Bariatric | Thoracic | Colorectal | Home

Ethicon Surgical Stapling: Performance-driven results, backed by evidence

Design differences matter when it comes to performance and results. Since 2017, the use of Ethicon Surgical Stapling devices has demonstrated an association with improved clinical and economic outcomes—across varied tissue types, patient populations and countries—in bariatric, thoracic and colorectal procedures.

Associated with improved clinical and economic outcomes*[1-3]

- Reduced clinical complications
- Reduced hospital costs
- Improved efficiency

Backed by large-scale, real-world, peer-reviewed evidence

14 studies	**9+** countries	**4** continents
80+ authors	**700+** hospitals	**47,000+** patients

Johnson & Johnson MedTech

* Rawlins L, Johnson BH, Johnston SS, et al. Comparative effectiveness assessment of two powered surgical stapling platforms in laparoscopic sleeve gastrectomy: a retrospective matched study. Medical Devices: Evidence and Research. 2020:13 195–204. doi: https://doi.org/10.2147/MDER.S256237. Miller DL, Roy S, Kassis ES, et al. Impact of powered and tissue-specific endoscopic stapling technology on clinical and economic outcomes of video-assisted thoracic surgery lobectomy procedures: a retrospective, observational study. Adv Ther. 2018 Apr 16. doi: 10.1007/s12325-018-0679-z. Sylla P, Sagar P, Johnston S, et al. Outcomes associated with the use of a new powered circular stapler for left-sided colorectal reconstructions: a propensity score matching-adjusted indirect comparison with manual circular staplers. Surgical Endoscopy. 2021. doi: 10.1007/s00464-021-08542-7.

Bariatric

US 2023 (J&J MedTech sponsored)

Reduced bleeding, strictures and leaks in gastric resections[4]

US 2020 (J&J MedTech sponsored)

Reduced hemostasis-related complications and hospital costs in laparoscopic sleeve gastrectomy[1]

US 2017 (J&J MedTech sponsored)

Reduced hemostasis-related complications, hospital costs and OR time in laparoscopic bariatric procedures[5]

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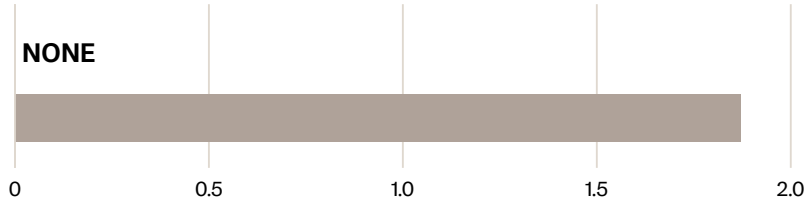
Reduced bleeding, strictures and leaks in gastric resections[4]

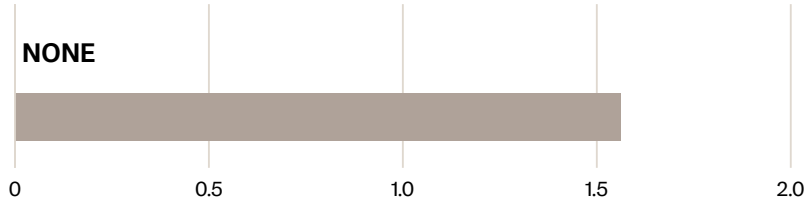
NO device-related bleeding[4]

vs. reported rates up to 1.87%



NO device-related strictures[4]

vs. reported rates up to 1.56%



NO device-related leaks[4]

vs. reported rates up to 0.7%[6]

Johnson&Johnson MedTech

US 2023

Study details[4]

J&J MedTech sponsored

ECHELON ENDOPATH™ Staple Line Reinforcement

Safety and usability of the ECHELON ENDOPATH™ Staple Line Reinforcement in gastric resections

Wheeler A, Schram J, Gersin K, Stefanidis D, Baudendistel J-E, Veldhuis P, Mehra S
Journal of Surgery 2023;19(2):85

4 hospitals

109 patients

Read full study

Reduced hemostasis-related complications and total hospital costs in laparoscopic sleeve gastrectomy[1]

73%
reduced

hemostasis-related complications[1]

(0.61% vs. 2.24%)

7%
reduced

median total hospital costs[1]

