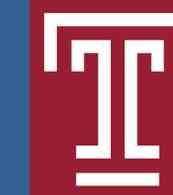




# A Novel Adenoidectomy Training System



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## Introduction

The importance of simulators in Otolaryngology training is known, and there has yet to be a simulator to allow trainees to practice the skills required for adenoidectomy<sup>1</sup>

Difficult aspects of adenoidectomies include:

- Focusing a headlight beam through a mirror
- Working upside-down and backwards in a small space
- Thoroughly ablating adenoid tissue

Inexperienced surgeons could benefit from training on a simulator prior to entering the operating room.

We present an adenoidectomy training system that is low-cost, easy to construct, and is focused on these basic adenoidectomy skills.

## Methods and Materials

This training suite includes 3 stations each targeting different skills:

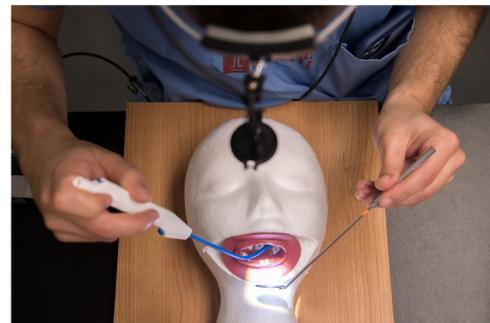
**Station 1:** A mannequin head with exposed nasopharynx. The student learns to coordinate a headlight and mirror by touching a series of targets with a curved probe.

**Station 2:** Participants electrodesiccate (or microdebride) an anchored piece of veal thymus under direct vision to practice tissue ablation

**Station 3:** The participants combine skills learned in prior station to ablate thymus in a simulated nasopharynx-30mm rectangular aluminum tube constrained within a McIver retractor, using a headlight, mirror and suction electro-surgical electrode (or microdebrider).

To evaluate the training system's efficacy, we assessed the performance of 10 surgically naïve medical student volunteers before and after 15 minutes of practice. Their performance was assessed using a modified version of a validated rating scale used for adenoidectomy.<sup>2</sup>

## Station 1



Trainees learn to focus a headlight beam through a mirror.



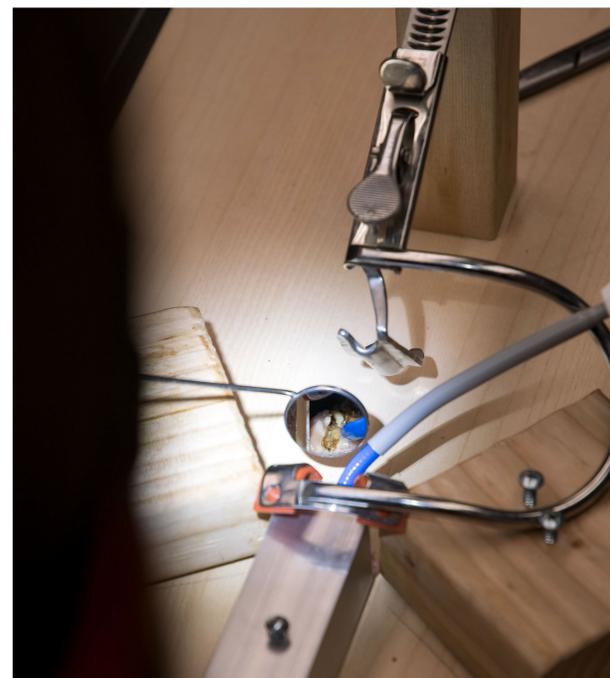
The performance of trainees can be monitored using a camera

## Station 2



Tissue is mounted to a bovie pad and ablated.

## Station 3



A view of the full simulator from the trainee's point of view.



The tissue is mounted on a plate. This enables quick swapping of tissue and allows removal from the simulator without disturbing it for performance evaluation.

## Results

There was significant improvement in adenoidectomy skill scores after using the simulator.

Overall scores were higher, time taken to touch a series of targets with a headlight and mirror was lower and amount of tissue ablated in the simulated nasopharynx at the final station was higher ( $p < 0.05$ ).

## Discussion

Development of basic skills in the simulation laboratory can accelerate learning and decrease the risk of complications during live patient training

Our novel adenoidectomy simulation system is low cost and easy to assemble

Practice with the simulator significantly improves adenoidectomy skill scores

## Conclusions

This novel adenoidectomy training system is inexpensive and easy to build. Practice with the model resulted in statistically significant improvement in adenoidectomy skill scores for inexperienced student surgeons.

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## References

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