

Beaumont

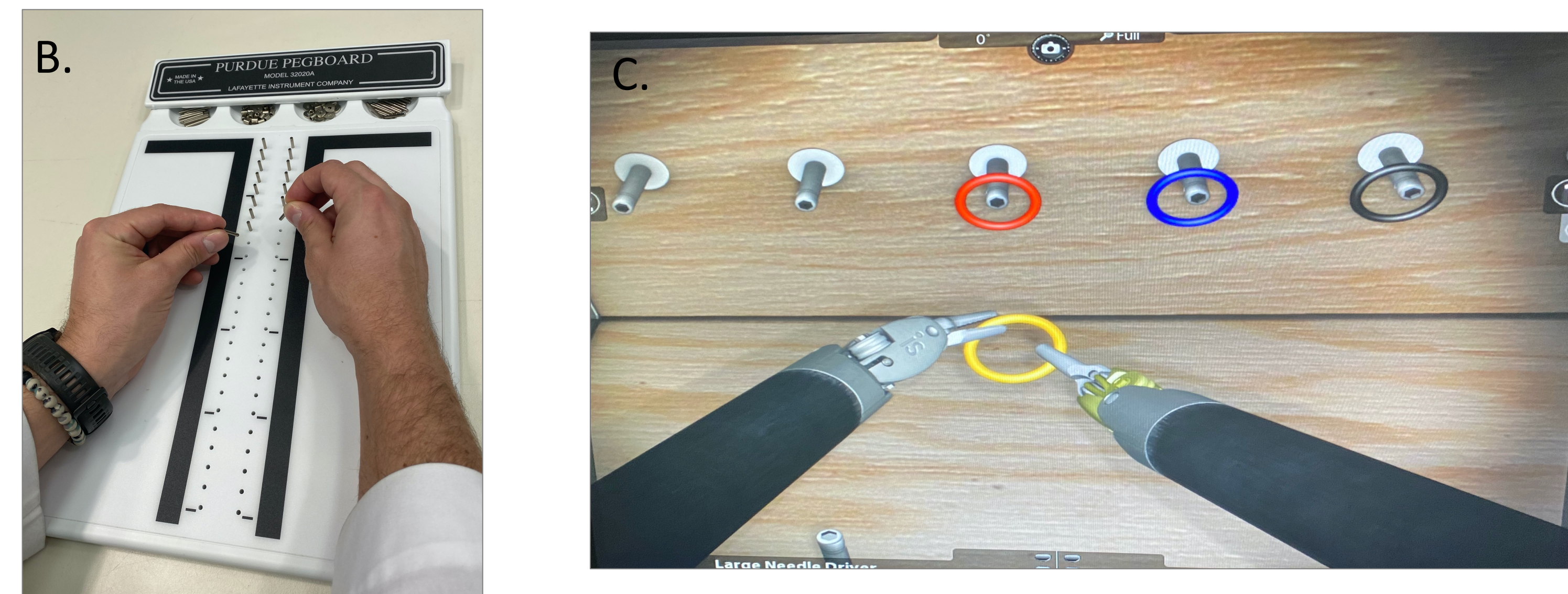
OAKLAND UNIVERSITY WILLIAM BEAUMONT

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With the growing skillset required of general surgeons, including advanced laparoscopic and robotic skills, the burden falls on surgical trainees (and their educators) to develop competency in each of these techniques and to do so within the limitations of duty hour restrictions and a finite training period.

- ## Aims and Objectives

Figure 1 displays five dot matrix puzzles (A-E) and a screenshot of the MScore software interface. The puzzles involve identifying patterns of black dots in a 4x4 grid. The MScore interface shows a 'Proficiency Report' for 'Exercise History' with a 'Pass' status and an 'Overall Score' of 3040/3200.



Methods

- ## Results

	High Spatial Ability (N=10)	Low Spatial Ability (N=10)	P-value
Trials to Proficiency	7.6 ± 3.2	9.6 ± 3.4	p = 0.067
Time to Proficiency (sec)	826.7 ± 366	1150.4 ± 280	p = 0.039
Overall Robotic Scores	932.2 ± 108	827.2 ± 79	p = 0.037
Economy of Motion (cm)	205.3 ± 35	211.1 ± 27	p = 0.554
Instrument Collisions	1.02 ± 0.8	2.01 ± 1	p = 0.032
Excessive Force (sec)	0.033 ± 0.05	0.253 ± 0.4	p = 0.126
Inst. Out of View (cm)	0.27 ± 0.5	0.38 ± 0.62	p = 0.832
Workspace Range (cm)	8.73 ± 2.4	9.41 ± 1.2	p = 0.076
Number of Drops	0.33 ± 0.2	0.54 ± 0.3	p = 0.158

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- Learning Curve**
- The graph displays the Average Time per Trial (SEC) on the Y-axis (ranging from 40.0 to 200.0) against the Trial Number on the X-axis (ranging from 0 to 18). Two conditions are compared: High PAT (represented by blue triangles) and Low PAT (represented by yellow squares). Both conditions show a decreasing trend in average time per trial as the number of trials increases. The Low PAT condition consistently shows higher average times than the High PAT condition. Logarithmic trend lines are fitted to the data for both conditions.
- | Trial Number | High PAT (SEC) | Low PAT (SEC) |
|--------------|----------------|---------------|
| 1 | 132 | 190 |
| 2 | 118 | 125 |
| 3 | 105 | 112 |
| 4 | 95 | 105 |
| 5 | 92 | 95 |
| 6 | 88 | 85 |
| 7 | 88 | 100 |
| 8 | 85 | 98 |
| 9 | 62 | 92 |
| 10 | 110 | 82 |
| 11 | 70 | 95 |
| 12 | 58 | 75 |
| 13 | 68 | 70 |
| 14 | 62 | 62 |
| 15 | 75 | 55 |
| 16 | 65 | 70 |

Discussion

Conclusions

References

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