($9,771 vs. $10,487)

Johnson&Johnson
MedTech

US 2020

Study details[1]

J&J MedTech sponsored

ECHELON FLEX™ Powered Staplers with GST Reloads vs. Medtronic Signia™ with Tri-Staple™ Reload

Comparative effectiveness assessment of two powered surgical stapling platforms in laparoscopic sleeve gastrectomy: a retrospective matched study

Rawlins L, Johnson BH, Johnston SS, Elangovanraaj N, Bhandari M, Cohen RV, Rheinwalt KP, Fryrear R, Roy S
Medical Devices: Evidence and Research 2020;13:195-204

40 hospitals

5,573 patients

Read full study

Reduced hemostasis-related complications, total hospital costs and OR time in laparoscopic bariatric procedures[5]

47%
reduced
hemostasis-related complications[5]
(1.61% vs. 3.05%)

13%
reduced
total hospital costs[5]
($12,261 vs. $14,038)

14%
reduced
OR time[5]
(133min vs. 154min)

Johnson&Johnson
MedTech

US 2017

Study details[5]

J&J MedTech sponsored

ECHELON FLEX™ Powered Staplers with GST Reloads vs. Medtronic Endo GIA™ with Tri-Staple™ Reload

Comparison of economic and clinical outcomes between patients undergoing laparoscopic bariatric surgery with powered vs. manual endoscopic surgical staplers

Roy S, Yoo A, Yadalam S, Fegelman EJ, Kalsekar I, Johnston SS
Journal of Medical Economics 2017;20(4):423-33

600+
hospital database

31,409
patients

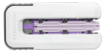
Read full study

Thoracic

Japan 2024 (Independent)

Reduced intra-operative air leaks in thoracoscopic lobectomy[7]

US 2023 (J&J MedTech sponsored)



Reduced prolonged air leaks and empyema in pulmonary resection[8]

Belgium 2023 (Independent)

Reduced anastomotic leaks and LOS in esophagectomy[9]

Japan 2020 (Independent)

Reduced hemostasis-related complications in pulmonary artery transection[10]

Korea 2019 (J&J MedTech sponsored)

Reduced hemostasis-related complications, hospital costs and OR time in VATS lobectomy[11]

US 2018 (J&J MedTech sponsored)

Reduced hemostasis-related complications and LOS in VATS lobectomy[2]

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Reduced intra-operative air leaks in thoracoscopic lobectomy[7]

6.3% air leak rate

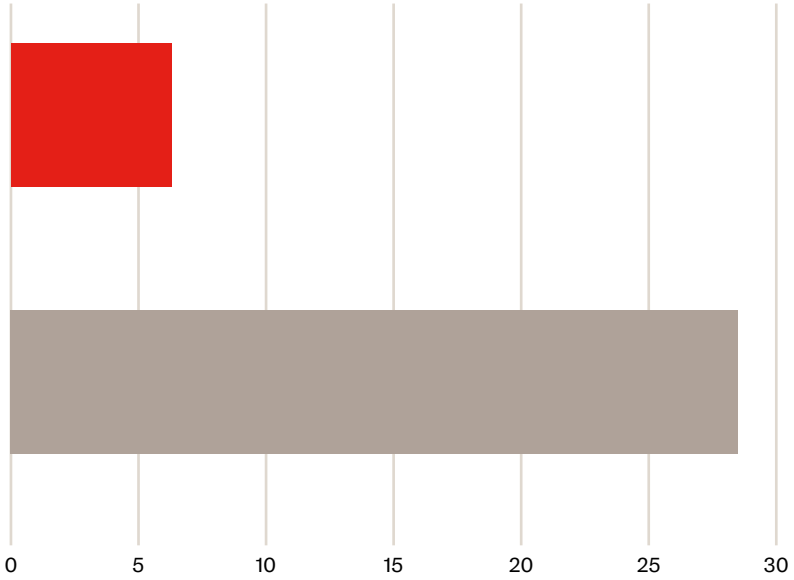
with ECHELON ENDOPATH™ Staple Line Reinforcement[7]

(3/48 cases)

28.5% air leak rate

without ECHELON ENDOPATH™ Staple Line Reinforcement[7]

(57/200 cases)



