



WEBINAR SECONDA STAGIONE


S.I.C.OB.  Società Italiana di Chirurgia dell'Obesità
e delle malattie metaboliche

Inquadramento psicologico del paziente con weight regain

26 ottobre 2020

Maura Levi

Multimedica – Ospedale San Giuseppe (Milano)



Il 56% dei pazienti riacquista peso entro dieci anni dall'intervento bariatrico. Inoltre circa 1 paziente su 4 non riesce a raggiungere la perdita di peso media attesa e inizia a riprendere peso dopo il primo

- Freire RH, Borges MC, Alvarez-Leite JI, et al. : Food quality, physical activity, and nutritional follow-up as determinant of weight regain after Roux-en-Y gastric bypass. *Nutrition*. 2012;28(1):53–58.

Gli individui raggiungeranno il 20-30% della perdita di peso totale dopo uno o due anni dall'intervento, ma possono riguadagnare in media il 7% del loro peso corporeo totale nel corso di 10 anni 2, 5, 6.

- Courcoulas AP, Yanovski SZ, Bonds D, et al. : Long-term outcomes of bariatric surgery: a National Institutes of Health symposium. *JAMA Surg*. 2014;149(12):1323–1329. 10.1001/jamasurg.2014.244
- Sjöström L: Review of the key results from the Swedish Obese Subjects (SOS) trial - a prospective controlled intervention study of bariatric surgery. *J Intern Med*. 2013;273(3):219–234.

L'elevata prevalenza di recupero di peso dopo la chirurgia bariatrica ha portato a un aumento significativo della chirurgia bariatrica di revisione, che comporta un aumento del rischio chirurgico e degli esiti avversi per il paziente

- Brethauer SA, Kothari S, Sudan R, et al. : Systematic review on reoperative bariatric surgery: American Society for Metabolic and Bariatric Surgery Revision Task Force. *Surg Obes Relat Dis*.2014;10(5):952–72.

INDICAZIONI PER REDO-SURGERY

➤ 5,3% dei pazienti vengono sottoposti a Revisional surgery.

➤ Cause delle revisione:

➤ insuccesso nella perdita di peso (68,8%)

➤ complicanze della prima procedura (31,2%):

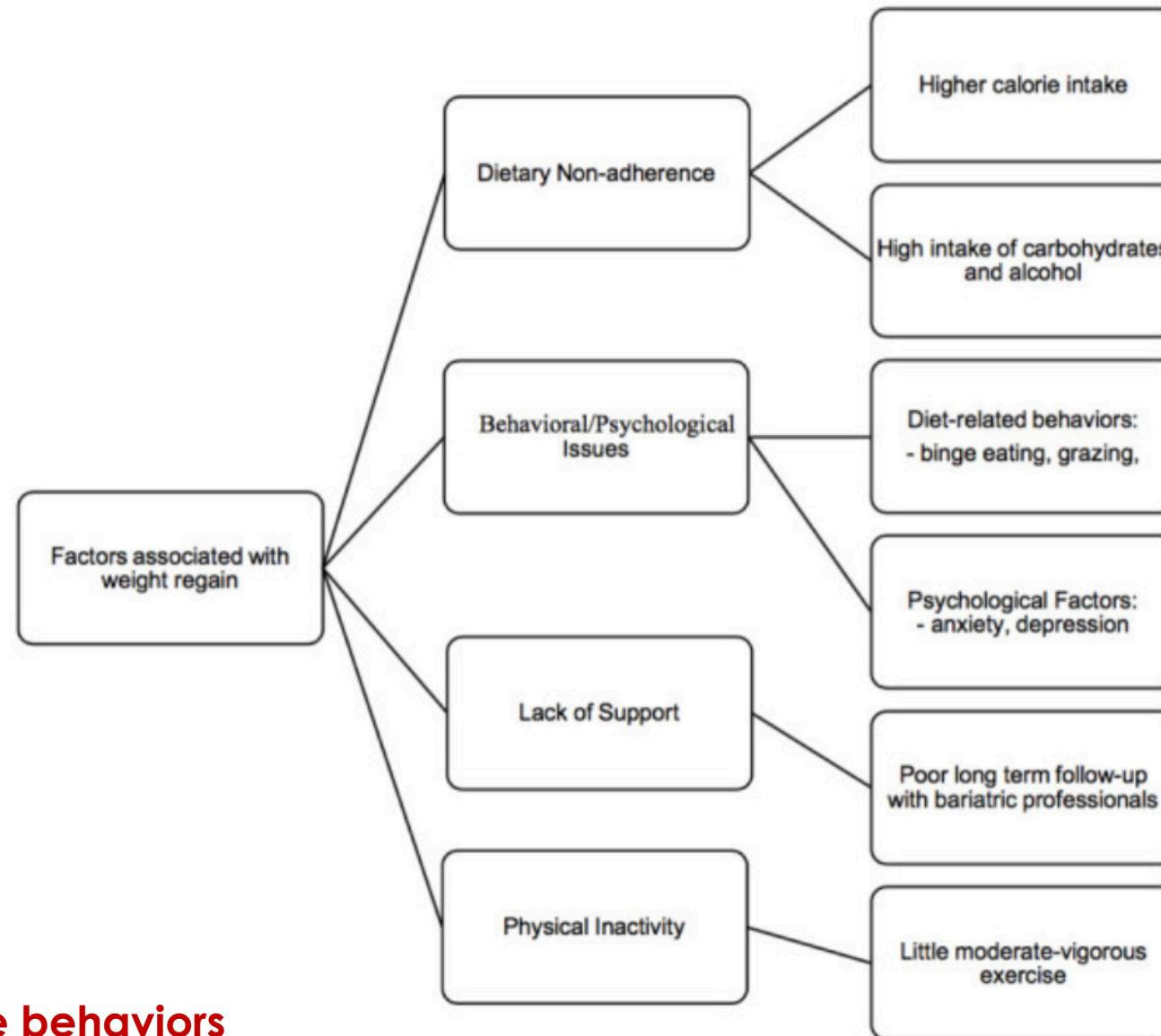
➤ Effetti collaterali intollerabili

➤ Complicanze mediche

➤ Severe complicanze metaboliche o nutrizionali

INTERVENTI DI NECESSITA'

Obes surgery 2013 Shimizu et al.



Modifiable behaviors

Kaouk L, Hsu AT, Tanuseputro P, Jessri M. Modifiable factors associated with weight regain after bariatric surgery: a scoping review. F1000Res. 2019 May 3;8:615.




Quali fattori psicologici sono correlati al recupero ponderale?



**Prevenzione del weight regain:
cosa fare e quando?**

Several thin, curved, light-colored lines on the left side of the slide, resembling stylized grass or abstract brushstrokes.



Prevenzione del weight regain: cosa fare e quando?

- In quale fase del percorso bariatrico si possono individuare i fattori correlati al recupero ponderale?
- In quale fase del percorso bariatrico il contributo dello psichiatra/psicoterapeuta può prevenire il recupero ponderale?
- Quali sono gli interventi che psichiatra/psicoterapeuta può attuare per prevenire il recupero ponderale?

Quali fattori psicologici sono correlati al recupero ponderale?

- La presenza di **Binge Eating Disorder** nel pre o nel post-intervento è correlata a una scarsa perdita di peso o al riacquisto del peso

Sallet PC, Sallet JA, Dixon JB, et al. Eating behavior as a prognostic factor for weight loss after gastric bypass. *Obes Surg* 2007;17:445-51

- La presenza di **comportamenti alimentari compulsivi binge** (che non rispondono a tutti i criteri del BED) o di **grazing e nibbling**

Sheets CS, Peat CM, Berg KC, White EK, Bocchieri-Ricciardi L, Chen EY, Mitchell JE. Post-operative psychosocial predictors of outcome in bariatric surgery. *Obes Surg*. 2015 Feb;25(2):330-45. doi: 10.1007/s11695-014-1490-9

- La presenza di **ansia e depressione** in diversi studi di follow-up è correlata a una minor perdita di peso

de Zwaan, M., Enderle, J., Wagner, S., Mühlhans, B., Ditzen, B., Gefeller, O., et al. (2011). Anxiety and depression in bariatric surgery patients: A prospective, follow-up study using structured clinical interviews. *Journal of Affective Disorders*, 133, 61-68

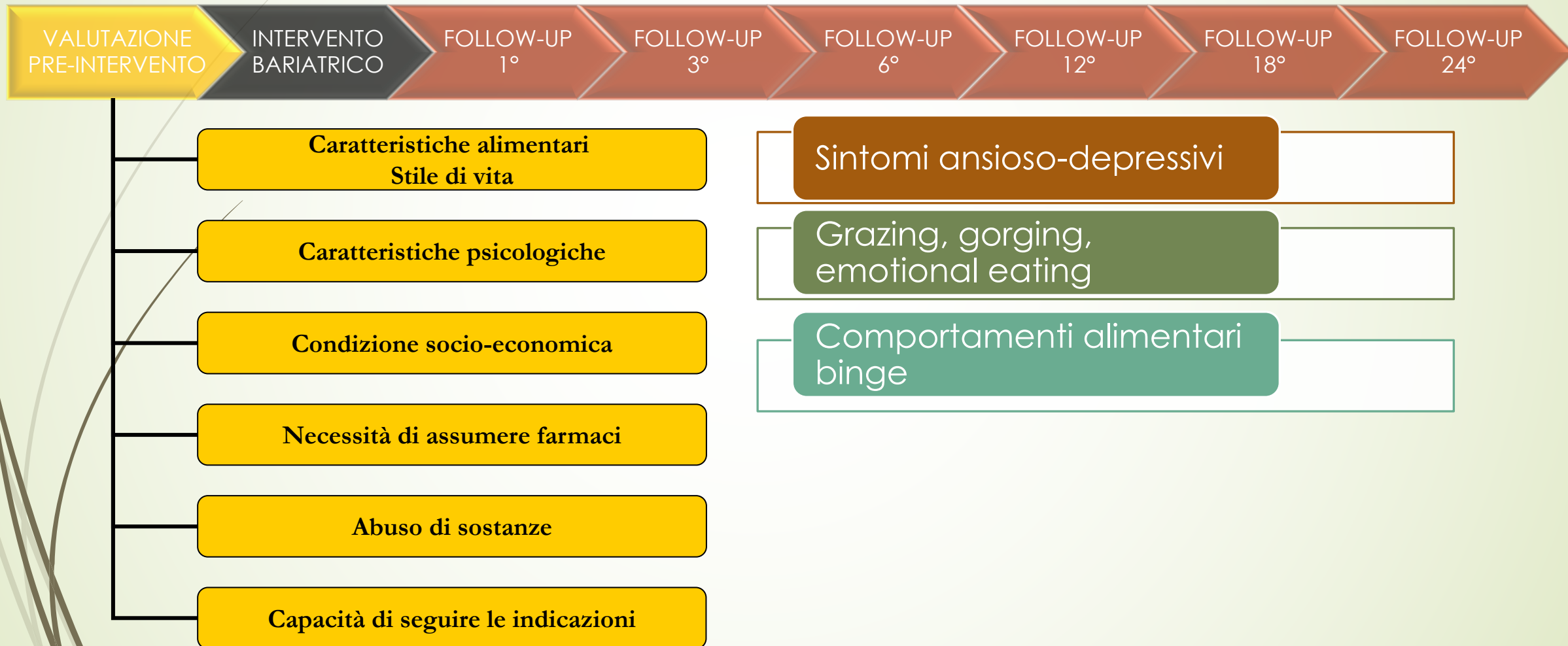
- **L'insoddisfazione dell'immagine corporea** è correlata l'assunzione incontrollata di cibo e quindi a un recupero ponderale.

Micanti F, Iasevoli F, Cucciniello C, Costabile R, Loiarro G, Pecoraro G, Pasanisi F, Rossetti G, Galletta D. The relationship between emotional regulation and eating behaviour: a multidimensional analysis of obesity psychopathology. *Eat Weight Disord*. 2016 Apr 11.

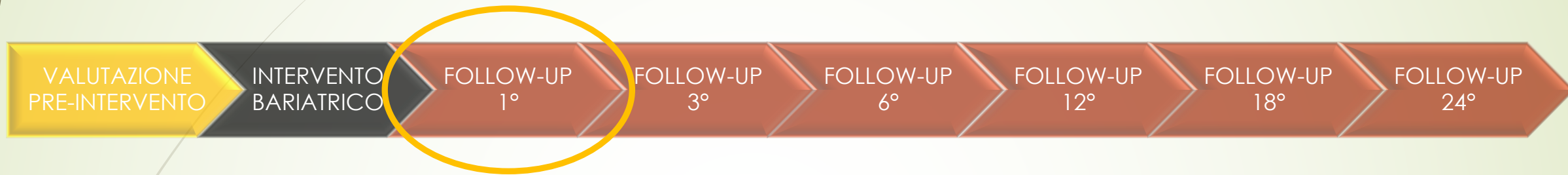
- **L'abuso di alcol e abuso di sostanza** è correlato a un recupero di peso nel post-operatorio.

Beck NN, Johannsen M, Støving RK, Mehlsen M, Zachariae R. Do postoperative psychotherapeutic interventions and support groups influence weight loss following bariatric surgery? A systematic review and meta-analysis of randomized and nonrandomized trials. *Obes Surg*. 2012 Nov;22(11):1790-7

In quale fase del percorso bariatrico si possono individuare i fattori correlati al recupero ponderale?



In quale fase del percorso bariatrico si possono individuare i fattori correlati al recupero ponderale?



Problemi legati al post-chirurgico

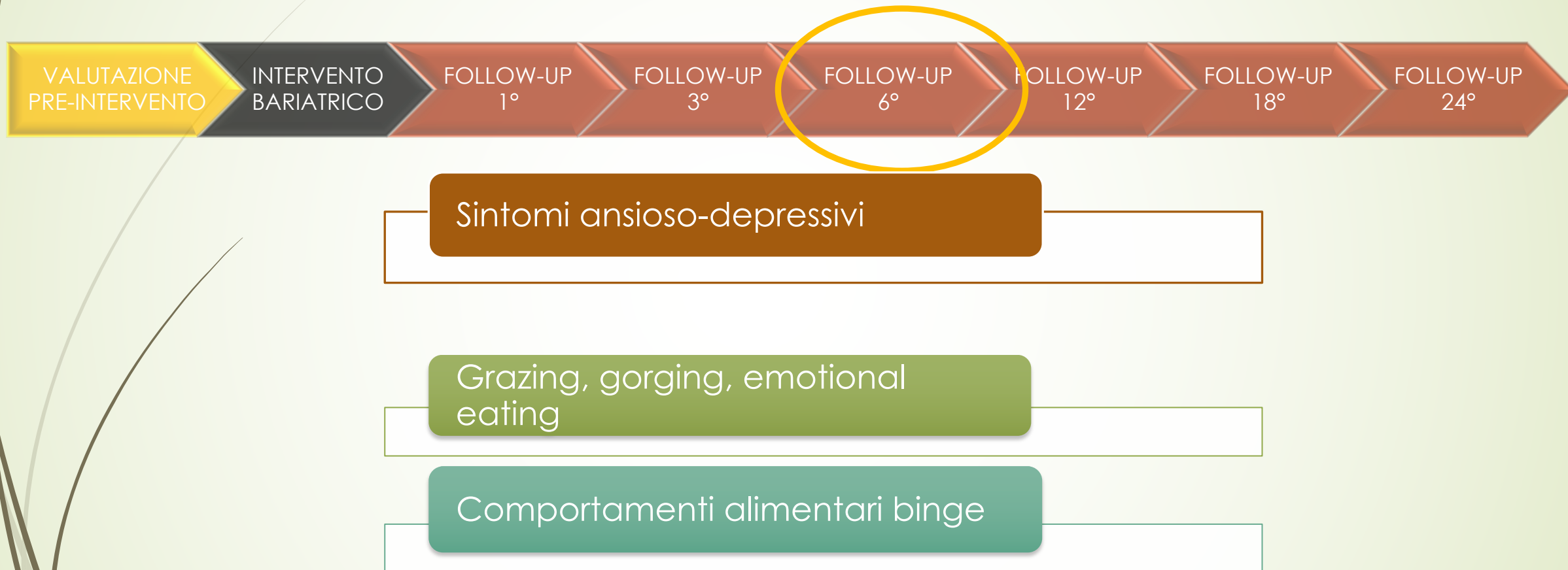
Adattamento al nuovo stile di vita

Sintomi ansioso-depressivi

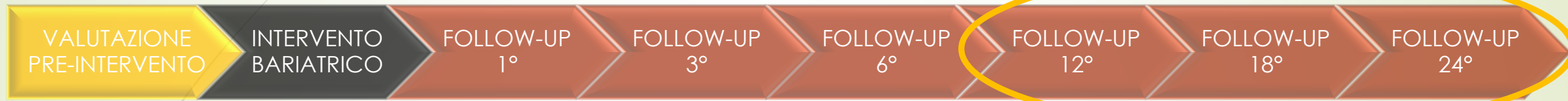
In quale fase del percorso bariatrico si possono individuare i fattori correlati al recupero ponderale?



