

# Can endoscopic suctioning capabilities be improved?

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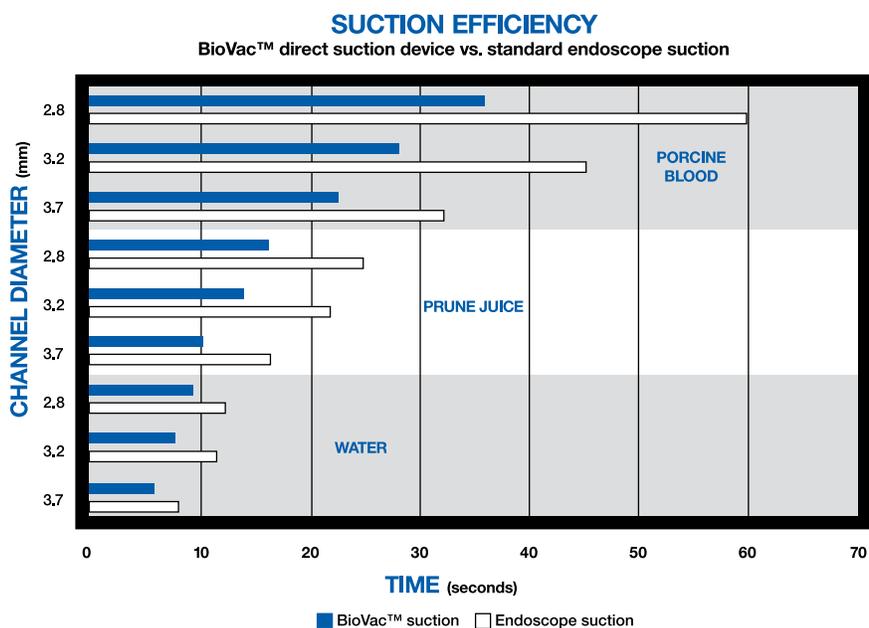
**Purpose:** The purpose of this study is to evaluate the difference in suction efficiency utilizing the US Endoscopy BioVac™ direct suction device compared to the common practice of performing suction activities using the accessory channel of the endoscope and its controls.

**Background:** The evacuation, debulking, and/or lysing of blood, blood clots, semi-solid stool, and fluid has been reported to be important for an effective diagnosis<sup>1</sup>. The process of clearing/cleaning the area can be difficult and time consuming, potentially increasing patient risk due to extended procedure times and sedation requirements. Utilizing the endoscopic controls for suction and irrigation is an established practice during GI endoscopy procedures and based on user familiarity and training, is typically used throughout routine procedures. However, when there are particularly challenging circumstances (i.e. blood clots or poorly prepped colons), the volume and consistency of the material to be removed results in a lengthier, arduous process. The BioVac™ has been expressly designed to address these challenging circumstances. Because the BioVac™ bypasses the endoscope suction valve, internal working mechanisms of the endoscope (that include flow restrictions and internal venting), and the endoscopic umbilical cord, the suction power delivered to the end of the endoscopic channel is markedly increased, improving suction efficiency and effectiveness. This study is designed to quantify the increase.

**Methods:** Three fluids were selected for testing: water, prune juice and porcine blood. The test fluids have an increasing viscosity so the effect of viscosity may be discerned. The porcine blood utilized had been refrigerated and contained discrete regions of clotted blood. The volume evacuated for each trial was relatively consistent. Each test fluid was suctioned through three different endoscope models possessing channels of 2.8mm, 3.2mm and 3.7mm<sup>2</sup>. The time required to evacuate the full volume of fluid was recorded in each case.

**Results:** The results indicate there is a difference in the ability to suction liquid through the endoscope channel representing a direct, inverse correlation to endoscope channel size. Viscosity of the fluid also has a direct effect on evacuation time. When testing results are assessed across all endoscope channel sizes evaluated, there is a **24 - 40% reduction in evacuation time when using the BioVac™ direct suction device.**

**Conclusions:** This study demonstrates that the utilization of the BioVac™ direct suction device will significantly reduce the amount of time it takes to clear the area, providing valuable time savings for those clinicians using the endoscope alone for suctioning blood, blood clots, retained gastric content, and residual semi-solid stool.



## DISCLOSURE

This study was performed by US Endoscopy, Mentor, Ohio. The author wishes to recognize the testing and documentation efforts of Colleen Quinn, RN William Mancini and Roseann Gribble.

<sup>1</sup>Frossard, et al, Gastroenterology, 2002; 123: 17-23

<sup>2</sup>2.8mm channel: Olympus PCF130i; 3.2mm channel: Olympus PCF140L; 3.7mm channel: Olympus CF100TL  
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