Johnson&Johnson MedTech

Japan 2024

Study details[7]

Independent

ECHELON ENDOPATH™ Staple Line Reinforcement

Safety and efficacy of new staple-line reinforcement in lung resection: a prospective study of 48 patients

Mitsui S, Tanaka Y, Nishikubo M, Doi T, Tane S, Hokka D, Mitomo Y, Maniwa Y
Surgery Today 2024;54:779-86

1 hospital

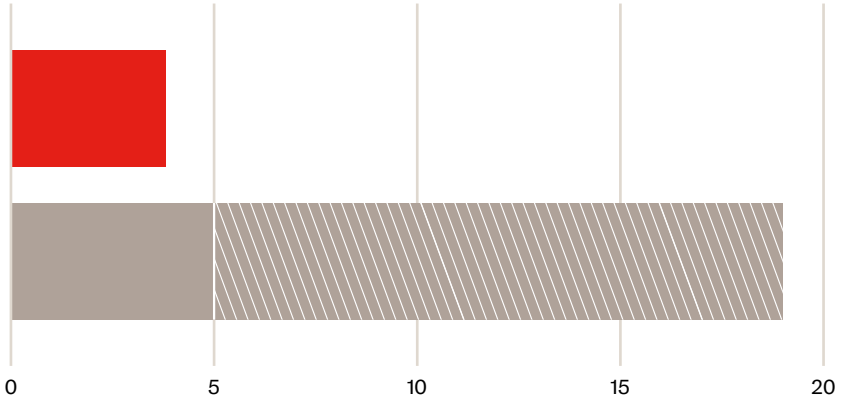
248 patients

Read full study

Reduced prolonged air leaks and empyema in pulmonary resection[8]

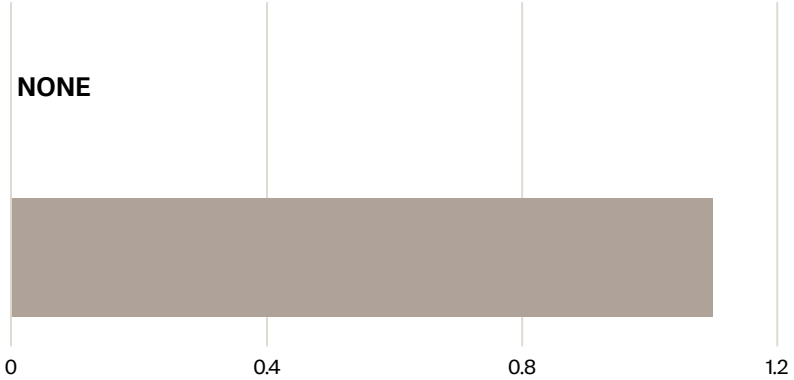
3.8% PAL rate[8]

vs. reported rates of 5%-19%



NO empyema[8]

vs. reported rates of 1.1%



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US 2023

Study details[8]

J&J MedTech sponsored

ECHELON ENDOPATH™ Staple Line Reinforcement

Safety and usability of an endo staple line reinforcement device for pulmonary resections

Kesler K, Zeltsman D, Martin LW, Cassidy E, Wheeler A, Hammoud Z, Popoff A, Baudendistel J-E, Veldhuis PP, Sadowsky MG
Journal of Thoracic Disease 2023;15(11):6151-9

6 hospitals

131 patients

Read full study

Reduced anastomotic leaks and length of stay in esophagectomy[9]

80%
reduced
anastomotic leaks[9]
(4.1% vs. 20.4%)

40%
reduced
length of stay[9]
(11.1 vs. 18.7 days)

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Belgium 2023

Study details[9]

Independent

ECHELON CIRCULAR™ Powered Stapler vs. Medtronic Manual EEA™ Circular Stapler

Real-life introduction of powered circular stapler for esophagogastric anastomosis: cohort and propensity matched score study

Vanstraelen S, Coosemans W, Depypere L, Mandeville Y, Moons J, Van Veer H, Nafteux P
Diseases of the Esophagus 2023;36(5):doac073

1 hospital

128 patients

Read full study

Reduced hemostasis-related complications in pulmonary artery transection[10]