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In quale fase del percorso bariatrico si possono individuare i fattori correlati al recupero ponderale?



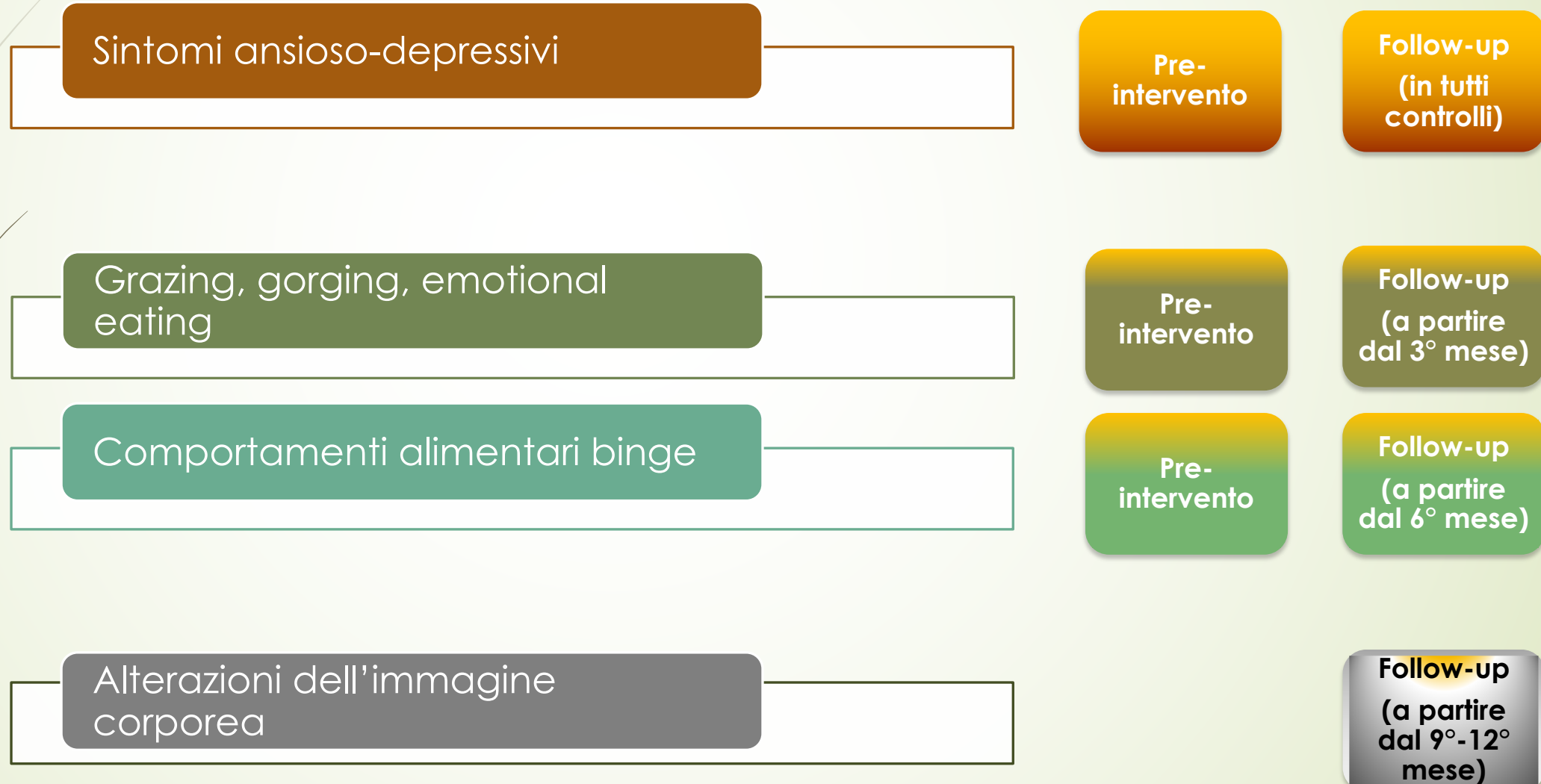
Sintomi ansioso-depressivi

Grazing, gorging, emotional eating

Comportamenti alimentari binge

Alterazioni dell'immagine corporea

In quale fase del percorso bariatrico il contributo dello psichiatra/psicoterapeuta può prevenire il recupero ponderale?



Quali sono gli interventi che psichiatra/psicoterapeuta può attuare per prevenire il recupero ponderale?

Sintomi ansioso-depressivi

PSICOTERAPIA INDIVIDUALE
E/O
TERAPIA PSICOFARMACOLOGICA

Grazing, gorging, emotional eating


PSICOTERAPIA INDIVIDUALE O DI GRUPPO
SUPPORTO
PSICOLOGICO/PSICOEDUCAZIONALE

Comportamenti alimentari binge

PSICOTERAPIA INDIVIDUALE O DI GRUPPO
E/O
TERAPIA PSICOFARMACOLOGICA

Alterazioni dell'immagine corporea

PSICOTERAPIA INDIVIDUALE O DI GRUPPO



Quali fattori psicologici sono correlati al recupero ponderale?



?

Quali fattori psicologici sono correlati al recupero ponderale?

DROP OUT

VALUTAZIONE PRE-INTERVENTO

INTERVENTO BARIATRICO

FOLLOW-UP 1°

FOLLOW-UP 3°

FOLLOW-UP 6°

FOLLOW-UP 12°

FOLLOW-UP 18°

FOLLOW-UP 24°

PERCORSO BARIATRICO

CONCLUSIONI

- Il weight regain è un fattore estremamente frequente tra i soggetti sottoposti a interventi bariatrici, e rappresenta un'importante causa di redo-surgery.
- Tra le cause che possono indurre il weight regain i fattori psicologici hanno un ruolo di grande importanza.
- I fattori psicologici implicati nel weight regain devono essere individuati nel percorso bariatrico che va dal pre al post intervento.
- L'individuazione di questi fattori di rischio e il trattamento adeguato possono prevenire il recupero di peso, favorire il successo terapeutico e ridurre il rischi di una redo-surgery
- Un adeguato supporto psicoterapeutico nel pre e nel post chirurgico può ridurre il rischio di scarsa aderenza al trattamento e di drop-out, che spesso è correlato a weight regain



Gracie



WEBINAR
SECONDA
STAGIONE

S.I.C.OB. Società Italiana di Chirurgia dell'Obesità
e delle malattie metaboliche



STUDIO NUTRIZIONALE DEL PAZIENTE CON WEIGHT REGAIN

Farnaz Rahimi

SC di Dietetica e Nutrizione Clinica

Città della Salute e della Scienza di Torino

Responsabile del Centro di Eccellenza per la cura
dell'obesità Ospedale Molinette (SIO-SICOB)

Definizioni

Bariatric failure

- Non vi sono linee guida chiare che definiscono l'insuccesso della chirurgia bariatrica
- Inadeguata perdita di peso, weight regain e/o inadeguata risoluzione delle comorbidità, rappresentano un fallimento

Definizioni

Successo terapia dell'obesità

> 50% della perdita dell'eccesso di peso (%EWL) a 18 mesi e una ragionevole risoluzione delle comorbidità

Definizioni

Controversies in bariatric surgery

Weight regain after bariatric surgery—how should it be defined?

Marius Nedelcu, M.D.^{a,*}, Haris A. Khwaja, M.D., D.Phil. (Oxon), F.R.C.S. (Eng)^b,
Tomasz G. Rogula, M.D., Ph.D.^c

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Received April 26, 2016; accepted April 26, 2016

Weight regain

- Re-incremento ponderale successivo ad una iniziale perdita di peso
- Un incremento > 10 kg dal peso minimo raggiunto (Nadir)
- Un incremento del BMI $> 5\text{kg/m}^2$ superiore al minimo BMI raggiunto

Definizioni

Il weight regain (WR) è un problema importante post chirurgia bariatrica ed è considerato come una complicanza a lungo termine, perché può portare alla ricomparsa di comorbidità correlate all'obesità e compromettere la qualità della vita.

Epidemiologia

20-30% dei pazienti presenta un weight regain dopo 2 anni; la media del WR è $< 30\%$ dopo il raggiungimento del peso minimo.

A 10 anni la perdita di peso è $> 50\%$ del peso totale perso

Epidemiologia

Original article

Three-year weight outcomes from a bariatric surgery registry in a large integrated healthcare system

Karen J. Coleman, Ph.D.^{a,*}, Yii-Chieh Huang, M.S.^a, Fadi Hendeel, M.D.^b,
Heather L. Watson, M.B.A.^c, Robert A. Casillas, M.D.^d, John Brookey, M.D.^e

^a*Department of Research and Evaluation, Southern California Permanente Medical Group, Pasadena, California*

^b*South Bay Medical Center, Department of Endocrinology, Southern California Permanente Medical Group, Harbor City, California*

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Received March 27, 2013; accepted February 6, 2014

Epidemiologia

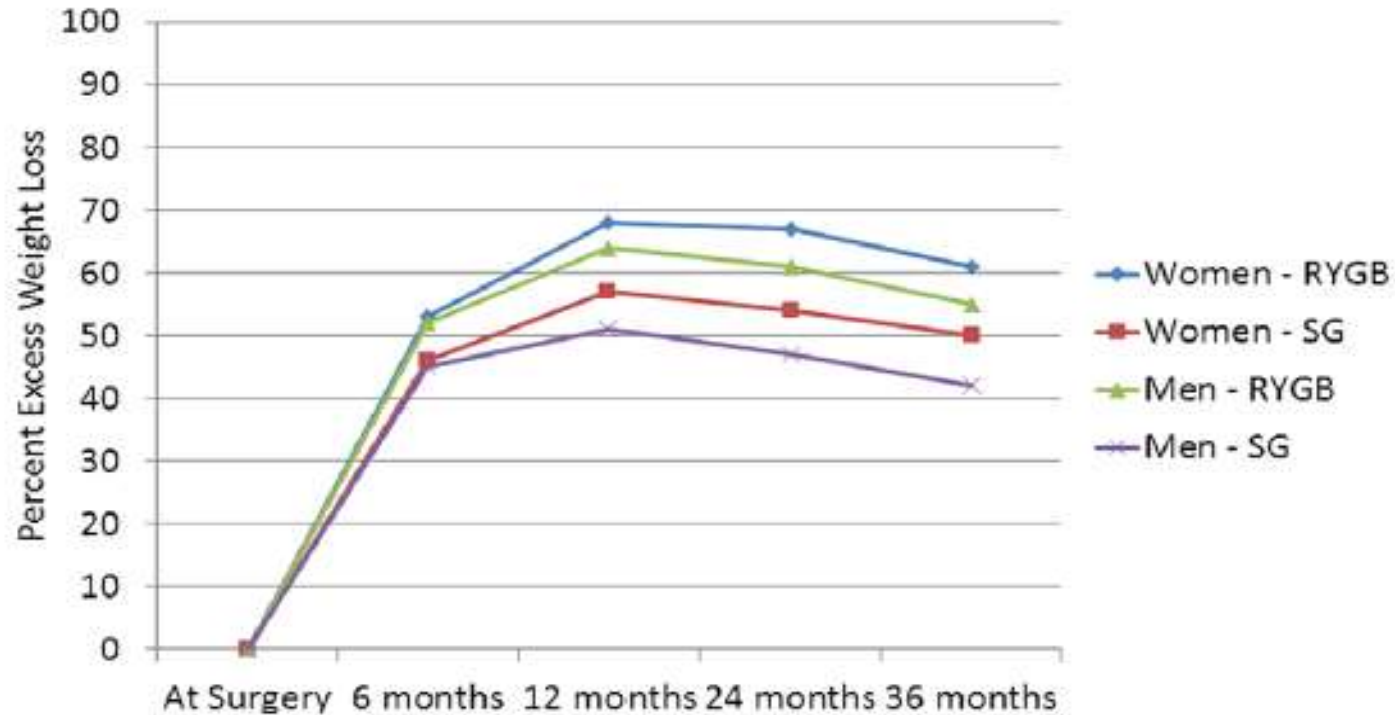


Fig. 1. Percent excess weight loss by gender (women and men) and procedure (Roux-en-Y gastric bypass [RYGB] and vertical sleeve gastrectomy [SG]). Three-year rates of missing weight were as follows: RYGB women 20%, RYGB men 28%, SG women 18%, and SG men 28%.

Epidemiologia

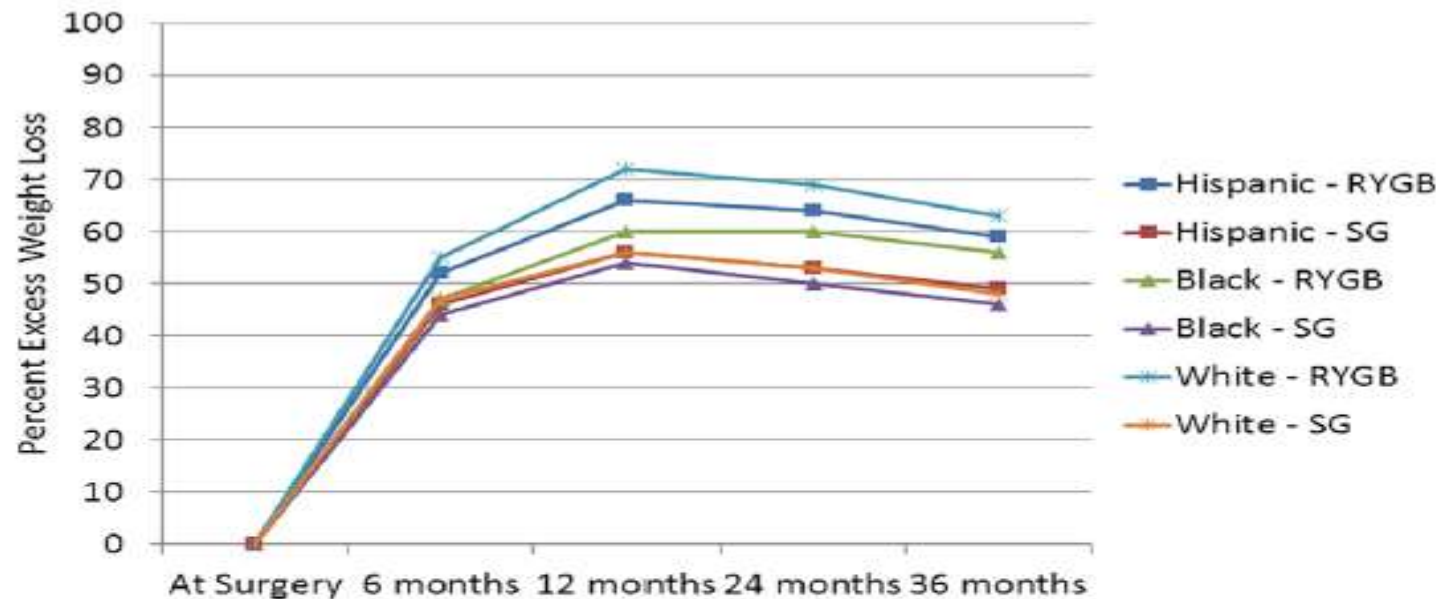


Fig. 2. Percent excess weight loss by race/ethnicity (non-Hispanic black and white and Hispanic) and procedure (Roux-en-Y gastric bypass [RYGB] and vertical sleeve gastrectomy [SG]). Three-year rates of missing weight were as follows: RYGB non-Hispanic white 22%, RYGB Hispanic 22%, RYGB non-Hispanic black 19%, SG non-Hispanic white 21%, SG Hispanic 23%, and SG non-Hispanic black 17%.

