Does Resizing the Gastric Pouch Aid in Weight Loss?

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Michael S. McCormack and Michael B. Ujiki

31.1 Introduction

Despite the rise in popularity of restrictive bariatric surgical procedures such as the sleeve gastrectomy in the US [1] the Roux-En-Y Gastric Bypass (RYGB) still maintains a more sustainable long-term weight loss outcome and larger reduction in co-morbid metabolic conditions [2]. After undergoing a RYGB, patients can expect initial weight-loss followed by a minor amount of weight regain after reaching their weight nadir. Up to a quarter of patients have been reported to regain even further weight often accompanied by return of metabolic co-morbidities [3]. This is thought to be attributed to a complex inter-play of various social, psychological, physiological, and anatomical factors [3, 4]. In this chapter we will explore if a specific anatomical factor, namely pouch size, has any effect on the weight loss awarded the RYGB or the weight regain plaguing up to a quarter of patients in the published literature.

31.2 Search Strategy

We conducted an online literature search using PubMed, Google Scholar, and Cochrane Clinical Trials databases. We limited our search to articles published in the English language between January first, 2000 until January first, 2020. The search terms and key-words were derived from our PICO table and included 'Roux-En-Y' or 'stomach' or 'gastric' and 'pouch' and 'size' or 'revised' or 'revision' and 'weight' or 'body mass' and 'loss' or 'regain'. We also included studies referenced

M. S. McCormack · M. B. Ujiki (✉)
NorthShore University HealthSystem, Evanston, Illinois, USA
e-mail: mujiki@northshore.org

J. Alverdy, Y. Vigneswaran (eds.), *Difficult Decisions in Bariatric Surgery*, Difficult Decisions in Surgery: An Evidence-Based Approach,
https://doi.org/10.1007/978-3-030-55329-6_31

by the studies we selected from the search if they were relevant. We excluded case reports, animal studies, and articles pertaining to other bariatric procedures where a gastric pouch is not created (sleeve gastrectomy, gastroplasties, etc.). We also excluded studies with restrictive bands placed around the gastrum since this approach primarily targets restricting the size of the gastrojejunal stoma rather than the volume of the gastric pouch. Finally, we also excluded articles in which stoma reduction was the primary focus of the operation.

31.3 Results

We included a total of 20 studies examining the effect of gastric pouch size to either weight loss, recidivism, or response to revisional surgery following initial bariatric surgery. This includes 2 randomized controlled trials, 2 systematic reviews, and 3 prospective cohort studies. The remainder of studies were retrospective in design.

Table 31.1 demonstrates the 10 studies which did not find a correlation between a smaller pouch size and better weight loss outcome. One of the 10 studies had a contradictory outcome: a randomized controlled trial showed increased weight loss with a larger sized (elongated) pouch. Additionally, this table includes 2 prospective cohort studies, 4 retrospective comparative studies, 2 retrospective cohort studies, and 1 retrospective database review. N ranged from 14–14,168 with a median of 74.5. Subjects were on average 79.6% female (62.5–100%) with an average age of 44.43 years (41.6–51 years) and average original BMI of 47.3 kg/m^2 (42–54.6 kg/m^2). The studies followed the subjects for an average of 24.6 months (12–48 months). The method used to measure the size of the gastric pouch varied with the upper gastrointestinal contrast study being the most common method (4/10), while 3D-CT (2/10) and calculated staple length (2/10) tied for the second most common method, and endoscopy (1/10) or intraoperative direct measurement (1/10) accounted for the remaining methods used. The size of a small pouch was defined differently depending on the methodology used but when measured in volume varied from >10 mL to <49 mL. Complication rates were underreported with only 4/10 studies revealing an average total complication rate of 9.93% (7–17%). In this table, a randomized controlled trial evaluating a longer and larger pouch versus a smaller and shorter pouch demonstrated an increase in weight loss by 36 months in the larger pouch group (BMI $\triangle$ −2 kg/m^2, EWL% $\triangle$ 11% $p = 0.023$), however, this was not seen until the 36-month follow-up and the authors attribute this difference to a decrease in weight regain in the larger pouch group [6]. Three studies in this table, including a large Scandinavian database review (n = 14,168), demonstrated an initial (<12-month post-revision) weight loss after resizing the gastric pouch however, beyond 2 years, the weight loss was negated or non-significant [9, 10, 15]. One of these studies included concurrent revision of the GJ-stoma size [10]. The same Scandinavian database review also demonstrated an increase in the relative risk of developing a marginal ulcer by 14% per every 10 mm of linear stapler used (CI 9–20%, $p = 0.05$) [9]. Madan et al. [13] also explored if fundus size correlated to weight loss outcome,