ECHELON FLEX™ PVS

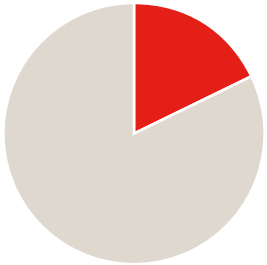
No bleeding[10]

(0/82 cases)

Medtronic Endo GIA™ iDrive™

18% bleeding[10]

(17/94 cases)



Johnson&Johnson
MedTech

Japan 2020

Study details[10]

Independent

ECHELON FLEX™ Powered Vascular Stapler vs. Medtronic Endo GIA™ iDrive™ with Tri-Staple™ Reload

The impact of endoscopic stapler selection on bleeding at the vascular stump in pulmonary artery transection

Tsunezuka Y, Tanaka N, Fujimori H
Medical Devices: Evidence and Research 2020;13:41-4

1 hospital

239 patients

Read full study

Reduced hemostasis-related complications, total hospital costs and OR time in VATS lobectomy[11]

56%
reduced

intraoperative blood loss[11]

(79.8mL vs. 182.4mL)

12%
reduced

total hospital costs[11]

($10,822 vs. $12,281)

28%
reduced

OR time[11]

(137.1min vs. 189.9min)

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MedTech

Korea 2019

Study details[11]

J&J MedTech sponsored

ECHELON FLEX™ Powered Staplers with GST Reloads and ECHELON FLEX™ Powered Vascular Stapler vs. manual staplers

Clinical and economic benefits associated with the use of powered and tissue-specific endoscopic staplers among the patients undergoing thoracoscopic lobectomy for lung cancer

Park SY, Kim DJ, Nam CM, Park G, Byun G, Park H, Choi JH
Journal of Medical Economics 2019;22(12):1274-80

1
hospital

275
patients

Read full study

Reduced hemostasis-related complications and LOS in VATS lobectomy[2]

66%
reduced

bleeding complications[2]

(4.8% vs. 14.2%)

14%
reduced

length of stay[2]

(4.99 vs. 5.82 days)

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MedTech

US 2018

Study details[2]

J&J MedTech sponsored

ECHELON FLEX™ Powered Vascular Stapler and another ECHELON FLEX™ Powered Stapler vs. Medtronic manual staplers

