



MENTICE
MIST™

References



Mentice MIST™ References – Chronological Order

1. Gallagher, A.G., Crothers, I., Cowie R., Jordan-Black J.A., Satava RM
Comprehensive objective assessment of fundamental abilities for laparoscopic surgery.
Surgical Endoscopy, (In Press)
2. Gallagher, A.G., Satava RM.
Objective assessment of experienced, junior and novice laparoscopic performance with virtual reality: Learning curves and reliability measures.
Surgical Endoscopy, (In press)
3. Pearson, A., Gallagher, A.G., Rosser, JC, Satava RM.
Quantitative Evaluation of Five Training Methods for Teaching Intracorporeal Knot Tying.
Surgical Endoscopy, (In Press)
4. Stone R; McCloy RF.
Minimally Invasive Surgery: The Surgeon's Interface.
London, *Mechanical Engineering Publications*, 1997: 171-178.
5. Sutton C, McCloy R, Middlebrook A, Chater P, Wilson M, Stone R.
MIST VR. A Laparoscopic Surgery Procedures Trainer and Evaluator.
Stud Health Technol Inform. 1997; 39:598-607.
6. Wilson MS; Middlebrook A; Sutton C; Stone R; McCloy RF
MIST VR: A Virtual Reality Trainer For Laparoscopic Surgery Assesses Performance.
Ann R Coll. Surg Engl. 1997 Nov; 79(6): 403-4
7. N Taffinder MA FRCS, C Sutton BSc MSc, RJ Fishwick PhD, I C McManus, MA, MD, PhD, A Darzi MD FRCS
Validation Of Virtual Reality To Teach And Assess Psychomotor Skills In Laparoscopic Surgery: Results From Randomised Controlled Studies Using The MIST VR Laparoscopic Simulator
Proceedings of Medicine Meets Virtual Reality 6, 1998.
8. N Taffinder, RCG Russell, IC McManus, J Jansen, A Darzi
An Objective Assessment of Surgeons' Psychomotor Skills: Validation of the MIST-VR Laparoscopic Simulator.
British Journal of Surgery 1998; 85(Supp1): 75.
9. Nick J Taffinder, RCG Russell, IC McManus, A Darzi.
An Objective Assessment of Laparoscopic Psychomotor Skills: The Effect of A Training Course on Performance.
Surgical Endoscopy 1998; 12(5): 493.
10. N J Taffinder, I C McManus, Y Gul, R C G Russell, A Darzi
Effect Of Sleep Deprivation on Surgeons' Dexterity on Laparoscopy Simulator.
The Lancet: Volume 352, Number 9135, 10th October 1998.
11. Gallagher AG, McClure N, McGuigan J, Crothers I, Browning J
Virtual reality training in keyhole surgery; A preliminary assessment of Minimally Invasive Surgical Trainer Virtual Reality (MIST VR).
Proceedings of The British Psychological Society, 1998,6,126-127
12. Gallagher AG, McClure N, McGuigan J, Crothers I, Browning J
Virtual reality training in laparoscopic surgery: a preliminary assessment of minimally invasive surgical trainer virtual reality (MIST VR).
Endoscopy 1999 May; 31(4): 310-3