Epidemiologia

- ◆ 497 RYGB patients: 81% MAX EWL → 70% EWL 3-10 yrs after surgery (mean 4.2 yrs)

Table 3 % Excess weight loss (EWL) regained postgastric bypass surgery (N = 497)

Reported EWL regain	Participants
≤0%	14% (n = 69)
>0 to <10%	39% (n = 194)
≥10 to <20%	33% (n = 164)
≥20 to <30%	8% (n = 39)
≥30 to <40%	4% (n = 20)
≥40 to <50%	<1% (n = 5)
≥50%	1% (n = 6)

Meccanismo eziopatogenetico

Patient related	Dietary non-compliance	<ul style="list-style-type: none"> • Poor diet quality • Inappropriate food choices • Lack of nutritional counseling
	Mental health disorder	<ul style="list-style-type: none"> • Binge eating • Grazing behaviours
	Physical inactivity	
	Hormonal / metabolic	<ul style="list-style-type: none"> • Ghrelin • Glucose homeostasis
Surgery related	Adjustable gastric banding	<ul style="list-style-type: none"> • Pouch distension • Band removal
	Roux-en-Y bypass	<ul style="list-style-type: none"> • Stoma dilatation • Pouch dilatation • Gastro-gastric fistulae
	Sleeve gastrectomy	<ul style="list-style-type: none"> • Sleeve dilatation

Meccanismo eziopatogenetico

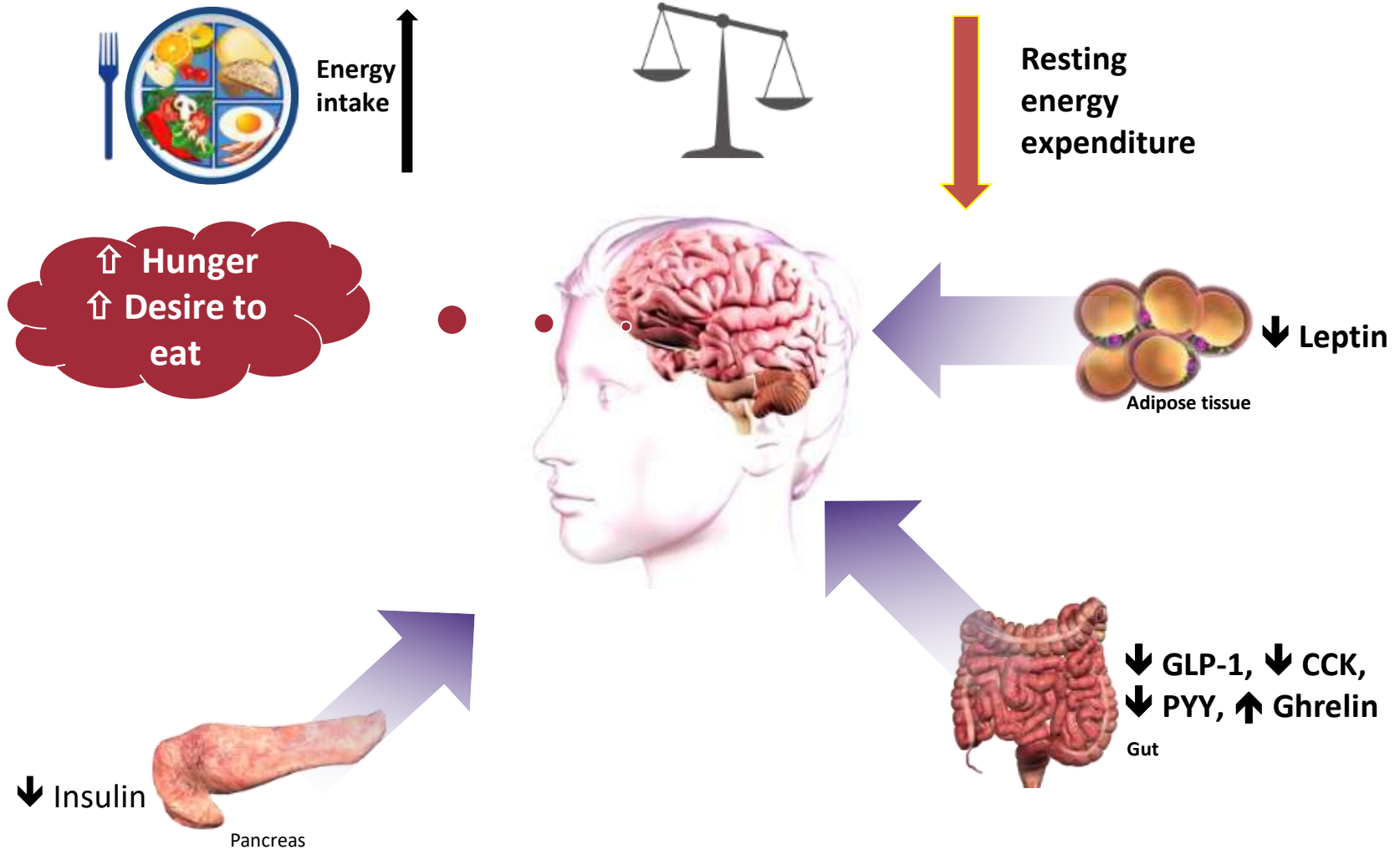
Anatomical complications

pouch enlargement,
anastomotic dilatation, and
staple line breakdown

Medical conditions

pregnancy, menopause,
reactive hypoglycemia,
hypothyroidism, hormonal
adaptation, and chronic
gastroesophageal reflux
disease

Meccanismo eziopatogenetico



Meccanismo eziopatogenetico

Gastro-intestinal hormones and their regulation of food intake

Table 3 Variations in the levels of gastrointestinal hormones after bariatric surgery procedures

<i>Hormone</i>	<i>LAGB</i>	<i>LSG</i>	<i>RYGB</i>
<i>Anorexigenic factors</i>			
Cholecystokinin (CCK)	?	↑↑	↑
Glucagon-like peptide 1 (GLP-1)	=↑	↑	↑↑
Oxyntomodulin (OXM)	?	?	↑
Pancreatic polypeptide (PP)	=	?	?
Peptide YY (PYY)	↑	↑	↑
<i>Orexigenic factors</i>			
Ghrelin	=	↓↓	↓

LAGB: Laparoscopic adjustable gastric banding; LSG: sleeve gastrectomy; RYGB: Roux-en-Y gastric bypass.

Meccanismo eziopatogenetico

Modifications of Resting Energy Expenditure After Sleeve Gastrectomy

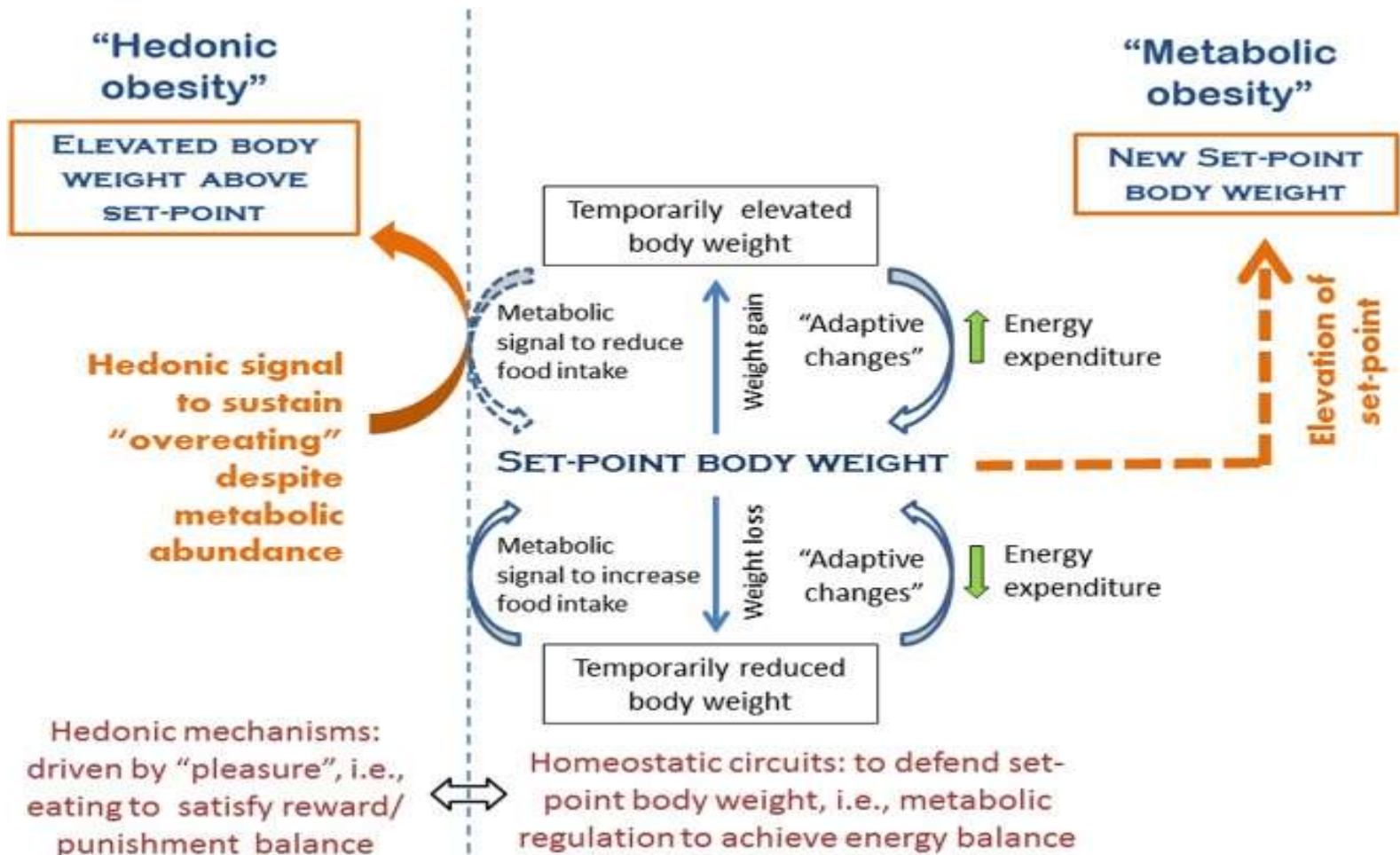
Table 2 Body composition and resting energy expenditure before and 12 months after the procedure in 154 obese patients (98 female and 56 male) treated with laparoscopic sleeve gastrectomy

	Before	After	Delta%
Weight (kg)	127.6 ± 26.0	89.0 ± 21.2***	-29.8 ± 10.6
FFM (kg)	69.8 ± 16.8	59.7 ± 13.2***	-13.7 ± 9.9
FM (kg)	54.7 ± 15.1	29.5 ± 12.6***	-44.5 ± 22.8
REE (kcal)	1980 ± 483	1410 ± 312***	-27.3 ± 12.9
REE per weight unit (kcal/kg)	15.5 ± 2.3	16.9 ± 12.3	+10.7 ± 85.1
REE per FFM unit (kcal/kg)	28.6 ± 4.7	23.9 ± 4.3***	-14.9 ± 16.2

Paired Student's *t* test before vs after: **P* < 0.05; ***P* < 0.01; ****P* < 0.001

FFM, fat-free mass; *FM*, fat mass; *REE*, resting energy expenditure

Metabolic vs. hedonic obesity: a conceptual distinction and its clinical implications





What predicts the unsuccessful of bariatric surgery? An observational retrospective study

C. D'Eusebio¹ · S. Boschetti² · F. Rahimi² · G. Fanni¹ · A. De Francesco² · M. Toppino³ · M. Morino³ · E. Ghigo¹ · S. Bo¹ 

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Conclusion older age, larger neck circumference, and %EWL at 6-months were significantly associated with BS un-success, showing almost 90% of those patients an unsuccessful weight-loss early after surgery. Further larger studies with longer follow-up are needed to control these results.

Meccanismo eziopatogenetico

Risk Factors for Weight Regain After Bariatric Surgery

- Unrealistic expectations of surgical outcomes (“magic bullet” theory)
- Lack of commitment to necessary lifestyle change: meal planning, food selection, physical activity, support groups
- Nonadherence to nutrition recommendations (protein, fluid, micronutrient supplementation)
- Sedentary lifestyle
- Lack of postoperative follow-up with MD and RD
- Uncontrolled or untreated behavioral health conditions, or drug/alcohol abuse
- Inadequate support or strong disapproval from person of significance regarding the choice to have surgery
- Maladaptive eating: mindless eating, soft food syndrome, grazing, skipping meals, night eating, and/or consistent dietary indiscretions

— SOURCE: SORENSEN KW, HERRINGTON H, KUSHNER RF. NUTRITION AND WEIGHT REGAIN IN THE BARIATRIC SURGICAL PATIENT. IN: KUSHNER RF, STILL CD, EDS. *NUTRITION AND BARIATRIC SURGERY*. 1ST ED. BOCA RATON, FL: CRC PRESS; 2015:265-279.

SOLUZIONI TERAPEUTICHE



La chiave per la prevenzione del WR è la costante educazione e la presa in carico del paziente pre e post chirurgia bariatrica.