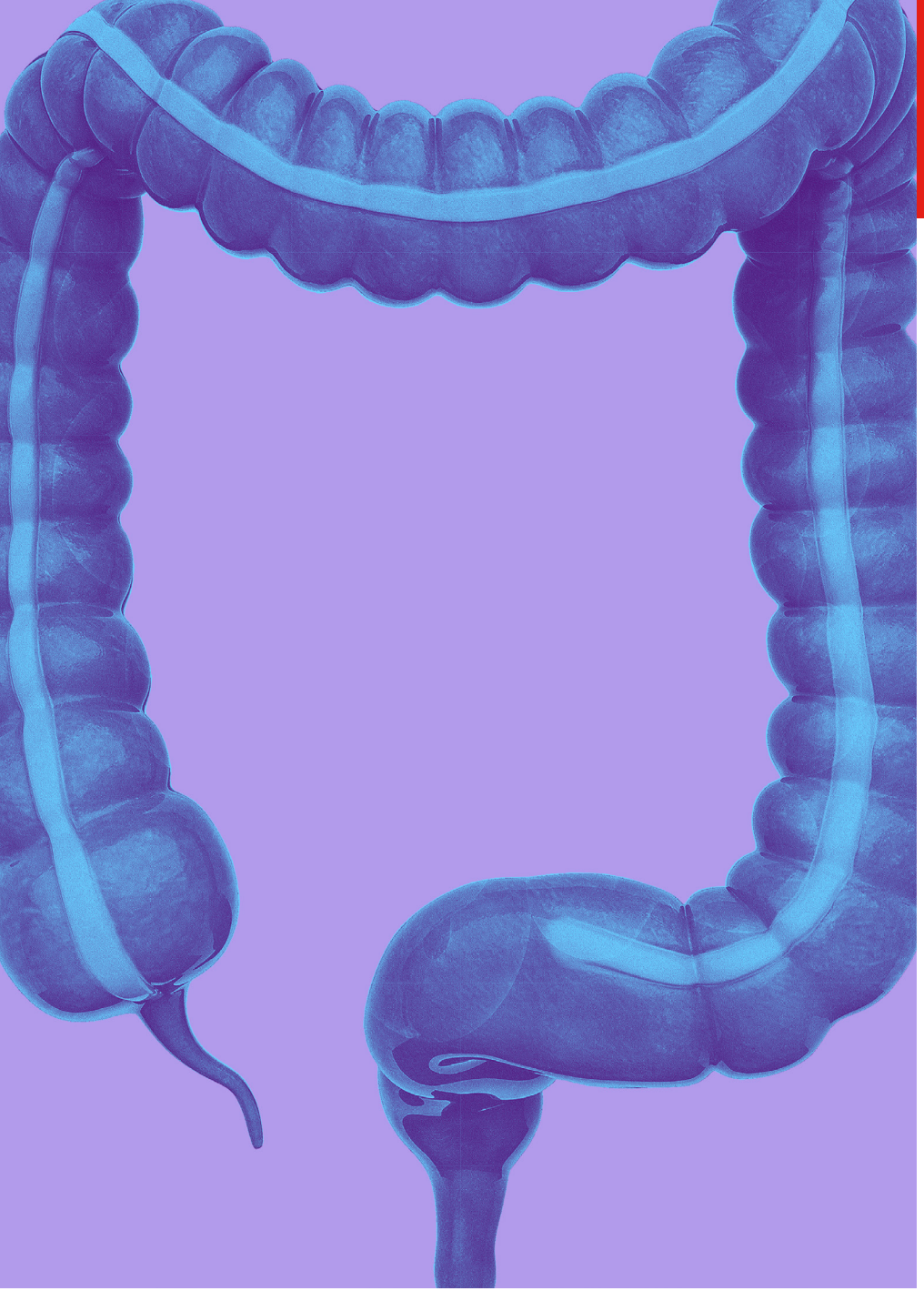
Impact of powered and tissue-specific endoscopic stapling technology on clinical and economic outcomes of video-assisted thoracic surgery lobectomy procedures: a retrospective, observational study

Miller D, Roy S, Kassis E, Yadalam S, Ramisetti S, Johnston S
Advances in Therapy 2018;35(5):707-23

700+
hospital database

3,759
patients

Read full study



Colorectal

Multicountry 2024 (Independent)

Reduced anastomotic leaks and bleeding events in left-sided colorectal surgery[12]

Spain 2023 (Independent)

Reduced anastomotic leaks and total hospital costs in left-sided colorectal surgery[13]

US 2021 (J&J MedTech sponsored)

Reduced clinical complications and readmissions in left-sided colorectal surgery[3]

Europe and US 2020 (J&J MedTech sponsored)

Reduced anastomotic leaks in left-sided colorectal surgery[14]

Spain 2020 (Independent)

Reduced anastomotic leaks and reoperations in left-sided colorectal surgery[15]

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Reduced anastomotic leaks and bleeding events in left-sided colorectal surgery[12]

50%
reduced
anastomotic leaks[12]
(4.1% vs. 8.23%)

88%
reduced
bleeding events[12]
(0.96% vs. 7.91%)

Johnson&Johnson
MedTech

Multicountry meta-analysis 2024

Study details[12]

Independent

ECHELON CIRCULAR™ Powered Stapler vs. manual circular staplers

Two-row, three-row or powered circular stapler, which to choose when performing colorectal anastomosis? A systematic review and meta-analysis

Martín-Arévalo J, Pla-Martí V, Huntley D, García-Botello S, Pérez-Santiago L, Izquierdo-Moreno A, Garzón-Hernández LP, Garcés-Albir M, Espí-Macías A, Moro-Valdezate D
International Journal of Colorectal Disease 2024;29(1):51

7 studies

2,947 patients

Read full study

Reduced anastomotic leaks and total hospital costs in left-sided colorectal surgery[13]

64%
reduced
anastomotic leaks[13]
(4.8% vs. 13.3%)

36%
reduced
total hospital costs[13]
($6,925 vs. $10,767 per patient*[16])

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* EUR to USD conversion calculated 9/20/24.

