A NEW ALTERNATIVE – ANIMAL TECHNIQUES TRAINING ON MODELS

Sally O. Walshaw, M.A., V.M.D.
Michigan State University

TRAINING IN CLINICAL TECHNIQUES IS ESSENTIAL.

1. To ensure animal welfare in the laboratory.
2. To help lab personnel gain skill and confidence in working with animals.
3. To comply with regulations.

REASONS FOR USING MODELS AS A FIRST STEP IN TRAINING.

1. To organize the procedure into a series of steps.
2. To illustrate problems that can occur.
3. To offer repeated practice.
4. To give positive feedback.
5. To correct errors in technique.
6. To maximize the possibility for success when the trainee performs the technique on a live animal.
7. To provide the opportunity to discuss gentle handling and respect for animals.
   Training in humane restraint and handling is of the utmost importance.
   Creating the corporate culture: *we care about animals and people*.
   Dealing with fears of working with certain species of animals.

SOCK MOUSE MODEL

Materials: child's sock, cotton batting, felt tip pen, string

SOCK MOUSE MODEL AS AN EXAMPLE OF THE FIRST STEP IN TRAINING

Procedures: intraperitoneal & subcutaneous injections

1. To organize procedure into steps:
   Prepare syringe with solution, restrain mouse, disinfect skin, insert needle through skin, aspirate syringe plunger, inject, remove, observe mouse, note in records/cage card.
2. To illustrate problems that can occur:
   An inadequately restrained mouse may bite the person.
   Needle can be pushed through the skin and out other side when giving SQ injection.
3. To offer repeated practice.
4. To give positive feedback.
5. To correct errors.
   Improper hand position on needle can cause probing around in abdomen during IP.
   Needle recapping.
6. To provide the opportunity to discuss gentle handling and respect for the tiny, but brave mouse.
7. To provide the opportunity to discuss gentle handling and respect for the tiny (but brave!) mouse.

ADDITIONAL TRAINING PROCEDURES USING VARIOUS MODELS AND MATERIALS

Various stuffed toy animals for training in handling, restraint, injections, bandaging
- AALAS rat
- Hamster (modified slightly)
- Guinea pig
- Rabbit
- Cat

MOUSE

Materials: Plastic freezer bags (1 gallon size yields 4 mouse bags), heat-sealer, twistie ties

Restraint Procedure 1:
- Place mouse horizontal on table facing entrance to restraint bag.
- As mouse enters bag, close fingers around bag behind mouse.
- Tape restraint bag enclosing mouse to table for tail vein injections.

Materials: 50 ml centrifuge tube, 3 holes drilled at 25 ml line and one hole at tapered end,
mouse sized model: 3 inch x 2 inch stockinet, cotton stuffing, string tail

Restraint Procedure 2:
- Place mouse horizontal on table at entrance to centrifuge tube.
- Push gently to encourage mouse to enter tube.
- Collect blood from saphenous or hind foot vein.

RAT

Materials: hand towel, 2 inch orthopedic stockinet, 1 inch porous adhesive tape, Koken rat or modified stuffed toy (AALAS) rat

Procedures:
- Restraint: towel, stockinet 'sweater,' manual restraint
  - Effects of towel or stockinet on rat
- Gavage
- Arterial blood collection
- Bandage puncture site and leave bandage on for 5 to 10 minutes.
  - Caution: can lose part of tail if subcutaneous hemorrhage from artery.

RABBIT

Materials: stuffed toy rabbit or cat with modified ears and tail, towels, needles, syringes

Restraint Procedures:
- Removal of rabbit from cage: safety for person and rabbit.
- Removal of aggressive rabbit from cage.
- Towel wrap and holding of rabbit.
- Safe return of rabbit to cage.

Intramuscular injections in lumbar epaxial muscles
- Place index finger over spine – 3rd finger and thumb on last ribs.
- Hold lumbar muscles with your hand.
- Insert needle, aspirate and then inject.

RABBIT, RAT, DOG, ASSISTING PERSONNEL

Materials: wooden dowel, rubber tubing, duct tape, absorbent paper
Syringe and needle.
Vacutainer and blood collection tube.
Intravenous catheter.
Procedures:
Intravenous injection
Blood collection from cephalic, saphenous or jugular vein of dog.
Blood collection from ear vein or artery of rabbit.
Blood collection from tail vein of rat via intravenous catheter.
Intravenous catheter placement in dog, rat, rabbit

RAT CASTRATION MODEL

Materials: latex glove finger, cotton, adhesive tape
Procedure:
Placement of hemostats during castration.
Securing tie in groove made by hemostats.
Concept of *closed* castration to minimize possibility of post-operative inguinal hernia.

FEMALE DOG CATHETERIZATION MODEL

Materials: PVC pipe, glove, rubber stopper
Rubber stopper with hole drilled through is glued into a hole in the side of the PVC tube, where the urethra would be.
Procedures:
Visual technique using speculum.
Tactile technique using red rubber type urinary catheter.
Wear gloves.
Coil up excess catheter in hand to maintain sterility.
Guide catheter into urethral opening with index finger of other hand.
Difficult to do in real dog – therefore degree of difficulty in learning with this model.

DOG ABDOMINAL PALPATION MODEL

Materials:
Pillow, socks for ears, felt material for facial features
Internal organs simulated
Intestines (rope)
Urinary bladder with stones (sock with rocks)
Enlarged prostate (rolled up leg portion of sock)
Hard mass (toy egg)
Soft mass (toy soft ball)
Foreign object (spoon, etc.)

CONCLUSION:

Other models:
Rubber band incision model (Lynette Fieldler et al., NIH)
Dog Abdominal Surrogate for Instructional Exercise: DASIE
(David Holmberg, U. of Guelph)

UC/Davis vascular access training models for canine forelimb and head/neck unit

WISH LIST FOR ADDITIONAL MODELS

For any technique that is difficult to teach and to learn.

Mouse tail vein injections

Rodent surgery