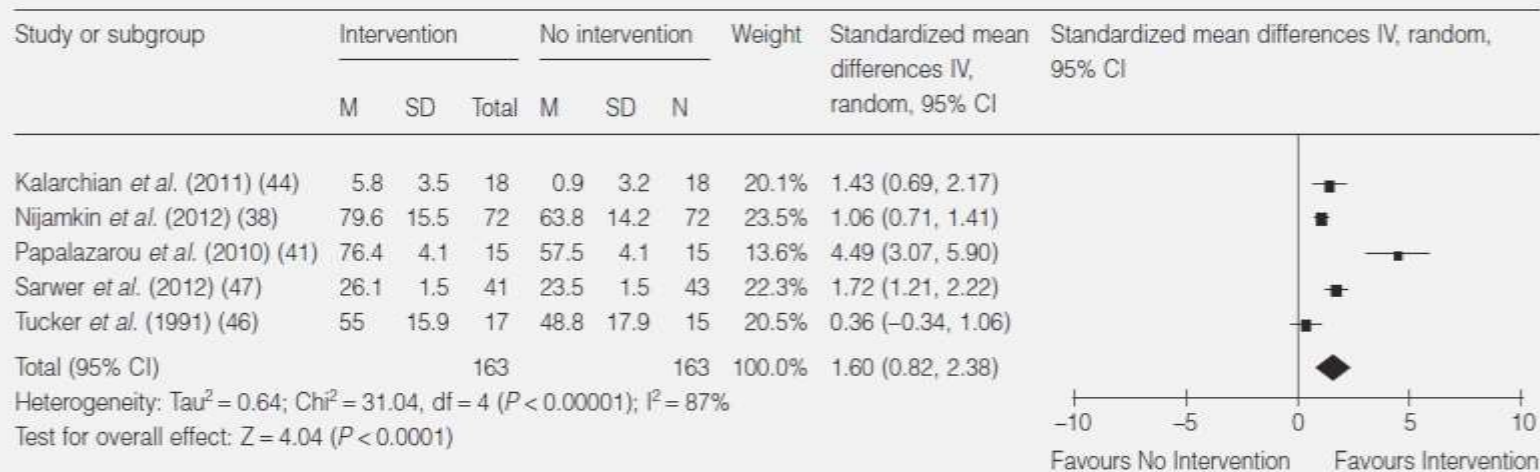
Il loro successo terapeutico deve essere supportato da un nuovo stile di vita attraverso un'adeguata nutrizione ed esercizio fisico ed equilibrio psicologico per poter sostenere il mantenimento del calo ponderale.

SOLUZIONI TERAPEUTICHE

Post BS weight regain management: lifestyle & behaviour

Post-operative behavioural management in bariatric surgery: a systematic review and meta-analysis of randomized controlled trials

Table 3 Forest plot of standardized mean differences in a random-effects model for percentage of excess weight loss in treatment and control group patients 6–12 months after start of the intervention

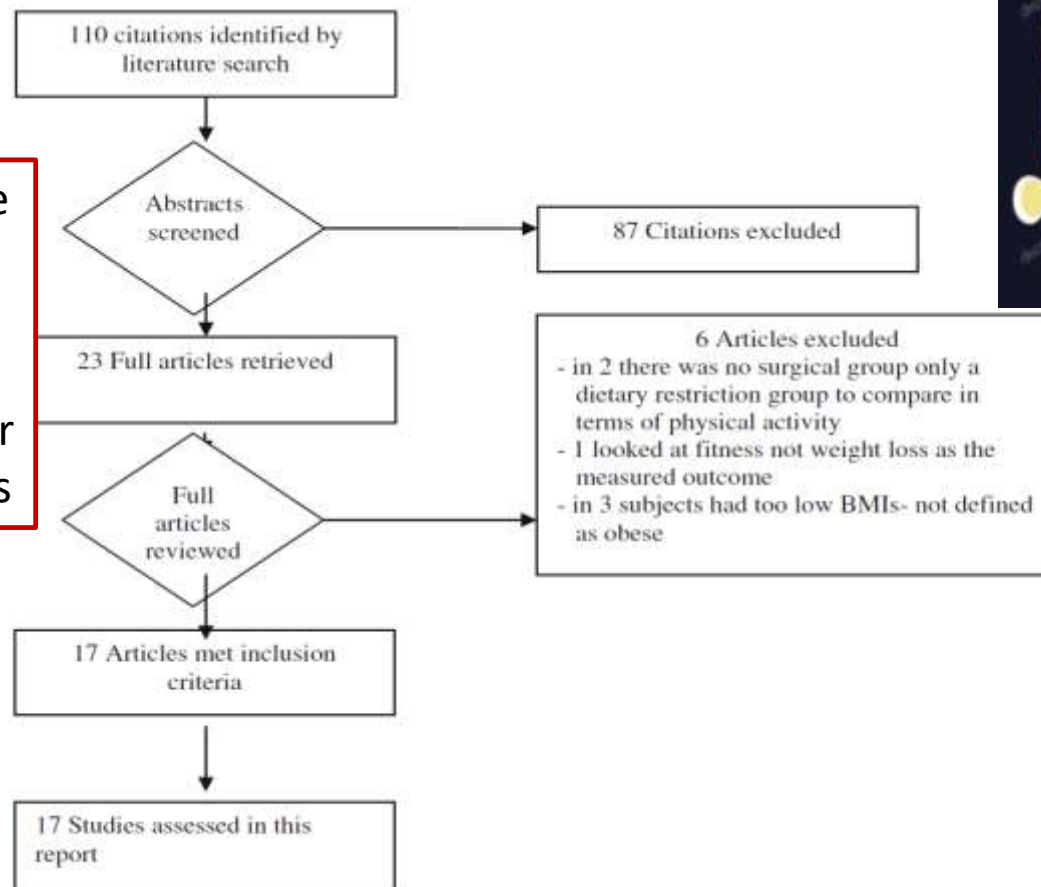


CI, confidence interval; df, degrees of freedom; M, mean; N, number of patients; SD, standard deviation.

SOLUZIONI TERAPEUTICHE

Post BS weight regain management: lifestyle & behaviour

Does exercise improve weight loss after bariatric surgery? A systematic review



There was a positive relationship between increased exercise and weight loss after surgery in 15 studies



SOLUZIONI TERAPEUTICHE

Post BS weight regain management: lifestyle & behaviour

Does exercise improve weight loss after bariatric surgery? A systematic review

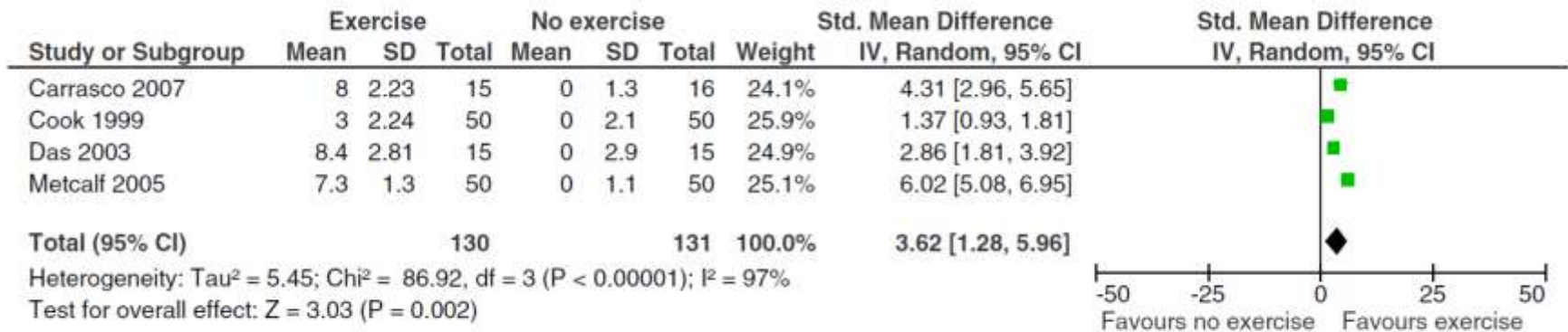


Fig. 2 Forest plot of standardised mean difference at 6 months for weight loss (kg) in exercising and non-exercising patients

QUALE APPROCCIO?

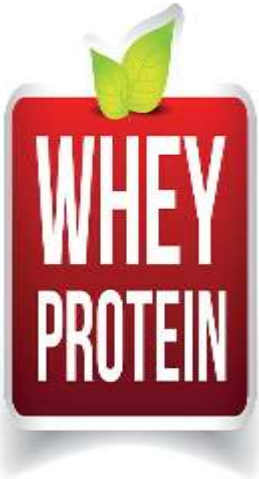
Whey Protein Supplementation Enhances Body Fat and Weight Loss in Women Long After Bariatric Surgery: a Randomized Controlled Trial

Daniela Lopes Gomes ¹, Milene Moehlecke ², Fernanda Bassan Lopes da Silva ³, Eliane Said Dutra ³, Beatriz D'Agord Schaan ², Kenia Mara Baiocchi de Carvalho ³

Affiliations + expand

PMID: 27885532 DOI: [10.1007/s11695-016-2308-8](https://doi.org/10.1007/s11695-016-2308-8)

Conclusions: Whey protein supplementation promoted body weight and FM loss in women with long-term weight regain following RYGB.



QUALE APPROCCIO?

> [Obes Surg](#). 2016 Jul;26(7):1443-7. doi: 10.1007/s11695-015-1963-5.

Resting Energy Expenditure and Body Composition of Women with Weight Regain 24 Months After Bariatric Surgery

Daniela Lopes Gomes ¹, Dyanara de Almeida Oliveira ², Eliane Said Dutra ², Nathalia Pizato ², Kênia Mara Baiocchi de Carvalho ²

Affiliations + expand

PMID: 26593969 DOI: 10.1007/s11695-015-1963-5

Conclusions: Female bariatric patients with weight regain and no protein supplementation lose fat-free mass, lowering their REE. Health practices that promote maintenance of BMI and body composition may lead to improved outcomes of bariatric surgery.

QUALE APPROCCIO?

Reviews in Endocrine and Metabolic Disorders (2020) 21:297–306
<https://doi.org/10.1007/s11154-020-09571-8>

Diet approach before and after bariatric surgery

Silvia Bettini¹ · Anna Belligoli¹ · Roberto Fabris¹ · Luca Busetto^{1,2}

Published online: 31 July 2020

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3.3 Protein Intake and Protein Supplementation

Weight loss in the first months after BS is rapid and it may be associated to a significant unintended loss of fat-free mass and muscle mass [44]. Sufficient protein intake is considered protective against the loss of lean body mass during rapid weight loss, but protein intake is frequently and substantially reduced after BS, particularly in the first months after the procedure, mostly because of the gastric intolerance to protein-rich foods [4]. Current guidelines recommend a minimal target for protein intake after BS of 60 g/day and up to 1.5 g/kg ideal body weight per day [3], but higher amounts of protein intake (up to 2.1 g/kg ideal body weight per day) may be required in individual cases [11]. Considering the difficulties in reaching these demanding targets with natural foods only, the use of liquid protein supplements (30 g/d) is suggested as a mean for facilitating adequate protein intake in the first months after BS [3].

TRY TO AVOID INTAKE

High saturated and trans fats and cholesterol foods
High sugar foods
Carbonated and/or alcoholic beverages

CONTROL INTAKE

Servings : 2/day

Cereals: rice, pasta: 90 gr*; breakfast cereals, bread and toast: 30 gr.

Legumes: lentils, peas, black and white beans, soybean: 80 gr*.

Tubers: patate, sweet potato: 85 gr*.

* cooked weight

PREFERENT INTAKE

Servings: 2-3/day of each food group

Fruit: • **Low sugar fresh fruit:** (melon, water melon, strawberry, grapefruit, apple, orange, etc): 140 gr.

• **High sugar fresh fruit:** (grapes, apricot, banana, cherry, nectarine, medlar, lychee): 70 gr.

Vegetal oil: (preferably olive oil): 1 teaspoon

All types vegetables: 85 gr.

PREFERENT INTAKE

Servings: 4-6/ day

Low fat meat: chicken, beef, pork: 60 gr.

Fish: blue: 60 gr.; white: 85 gr.

Low fat or fat free dairy products:

hard cheese: 50 gr., soft cheese: 80 gr.,

milk: 140 gr., yoghurt: 115 gr.

Legumes: lentils, peas, black and white beans, soybean: 80 gr*

Eggs: 1 large: 50 gr.

* cooked weight

DON'T FORGET EVERY DAY

Daily nutritional supplements:

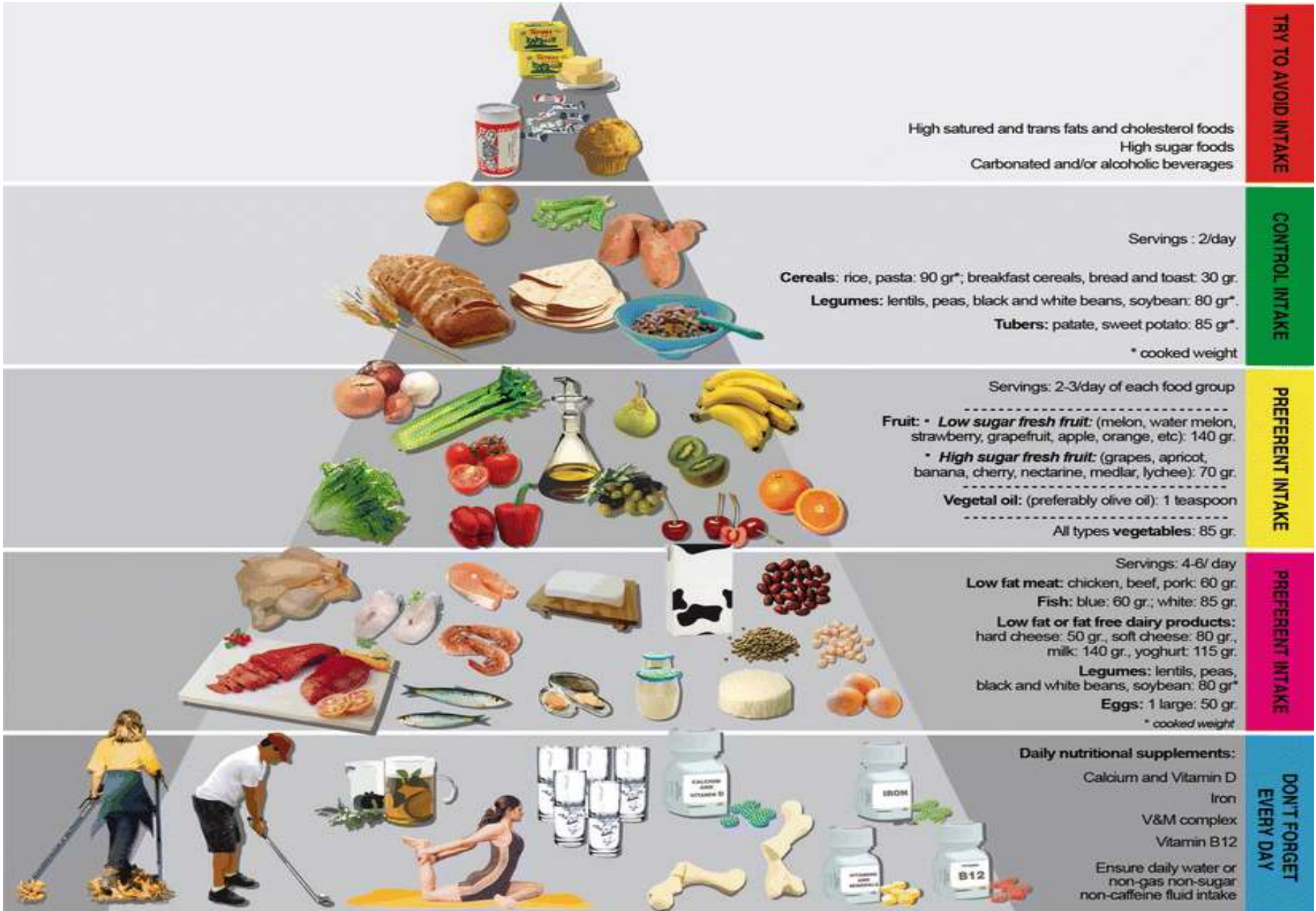
Calcium and Vitamin D

Iron

V&M complex

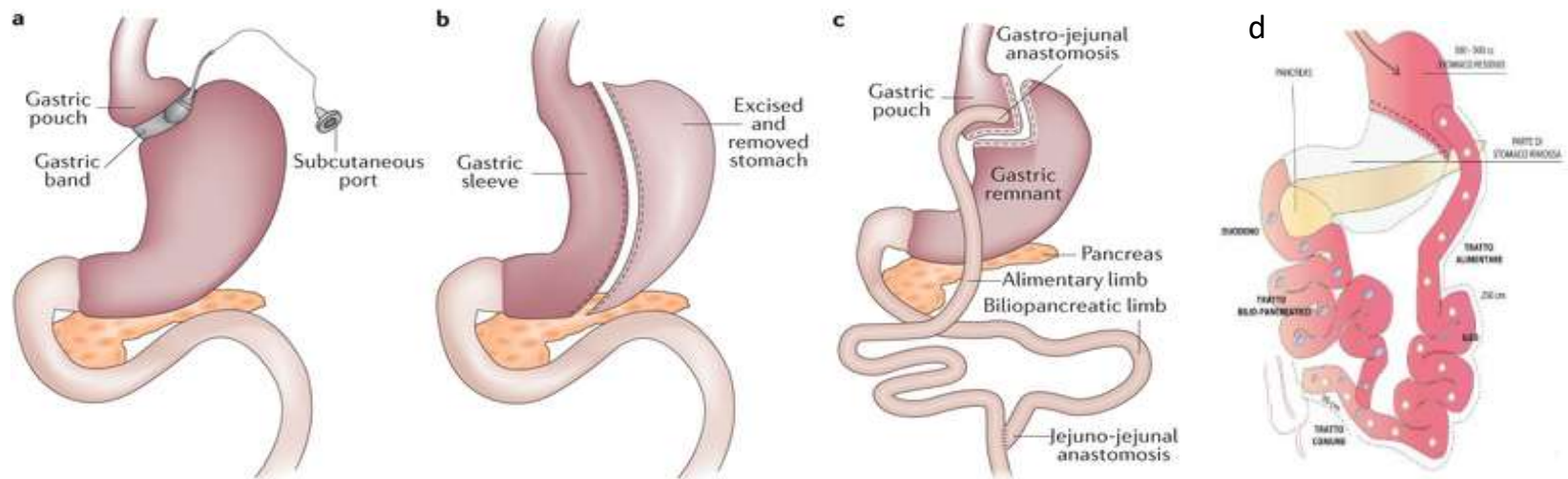
Vitamin B12

Ensure daily water or non-gas non-sugar non-caffeine fluid intake



The surgical treatment of severe obesity

Operations differences



Nature Reviews | Gastroenterology & Hepatology

more aggressive nutritional surveillance


Major intestinal anatomical differences between the various bariatric operations (Fujioka 2011)

Multivitaminici in commercio

	ZINC (mg)	SELENIUM (mcg)	VIT A (mcg)	VIT E (mg)	FOLIC (mg)	IRON (mg)	CALCIUM (mg)	VIT D (UI)	Vit.B12 mcg
MULTICENTRUM Integratore	5	30	800	15	0,2	5	51	400	2,5
SUPRADYN Integratore	0,5	0,0	999	10	0,0	10	162	400	5
PROVISION-EAT Integratore	10	30	0	12	0,4	30	400	400	
BARIATRIC (AFMS)	10	55	800	12	0,4	30	0,0	1000	500
BARIATRIFAST cps/bustine (AFMS)	10	55	1200	100	0,4	65	0,0	7000	500
FIT FOR ME Integratore	15	55	600	24	0,6	21	0,0	600	500
BARILIFE Integratore	12,5	83	1200	60	0.4	0	0	250	500



Pre-operative micronutrient deficiencies in patients with severe obesity candidates for bariatric surgery

M. Pellegrini¹ · F. Rahimi² · S. Boschetti² · A. Devecchi¹ · A. De Francesco² · M. V. Mancino² · M. Toppino³ · M. Morino³ · G. Fanni¹ · V. Ponzio¹ · E. Marzola⁴ · G. Abbate Daga⁴ · F. Broglio^{1,5} · E. Ghigo^{1,5} · S. Bo^{1,5} 

Received: 12 July 2020 / Accepted: 28 September 2020
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Conclusion Micronutrient deficiencies are common in patients with severe obesity undergoing BS, especially when inflammation is present. In the presence of increased CRP values before surgery, it might be advisable to search for possible multiple micronutrient deficiencies.

QUALE APPROCCIO?

Controlled Clinical Trial > [Obes Surg. 2019 Jan;29\(1\):292-296. doi: 10.1007/s11695-018-3523-2.](#)

Pre-
(VLCK
Impac

gical

**Non ci sono studi sull'utilizzo della dieta VLCKD dopo la
chirurgia bariatrica**

Alice Alban

Affiliations

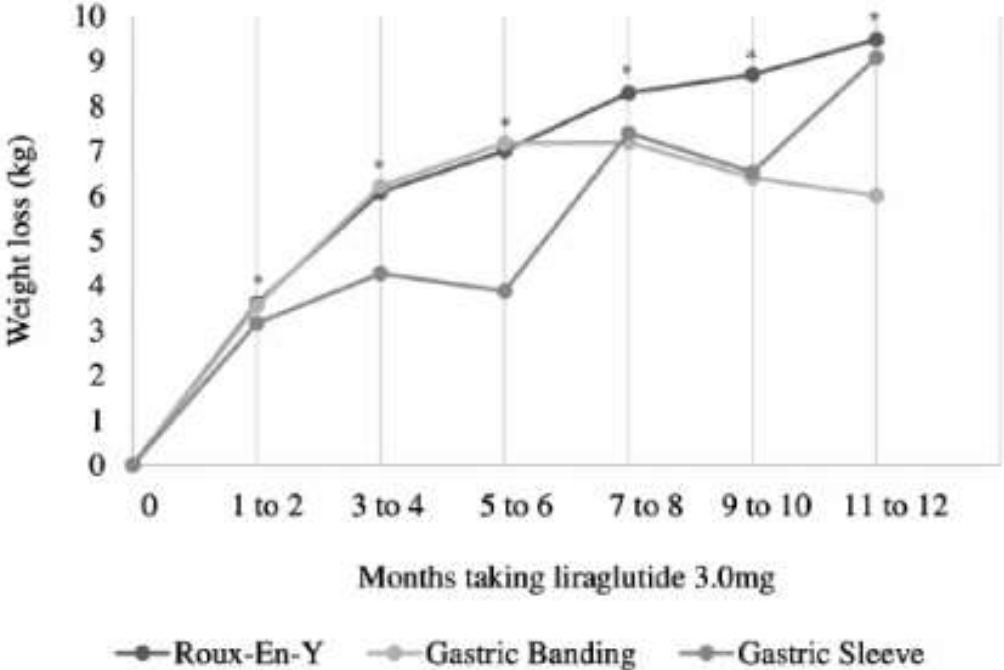
PMID: 3025

QUALE APPROCCIO?



Weight loss medications.—We evaluated 15 medications that are prescribed by obesity medicine physicians within our centers, which include: 1) phentermine, 2) topiramate, 3) zonisamide, 4) metformin, 5) bupropion, 6) orlistat, 7) sibutramine, 8) liraglutide, 9) exenatide, 10) pramlintide, 11) naltrexone, 12) lorcaserin, 13) phentermine/topiramate, 14) canagliflozin, and 15) bupropion/naltrexone. Of the medications evaluated, some have received U.S. Food and Drug Administration approval for short-term (i.e., phentermine) or long-term use (i.e., phentermine/topiramate, lorcaserin, bupropion/naltrexone, liraglutide, and orlistat) for weight loss while others were used off-label (i.e., topiramate, zonisamide, metformin, bupropion, exenatide, pramlintide, naltrexone, and canagliflozin). While sibutramine was withdrawn from the market in October 2010, we included this drug in our study as its approval corresponded with a portion of our study period.

Liraglutide 3.0 mg for the management of insufficient weight loss or excessive weight regain post-bariatric surgery



*Significantly different from baseline regardless of surgical group (P<0.05)

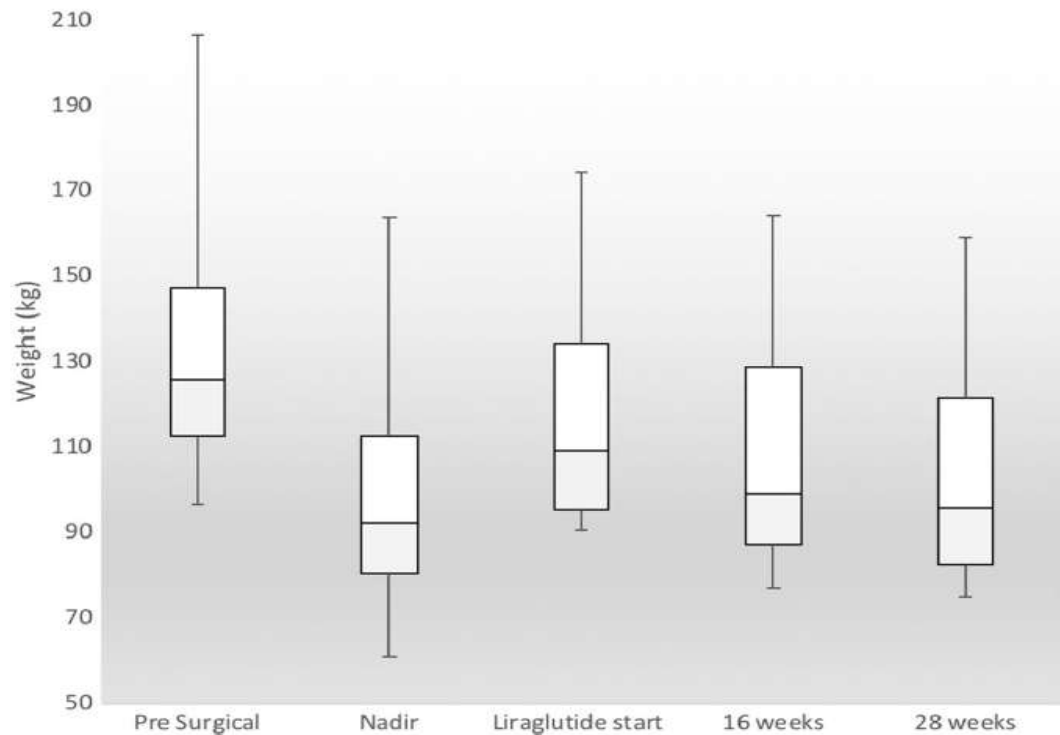
FIGURE 1 Weight loss while taking liraglutide 3.0 mg over time by type of bariatric surgery

SOLUZIONI TERAPEUTICHE

Post BS weight regain management: weight loss drugs

Efficacy of High-Dose Liraglutide as an Adjunct for Weight Loss in Patients with Prior Bariatric Surgery

Fig. 2 Median weight at each point of interest. Box and whisker plot of median patient weight pre-surgery (126.25 kg), nadir (92.45 kg), prior to starting liraglutide (109.55 kg), after 16 weeks of liraglutide (99.4 kg), and after 28 weeks of liraglutide (95.9 kg). Bottom and top of box represent the first and third quartiles, respectively. The ends of the whiskers represent the minimum and maximum of the data



SOLUZIONI TERAPEUTICHE

Post BS weight regain management: weight loss drugs

Efficacy of adjuvant weight loss medication after bariatric surgery

Prescribed weight loss medications	
Weight loss medication	Dosage
Phentermine	<ul style="list-style-type: none">• 37.5 mg daily for 3 mo at a time
Phentermine/ Topiramate ER	<ul style="list-style-type: none">• 3.75 mg/23 mg daily for 14 d followed by• 7.5 mg/46 mg daily maintenance dose <p>And</p> <ul style="list-style-type: none">• This dose was increased to the intermediate dose of 11.25 mg/69 mg (if the patient did not lose about 5% weight in 12 weeks) <p>And</p> <ul style="list-style-type: none">• Titration to the full dosage of 15 mg/92 mg (if patients did not achieve 5% weight loss with the previous dose)
Lorcaserin	<ul style="list-style-type: none">• 10 mg twice daily
Naltrexone SR/ Bupropion SR	<ul style="list-style-type: none">• 8 mg/90 mg daily titrated to a full dose of 32 mg/360 mg by increasing weekly until on the full dose after 4 wk

Topiramate ER = topiramate extended-release; Naltrexone SR/Bupropion SR = naltrexone sustained-release/bupropion sustained-release.

209 pts

156 pts (74.6%)

25 pts (12.0%)

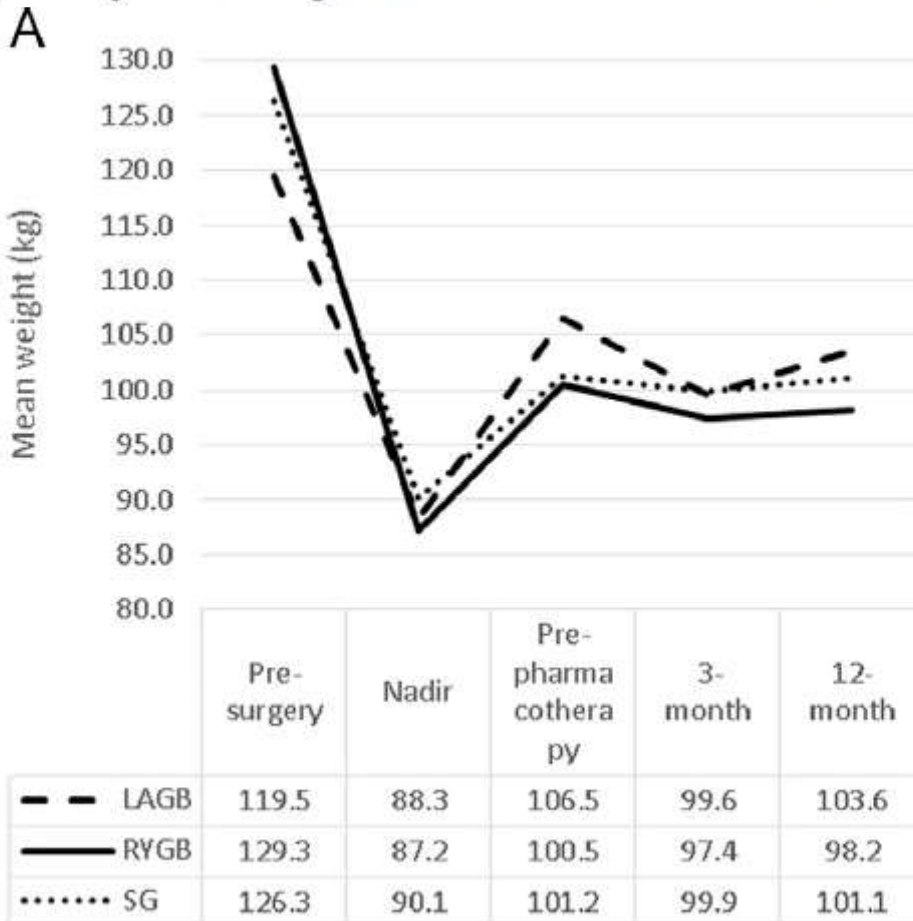
18 pts (8.6%)

10 pts (4.8%)

SOLUZIONI TERAPEUTICHE

Post BS weight regain management: weight loss drugs

Efficacy of adjuvant weight loss medication after bariatric surgery



SOLUZIONI TERAPEUTICHE

Post BS weight regain management: re-do surgery

**WEIGHT REGAIN
POST BS**



**RE-DO
SURGERY**



- Rischio di complicanze maggiore che nella chirurgia primaria.
- Calo di peso incerto.
- Tendenza a shiftare verso procedure malassorbitive con maggior rischio di complicanze nutrizionali a lungo termine.

