Microsurgical Simulation Exercise for Surgical Training
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OBJECTIVES:
Microsurgical techniques requires extensive training
• Most residents do not participate daily
• Upon completion, expected to use a microscope
July 2013, ACGME requirements:
• Mandate surgical simulations
Hypothesis: Turkey Wing Model (Figure 1)
• Equivalent to live animal models
• Significant cost reduction
• Increase comfort level and skills
• Senior residents outperform junior residents
• Similar sized vessels and nerves to human hand

METHODS:
Pre-test and Survey:
• Microsurgical knowledge
• Comfort level
Lecture
• Microscope
• Techniques
Demonstration
Individual surgical repairs (Figure 2 and 3)

RESULTS:
Most residents were more comfortable
• 37% more comfortable after the lecture and training (p<0.001)
• Comfort level improved for 81% of residents, decreased for 9.5%, and stayed the same for 9.5%
Lecture and training significantly increased knowledge of microsurgical techniques
• Increase of over 41% seen between the pre-test and post-test assessments  (p=0.001)
• Seniors scored 54% higher on both the pre-survey (p=0.009) and 37% higher on the postsurvey (p=0.024)

CONCLUSIONS:
• Simulation Training Method - easy, convenient, inexpensive and simple to set up and complete
• Increased confidence and knowledge
• Model - Realistic simulation of human structures
• Practical training method – Microsurgical skills
• Meets new ACGME July 2013 requirements for simulation training

Figure 1: Turkey Wing Anatomy – A) Schematic of neurovascular structures in the turkey wing. B) Dissected wing showing the deep brachial vein (black arrow), brachial artery (blue arrow) and mediano-ulnaris nerve (white arrow).

Figure 2: Mediano-Ulnaris nerve repair: A) Image of turkey wing showing nerve. B) Schematic of nerve repair with alignment and suturing of epineurium.