

Development and Evaluation of a Proficiency-based and Simulation-based Surgical Skills Training for Technical Medicine Students

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The supplementary files corresponding to this manuscript are:

- Supplementary File 1.pdf Text, course overview
- Supplementary File 2.pdf Figure, procedure-specific rating scale for suturing
- Supplementary File 3.pdf Text, questionnaire in English
- **Supplementary File 4.pdf** **Table, results for technical skills assessment**
- Supplementary File 5.pdf Figure, student flow diagram of study
- Supplementary File 6.pdf Figure, grading/skill assessment/time slot (drift analysis)
- Supplementary File 7.pdf Figure, performed skills during rotations (gender analysis)

This supplement file is listed in bold.

Supplement 4: Results for technical skills assessment

Supplementary Table 1 Technical skills assessment

	Cohort 2015-2016 n = 56	Cohort 2016-2017 n = 59	p-value
Suturing	n = 56	n = 59	...
Suturing technique – selection	3 [3-3]	3 [2-4]	0.30
(unnecessary) Movements	4 [3-4]	4 [3-4]	0.79
Instrument – selection	3 [3-3]	3 [3-3]	.015
Instrument handling	4 [3-4]	4 [3-4]	0.68
Use of feedback	3 [3-4]	3 [3-4]	0.87
Knot tying	4 [3-4]	4 [3-4]	0.70
Tissue handling	4 [4-4]	4 [3-4]	0.11
Final result	4 [4-5]	4 [3-5]	0.27
Safety	4 [3-4]	4 [2-4]	0.72
Final grade ¹	8.0 [7.2-8.0]	8.0 [7.0-8.0]	0.47
Incision/Excision	n = 52	n = 54	...
Handle – selection	5 [5-5]	4 [4-4]	<0.001
Instruments – selection	5 [5-5]	4 [4-4]	<0.001
Preparation	5 [3-5]	4 [4-4]	0.02
Safety	5 [3-5]	4 [3-4]	<0.001
Final result	4.5 [3-5]	4 [3-4]	0.03
Instrument handling	5 [3-5]	4 [3-4]	0.009
(unnecessary) Movements	3 [3-5]	4 [3-4]	0.82
Final grade ¹	8.0 [7.0-8.5]	7.5 [7.0-8.0]	0.02
Local Anesthesia	n = 54	n = 58	...
Anesthesia technique – selection	4 [4-4]	4 [4-4]	0.02
Materials – selection	4 [4-4]	4 [4-4]	0.02
Preparation	4 [3-4]	4 [4-4]	0.44
Infiltration	3 [3-4]	4 [3.5-4]	<0.001
Safety	4 [3-4]	4 [4-4]	0.10
Tissue handling	4 [3-4]	4 [4-4]	0.53
Final result	4 [3-4]	4 [4-4]	0.009
Final grade ¹	7.5 [6.9-8.0]	8.0 [7.0-8.0]	0.02
Scrubbing and donning	n = 51	n = 58	...
No jewelry	51 (100%)	58 (100%)	1.00
Correct dressing	51 (100%)	58 (100%)	1.00
Wearing scrub cap	49 (96%)	47 (81%)	0.02
Wearing surgical mask	43 (84%)	55 (95%)	0.07
Correct order of steps	40 (78%)	58 (100%)	<0.001
Wetting hands	51 (100%)	57 (99%)	1.00
Drying hands	47 (92%)	58 (100%)	0.045
Timely use of alcohol	48 (94%)	58 (100%)	0.10
Finish in time	47 (92%)	52 (90%)	0.75
Final grade ¹	10 [10-10]	10 [10-10] ²	0.76

¹ A fail was noted as a 5 (insufficient). Final grade is on the 1-10 Dutch grading scale (Netherlands Organization for International Cooperation in Higher Education (NUFFIC), 2009).

² Pass/fail scores were used in 2016-2017, where 100% passed scrubbing and donning.

Median [IQR] and n (%)

Supplemental references

Netherlands Organization for International Cooperation in Higher Education (NUFFIC) (2009) '4', *Grading systems in the Netherlands, the United States and the United Kingdom*. Available at:

<https://students.uu.nl/sites/default/files/geo-grading-systems-holland-vs-us-uk.pdf>.