Table 31.1 Studies with no association between smaller pouch size and better weight loss outcome

Author/design	Subjects	Pouch size	Revision/method	Weight △/ complications	Findings	Comments
Boerboom et al. [6]	N = 132	Method: Intraoperative	Small pouch vs elongated & larger pouch size RCT.	EWL% △: −11%	Elongated pouch statistically significant more weight loss at 3 years.	No difference seen first 2 years, no weight regain seen in extended pouch group by third year accounting for difference in weight loss.
Year: 2019	Mean age: 47 ± 9	Large pouch: 4×60 mm staplers		BMI △: 2 kg/m²		
Design: Single-site RCT	Female(%): 52.5%	Small pouch: 3x60mm staplers		Complications: 17%		
Follow up: 36 months	Original BMI:					
Level of evidence: I	44 ± 5 kg/m²					
Edholm et al. [9]	N = 14,168	Method: Length of staplers	Intraoperative staple length used as surrogate for pouch size. Correlated to weight loss and marginal ulcer risk.	EWL% △: N/A	Initial correlation between staple length used and weight loss, but by 12 months no correlation remained.	Multivariate analysis at 12 months for staple length and EBMIL% -0.05 (p = 0.29). Staple length correlated with higher risk for marginal ulcer.
Year: 2015	Mean age: 41.6 ± 11.1	Staple length: 145 ± 28 mm		BMI △: N/A		
Design: Retrospective database	Female(%): 76			Complications: N/A		
Follow up: 12 months	Original BMI: 42 ± 5 kg/m²					
Level of evidence: III						
Hamdi et al. [10]	N = 25	Method: Endoscopy	GJ anastomosis resected, new GJ anastomosis and pouch created <5 cm in any dimension.	EWL% △: 2.9%	Initial weight loss at 3–12 month post revision, however at 24 months weight regain higher than prerevision.	Only 5 patients followed up at 24 months.
Year: 2014	Mean age: 42	Large pouch: >5 cm in depth		BMI △: 3.2 kg/m²		
Design: Retrospective cohort	Female (%): 100%	Small pouch: Pouch redone, 4 cm from angle of his		Complications 8%		
Follow up: 24 months	Original BMI: 54.6 kg/m²					
Level of evidence: III						

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Table 31.1 (continued)