13. Smith S, Wan A, Taffinder N, Read S, Emery R, Darzi A.
Early experience and validation work with Procedicus VA--the Prosolvia virtual reality shoulder arthroscopy trainer.
Stud Health Technol Inform. 1999; 62:337-43.
14. Chaudhry A, Sutton C, Wood J, Stone R, McCloy R
Learning rate for laparoscopic surgical skills on MIST VR, a virtual reality simulator: quality of human-computer interface.
Ann R Coll Surg Engl 1999 Jul; 81(4): 281-6
15. Gallagher, A.G., McClure, N., McGuigan, J., Hughes, C., A. H.
'Virtual reality' training in laparoscopic psychomotor skill acquisition.
International Training and Education Conference (ITEC), 81-83, 1999
16. Gallagher, A.G., McClure, N., McGuigan, J., Hughes, C., A. H. and Rhienhart-Rutland, A.
A case control comparison of Traditional and 'virtual reality in laparoscopic skill acquisition'.
Proceedings of The British Psychological Society, 1999,7,124
17. Gallagher, A.G., Richie, K., McClure N., and McGuigan J.
An examination of extended practice on the Minimally Invasive Surgical Trainer Virtual Reality (MIST VR).
Proceedings of The British Psychological Society, 1999,7,136
18. J.Torkington, S. Smith, T. Brown, B. Rees and A. Darzi
Learning Curves and Learning Effects - Using a Virtual Reality Simulator to Assess Laparoscopic Skill
Annual Scientific Meeting of the Society for Minimally Invasive Therapy (SMIT) 1999
19. J. Torkington, S. Smith, T. Brown, *B.Rees, **I. McManus and A. Darzi.
Is an Aptitude for Mental Imagery Predictive of Laparoscopic Skill?
Annual Scientific Meeting of the Society for Minimally Invasive Therapy (SMIT) 1999
20. T. Brown, S. Smith, J Torkington, A. Farthing A. Darzi.
Comparing Laparoscopic Skill in Surgical and Gynaecological Trainees Attending Basic Skills Training Courses Utilizing Virtual Reality and Physical Simulations
Annual Scientific Meeting of the Society for Minimally Invasive Therapy (SMIT) 1999
21. Gallagher, A.G., Hughes C., McClure N., and McGuigan J.
Traditional and "Virtual Reality" Training in Laparoscopic Skill Acquisition; A Case Control Comparison
Annual Scientific Meeting of the Society for Minimally Invasive Therapy (SMIT) 1999
22. Durst L.
The Centre for Minimal Access Surgery--teaching for tomorrow.
J Telemed Telecare. 2000; 6 Suppl 2:S14-5.
23. Jordan JA, Gallagher AG, McGuigan J, McClure N.
Randomly alternating image presentation during laparoscopic training leads to faster automation to the 'fulcrum effect'.
Endoscopy, 2000,32,317-321
24. J. Torkington, S. Smith, T. Brown, B.Rees, and A. Darzi
Skill Transfer From A Virtual Reality Simulator to a Real Laparoscopic Task.
Annual Scientific Meeting of the Society of American Gastrointestinal Endoscopic Surgeons (SAGES) 2000
25. Jordan JA, Gallagher AG, McGuigan J, McGlade K, McClure N.
A comparison between randomly alternating imaging, normal laparoscopic imaging, and

- virtual reality training in laparoscopic psychomotor skill acquisition.
Am J Surg. 2000 Sep; 180(3): 208-11.
26. Jordan JA, Gallagher AG, McGuigan J, McGlade K, McClure N.
Transfer of Skill From 'Virtual Reality' (VR); A comparison between randomly alternating imaging, normal laparoscopic imaging, and virtual reality training in laparoscopic psychomotor skill acquisition.
Am J Surg. 2000 Sep; 180(3): 208-11.
27. T.P. Grantcharov^{1, 2}, J. Rosenberg², E. Pahle¹, and P. Funch-Jensen¹
Virtual reality computer simulation - An objective method for the evaluation of laparoscopic surgical skills
Surg Endosc. 2001 Mar;15(3):242-4
28. T.P. Grantcharov, Linda Bardram, P. Funch-Jensen, J. Rosenberg
Virtual reality-computersimulation som værktøj I uddannelsen og evalueringen af laparoskopiske operative færdigheder. (Danish article)
Ugeskr Laeger 163/26, June 2001
29. Gallagher, A.G., Hughs,C., Carey, PD., Rosser, JC., Satava, RM.
Virtual Reality (MIST VR); Objective psychomotor assessment of laparoscopic skills with the Minimally invasive Surgical Trainer: A preliminary comparison of a USA and British sample.
Surgical Endoscopy, 2001, 11:78
30. J.A. Jordan¹, A.G. Gallagher^{1, 2}, J. McGuigan², and N. McClure²
Virtual reality training leads to faster adaptation to the novel psychomotor restrictions encountered by laparoscopic surgeons
Surgical Endoscopy, 2001; 15:1080-1084
31. J. Torkington¹, S.G.T. Smith¹, B. Rees², and A. Darzi¹
The role of the Basic Surgical Skills course in the acquisition and retention of laparoscopic skill.
Surgical Endoscopy, 2001
32. Torkington J, Smith SG, Rees BI, Darzi A.
Skill transfer from virtual reality to a real laparoscopic task.
Surg Endosc. 2001 Oct; 15(10): 1076-9.
33. S.S. McNatt, M.D., C. Daniel Smith, M.D.
A Computer-Based Laparoscopic Skills Assessment Device Differentiates Experienced from Novice Laparoscopic Surgeons.
Surg Endosc. 2001 Oct; 15(10): 1085-9.
34. Rory McCloy, Robert Stone
Virtual reality in surgery
BMJ Volume 323, Oct 2001
35. Gallagher HJ, Allan JD, Tolley DA.
Spatial awareness in urologists: are they different?
BJU Int. 2001 Nov;88(7):666-70.
36. Gallagher AG, Richie K, McClure N, McGuigan J.
Objective psychomotor skills assessment of experienced, junior, and novice laparoscopists with virtual reality.
World J Surg. 2001 Nov; 25(11): 1478-83.
37. Pearson AM, Gallagher AG, Rosser JC, Satava RM.
Evaluation of structured and quantitative training methods for teaching intracorporeal
-

