[1197] **Table 1**

Table 1: Characteristics of included studies and incidence of reported morbidity after intragastric balloon

Study author, year	n	IGB group (n)	Comparison group	Follow up period	Frequency of Clavien-Dindo grade
Lindor et al, 1987	22	11	Sham endoscopy	16 months	CD-I :36.37%
Ramahamdany et. al, 1989	24	12	Sham endoscopy	6 months	CD-I :100% CD-II: 100%
Marshall et al, 1990	60	60	None	3.73 months (16 week)	CD-I: 43.33 CD-III: 3.33%
Mathus-Vliegen et. al, 1990	28	22	Sham endoscopy	8 months	CD-I: 22.72% CD-II: 86.36% CD-III: 4.55%
Geliebter et. al, 1991	86	43	Dietary restriction	6 months	CD-I: 11.63% CD-III: 4.65 %
Galloro et. al,1999	10	10	None	5 months	CD-I: 40% CD-II: 1%
Mathus-Vliegen et. al, 2002	43	43	Sham endoscopy	24 months	CD-I: 90.70 %
Mathus-Vliegen et. al, 2005	43	43	Sham endoscopy	24 Months	CD-I: 39.53% CD-II: 2.32% CD-III: 13.95
Genco et. al, 2006	32	32	Sham endoscopy	6 months	CD-I: 100% CD-II: 100%
Frutos et. al, 2007	31	31	None	6 Months	CD-I: 100% CD-II: 9.67% CD-III: 6.45%
Mion et. al, 2007	32	32	None	3.73 months (16 week)	CD-I: 100% CD-III: 6.25%
Peker et. al, 2010	33	33	None	6 months	CD-I: 100% CD-II: 100%
Genco et. al, 2010	100	100	Dietary restriction	13 months	CD-I: 100% CD-II: 100%
De Castro et al, 2010	33	33	None	12 months	CD-I: 100% CD-II: 100% CD-III: 9.09 %
Nikolic et. al, 2011	33	33	None	6 months	CD-I; 100% CD-II: 51.51 % CD-III: 9.09 %
Farina et. al, 2012	50	30	Medical management	12 months	CD-I: 26.67% CD-II: 6.67%
Giardiello et. al, 2012	60	60	Another balloon type	36 months	CD-I: 100% CD-II: 100% CD-III: 5%
Ponce et. al, 2013	30	21	Dietary restriction	11.2 months	CD-I: 19.05% CD-II: 100% CD-IV: 4.76%
Ponce et. al, 2015	326	187	Sham endoscopy and dietary restriction	12.1 months	CD-I: 45.98% CD-II: 100% CD-III: 13.90%
Dargent et. al, 2015	101	101	Hyaluronic injection at GE junction	24 months	CD-I: 27.72% CD-II: 100% CD-III: 11.88%
Courcoulas et al, 2017	317	137	Dietary restriction	12 months	CD-I: 98.1% CD-II: 98.1% CD-III: 19.37% CD-IV: 0.6%
Coffin et. al, 2017	115	55	Dietary restriction	12 months	CD-III: 9.09%
Sullivan et. al, 2018	387	198	Dietary restriction	48 months	CD-I: 100% CD-II: 100% CD-III: 9% CD-IV: 0.5%

balloon (IGB) placement represents an endoscopic intervention that has shown efficacy at inducing weight loss. This study aimed to review the incidence of morbidity after IGB placement.

METHODS: A systematic literature search was conducted on MEDLINE using the PICO framework and is reported under the PRISMA framework (Figure 1). Clinical trials (randomized and non-randomized) comparing intragastric balloon with medical management, placebo, or dietary restriction were included. Studies with non-FDA approved devices, on non-human subjects, or not in English were excluded. Adverse events were then classified by severity into Clavien-Dindo grades to standardize outcomes.

RESULTS: Of the 49 studies screened after a systematic literature search, 23 clinical trials (n = 1996) met the inclusion criteria; 1327 of these patients underwent endoscopic intragastric balloon placement (Table 1). Six trials compared IGB with medical management, 8 with placebo, 7 trials did not have a comparison group, and 2 compared saline with air-filled balloons. Dietary restriction was included in the study protocol for 92.89% of the patients. The majority of the trials (n = 15) used saline-filled balloons, whereas the rest used air or nitrogen-filled balloons. The mean follow-up after the procedure was 13.60 ± 11.3 months. The pooled range of Clavien-Dindo grade III morbidity was 3.33%–19.37%, grade IV was 0.5%–4.76%, and grade V was 0%. Mild post-procedural morbidity had a wide spectrum ranging from 11.6% to 100%.

CONCLUSION: The incidence of moderate to severe morbidity from an intragastric balloon appears to be comparable to published morbidity and mortality data for bariatric surgery. However, complications of mild severity are more common. Clinical trials comparing IGB with surgical weight loss are needed.