Author/design	Subjects	Pouch size	Revision/method	Weight △/ complications	Findings	Comments
Madan et al. [13] Year: 2007 Design: Retrospective comparative Follow up: 19.4 months Level of evidence: III	N = 59 Mean age: N/A Female(%): 85% Original BMI: 48.5 ± 6 kg/m^2	Method: UGI Method: UGI 1. Smaller than average 2. Average 3. Larger than average 4. ×3 times larger than average	Radiographic/ anatomical volume of pouch correlated to EWL	EWL% smallest pouch: 70% EWL% largest pouch: 64% p = 0.59 Complications: N/A	No statistically significant difference in EWL% between different pouch size groups.	Attempted to subjectively determine volume of fundus and weight loss. No significant correlation found.
Robert et al. [20] Year: 2005 Design: Prospective cohort Follow up: 12 months Level of evidence: II	N = 39 Mean age: 46 Female(%): 61.5% Original BMI: 43.4 kg/m^2	Method: 3D-CT Large pouch size: 47 cc Small pouch size: 43 cc	Ascertain weight loss at 12 months post RYGB comparative to pouch size.	EWL% △: N/A BMI △: N/A Complications: N/A	No correlation between pouch volume and EWL% at 3, 6, 9, 12 or 24 months.	Original BMI correlated to initial pouch volume (r = 0.4, p = 0.01)
Nishie et al. [15] Year: 2007 Design: Prospective cohort Follow up: 24 months Level of evidence: II	N = 82 Mean age: 41.7 Female(%): 75.8% Original BMI: 47.4 kg/m^2	Method: UGI Average pouch size: 30.1cm^2	Correlation between area of pouch to EWL% following pouch revision.	EWL% △: 2.9% BMI △: 3.2 kg/m^2 Complications 8%	Initial weight loss at 3–12 month post revision, however at 24 months weight regain higher than prerevision.	Pouch volume estimated by calculating 2D measurements.

OConnor et al. [16] Year: 2007 Design: Retrospective cohort Follow up: 12 months Level of evidence: III	N = 231 Mean age: 45 Female (%): 90% Original BMI: 48 kg/m^2	Method: Intraoperative Pouch size: 10-20 cc Stratified in 2.5 cc increments.	Increments of pouch size compared for correlation to differences in weight loss at 12 months.	EWL% △: None BMI △: None Complications: N/A	No correlation between EWL% and pouch size found for pouches 10-20 cc in size out to 12 months.	Size of pouch was subjective to operators interpretation. Largest pouch 20 cc is small compared to literature.
Parikh et al. [17] Year: 2010 Design: Retrospective comparative Follow up: 12.2 months Level of evidence: III	N = 14 Mean age: 43 Female (%): N/A Original BMI: 46.8 kg/m^2	Method: UGI Large pouch size: >120 cc Small pouch size: 20-25 cc	14 patients with weight regain had their pouch size revised and weight loss measured over >1 year.	EWL% △: 12.8% BMI △: −2.7 kg/m^2 p = 0.16 Complications: N/A	No statistically significant difference in weight at 12 months after revision of pouch.	Underpowered, a third of patients also had roux limb lengthening.
Riccioppo et al. [19] Year: 2017 Design: Retrospective comparative Follow up: 47 months Level of evidence: III	N = 67 Mean age: 51 Female(%): 91% Original BMI: 51.4 kg/m^2	Method: 3D-CT Large pouch size: >40 cc Small pouch size: <40 cc Method: 3D-CT	Compared outcomes including weight loss and Regain for two groups based on their pouch volume.	Nadir EWL% △: −5.5% p = 0.41 Wt regain EWL%: 1.1% p = 0.195 Complications:N/A	More weight loss at nadir but slightly more weight regain in larger pouch group however neither statistically significant.	Smaller pouch lead to faster pouch emptying. Longer emptying time associated with more weight regain (regained EWL% 29.8% vs 11.7% p = 0.036)

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Table 31.1 (continued)

Author/design	Subjects	Pouch size	Revision/method	Weight △/ complications	Findings	Comments
Topart et al. [22]	N = 132	Method: UGI 2–4 years postop	Compared patients with large vs small pouch and EWL%.	>50 mL EWL%: 68 ± 3.6%	No significant weight loss difference based on pouch size, even when including pouches >100 mL.	Post op UGI performed 2-4 yrs. after RYGB, unknown if pouch dilated over time.
Year: 2011	Mean age: 42.6	Large pouch size: >50 mL		<49 mL EWL%: 66 ± 3.6%		
Design: Retrospective comparative	Female(%): 85%	Small pouch size:<49 mL		Complications: N/A		
Follow up: 48 months	Original BMI: 47 kg/m^2					
Level of evidence: III						

however no such correlation was discovered. Robert et al. [20] demonstrated that pre-operative BMI correlated to pouch volume following index-RYGB ($r = 0.4$, $p = 0.01$), suggesting that patients with larger BMI at onset of intervention end up with a larger pouch post-operatively. O'Connor et al. [16] demonstrated in a non-randomized format that there was no difference in weight loss at 10 months between small (<20 cc) and really small (<10 cc) pouches suggesting that if a size of at least <20 cc can be reached, there is no additional weight loss benefit in reducing the size of the gastric pouch.

