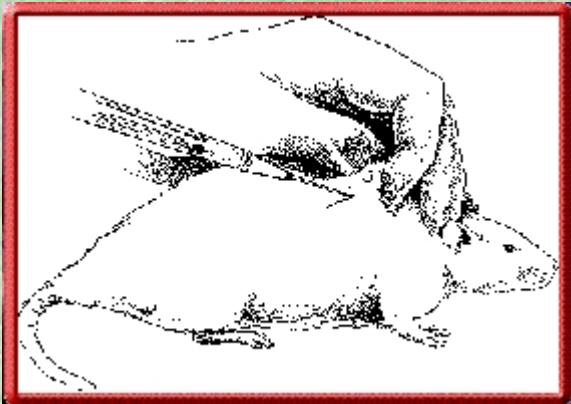




Subcutaneous Injection

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- Placed in the more vascular space between skin and underlying muscle
- Large area of subcutaneous tissue exposed by raising a tent of skin
- Entering the injection site => + then 0 resistance
- Precautions - puncture hand, inj. out other side



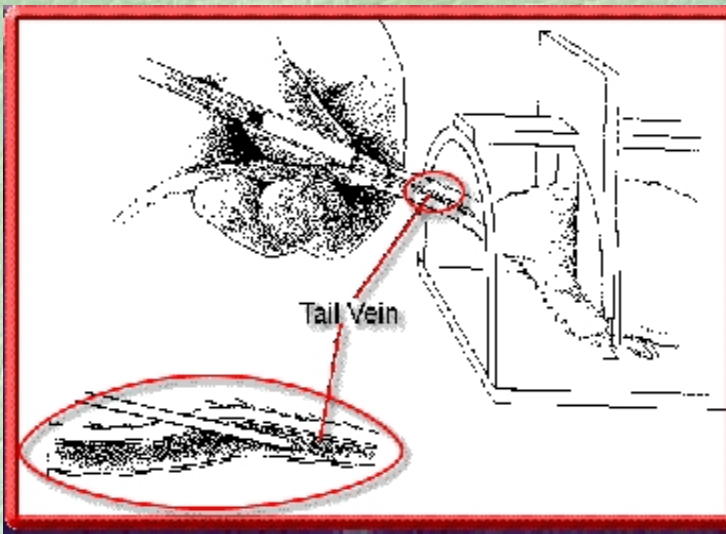




Intravenous Injection (IV)

Chapter 3

- IV access sites in common laboratory animals
- Site preparation - disinfect
- Use pressure to distend the vessel.
- Insert needle at 30 degree angle to skin.
- Removing the needle - apply pressure







Blood collection

Chapter 3

- . Blood collection from tail vein
- . Blood collection from orbital sinus
- . Blood collection from cardiac puncture
- . Blood collection from saphenous vein



Chapter 3



Push the mouse into the restrainer



Chapter 3



Leave the tail of the mouse outside the cover of the restrainer



Chapter 3



Amputate the tip of the mouse tail by scissors



Chapter 2



Massage the tail and collect blood by pipette



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Use a sharp end glass capillary tube to penetrate the orbital conjunctiva and rupture the orbital sinus



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Collect blood with a vial



Chapter 3

Blood Collection From Cardiac Puncture in Mouse

- For collect up to 1 ml of blood within a short period of time
- Must be performed under general anesthetic



Chapter 9



Search for the maximum heart palpitation with your finger



Chapter 8



Insert a 24G 1" needle through the thoracic wall at the point of maximum heart palpitation



Chapter 3

Blood Collection From Saphenous Vein in Mouse

- This method is used of multiple samples are taken in the course of a day
- It can also be applied on rats, hamsters, gerbils and guinea-pigs



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Hair can also be shaved by using a small scalpel



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Use a Microvette or a pipette with tip to collect blood from the saphenous vein



Chapter 3



Approximate 100 microliters can be collected



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Flex the foot of the mouse to reduce the flow of blood back to the puncture site



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A cotton ball is applied to the puncture site
to stop further bleeding