S1198

Esophageal Dysmotility Following Bariatric Surgery: Is There an Association With Weight Regain?

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INTRODUCTION: Alteration in swallowing mechanics may affect nutritional intake, food choices, and maintenance of weight loss after bariatric surgery. Up to 30% of post-bariatric surgery patients may experience dysphagia, despite no clear mechanical obstruction. The role of esophageal motor dysfunction in weight regain in this population remains unclear. The aim of this study was to evaluate (i) esophageal motility patterns in post-bariatric surgery patients presenting with dysphagia and (ii) the association between esophageal dysmotility and weight regain.

METHODS: This was a retrospective cohort study of adult patients status-post bariatric surgery presenting with dysphagia who underwent high-resolution esophageal manometry (HRM) between 1/1/2008 and 11/1/2019. Weight loss history was extracted from the medical record (pre-op and nadir weight, weight at time of HRM). HRM findings were classified per Chicago Classification v3.0 and grouped in to (1) normal, (2) minor disorders (ineffective esophageal motility, fragmented peristalsis), and (3) major disorders (achalasia, esophagojunction outflow obstruction, diffuse esophageal spasm, jackhammer esophagus, or absent contractility.) Weight regain was defined as ≥15% regain from the post-surgical bypass nadir weight.

RESULTS: 77 patients were included in this study (baseline characteristics in Table 1). Abnormal findings were noted in 37 (48.1%) patients on HRM, with 17 (22.1%) minor disorders and 20 (26.0%) major disorders, including 3 (3.9%) with achalasia. Major disorders on HRM were more common in lap band patients compared to non-lap band (RYGB or sleeve gastrectomy) patients (46.2% vs 21.9%, $P = 0.05$). Weight regain was significantly more prevalent among patients with major disorders on HRM compared to those with minor disorders and normal findings (89.5% vs 52.9%, $P = 0.01$ and 85.5% vs 53.9%, $P = 0.001$, respecctively). On multivariate analysis controlling for potential confounders including age, gender, and bariatric surgery type, major disorders on HRM, but not minor disorders, remained independently associated with weight regain (Table 2).

CONCLUSION: In post-bariatric surgery patients with dysphagia, a major disorder was identified on HRM in 26% of patients. Major disorder on HRM was independently associated with weight regain. Future studies are needed to further elucidate the role of HRM in the management of the post-bariatric surgery population.

[1198] **Table 1. Baseline Characteristics of all Symptomatic Patients with Prior Bariatric Surgery whom underwent HRM**

Table 1: Baseline Characteristics of all Symptomatic Patients with Prior Bariatric Surgery whom underwent HRM

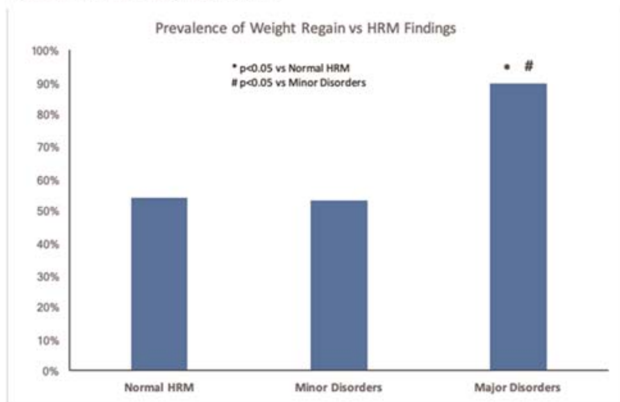
	All Patients (n=77)
Age, mean (SD), years	52.4 (11.40)
Female, n (%)	67 (87.01)
Bariatric Surgery Type:	
RYGB, n (%)	49 (63.64)
Sleeve Gastrectomy, n (%)	15 (19.48)
Laparoscopic gastric band, n (%)	13 (16.88)
Weight Outcomes:	
%Excess Body Weight loss at nadir, mean (SD)	35.92 (13.49)
% Weight Regain at time of HRM, mean (SD)	31.13 (45.63)
BMI (kg/m2) at time of HRM, mean (SD)	35.61 (8.64)
HRM Diagnosis:	
Normal, n (%)	40 (51.95)
Minor Disorder of Peristalsis, n (%)	17 (22.08)
Ineffective Esophageal Motility (IEM)	17 (22.08)
Major Disorder of Peristalsis, n (%)	20 (25.97)
Achalasia	3 (3.90)
EGJOO	9 (11.69)
DES	2 (2.60)
Jackhammer Esophagus	3 (3.90)
Absent Contractility	3 (3.90)

[1198] **Table 2. Multivariate Logistic Regression for Weight Regain**

Table 2: Multivariate Logistic Regression for Weight Regain

	Odds Ratio	95% Confidence Interval	P-value
Major Disorder of Peristalsis vs Normal	11.65	1.750-77.55	**0.0102**
Minor Disorder of Peristalsis vs Normal	0.897	0.208-3.865	0.102
Sleeve v. RYGB	0.868	0.206 – 3.653	0.8999
Band v. RYGB	0.921	0.132 – 6.414	0.9905
Sex	0.638	0.097 – 4.204	0.6405
Age	0.951	0.893 – 1.1013	0.1208

Figure 1: Prevalence of Weight Regain by HRM Findings



[1198] **Figure 1.** Prevalence of Weight Regain by HRM Findings.