P (Patients)	I (Intervention)	C (Comparator)	O (Outcomes)
Patients undergoing/ gone RYGB	Adjusting size of gastric pouch	No pouch size revision/ large size pouch	Weight loss

Table 31.2 depicts 10 studies which did find a correlation between the size of the pouch and weight loss outcome; specifically, larger pouches conferred poorer weight loss outcome. This includes 1 randomized controlled trial, 2 systematic reviews, 1 prospective cohort study, 3 retrospective comparative studies, 2 retrospective cohort studies, and 1 retrospective case-control study. Study populations ranged from 20 to 16,055 with a median of 261. Subjects were on average 78.9% female (43–90%) with an average age of 44.1 years (38.3–48 years) and average original BMI of 47.3 kg/m^2 (33.7–52 kg/m^2). The studies followed the subjects for an average of 26.2 months (12–49 months). The most common modality of measuring the gastric pouch size was the upper gastrointestinal contrast study (6/10); however, in half of these studies (3/6), an additional modality or 2 were used. This included endoscopy (3/6) and 3D-CT (1/6). Endoscopy was the second most common (4/10) modality used to measure pouch size but was only used as a single modality in 1 study. Intraoperative estimation of size was used the least (1/10). The 2 systematic reviews included studies using multiple varying methods of measuring pouch size. The size of the small pouch was in most studies defined in volume and ranged from >10 mL to <59 mL. Complication rates again were poorly reported with only 3 out of 10 studies depicting an average complication rate of 24.2% (15.6–30%). In this Table, 3 studies [5, 7, 12] demonstrated significant weight loss following revision of the size of the gastric pouch; however, in 2 of the 3 studies the size of the gastrojejunal stoma was revised as well [5, 7]. Borbely et al. [7] also demonstrated quite a significant perioperative morbidity (27%) with revisional bariatric surgery for pouch reduction. Roberts et al. [21] demonstrated with 320 subjects that pouch size was inversely related to weight loss ($r = -0.302$ $p < 0.02$) in the short term (12 month follow-up) with 320 subjects; however, he also demonstrated a positive correlation ($r = 0.19$ $P < 0.01$) between preoperative BMI and pouch size. Similarly, Campos et al. [8] demonstrated with 361 subjects that pouch size was inversely related to weight loss ($r = -0.25$ $p < 0.01$) in the short term (12 month follow-up), and Henegan et al. [11] demonstrated with 380 subjects that pouch size also was inversely related to weight loss ($r = 0.127$ $p = 0.02$) with a longer follow up of 49 months. Interestingly,

Table 31.2 Studies which demonstrate an association between smaller pouch size and greater weight loss

Author/design	Subjects	Pouch size	Revision/method	Weight △/ complications	Findings	Comments
Al-bader et al. [5]	N = 32	Method: UGI, endoscopy	Patients with weight regain after RYGB with a dilated gastric pouch underwent revision of pouch and stoma.	EWL% △: 29%	Pouch and stoma revision for weight regain with significant weight loss (+29% EWL) at 14 ± 6 months.	Stapled across and narrowed GJ-anastomosis as well. Less than 2-year follow-up.
Year: 2015	Mean age: 38.3	Large pouch size: >30 cc		BMI △: −5.5 kg/m^2		
Design: Retrospective comparative	Female (%): 84%	Small pouch size: 20-25 cc		Complications: 15.6%		
Follow up: 14 ± 6 months	Original BMI: 50.7 kg/m^2					
Level of evidence: III						
Borbely et al. [7]	N = 26	Method: UGI, endoscopy	Pouch and stoma revision for weight regain >30% EWL from nadir.	EWL% △: N/A	Significant weight reduction at 48 months with BMI 32.9 vs 39.1 prior to revision.	Stapled across and narrowed GJ-anastomosis as well.
Year: 2016	Mean age: 46.5	Large pouch size: N/A		BMI △: −6.2 kg/m^2		Higher than average morbidity.
Design: Prospective cohort						
Follow up: 48 months (24–60)	Female(%): 85%	Small pouch size: N/A		Complications: 27%		
Level of evidence: III	Original BMI: 48.9 kg/m^2					

