THE UTILITY OF COMPUTER-BASED INSTRUCTION FOR TEACHING BASIC SURGICAL SKILLS TO NOVICES

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Introduction: This study assessed the effectiveness of video instruction and expert feedback on the acquisition of suturing and knot tying skills.

Method: Sixty medical students with no prior suturing experience viewed an instructional video and were then randomly assigned to one of four individualized practice conditions: no additional intervention (control), self study with digitized instructional video under participant control (computer-based video instruction), and expert feedback during (concurrent feedback) and after (summary feedback) practice trials. Each instructional session lasted approximately one hour, with 20 practice trials completed during that time. Technical performance was evaluated pre- and post-intervention using previously validated outcome measures: global ratings by two blinded experts and hand motion efficiency using the ICSAD system (number of movements and total time). Performance scores were analyzed using ANOVA with significance set at p< .05. The patterns of viewing the instructional video were also recorded for the video instruction group.

Results: Performance on the suturing and knot tying skill was similar for all three experimental conditions and all were significantly better than the controls on all outcome measures (p< .05). Trainees in the video instruction group reviewed segments of the digitized video for an average time of 4 minutes, mostly between trials 1-15.

Discussion: We found that interactive video instruction was as effective as expert feedback on a basic surgical task. Most of the utility of this type of training appears to be in the early stages of skill acquisition, suggesting that computer-based video instruction should be implemented early in the training curricula.