Supplementary Online Content

Anschuetz L, Niederhauser L, Wimmer W, et al. Comparison of 3- vs 2-dimensional endoscopy using eye tracking and assessment of cognitive load among surgeons performing endoscopic ear surgery. *JAMA Otolaryngol Head Neck Surg*. Published online July 25, 2019. doi:10.1001/jamaoto.2019.1765

This supplementary material has been provided by the authors to give readers additional information about their work.

eTable 1: Counterbalanced design of trial order by Latin Square

1st trial	2nd trial	3rd trial	4th trial	Participants
1	2	3	4	¼ of participants
2	4	1	3	¼ of participants
4	3	2	1	¼ of participants
3	1	4	2	¼ of participants

1 = Tympanoplasty in 3D, 2 = Stapedotomy in 3D, 3 = Tympanoplasty in 2D, 4 = Stapedotomy in 2D

eTable 2: Postoperative questionnaires answered by participants for both endoscopic techniques

Rating	Scale	Items	Mean per technique; 95% Confidence Interval (CI)
Usability	7-point (not at all – very much)	Device suitable for the task. Difficult to position device. Device supporting near and far differentiation. Device allows for good orientation. Device stimulated working. Device is user-friendly. Device is suitable for real surgeries. Device allows for good view on the situs. Working besides the device was possible.	3D = 5.39 2D = 5.22 95% CI = -0.51-0.85
Naturalness	5-point (not at all natural – very natural)	How natural did the situs appear on the screen?	3D = 4.25 2D = 4.38 95% CI = -0.85-0.60
Discomfort	7-point (not at all – very much)	Endoscopy was straining for the eyes. Endoscopy was exhausting for the eyes. Endoscopy caused eye pain. Endoscopy caused dry eyes. Endoscopy caused watery eyes. Endoscopy caused blurred pictures at close distances. Endoscopy caused blurred pictures at far distances. Endoscopy caused headaches. Endoscopy caused nausea.	3D = 2.19 2D = 1.44 95% CI = 0.28-1.20
Depth perception	5-point (very bad – very good)	How was the depth perception?	3D = 4.44 2D = 2.81 95% CI = 0.49-2.76
Image quality	5-point (very bad – very good)	How did you perceive the image quality?	3D = 4.38 2D = 4.50 95% CI = -0.64-0.39

eTable 3: Mean and standard deviation for fixation duration in milliseconds.

N refers to the number of intervention assessed. Bold numbers indicate a significant difference between tasks for residents, as well as a significant effect of the endoscopic technique for consultants in multivariate analysis.

	Resident			**Consultants**			**Whole cohort**		
	2D (n=22)	3D (n=22)	Total (n=44)	2D (n=10)	3D (n=10)	Total (n=20)	2D (n=32)	3D (n=32)	Total (n=64)
Tympanoplasty (n=32)	0.53 s (0.2 s)	0.49 s (0.2 s)	**0.51 s** (0.2 s)	**0.55 s** (0.1 s)	**0.50 s** (0.1 s)	0.53 s (0.1 s)	0.53 s (0.1 s)	0.49 s (0.1 s)	0.51 s (0.1 s)
Stapedotomy (n=32)	0.76 s (0.3 s)	0.65 s (0.3 s)	**0.71 s** (0.3 s)	**1.02 s** (0.3 s)	**0.57 s** (0.3 s)	0.79 s (0.3 s)	0.85 s (0.3 s)	0.63 s (0.3 s)	0.74 s (0.3 s)
Total (n=64)	0.65 s (0.3 s)	0.57 s (0.3 s)	0.61 s (0.3 s)	0.79 s (0.3 s)	0.54 s (0.2 s)	0.66 s (0.3 s)	0.69 s (0.3 s)	0.56 s (0.23 s)	0.62 s (0.3 s)