Campos et al. [8]	N = 361	Method: UGI	Gastric pouch compared between two groups of EWL% >40% vs <40% at 12 months.	EWL% △: 31.7%	Size of pouch inversely related to weight loss with a Pearson correlation of −0.25 ($p < 0.01$).	Only 12-month follow up for 85.9% of patients. 2 risk factors related to poor weight loss absent in the patients omitted.
Year: 2008	Mean age: 45	Large pouch size: 39 cc		BMI △: −7.8 kg/m^2		
Design: Retrospective cohort	Female (%): 86.1%	Small pouch size: 25 cc		Complications N/A		
Follow up: 12 months	Original BMI: 52 kg/m^2					
Level of evidence: III						
Henegan et al. [11]	N = 380	Method: Endoscopy	Patients requiring EGD post-RYGB for GI symptoms were compared to patients with weight regain post-RYGB.	EWL% △: 43.4%	Pouch volume inversely related to EWL with Pearson correlation −0.127 ($p = 0.02$).	Multivariate analysis of weight regain after RYGB did not show pouch volume as statistically significant (OR 1.7 (0.4–6.2 $p = 0.455$)). BMI and duration from RYGB did however.
Year: 2012	Mean age: 48	Large pouch size: 26 cc		BMI △: −12.9 kg/m^2		
Design: Retrospective comparative	Female (%): 86.3%	Small pouch size: 21.8 cc		Complications: N/A		
Follow up: 49 months	Original BMI: 52 ± 10 kg/m^2					
Level of evidence: III						

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Table 31.2 (continued)

Author/design	Subjects	Pouch size	Revision/method	Weight △/ complications	Findings	Comments
Iannelli et al. [12]	N = 20	Method: UGI, endoscopy, 3D-CT	Patient with weight loss failure And enlarged pouch underwent pouch revision and followed for 18 months.	EWL% △: 32.3%	Significant weight loss following revision of pouch size, GJ-anastomosis left intact.	Less weight loss at 18 months if pouch enlarges over time after index RYGB vs large pouch present right after index RYGB.
Year: 2013	Mean age: 44	Pouch size criteria varied based on modality.		BMI △: −4.4 kg/m^2		
Design: Retrospective cohort						
Follow up: 18 months	Female(%): 90%					
Level of evidence: III	Original BMI: 45.8 kg/m^2			Complications: 30%		
Mahawar et al. [14]	N = 16,055	Method: Various	14 studies including 2 RCT's investigating weight loss vs pouch and/or stoma size	EWL% △: N/A	Large pouch offers no benefit in weight loss, may increase marginal ulcer risk. Quality of data does not allow optimal size of pouch to be determined.	Width of pouch may be more determinant for weight loss than volume. Surgical and pouch measurement techniques differ widely.
Year: 2019	Mean age: 45.27	Pouch size: Various		BMI △: N/A		
Design: Systematic review	Female (%): 75.87%					
Follow up: N/A	Original BMI: 44.99 kg/m^2			Complications N/A		
Level of evidence: III						

