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Research Abstracts

Fundamentals of Microsurgery Skills: Preliminary Evaluation of Five Microsurgery Tasks

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Introduction: While there are many commercially available task trainers for microsurgery, they target limited skills- basic vessel suturing or vessel anastomoses. With the improvement of technique and surgical equipment, microsurgical procedures have become increasingly prevalent. While there has been increasing utility in the clinical setting, there remains a dearth of simulation-based curricula. To meet this need, we have developed a microsurgery training kit and evaluated the components' value.

Methods: Simulator Development: The novel Fundamental Microsurgery Skills (FMS) kit was designed to support development of relevant skills via 5 different tasks commonly performed in microsurgery- vessel dilation, needle loading/transferring, suturing, coupling, and trimming. The compartmentalized kit contains a 3D-printed platform, unique working platforms for each task, and all the components for each task.

Study: Four plastic surgeons, having a mean of 10 years' experience, evaluated the components of the FMS training kit using an 8-item paper survey to evaluate the characteristics of tasks, their value and relevance using 5-point scales (5=high). Review of ratings and comments were used to guide development of the task trainer.

Results: See attached Image

Conclusions: Preliminary results support the use of the FMS. Future work will target an expanded test group including ENT, Orthopedic, OMFS and a larger pool of Plastic surgeons, and development of performance standards.

Items	Dilation Mean (SD)	Needle Loading & Transfer Mean (SD)	Suturing Mean (SD)	Coupling Mean (SD)	Trimming Mean (SD)
The task is relevant to microsurgical skills	4.75 (0.50)	3.75 (.50)	5.00 (0.00)	5.00 (0.00)	4.5 (0.58)
The steps of this task are easy to perform <i>for me</i>	5.00 (0.00)	4.75 (.50)	5.00 (0.00)	5.00 (0.00)	4.75 (0.50)
The steps of this tasks are reasonably difficult for <i>my average trainee</i>	3.75 (.96)	3.75 (.96)	4.50 (.58)	4.00 (0.82)	4.25 (0.50)
The magnification selected for this task aligns with a magnification I'd use in the clinical setting	4.00 (1.41)	4.00 (.82)	4.75 (0.50)	4.5 (0.58)	4.75 (0.50)
The instruments provided are instruments I would use for this task in the operative setting	4.25 (1.50)	4.5 (1.00)	4.5 (1.00)	4.00 (1.41)	5.00 (0.00)
The vessel adequately represents characteristics of a real vessel	3.5 (.58)	–	–	3.0 (0.82)	3.75 (0.96)
Ability to perform steps of task	4.94 (0.13)	4.95 (0.10)	5.0 (0.00)	4.75 (0.14)	4.25 (.96)
Preferred Magnification (Most counts)	10X	10X	6.4X	6.4X	16X