INTRODUCTION

The learning curve for microsurgical dexterity is difficult when limited to observation and performance in infrequent clinical cases. Laboratory models can help develop familiarity with handling of microinstruments and suturing under the microscope. This may lead to motivation and direction for further training, and also provide a means for assessment of the technical skills. The medical profession is under increasing pressure to be able to assess skills and competence.

Nonliving and live models, as well as simulations of microsurgery have been described, but few of these have been validated. The purpose of this study is to demonstrate the construct validity of the chicken thigh model and a novel scoring system for microvascular competence.

METHODS AND MATERIALS

Subjects

Figure 1. Training level. Twenty participants were recruited from surgical staff, fellows, and residents at UIHC. All except one, a neurosurgery fellow, were from the department of otolaryngology.

RESULTS

Task Time

Figure 7. Experience level demonstrated a logarithmic relationship with task time.

Microvascular OSATS (mOSATS) scores

Figure 8. Mean TSS based on experience. See Fig 6 for a key of the tasks. Spread is the difference between novices and experts.

CONCLUSIONS

The chicken thigh model and microvascular OSATS can differentiate between levels of microvascular ability. Microvascular experts outperformed novices in task specific measures, global ratings, and task time. Analysis of variance showed that the effect of training and microvascular experience were significant for both TSS and GRS (p < 0.005 for all). Interrater correlation was fair. This study demonstrates the construct validity and reliability of the chicken model and mOSATS for assessing microvascular competence.

Additional studies would be necessary to show predictive ability of the model with skills transfer to the operating room for improved outcomes, and to show that the model may also be useful as a tool for training. Given the TSS results, areas of focus could be using vessel adventitia for counter traction, and efficient handling of suture.

REFERENCES