Ren et al. [18] Year: 2014 Design: Single-site RCT Follow up: 12 months Level of evidence: II	N = 69 Mean age: 44.5 Female (%): 43% Original BMI: 33.7 kg/m²	Method: Intraoperative measurements Large pouch size: 25-35 cc Small pouch size: 10-20 cc	Randomized controlled trial to evaluate if pouch size had any effect on T2DM in RYGB patients.	EWL% △: 9.8% BMI △: −0.9 kg/m² Complications: N/A	Small (△0.9 kg /m²) but statistically significant ($p = 0.04$) greater weight loss in smaller pouch group at 12 months.	Low N (69) and preoperative BMI (33. 7 kg/m²) with minimal difference between groups (△0.9 kg / m²).
Roberts et al. [21] Year: 2007 Design: Retrospective comparative Follow up: 12 months Level of evidence: III	N = 320 Mean age: 41.2 Female (%): 81.6% Original BMI: 51 kg/m²	Method: UGI Large pouch size: 60-120 cm² Small pouch size: 30-59 cm²	Patients categorized based on pouch size and followed for 1 year post-RYGB to compare weight loss.	EWL% △: 15.8% BMI △: N/A Complications: N/A	Negative correlation ($r = -0.302$ $p < 0.02$) between pouch size and EWL% at 12 months.	Preop BMI and pouch size positive correlation $r = 0.19$ $P < 0.01$
Tran et al. [23] Year: 2016 Design: Systematic review Follow up: N/A Level of evidence: III	N = 87 Mean age: 45 Female(%): 75% Original: BMI:51.7 kg/m²	Method: Various Pouch size: Various	Systematic review of various revisional operations for weight recidivism following RYGB, including 5 studies measuring pouch resizing.	EWL% △: N/A BMI △: −2.9 kg/m² Complications 17%	3/5 studies only followed 12 months post revision. 1 study followed 36 months, showed higher BMI post-revision (BMI△ + 3 kg/m² at 36 months post-revision).	Pouch revision studies underpowered ($n = 5–25$).

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Table 31.2 (continued)

Author/design	Subjects	Pouch size	Revision/method	Weight △/ complications	Findings	Comments
Uittenbogaart et al. [24]	N = 202	Method: UGI	Group of weight loss failure (<50% EWL) following RYGB were compared to controls with successful weight loss.	Weight △ not compared.	Pouch dilation: Present in 23% of weight loss failure group.	Interobserver reliability with kappa of 0.25 ($p = 0.01$) on assessment of pouch size on UGI contrast study questions that UGI is a poor assessment of pouch size.
	Mean age: 43.2	Large pouch size: Width or length >×2 size of adjacent vertebrae				
Year: 2019	Female (%): 83%					
Design: Retrospective case-control	Original BMI: 42.4 kg/m^2	Small pouch size: Width or length <×2 size of adjacent vertebrae	Pouch size was evaluated with UGI.	Complications: N/A	Present in 11% of control group. ($p = 0.024$)	
Follow up: 44.7 months						
Level of evidence: III						

Iannelli et al. [12] demonstrated that weight loss was greater (BMI $\triangle$ −7.6 kg/m^2 vs BMI $\triangle$ −3.1 kg/m^2) if the revised pouch was categorized as large immediately following index-RYGB versus slowly enlarging over time following index-RYGB. One single-site randomized controlled trial [18] with short (12 month) follow-up and low number of subjects (69) with a low preoperative BMI (average BMI 33.27 kg/m^2) demonstrated a small (BMI $\triangle$ −0.9 kg/m^2) but increased weight loss following slightly smaller (10-20 cc vs 25-35 cc) pouch volumes following RYGB. Although this was a randomized controlled trial the applicability of the patient population studied and their results may not transfer well to the level of obesity treated in the general American and European population. Two systematic reviews including most of the studies referenced in this manuscript evaluated the evidence of pouch size on weight loss and concluded that although the data suggests that smaller pouch size leads to greater weight loss, at least in the short term (12 months or less) that the quality of the data published does not currently support recommendations for an optimal pouch size.