Spain 2023

Study details[13]

Independent

ECHELON CIRCULAR™ Powered Stapler vs. manual circular staplers

Incidence of anastomotic leakage using powered circular staplers versus manual circular staplers for left colorectal anastomosis: a cost-effectiveness analysis

Pla-Martí V, Martín-Arévalo J, Moro-Valdezate D, García-Botello S, Pérez-Santiago L, Barrachina-Martinez I, González-de-Julián S, Vivas-Consuelo D, Espí-Macías A
Techniques in Coloproctology 2024;28(1):76

1 hospital

330 patients

Read full study

Reduced clinical complications and readmissions in left-sided colorectal surgery[3]

74%
reduced
anastomotic leaks[3]
(1.8% vs. 6.9%)

80%
reduced
bleeding events[3]
(1.8% vs. 9.2%)

67%
reduced
ileus bowel obstructions[3]
(4.8% vs. 14.7%)

44%
reduced
30-day inpatient readmissions[3]
(6.1% vs. 10.8%)

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US 2021

Study details[3]

J&J MedTech sponsored

ECHELON CIRCULAR™ Powered Stapler vs. manual circular staplers

Outcomes associated with the use of a new powered circular stapler for left-sided colorectal reconstructions: a propensity score matching-adjusted indirect comparison with manual circular staplers

Sylla P, Sagar P, Johnston S, Dwarakanathan H, Waggoner J, Schwiers M, Roy S
Surgical Endoscopy 2021; https://doi.org/10.1007/s00464-021-08542-7

85 hospitals
1,513 patients

Read full study

Reduced anastomotic leaks in left-sided colorectal surgery[14]

1.8%

anastomotic leak rate[14]

(vs. reported rates of 12%)

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Europe and US 2020

Study details[14]

J&J MedTech sponsored

ECHELON CIRCULAR™ Powered Stapler

Assessment of a circular powered stapler for creation of anastomosis in left-sided colorectal surgery: a prospective cohort study

Herzig DO, Ogilvie JW, Chudzinski A, Ferrara A, Ashraf SQ, Jimenez-Rodriguez RM, Van der Speeten K, Kinross J, Schimmelpenning H, Sagar PM, Cannon JA, Schwiers ML, Singleton DW, Waggoner JR, Fryrear R 2nd, Sylla P *International Journal of Surgery* 2020;84:140-6

12 hospitals

168 patients

Read full study

Reduced anastomotic leaks and reoperations in left-sided colorectal surgery[15]

85%
reduced
anastomotic leaks[15]
(1.7% vs. 11.8%)

71%
reduced
reoperations[15]
(1.7% vs. 5.8%)

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Spain 2020

Study details[15]

Independent

ECHELON CIRCULAR™ Powered Stapler vs. manual circular staplers

Impact of the novel powered circular stapler on risk of anastomotic leakage in colorectal anastomosis: a propensity score-matched study

Pla-Martí V, Martín-Arévalo J, Moro-Valdezate D, García-Botello S, Mora-Oliver I, Gadea-Mateo R, Cozar-Lozano C, Espí-Macías A
Techniques in Coloproctology 2021;25(3):279-84

1 hospital
279 patients

Read full study

Learn more at the J&J MedTech Surgical Stapling page

References:

1 Rawlins L, Johnson BH, Johnston SS, et al. Comparative Effectiveness Assessment of Two Powered Surgical Stapling Platforms in Laparoscopic Sleeve Gastrectomy: A Retrospective Matched Study. Medical Devices: Evidence and Research. 2020:13 195–204. doi: https://doi.org/10.2147/MDER.S256237.

2 Miller DL, Roy S, Kassis ES, et al. Impact of Powered and Tissue-Specific Endoscopic Stapling Technology on Clinical and Economic Outcomes of Video-Assisted Thoracic Surgery Lobectomy Procedures: A Retrospective, Observational Study. Adv Ther. 2018 Apr 16. doi: 10.1007/s12325-018-0679-z.

3 Sylla P, Sagar P, Johnston S, et al. Outcomes associated with the use of a new powered circular stapler for left-sided colorectal reconstructions: a propensity score matching-adjusted indirect comparison with manual circular staplers. Surgical Endoscopy. 2021. doi: 10.1007/s00464-021-08542-7.