Weight regain post bariatric surgery

Practical Recommendations of the Obesity Management Task Force of the European Association for the Study of Obesity for the Post-Bariatric Surgery Medical Management

Obesity Facts
The European Journal of Obesity

Obes Facts 2017;10:597–632

Luca Busetto^a Dror Dicker^b Carmil Azran^c Rachel L. Batterham^{d, e, f}
Nathalie Farpour-Lambert^g Martin Fried^h Jøran Hjelmæsæthⁱ Johann Kinzl^j
Deborah R. Leitner^k Janine M. Makaronidis^{d, f} Karin Schindler^l
Hermann Toplak^k Volkan Yumuk^m

Table 14. List of graded clinical practical recommendations on weight regain prevention and management after bariatric surgery

Recommendations	Level of evidence	Grade of recommendation*
Weight regain after bariatric surgery is a result of hormonal and metabolic alterations, surgical failure, nutritional non-adherence, mental health issues and physical inactivity.	3	D
Enforcing and sustaining healthy lifestyle facilitates weight regain prevention.	3	D
Adding anti-obesity drugs and/or re-do operations may halt weight regain or create further weight loss when applied at optimal timing.	3	D

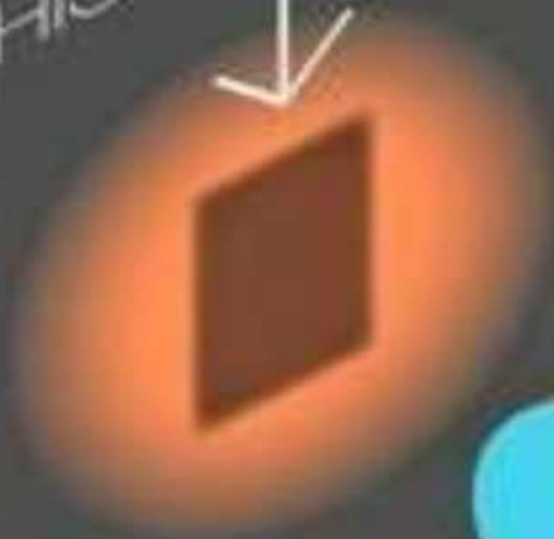
CONCLUSIONI

- La chirurgia bariatrica è un'opzione favorevole per il trattamento dell'obesità grave.
- Tuttavia, le difficoltà di alcuni pazienti post chirurgia nel controllare e mantenere la perdita di peso nel tempo non dovrebbero essere ignorate.
- La ricerca futura dovrebbe studiare se l'efficacia a lungo termine della chirurgia bariatrica può essere ulteriormente migliorata implementando tecniche di modifica dello stile di vita nella gestione postoperatoria dei pazienti.

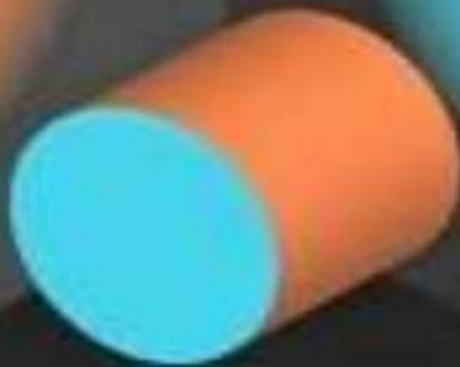
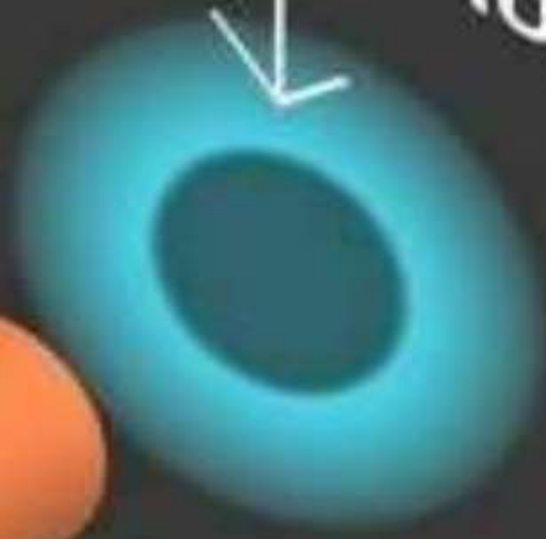
CONCLUSIONI

- Fornire aspettative corrette di calo ponderale, personalizzate in base al fenotipo del paziente
- Modifica dello stile di vita (nutrizionale/motorio/psicologico) nelle fasi pre-post CB
- Prevedere un follow up che individui e tratti precocemente il WR
- Attuazione di una reale pluriprofessionalità e collaborazione nel team

THIS IS TRUE



THIS IS TRUE



THIS IS **TRUTH**



WEBINAR SECONDA STAGIONE

S.I.C.OB.  Società Italiana di Chirurgia dell'Obesità
e delle malattie metaboliche



CAUSE ANATOMO-CHIRURGICHE DI WEIGHT REGAIN NEL LUNGO TERMINE

Dr Roberto Moroni
Chirurgia Bariatrica
ARNAS Brotzu
Cagliari



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e delle malattie metaboliche

CAUSE ANATOMO-CHIRURGICHE DI WEIGHT REGAIN NEL LUNGO TERMINE

MECHANISMS FOR WEIGHT REGAIN FOLLOWING BARIATRIC SURGERY

- **Anatomical and surgical mechanisms**
- Metabolic
- Follow-up support
- Lifestyle behaviours
- Hormonal changes (ghrelin, ppy, glp-1)
- Physical activity
- Binge eating disorders
- Caloric intake



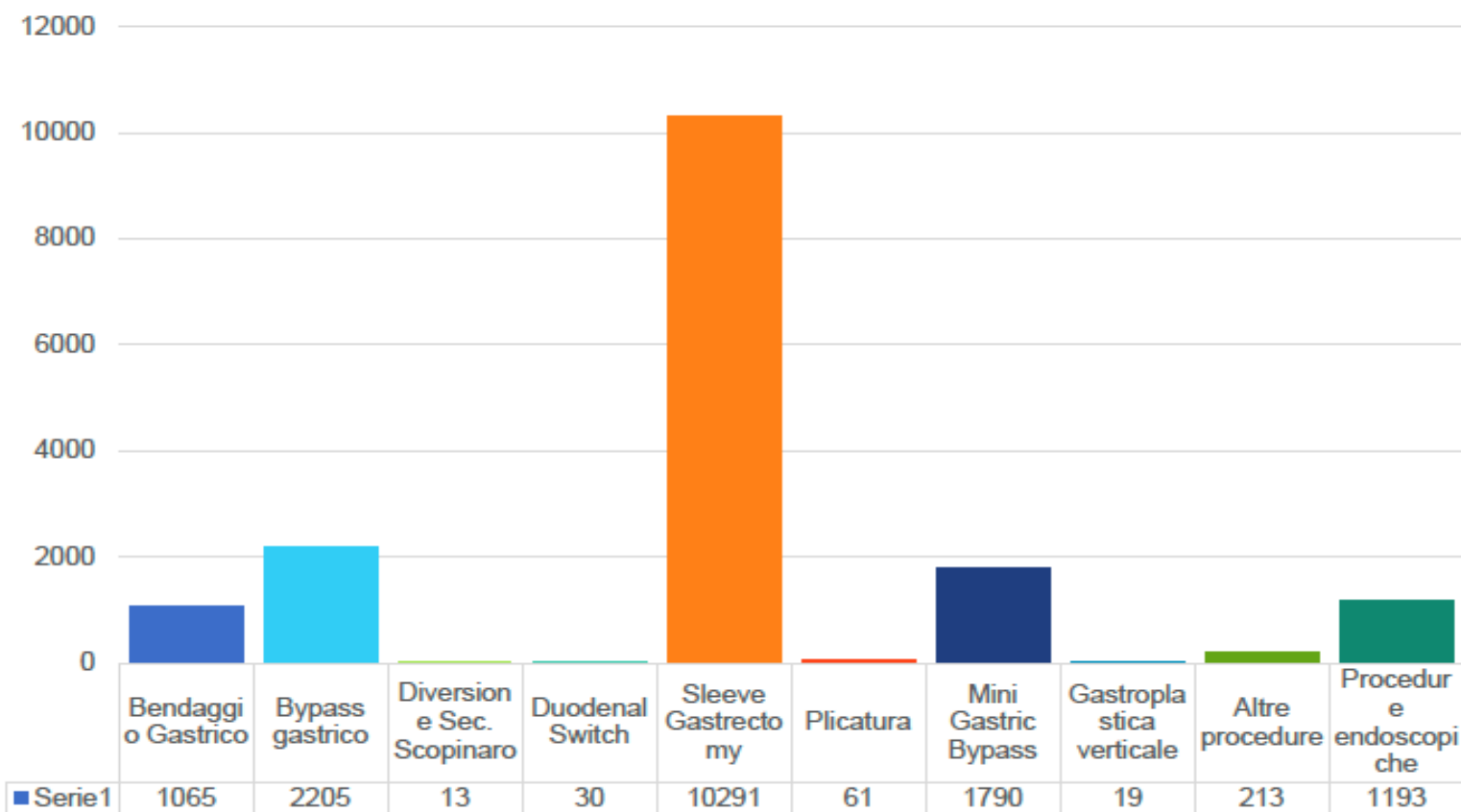
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e delle malattie metaboliche

CAUSE ANATOMO-CHIRURGICHE DI WEIGHT REGAIN NEL LUNGO TERMINE

Tipologia delle procedure eseguite nel 2019

Totale **16.880** interventi



Dati Ufficiali SICOB - aggiornati al 1 aprile 2020

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IFSO Worldwide Survey 2016: Primary, Endoluminal, and Revisional Procedures

Luigi Angrisani¹ · A. Santonicola² · P. Iovino² · A. Vitiello¹ · K. Higa^{3,4} · J. Himpens⁵ · H. Buchwald⁶ · N. Scopinaro⁷

The total number of bariatric/metabolic procedures performed in 2016 was 685,874; among them 634,897 (92.6%) were primary and 50,977 were revisional (7.4%). Among the primary interventions 609,897 (96%) were surgical and 25,359 (4%) endoluminal.

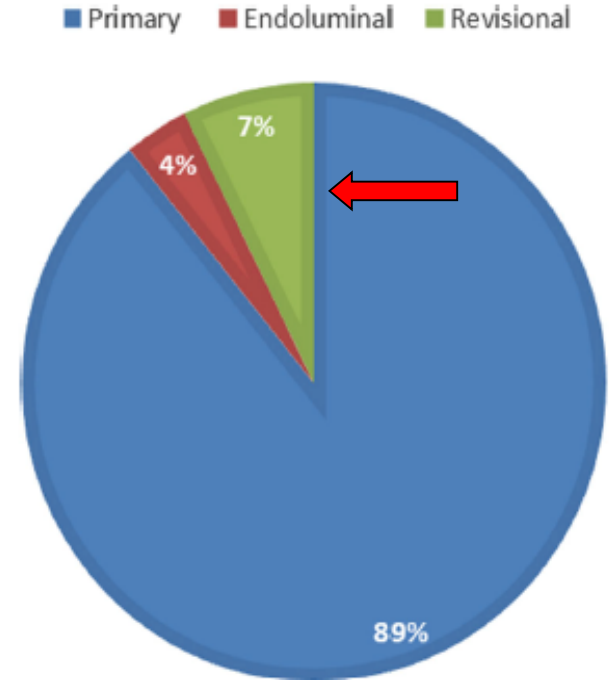


Fig. 8 The number of endoluminal, primary, and revisional procedures

INCIDENZA DELLA CHIRURGIA DI REVISIONE PER TIPOLOGIA DI INTERVENTO CHIRURGICO

- GPV: 25%/54%
- Bendaggio gastrico: 40%/50%
- Sleeve gastrectomy: 3.1 %/ 40 %
- Bypass gastrico: 10%/20%
- DBP/DS: 0.5%/7.3%

Gagner M et al Surg Obes Relat Dis 2016
Eid GM et al Ann Surg 2012
Kellog TA Surg Clin N Am 2011
Cesana G et al World J Gastrointest Surg 2014
Diamantis T et al Surg Obes Relat Dis 2014

Weight Regain Following Sleeve Gastrectomy—a Systematic Review

Melanie Lauti¹ · Malsha Kularatna¹ · Andrew G. Hill¹ · Andrew D. MacCormick¹

Definition origin	Year	Definition
Abdallah et al. [16] Egypt	2014	An increase of body weight of more than 10 kg from the nadir
Bohdjalian et al. [17] Austria	2010	More than 10 kg from the nadir
Braghetto et al. [18] Chile	2012	Greater than 10 kg
Brethauer et al. [3] United States	2013	An increase in BMI of 5 kg/m ² or more above the weight loss nadir
Carmeli et al. [19] Israel	2015	Regaining weight after successful loss to achieve a BMI greater than 35 kg/m ²
Casella et al. [20] Italy	2016	Weight increase greater than 10 kg from weight loss nadir
de Hollanda et al. [21] Spain	2015	The difference between weight at last follow-up and nadir weight expressed in kilograms or as percent of maximum weight loss
Homan et al. [22] Netherlands	2015	Greater than 25 % EWL regain with respect to the minimal weight after LSG or when a patient met the criteria for bariatric surgery again as established by the International Federation for the Surgery of Obesity
Jimenez et al. [4] Spain	2012	Any weight regain after T2DM remission
Langer et al. [17, 23] Austria	2010	An increase of body weight of more than 10 kg from the nadir
Liu et al. [24] Hong Kong	2015	When the percentage of rebound in excess weight loss (%REWL) is greater than 25 % where %REWL is the difference between the best post-operative %EWL and the current measured %EWL.
Obeidat et al. [25] Jordan	2015	An increase in body weight of more than 10 kg from the nadir.



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CAUSE ANATOMO-CHIRURGICHE DI WEIGHT REGAIN NEL LUNGO TERMINE

SLEEVE GASTRECTOMY

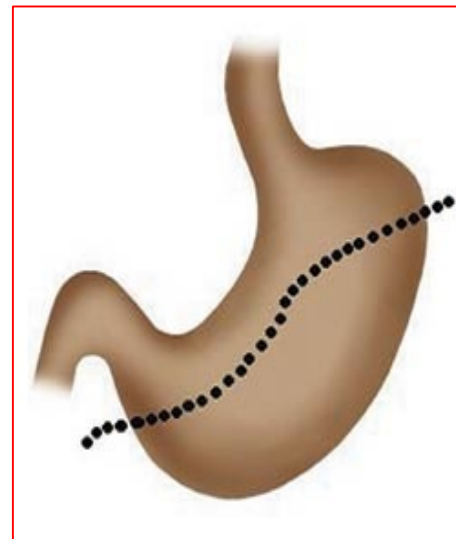
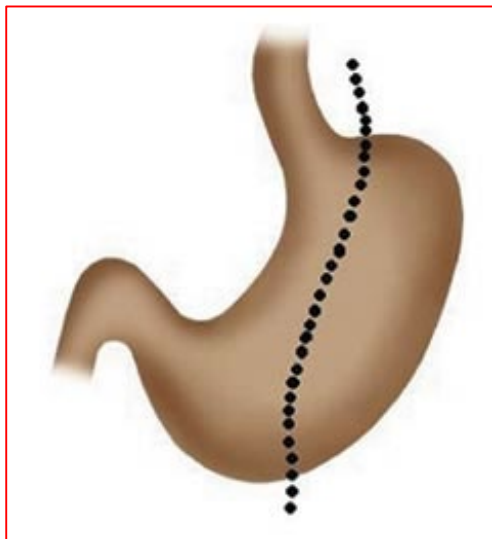
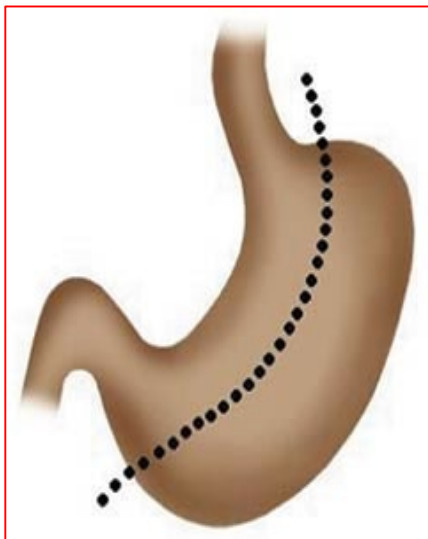


Fig. 3. Secondary dilation—uniform dilation of the gastric tube.