S1199

Chronic Cannabis Users Associated With Lower BMI and Decreased Obesity Rates

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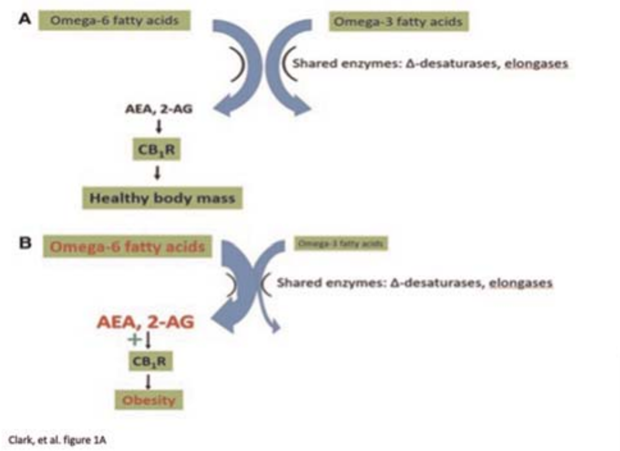
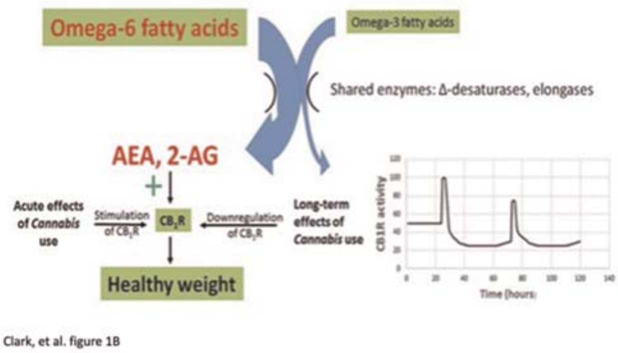
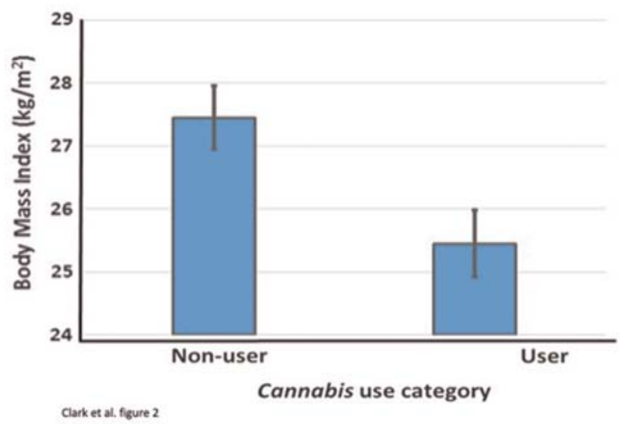


[1199] **Figure 1.**



[1199] **Figure 2.**



[1199] **Figure 3.**

INTRODUCTION: The Western diet leads to an increase in the ratio of omega-6:omega-3 fatty acids, often at a ratio of 20:1 or more. A healthy ratio is anywhere between 1:1 and 3:1. This imbalance disrupts the endocannabinoid system via increased signaling of AEA and 2-AG, which disrupts the homeostatic effects of the CB1 receptor and promotes obesity via increased energy intake and storage[7]. The use of cannabis has is known to stimulate the CB1 receptors and promote the homeostatic effect, which in turn decreases the increased energy storage associated with their disruption. In this analysis, we aim to evaluate the effect of BMI in cannabis users vs. non-users. A positive correlation between cannabis use and a reduced BMI could lead to cannabis being used as a potential therapy to reduce BMI and promote health in a society in which obesity is rising.

METHODS: • BMI of cannabis users range from 23 to 28.7 kg/m^2 with a mean of 26 kg/m^2. 7.

• BMI of non-user range from 24.4 to 29.1 kg/m2 with a mean of 27.5 kg/m2. 7.

• Eight out of 9 studies concluded a lower BMI associated with cannabis use7.

• Two studies reported longer duration of use correlating with lower BMI7.