4 Andrew Wheeler, Jon Schram, Keith Gersin and Dmitri Stefanidis, et al. Safety and Usability of the ECHELON ENDOPATH™ Staple Line Reinforcement in Gastric Resections. J Surg 19 (2023): 85.

5 Roy, S., Yoo, A., Yadalam, S., Fegelman, E. J., Kalsekar, I., & Johnston, S. S. (2017). Comparison of economic and clinical outcomes between patients undergoing laparoscopic bariatric surgery with powered versus manual endoscopic surgical staplers. Journal of Medical Economics, 20(4), 423–433. https://doi.org/10.1080/13696998.2017.1296453.

6 Alizadeh, Reza Fazl MD; Li, Shiri MD, PhD; Inaba, Colette MD; Penalosa, Patrick BS; Hinojosa, Marcelo W. MD, FACS; Smith, Brian R. MD, FACS; Stamos, Michael J. MD, FACS; Nguyen, Ninh T. MD, FACS, FASMBS. Risk Factors for Gastrointestinal Leak after Bariatric Surgery: MBASQIP Analysis. Journal of the American College of Surgeons 227(1):p 135-141, July 2018. | DOI: 10.1016/j.jamcollsurg.2018.03.030.

7 Mitsui, S., Tanaka, Y., Nishikubo, M., et al. Safety and efficacy of new staple-line reinforcement in lung resection: a prospective study of 48 patients. Surg Today 54, 779–786 (2024). https://doi.org/10.1007/s00595-024-02798-x.

8 Kesler KA, Zeltsman D, Martin LW, Cassidy E, Wheeler A, Hammoud Z, Popoff A, Baudendistel JE, Veldhuis PP, Sadowsky MG. Safety and usability of an endo staple line reinforcement device for pulmonary resections. J Thorac Dis 2023;15(11):6151-6159. doi: 10.21037/jtd-23-1019.

9 Stijn Vanstraelen, Willy Coosemans, Lieven Depypere, Yannick Mandeville, Johnny Moons, Hans Van Veer, Philippe Nafteux. Real-life introduction of powered circular stapler for esophagogastric anastomosis: cohort and propensity matched score study, Diseases of the Esophagus, Volume 36, Issue 5, May 2023, doac073, https://doi.org/10.1093/dote/doac073.

10 Tsunezuka Y, Tanaka N, Fujimori H. The Impact of Endoscopic Stapler Selection on Bleeding at the Vascular Stump in Pulmonary Artery Transection. Med Devices (Auckl). 2020;13:41-47 https://doi.org/10.2147/MDER.S240343.

11 Park, S. Y., Kim, D. J., Mo Nam, C., Park, G., Byun, G., Park, H., & Choi, J. H. (2019). Clinical and economic benefits associated with the use of powered and tissue-specific endoscopic staplers among the patients undergoing thoracoscopic lobectomy for lung cancer. Journal of Medical Economics, 22(12), 1274–1280. https://doi.org/10.1080/13696998.2019.1634081.

12 Martín-Arévalo J, Pla-Martí V, Huntley D, et al. Two-row, three-row or powered circular stapler, which to choose when performing colorectal anastomosis? A systematic review and meta-analysis. Int J Colorectal Dis. 2024;39(1):51. Published 2024 Apr 12. doi:10.1007/s00384-024-04625-8.

13 Pla-Martí, V., Martín-Arévalo, J., Moro-Valdezate, D., et al. Incidence of anastomotic leakage using powered circular staplers versus manual circular staplers for left colorectal anastomosis: a cost-effectiveness analysis. Tech Coloproctol 28, 76 (2024). https://doi.org/10.1007/s10151-024-02936-0.

14 Herzig DO, Ogilvie JW, Chudzinski A, et al. Assessment of a circular powered stapler for creation of anastomosis in left-sided colorectal surgery: A prospective cohort study. Int J Surg. 2020;84:140-146. doi:10.1016/j.ijsu.2020.11.001.

15 Pla-Martí, V., Martín-Arévalo, J., Moro-Valdezate, D., et al. Impact of the novel powered circular stapler on risk of anastomotic leakage in colorectal anastomosis: a propensity score-matched study. Tech Coloproctol 25, 279–284 (2021). https://doi.org/10.1007/s10151-020-02338-y.

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Johnson&Johnson
MedTech