WHICH ENDOSCOPE SUCKS THE BEST?

AN EVALUATION OF THE SUCTION CAPABILITIES OF A LARGE-BORE DISPOSABLE ENDOSCOPE VERSUS REUSABLE ENDOSCOPES.

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BACKGROUND

•Effective suction is essential for clearing the visual field during endoscopic procedures and is primarily determined by working channel diameter.

•Large-bore disposable endoscopes are marketed for superior suctioning, yet comparative data remain limited.

•This industry-sponsored study evaluates the suction capability of a novel disposable upper endoscope against reusable endoscopes.

METHODS

•Two ex vivo experimental models compared a 4.2 mm disposable endoscope (aScope™ Gastro Large, Ambu) with 2.8 mm (H180J) and 3.7 mm (1T190) reusable endoscopes (Olympus).

•Suctioning speed of 200 mL water used for endoscope calibration. Each endoscope must perform within 2 SD of mean prior to each use

•Graduated Cylinder Model: Suction of 150 mL simulated blood (TrueClot®) and plain yogurt; average suction time recorded.

•Porcine Stomach Model: 500 mL coagulated blood or blended vegetable soup; six trials per substance; fastest and slowest times excluded; time to visualize posterior wall prolene suture recorded.

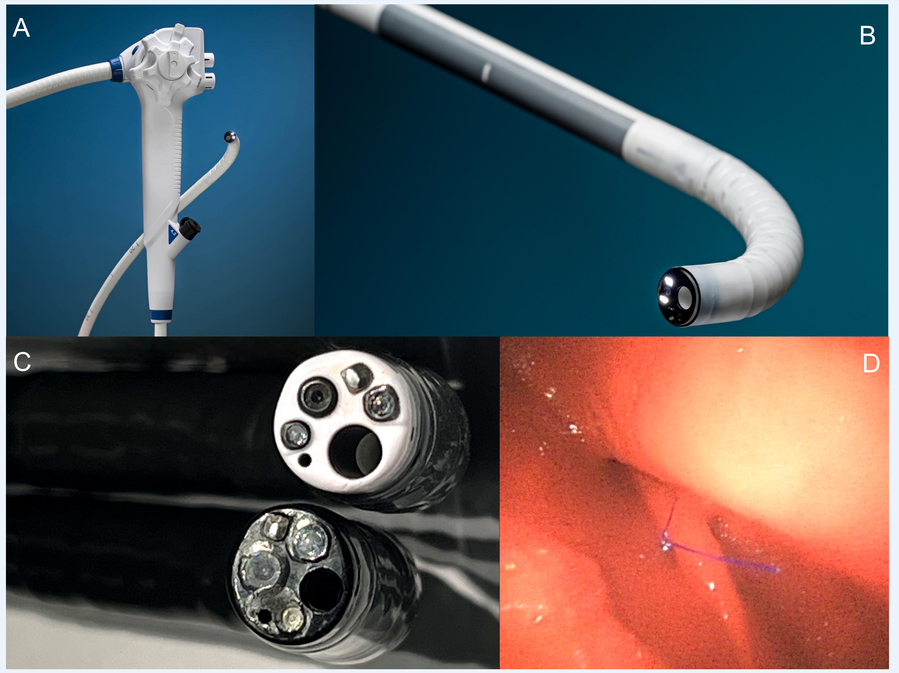
RESULTS

Experiment 1: Graduated Cylinder Model

	Average suctioning time, seconds (±SD)			Pairwise analysis with 4.2 mm Disposable Endoscope	
	2.8 mm Reuseable Endoscope	3.7 mm Reuseable Endoscope	4.2 mm Disposable Endoscope	2.8 mm Reuseable Endoscope *P*-value [95%CI]	3.7 mm Reuseable Endoscope *P*-value [95%CI]
Water, 200 mL	12.7 (±0.1)	9.2 (±0.4)	5.6 (±0.2)	**<0.001** [7.1,7.2]	**<0.001** [3.4,3.8]
Noncoagulated Blood, 150 mL	30 (±1)	21.6 (±2)	10 (±0.4)	**0.049** [18.8,20.7]	**0.049** [8.1,12.4]
Yogurt, 150 mL	1138 (±345)	1072 (±125)	362 (±17.6)	**0.049** [358,1003]	**0.049** [548,817]

Experiment 2: Porcine Stomach Model

	Average suctioning time, seconds (±SD)			Pairwise analysis with 4.2 mm Disposable Endoscope	
	2.8 mm Reuseable Endoscope	3.7 mm Reuseable Endoscope	4.2 mm Disposable Endoscope	2.8 mm Reuseable Endoscope *P*-value [95%CI]	3.7 mm Reuseable Endoscope *P*-value [95%CI]
Coagulated Blood, 500 mL	340 (±146)	232 (±32)	168 (±15)	**0.021** [57,387]	**0.021** [11,109]
Vegetable Soup, 500 mL	931 (±211)	640.3 (±138)	384 (±158)	**0.021** [199,862]	**0.043** [32,446]



A,B – Ambu Gastro Large, C – Olympus 1TH190 (upper) and H180J (lower), D – Prolene suture on posterior gastric wall in porcine model

CONCLUSIONS

•4.2 mm disposable endoscope showed significantly faster suction times, outperforming reusable endoscopes (2.8 mm and 3.7 mm) in clearing simple fluid, blood, coagulum, and food.

•Faster suctioning may improve visualization and procedural efficiency during therapeutic upper endoscopy.