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CAUSE ANATOMO-CHIRURGICHE DI WEIGHT REGAIN NEL LUNGO TERMINE

MECHANISMS FOR WEIGHT REGAIN FOLLOWING SLEEVE GASTRECTOMY

- Bougie size
- Leaving fundal remnant
- Size of antral remnant
- Sleeve dilatation (secondary)
- Intra-thoracic migration
- Ghrelin levels
- Follow-up support
- Lifestyle behaviours
- Caloric intake
- Binge eating disorders
- Hormonal changes
- Physical activity



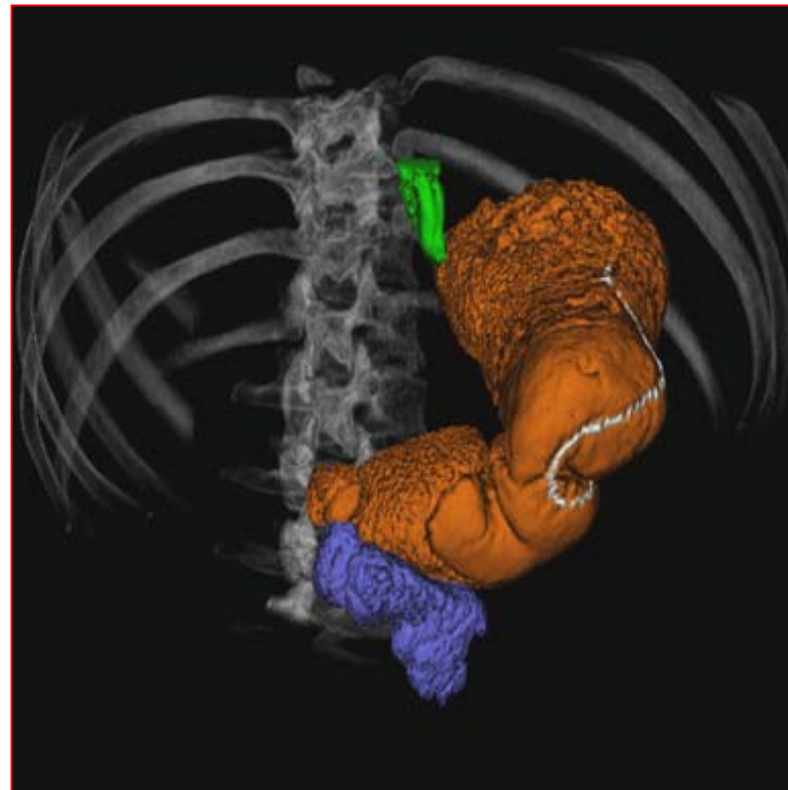
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Secondary Gastric Dilation



840 cc in MSCT



Review

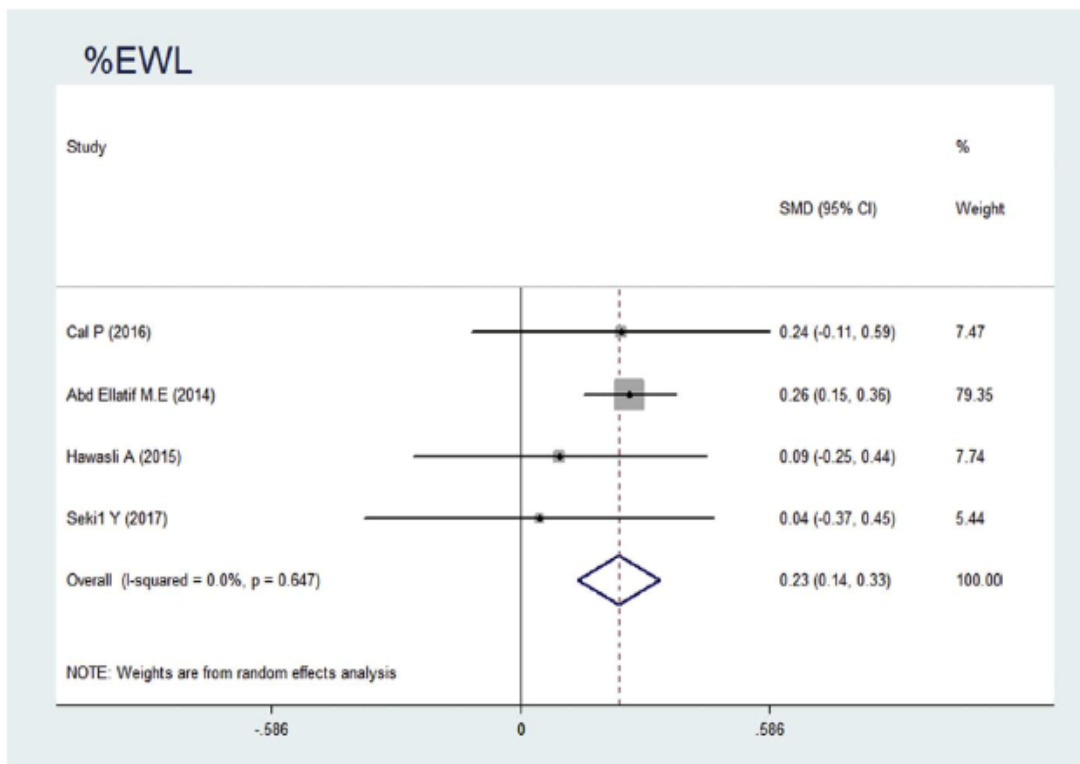
The effectiveness and safety of laparoscopic sleeve gastrectomy with different sizes of bougie calibration: A systematic review and meta-analysis



Yao Wang^a, Xiao-Yan Yi^b, Li-lin Gong^a, Qi-fu Li^a, Jun Zhang^c, Zhi-hong Wang^{a,*}

Conclusions: Use of thinner diameter bougies in LSG was more effective in enabling weight loss and did not increase the risk of overall complications, gastrointestinal leaks or GERD compared with larger diameter bougies.

6068 pts con FU
12-60 mo



L.E.: 2

< 36 Fr
> 36 Fr

P < .001



Laparoscopic sleeve gastrectomy with 27 versus 39 Fr bougie calibration: a randomized controlled trial

Patricio Cal¹ · Luciano Deluca¹ · Tomás Jakob¹ · Ezequiel Fernández¹

Conclusions The use of different bougie diameters had no impact on the volume of resected stomach, morbidity or short-term weight loss after LSG, although a trend was seen toward better weight loss with the smaller bougie. A longer-lasting follow-up will be necessary to further assess differences.

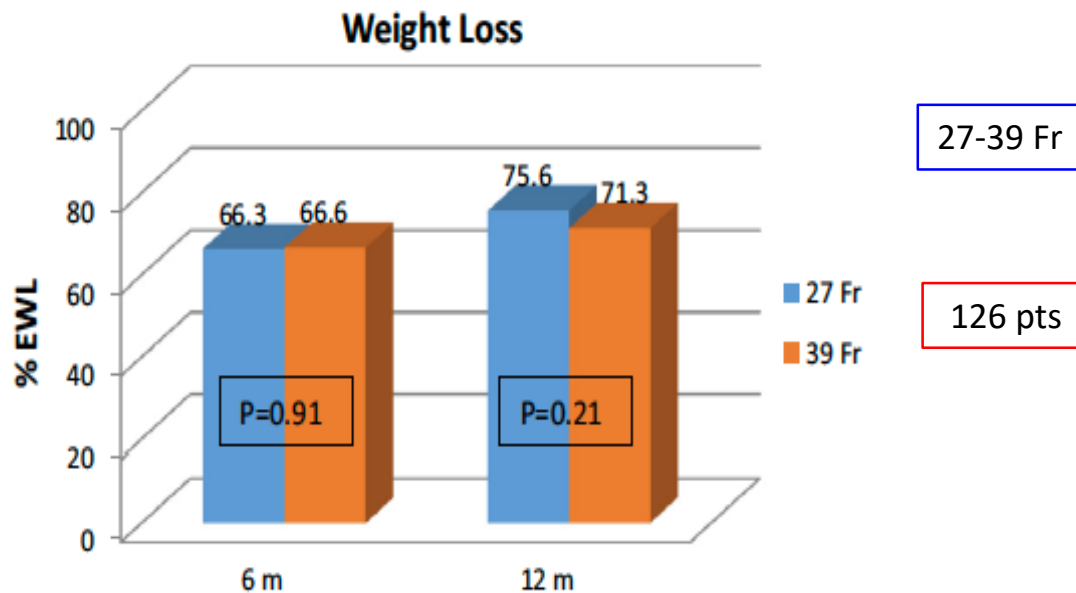


Fig. 1 Weight loss

Original article

Weight loss, weight regain, and conversions to Roux-en-Y gastric bypass: 10-year results of laparoscopic sleeve gastrectomy

Daniel M. Felsenreich, M.D.^a, Felix B. Langer, M.D.^a, Ronald Kefurt, M.D.^a, Peter Panhofer, M.D.^a, Martin Schermann, M.D.^b, Philipp Beckerhinn, M.D.^c, Christoph Sperker, M.D.^b, Gerhard Prager, M.D.^{a,*}

^aDivision of General Surgery, Department of Surgery, Medical University of Vienna, Vienna, Austria

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Received October 28, 2015; accepted February 21, 2016

Review of the literature on long-term (≥5 yr) weight loss of SG

Study	FU	Patients	Bougie size	Nonconverted (n)	%EWL*	Conversion Rate (procedure)
Bohdjalian 2010 [5]	5 yr	26	48Fr	22	55%	15.4% (4 RYGB)
Sieber [7]	5 yr	68	35Fr	60	57%	11.8% (2 RYGB, 6 DS)
Alexandru 2014 [6]	5 yr	30	29Fr	25	56%	16.7% (5 RYGB)
Lemanu 2015 [8]	5 yr	96	38Fr	55	40%	0
Keren 2015 [30]	5 yr	130	n.a.	123	45%	3.1% (7 BPD)
Himpens 2010 [11]	6 yr	53	34Fr	30	53%	24.5% (11 DS, 2 ReS)
D'Hondt 2011 [17]	6 yr	102	30Fr	23	56%	0
Hirth 2015 [18]	7 yr	16	32Fr	14	59%	0
Eid 2012 [19]	8 yr	126	50Fr	69	46%	40.0% (51 RYGB) ←
Sarella 2012 [10]	8–9 yr	20	32Fr	13	69%	20.0% (3 RYGB, 1 DS)
Present study	10 yr	53	48Fr	32	52%	35.8% (18 RYGB, 1 DS)

SG = sleeve gastrectomy; FU = follow up; %EWL = percent excess weight loss; RYGB = Roux-en-Y gastric bypass; DS = duodenal switch; n.a. = not available; BPD = biliopancreatic diversion; ReS resleeve gastrectomy.

*%EWL of non-converted sleeves at end of follow-up.



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CAUSE ANATOMO-CHIRURGICHE DI WEIGHT REGAIN NEL LUNGO TERMINE



Dilated antral remnant

Werquin C et al, J Radiol 2008



Impact of Extent of Antral Resection on Surgical Outcomes of Sleeve Gastrectomy for Morbid Obesity (A Prospective Randomized Study)

Emad Abdallah • Ayman El Nakeeb • Tamer Yousef • Hesham Abdallah •
Mohamed Abd Ellatif • Ahmed Lotfy • Mohamed Youssef • Abdelazeem Elganash •
Ahmed Moatamed • Mosaad Morshed • Mohammed Farid

RCT L.E.: 1

Variables	Total, 105 patients	2 cm from the pylorus	6 cm from the pylorus	<i>P</i> value
% EWL, 6 months	44.8±14.1	51.8±13.9	38.3±10.9	0.0001
% EWL, 12 months	57.8±16	63.8±16.1	51.9±13.6	0.0001
% EWL, 24 months	66.5±12.7	71.8±12	61±11.1	0.003
Weight regain	6 (5.7 %)	1 (1.9 %)	5 (9.4 %)	0.09

Faster Gastric Emptying after Laparoscopic Sleeve Gastrectomy

Michel Gagner

Therefore, those who subject patients to a very long sleeve gastrectomy affecting most of the antrum (like a sleeve gastrectomy starting 1 cm from the pylorus) might be compromising gastric emptying in a major way.



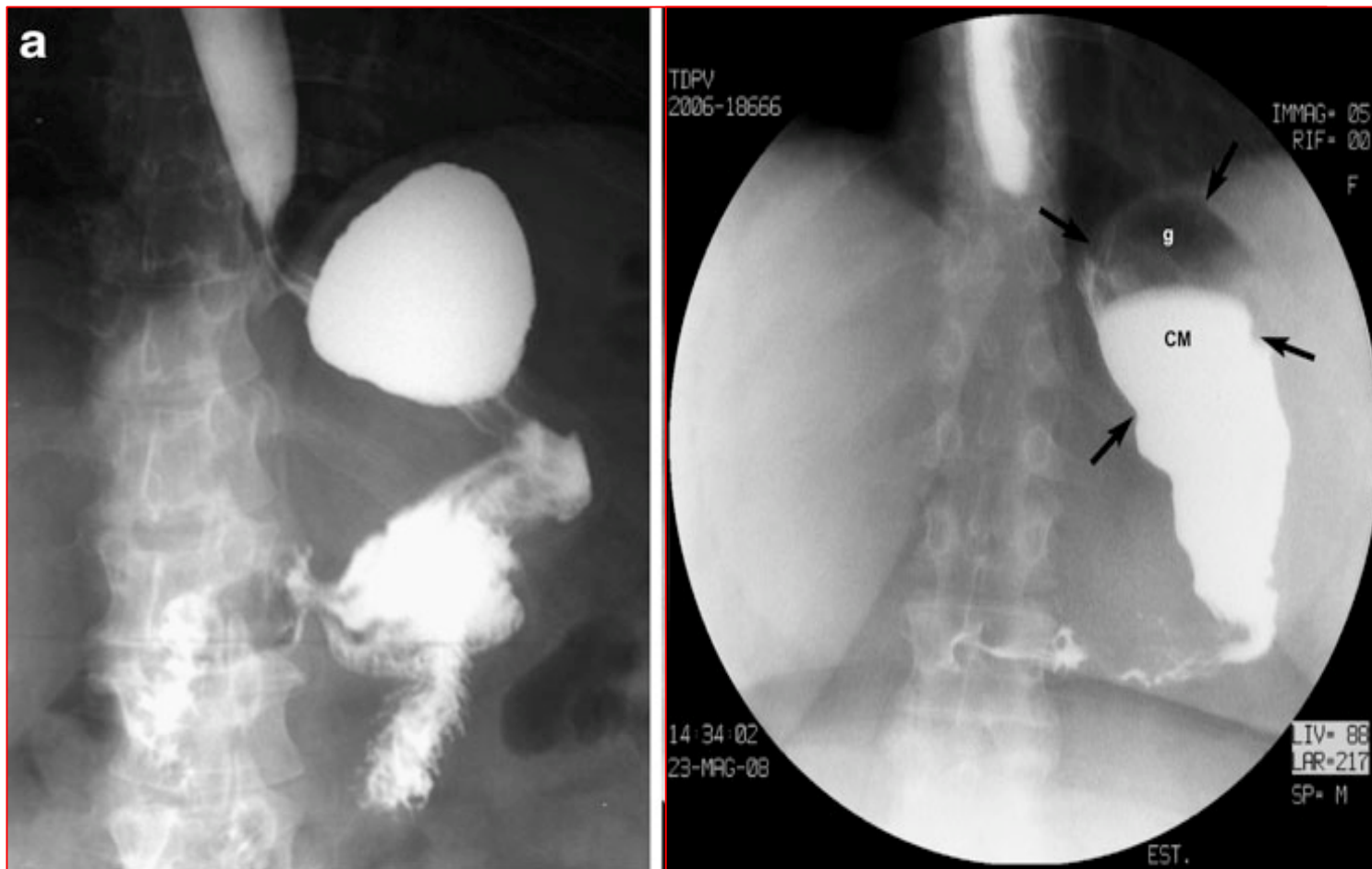
the longer the antrum left, the faster gastric emptying will occur [10].