• Sporadic and high usage of cannabis in young adults was associated with lower obesity rates than those who used less in the same age group[7].

RESULTS: Eight out of nine studies reviewed by Clark et al. have reported an inverse correlation between cannabis use and BMI. This literature shows statistically significant differences in the BMI of cannabis users vs. non cannabis users. Within this study, a positive correlation was found to exist between the amount of cannabis used in relation to a lower BMI. In one study, evidence was shown that BMI was decreased even in cannabis users who had a higher daily caloric intake in comparison with non-users.

CONCLUSION: The evidence shown in this meta- analysis reveals that the CB1 receptors that are stimulated during cannabis use could promote a decrease in energy intake and storage. This potential therapy poses less risk in comparison to other weight loss treatments, such as bariatric surgery or endoscopic procedures. With the number of states legalizing cannabis use increasing, this study suggests that cannabis should be further looked into as a potential therapeutic option for weight loss and strategic lowering of BMI.

S1200

Roux-En-Y Gastric Bypass Is Associated With Higher Rates of Barrett's Esophagus and Esophageal Adenocarcinoma When Compared to Laparoscopic Sleeve Gastrectomy: Findings of a Nationwide Analysis With Long-Term Follow-Up

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INTRODUCTION: Obesity is thought to be a risk factor for esophageal malignancy. The association between bariatric interventions and esophageal malignancy remains unclear. We aim to examine the rates of Barrett's esophagus (BE) and esophageal adenocarcinoma (EAC) in obese patients and in those who underwent roux-en-y gastric bypass (RYGB), laparoscopic sleeve gastrectomy (LSG) and laparoscopic adjustable gastric banding (LAGB).

METHODS: A commercial database (Explorys Inc, Cleveland, OH, USA), consisting of EHR data from 26 US healthcare systems, was surveyed. After excluding bariatric surgery, a cohort of patients with Systematized Nomenclature of Medicine-Clinical Terms (SNOMED-CT) diagnosis of obesity (1999–2020) was identified. Within the obesity cohort, patients who developed new diagnoses of BE and EAC were identified. Subsequently, several cohorts of patients who underwent RYGB, LSG and LAGB were identified. The rates of new diagnoses of BE and EAC after at least 30 days of RYGB, LSG or LAGB were calculated. Risks were compared using univariable analysis.

RESULTS: Of 72,531,460 patients in the database, 4,699,470 (6.5%), 230,300 (0.31%), and 10,950 (0.02%) with obesity, BE and EAC were identified respectively. There were 24,630 (0.03%) RYGB, 32,360 (0.05%) LSG and 8,650 (0.01%) LAGB. A total of 240 (0.97%), 110 (0.34%) and 70 (0.81%) of BE were identified after at least 30 days of RYGB, LSG and LAGB. A total of 20 (0.08%), 5 (0.02%), and 5 (0.06%) of EAC cases were identified after at least 30 days of RYGB, LSG and LAGB. Patients who underwent RYGB were more likely to develop BE and EAC when compared to patients who underwent LSG. Patients who underwent LSG were less likely to develop BE when compared to obese patients (Table 1). History of baseline GERD (prior to surgery) and cholecystectomy were associated with increased risk of BE after surgery (Table 2). Prevalence rates of BE over time after surgery are presented in Figure 1.

CONCLUSION: Explorys rounds to the closest 0 or 10 to protect patient identity. This did not allow for further analysis of EAC. There is also potential selection and confounding biases. However, this is the largest study to evaluate the risk of BE and EAC in RYGB, LSG and LAGB. RYGB patients had higher risks of BE and EAC when compared to LSG. Longer duration of GERD in the RYGB

[1200] **Table 1. Risk of Barrett's esophagus (BE) and esophageal adenocarcinoma (EAC) in roux-en-y gastric bypass (RYGB) vs. obesity (no bariatric surgery), RYGB vs. laparoscopic sleeve gastrectomy (LSG), RYGB vs. laparoscopic adjustable gastric banding (LAGB), LSG vs. obesity (no bariatric surgery), LSG vs. LAGB, and LAGB vs. obesity (no bariatric surgery).** ***P*-value not significant**

RYGB vs. Obesity	1.82 [1.60-2.07]	3.57 [2.29-5.55]
RYGB vs. LSG	2.88 [2.30-3.62]	5.26 [1.97-14.01]
RYGB vs. LAGB	1.21 [0.92-1.58]*	1.41 [0.53-3.75]*
LSG vs. Obesity	0.63 [0.52-0.76]	0.68 [0.28-1.63] *
LSG vs. LAGB	0.41 [0.31-0.56]	0.27 [0.08-0.92]
LAGB vs. Obesity	1.51 [1.19-1.91]	2.54 [1.05-6.12]