- knot tying.**
Surg Endosc. 2002 Jan; 16(1): 130-7.
38. Ahlberg G, Heikkinen T, Iselius L, Leijonmarck CE, Rutqvist J, Arvidsson D.
Does training in a virtual reality simulator improve surgical performance?
Surg Endosc. 2002 Jan;16(1):126-9.
39. Kothari SN, Kaplan BJ, DeMaria EJ, Broderick TJ, Merrell RC.
Training in laparoscopic suturing skills using a new computer-based virtual reality simulator (MIST-VR) provides results comparable to those with an established pelvic trainer system.
J Laparoendosc Adv Surg Tech A. 2002 Jun; 12(3): 167-73.
40. Mackay S, Morgan P, Datta V, Chang A, Darzi A.
Practice distribution in procedural skills training: a randomized controlled trial.
Surg Endosc. 2002 Jun;16(6):957-61.
41. Seymour NE, Gallagher AG, Roman SA, O'Brien MK, Bansal VK, Andersen DK, Satava RM.
Virtual reality training improves operating room performance: results of a randomized, double blinded study.
Ann Surg. 2002 Oct; 236(4): 458-63; discussion 463-4.
42. Dorafshar AH, O'Boyle DJ, McCloy RF.
Effects of a moderate dose of alcohol on simulated laparoscopic surgical performance.
Surg Endosc. 2002 Dec;16(12):1753-8. Epub 2002 Jul 29.
43. Gallagher AG, Satava RM.
Virtual reality as a metric for the assessment of laparoscopic psychomotor skills. Learning curves and reliability measures.
Surg Endosc. 2002 Dec;16(12):1746-52.
44. Ali MR, Mowery Y, Kaplan B, DeMaria EJ.
Training the novice in laparoscopy. More challenge is better.
Surg Endosc. 2002 Dec; 16(12): 1732-6.
45. Grantcharov TP, Bardram L, Funch-Jensen P, Rosenberg J.
Learning curves and impact of previous operative experience on performance on a Virtual reality simulator to test laparoscopic surgical skills.
Am J Surg. 2003 Feb; 185(2): 146-9.
46. Gor M, McCloy R, Stone R, Smith A.
Virtual reality laparoscopic simulator for assessment in gynaecology.
BJOG. 2003 Feb; 110(2): 181-7.
47. Grantcharov TP, Bardram L, Funch-Jensen P, Rosenberg J.
Impact of hand dominance, gender, and experience with computer games on performance in virtual reality laparoscopy.
Surg Endosc. 2003 May 6 [Epub ahead of print]
48. H. R. Champion, A. G. Gallagher
Surgical simulation – a 'good idea whose time has come'
British Journal of Surgery, Published Online July 2003, Volume 90, Issue 7, pages: 767-68
49. Torsten Wredmark, Professor.
Simulatorer i medicinsk utbildning skonar patienten från otränad personal - (Swedish article) ("Simulators in medical education spare the patient from untrained staff")
Läkartidningen nr 35, August 2003
50. Eastridge BJ, Hamilton EC, O'Keefe GE, Rege RV, Valentine RJ, Jones DJ, Tesfay S, Thal ER.
-

Effect of sleep deprivation on the performance of simulated laparoscopic surgical skill.
Am J Surg. 2003 Aug; 186(2): 169-74.