Overall there is little consensus in methodology on how to determine pouch size and no uniformity in categorizing what determines a large versus a small pouch among the studies. Furthermore, Uittenbogaart et al. [24] demonstrated that there is poor inter-observer reliability (kappa = 0.25 (p = 0.01)) when assessing the pouch size with the most commonly used method, the upper gastrointestinal contrast study.

31.4 Recommendations

If the gastric pouch is to be fashioned or revised for optimal weight loss, either a very small (10-20 cc) or large but elongated (10 cm length) gastric pouch should be created, preferably at index-operation. (Evidence quality low; weak recommendation).

For patients experiencing poor weight loss following RYGB (<50% EWL) or weight regain (>30% EWL from nadir), laparoscopic gastric pouch size revision could offer short-term (<24 month) weight loss but at an elevated perioperative morbidity. (Evidence quality low; weak recommendation).

For patients experiencing poor weight loss following RYGB (<50% EWL) or weight regain (>30% EWL from nadir), a thorough multi-modality investigation should be pursued to determine both behavioral, psychosocial, and anatomical (pouch size, gastrojejunal stoma, and roux-limb length) and the appropriate interventions should be tailored to the individual patient's needs. (Evidence quality low; weak recommendation).

Laparoscopic pouch size revision carries significant morbidity and offers modest short-term and minimal long-term weight recidivism benefit for the patient. (Evidence quality low; weak recommendation).

31.5 Personal View on Data

The data reviewed in this manuscript demonstrates a lack of unity in both measuring and defining what entails a large pouch. The most commonly used modality for measuring pouch size, an upper gastro-intestinal contrast study, is dynamic over time in relation to pouch emptying time and has data to suggest poor inter-observer reliability. Historically, a smaller pouch has been considered to lead to greater weight loss and as such has been studied as a component of revisional bariatric surgery. However, one recent randomized controlled trial demonstrated that a larger pouch size was associated with greater weight loss [6]. The quality of the data evaluating the effect of pouch size on weight loss is additionally rather poor; only two randomized controlled trials are included in this manuscript, but they demonstrate conflicting evidence of pouch size on weight loss outcomes and the study finding reduction in pouch size beneficial for weight loss lacks practical applicability to the level of obesity currently treated in our population. Most of the remaining studies evaluated in this manuscript demonstrate a shorter follow-up and are mostly retrospective in design.

The included studies depicting pouch size revision all employed laparoscopic techniques and demonstrated a significant and fairly harmful morbidity rate [5, 7, 12]. This would suggest that revisional laparoscopic surgery for pouch size is prohibitive on two levels, the risk of harm for the patient, and the lack of effective long-term weight recidivism treatment.

Weight recidivism following RYGB is multi-faceted, which some of the data in this manuscript describes. Factors such as original BMI, duration from index RYGB, an enlarged pouch immediately following RYGB versus slowly enlarging over time, gastrojejunal stoma size, and psychological factors strongly influence weight loss outcomes following RYGB.

Gastrojejunal stoma size has been demonstrated as a strong independent risk factor for weight regain following RYGB [25–30] and was not controlled for in a majority of the studies included in this manuscript. In fact, two studies demonstrating an association between revision of pouch size and increased weight loss for weight recidivism also concurrently refashioned the GJ-stoma size, questioning the effect of pouch size revision on weight recidivism [5, 7].

31.6 Summarized Recommendations

Optimal pouch size for RYGB should either not exceed 10-20 cc in volume or be constructed in a narrow and elongated (10 cm length) fashion.

Poor weight loss (<50% EWL) or weight regain (>30% EWL from nadir) following RYGB should not be treated by laparoscopic pouch size revision due to increased morbidity and lack of successful long term (>24 month) outcomes.

Weight recidivism is more likely successfully treated by a multi-modal approach including behavioral, psychological, dietary, exercise and endoscopic measures to address gastrojejunal stoma size.

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