Validation of a feline medial saphenous venipuncture model

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Purpose
To validate the use of the feline medial saphenous venipuncture model in a veterinary educational curriculum.

Cats can be difficult to work on due to their small size and temperamental demeanor. Experience is key to being more successful when performing procedures on cats, such as venipuncture. Need for more practice when learning venipuncture on felines initiated the construction of a model for this task. After completion of the feline medial saphenous model, this study was generated to validate its use in the veterinary school curriculum.

Methods

Model Development
- The model created consisted of a piece of silicone skin with space within it to insert a vessel (Figure 2).
- Blood-colored water was added by attaching a feeding tube bag.
- The task trainer was then attached to a model cat.

Rubric Development
- A rubric was developed by LMU faculty to assess performances. Eight steps were included on the rubric, seven were scored on a scale of 0 to 3, with 0 being poor and 3 being excellent.
- The eighth, drawing 1 mL or more of blood, was either scored 0, meaning 1 mL was not collected, or 3, meaning 1 mL or more was collected.
- A global rating of the overall procedure was scored on a scale of 1 (very poor) to 6 (excellent).

Survey Development
- Surveys for each cohort were used to gather feedback from the participants about their experience with the model.

Data Acquisition
- Participants: 11 experts and 25 novices
- All novice participants had performed venipuncture on cats five or less times and were 3rd year students enrolled at LMU-CVM.
- All participants could practice with the model as long as they wanted to before being video recorded performing venipuncture from the medial saphenous vein of a cat.
- Videos of participants in the study were reviewed and graded using the rubric by a blinded rater.

Discussion
Validation of the model and rubric were supported by positive survey results, reliable rubric scores, and confirmation of measured differences in the performance scores of novices and experts. User recommendations for improvements on the model will be taken into consideration for future development. Benefits to using a model include less stress on live animals as well as less stress on the individual performing the task. This helps create a better learning environment. Models can withstand more venipuncture attempts than a live cat, resulting in more practice for the student and, hopefully, more confidence and competence.

Results

Model Development & Survey Evaluation
- Initial cost of model = $44
- Replacement cost for "vessel" (catheter) = $2
- Replacement cost for "skin" (silicone) = $2
- Key points from the surveys include the model was easy to use, had adequate landmarks, and felt realistic.

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<tr>
<th>Statement</th>
<th>EXPERT</th>
<th>NOVICE</th>
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<td>How realistic?</td>
<td>16.5</td>
<td>13.4</td>
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Table 1. Experienced users survey results.
Table 2. Novice users survey results.

Acknowledgements
For more information, look for the paper to be published in the Journal of Veterinary Medical Education:
Reference:

Special thanks to Bill Collingsworth for assisting with the model development.

Figure 1. Materials needed to assemble a feline medial saphenous venipuncture model.

Figure 2. The completed skin with vessel inserted, connected to a feeding tube back with colored water resembling blood.

Figure 3. Means of each cohort from the procedure scoring rubric.