51. Anthony G. Gallagher PhD, C. Daniel Smith MD FACS
From operating room of the present to operating room of the future; Human factors lessons learned from the MIS Revolution (or don't forget the surgeon!).
Semin Laparosc Surg. 2003 Sep; 10(3): 127-39.
52. M. Schijven and J. Janimowicz
Virtual reality surgical laparoscopic simulators.
Published online October 2003
53. Anthony G. Gallagher, PhD, C. Daniel Smith, MD, FACS, Steven P. Bowers, MD, Neal E. Seymour, MD, FACS, Adam Pearson, BSc, Steven McNatt, MD, David Hananel, BDC, Richard M. Satava, MD, FACS.
Psychomotor Skills assessment in Practicing Surgeons Experienced in Performing Advanced Laparoscopic Procedures.
J Am Coll Surg, "in press", October 2003.
54. Madan AK, Frantzides CT, Shervin N, Tebbit CL.
Assessment of individual hand performance in box trainers compared to virtual reality trainers.
Am Surg. 2003 Dec; 69(12): 1112-4.
55. Gonzalez R, Bowers SP, Smith CD, Ramshaw BJ.
Does setting specific goals and providing feedback during training result in better acquisition of laparoscopic skills?
Am Surg. 2004 Jan; 70(1): 35-9.
56. Strom P, Kjellin A, Hedman L, Wredmark T, Fellander-Tsai L.
Training in tasks with different visual-spatial components does not improve virtual arthroscopy performance.
Surg Endosc. 2004 Jan; 18(1): 115-20. Epub 2003 Nov 21.
57. Grantcharov TP, Kristiansen VB, Bendix J, Bardram L, Rosenberg J, Funch-Jensen P.
Randomized clinical trial of virtual reality simulation for laparoscopic skills training.
Br J Surg. 2004 Feb;91(2):146-50.
58. Gallagher AG, Lederman AB, McGlade K, Satava RM, Smith CD.
Discriminative validity of the Minimally Invasive Surgical Trainer in Virtual Reality (MIST-VR) using criteria levels based on expert performance.
Surg Endosc. 2004 Mar 19 [Epub ahead of print]
59. Srivastava S, Youngblood PL, Rawn C, Hariri S, Heinrichs WL, Ladd AL.
Initial evaluation of a shoulder arthroscopy simulator: establishing construct validity.
J Shoulder Elbow Surg. 2004 Mar-Apr; 13(2): 196-205.
60. Strom P, Kjellin A, Hedman L, Wredmark T, Fellander-Tsai L.
Training in tasks with different visual-spatial components does not improve virtual arthroscopy performance.
Surg Endosc. 2004 Jan; 18(1): 115-20. Epub 2003 Nov 21.
61. Arvdsson N., Leijonmarck C.E., Sandbu R.
The learning curve for laparoscopic fundoplication; Determined by the teacher or pupil?
Abstract presented at *EAES*, Barcelona, June 2004.
62. Hance J.R., Aggarwal R., Undre S., Ratnasothy J., Chang A., Darzi A.
Virtual reality as a tool for the objective assessment of learning on laparoscopic skills courses.
Abstract presented at *EAES*, Barcelona, June 2004.

63. Aggarwal R., Moorthy K., Hance J., Grantcharov T., Darzi A.
The establishment of structured virtual reality training curriculum for laparoscopic skills training.
Abstract presented at *EAES*, Barcelona, June 2004.
64. Moorthy K., Munz Y., Almoudaris A., Chang A., Darzi A.
Massed Practice using synthetic/animal simulations VS distributed structured practice using virtual reality simulators: A direction for the future.
Abstract presented at *EAES*, Barcelona, June 2004.
65. Gallagher A.G., Crothers I., Satava R.M.
Objective measures of Visio-spatial ability for minimally invasive surgery.
Abstract presented at *EAES*, Barcelona, June 2004.
66. Li Felländer-Tsai, Ann Kjellin, Torsten Wredmark, Gunnar Ahlberg , Bo Anderberg, Lars Enochsson, Leif Hedman, Ericka Johnson, Kai Mäkinen, Stig Ramel, Pär Ström, Lars Särnå, Bo Westman.
Basic Accreditation for Invasive Image-guided Intervention: A Shift of Paradigm in High Technology Education, Embedding Performance Criterion Levels in Advanced Medical Simulators in a Modern Educational Curriculum.
The Journal on Information Technology in Healthcare 2004; 3(2): 165-173.
67. Ericka Johnson, Pär Ström, Ann Kjellin, Torsten Wredmark, Li Felländer-Tsai.
Evaluating Instruction of Medical Students with a Haptic Surgical Simulator: The Importance of Coordinating Students' Perspectives.
The Journal on Information Technology in Healthcare 2004; 2(3): 155-163.
68. DA McClusky III, AG Gallagher, EM Ritter, AB Lederman, KR Van Sickle, M Baghai, CD Smith
Virtual reality training improves junior residents' operating room performance: Results of a prospective, randomized, double-blinded study of the complete laparoscopic cholecystectomy
ACS 2004
69. Fried MP, Satava R, Weghorst S, Gallagher AG, Sasaki C, Ross D, Sinanan M, Uribe JI, Zeltsan M, Arora H, Cuellar H.
Identifying and reducing errors with surgical simulation.
Qual Saf Health Care. 2004 Oct;13 Suppl 1:i19-26.
70. Enochsson L, Isaksson B, Tour R, Kjellin A, Hedman L, Wredmark T, Tsai-Fellander L.
Visuospatial skills and computer game experience influence the performance of virtual endoscopy.
J Gastrointest Surg. 2004 Nov;8(7):876-82; discussion 882.
71. Uchal M, Raftopoulos Y, Tjugum J, Bergamaschi R
Validation of a six-task simulation model in minimally invasive surgery.
Surg Endosc. 2004 Nov 11; [Epub ahead of print]
72. Adamsen S, Funch-Jensen PM, Drewes AM, Rosenberg J, Grantcharov TP.
A comparative study of skills in virtual laparoscopy and endoscopy.
Surg Endosc. 2004 Dec 2; [Epub ahead of print]
73. Brunner WC, Korndorffer JR Jr, Sierra R, Massarweh NN, Dunne JB, Yau CL, Scott DJ.
Laparoscopic virtual reality training: are 30 repetitions enough?
J Surg Res. 2004 Dec;122(2):150-6.
74. Huang J, Payandeh S, Doris P, Hajshirmohammadi I.
Fuzzy classification: towards evaluating performance on a surgical simulator.
Stud Health Technol Inform. 2005;111:194-200.

75. Pham T, Roland L, Benson KA, Webster RW, Gallagher AG, Haluck RS.
Smart tutor: a pilot study of a novel adaptive simulation environment.
Stud Health Technol Inform. 2005;111:385-9.
76. McClusky DA 3rd, Ritter EM, Lederman AB, Gallagher AG, Smith CD.
Correlation between perceptual, visuo-spatial, and psychomotor aptitude to duration of training required to reach performance goals on the MIST-VR surgical simulator.
Am Surg. 2005 Jan;71(1):13-20; discussion 20-1.
77. Brunner WC, Korndorffer JR Jr, Sierra R, Dunne JB, Yau CL, Corsetti RL, Slakey DP, Townsend MC, Scott DJ.
Determining standards for laparoscopic proficiency using virtual reality.
Am Surg. 2005 Jan;71(1):29-35.
78. Madan AK, Frantzides CT, Sasso LM.
Laparoscopic baseline ability assessment by virtual reality.
J Laparoendosc Adv Surg Tech A. 2005 Feb; 15(1): 13-7.
79. Arora H, Uribe J, Ralph W, Zeltsan M, Cuellar H, Gallagher A, Fried MP.
Assessment of construct validity of the endoscopic sinus surgery simulator.
Arch Otolaryngol Head Neck Surg. 2005 Mar;131(3):217-21.
80. Aggarwal R, Grantcharov T, Moorthy K, Hance J, Darzi A
A competency-based virtual reality training curriculum for the acquisition of laparoscopic psychomotor skill.
Am J Surg. 2006 Jan;191(1):128-133.
81. Hackethal A, Immenroth M, Burger T.
Evaluation of target scores and benchmarks for the traversal task scenario of the minimally invasive surgical trainer-virtual reality (MIST-VR) laparoscopy simulator.
Surg Endosc. 2006 Jan 19; [Epub ahead of print]
82. Stefanidis D, Korndorffer JR Jr, Black FW, Dunne JB, Sierra R, Touchard CL, Rice DA, Markert RJ, Kastl PR, Scott DJ.
Psychomotor testing predicts rate of skill acquisition for proficiency-based laparoscopic skills training.
Surgery. 2006 Aug;140(2):252-62.
83. Van Sickle KR, Ritter EM, McClusky DA 3rd, Lederman A, Baghai M, Gallagher AG, Smith CD.
Attempted establishment of proficiency levels for laparoscopic performance on a national scale using simulation: the results from the 2004 SAGES Minimally Invasive Surgical Trainer-Virtual Reality (MIST-VR) learning center study.
Surg Endosc. 2007 Jan;21(1):5-10.