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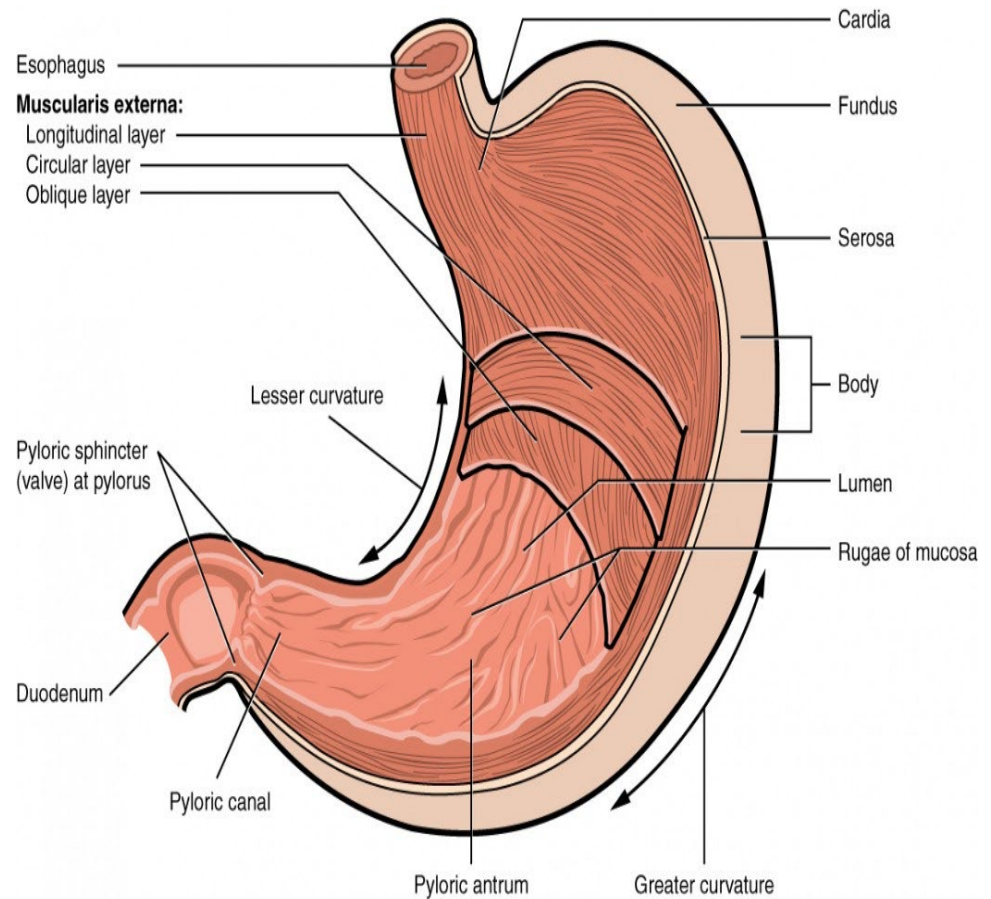


Persistence of the gastric fundus

Long-term Results of Laparoscopic Sleeve Gastrectomy for Obesity

Jacques Himpens, MD, Julie Dobbeleir, MD, and Geert Peeters, MD

The fundus is the most easily expanded part of the stomach-reservoir with only two layer of muscle



Long-term Results of Laparoscopic Sleeve Gastrectomy for Obesity

Jacques Himpens, MD, Julie Dobbelaer, MD, and Geert Peeters, MD

Ann Surg 2010



TABLE 2. Objective Success After 3 yr, Intention-to-Treat After Stand-Alone Sleeve Gastrectomy

	Success	Failure
Evaluated patients; n = 41	n = 28; LSG: >50% EWL	n = 13; *LSG: <50% EWL: n = 2; *LSG + DS: n = 11
No evaluation possible; n = 12		n = 12; *Lost for follow-up: n = 4; *Refused cooperation: n = 8
Total: 53	28/53: 53%	25/53: 47%

LSG indicates laparoscopic sleeve gastrectomy; EWL, excessive weight loss; DS,

TABLE 3. Objective Success After 6 yr, Intention-to-Treat After Stand-Alone Sleeve Gastrectomy

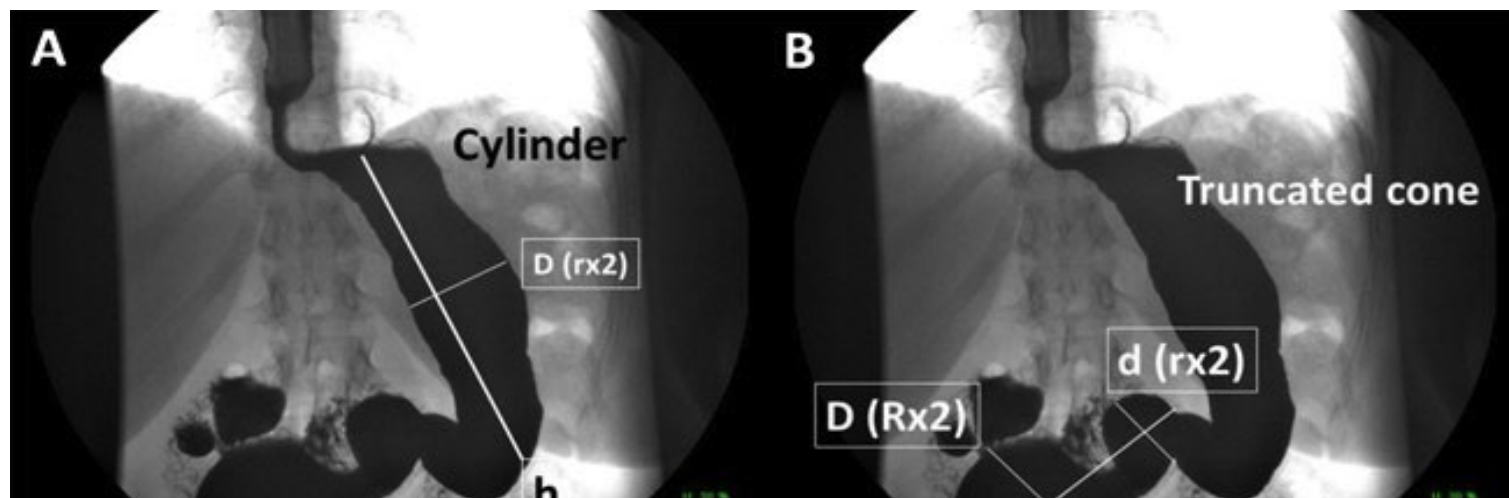
	Success	Failure
Evaluated Patients; n = 41	n = 19; LSG: >50% EWL	n = 22; *LSG: <50% EWL: n = 11; *LSG + DS: n = 11
No evaluation possible; n = 12		n = 12; *Lost for follow-up: n = 4; *Refused cooperation: n = 8
Total: 53	19/53: 36%	32/53: 64%



Residual Gastric Volume Estimated with a New Radiological Volumetric Model: Relationship with Weight Loss After Laparoscopic Sleeve Gastrectomy

Pablo Vidal · José Manuel Ramón · Marcos Busto · Gerardo Domínguez-Vega · Albert Goday · Manuel Pera · Luis Grande

L.E.: 2



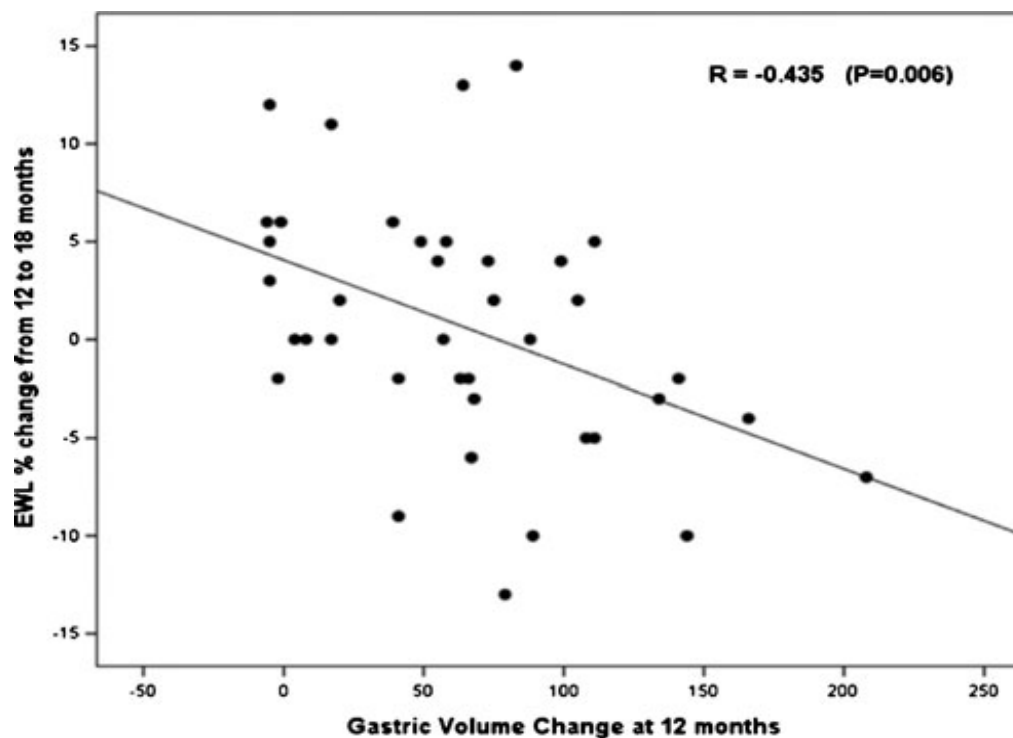
	1 month			12 months			<i>p</i> value
	Mean ± SD	Min	Max	Mean ± SD	Min	Max	
Body (cylinder), mL	64.0±40.2	19	206	101.5±49.1	25	284	0.001
Antrum (cone), mL	60.8±31.3	20	125	87.2±45.3	21	263	0.001
Whole reservoir, mL	124.8±58.7	46	285	188.6±76.4	85	426	0.001



Residual Gastric Volume Estimated with a New Radiological Volumetric Model: Relationship with Weight Loss After Laparoscopic Sleeve Gastrectomy

Pablo Vidal • José Manuel Ramón • Marcos Busto •
Gerardo Domínguez-Vega • Albert Goday •
Manuel Pera • Luis Grande

Correlation between volume change and weight regain was statistically significant at 18 months (p=0,006)



L.E.: 2



Correlation of weight loss with residual gastric volume on computerized tomography in patients undergoing sleeve gastrectomy: A systematic review

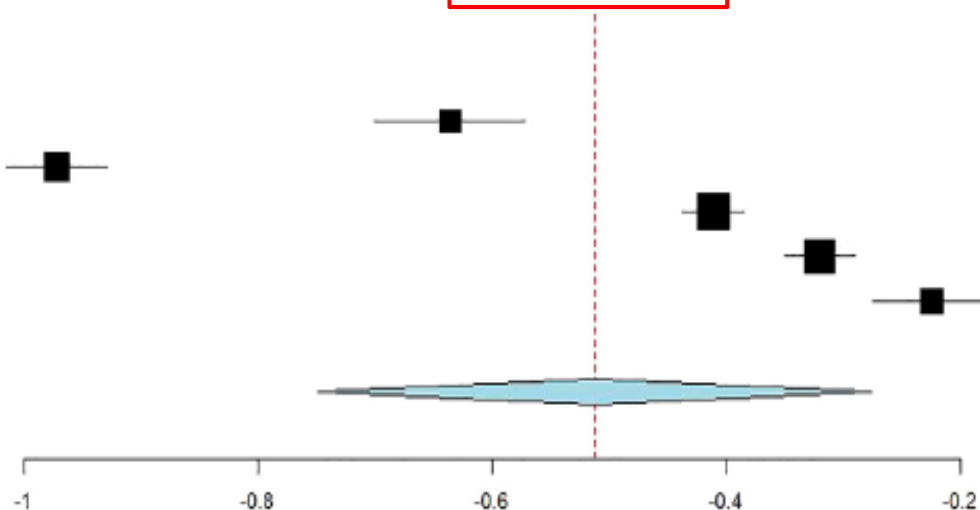
Vitish Singla¹ | Sandeep Aggarwal¹ | Samagra Aggarwal² | Mehul Gupta¹ |
Deepti Singh¹

A lower Residual Gastric Volume after sleeve gastrectomy is likely to result in improved weight loss.

Metha-analysis of studies report correlation between RGV and EWL% up to 26,3%.

Studies	Estimate (95% C.I.)
Andrés Hanssen 2017	-0.636 (-0.700, -0.572)
elbanna 2018	-0.972 (-1.015, -0.929)
Jean-Baptiste Deguines 2012	-0.412 (-0.438, -0.385)
robert 2016	-0.321 (-0.350, -0.291)
salman 2018	-0.225 (-0.276, -0.174)
Overall ($I^2=99.47\%$, $P<0.001$)	-0.513 (-0.749, -0.277)

FU: 24/36 mo





Intra-thoracic Sleeve Migration (ITSM): an Underreported Phenomenon After Laparoscopic Sleeve Gastrectomy

Alan A. Saber¹ · Saeed Shoar¹ · Mousa Khoursheed²



Intrathoracic migration

Table 2 Sleeve migration presentation and diagnostic modalities

	Mean ± SD or number (%)
Presentation	
Severe GERD	18 (94.7%)
Epigastric pain	9 (47.4%)
Dysphagia	4 (21.1%)
Shortness of breath	1 (5.3%)
N/V	6 (36.8%)
Dysphagia	4 (21.1%)
Retching	1 (5.3%)
Weight regain	2 (10.5%)
Constipation	11 (57.9%)
Chronic cough	5 (26.3%)

Original article

Fifth International Consensus Conference: current status of sleeve gastrectomy

Michel Gagner, M.D., F.R.C.S.C., F.A.C.S., F.A.S.M.B.S.^{a,b}, Colleen Hutchinson, M.A.^c,
Raul Rosenthal, M.D., F.A.C.S., F.A.S.M.B.S.^{c,*}

On the technical side, experts tend to use a larger bougie than previously recorded, the median being 36F, most probably to avoid strictures (and strictures associated with leaks). Most experts believe that a distance < 3 cm is not recommended (as most are > 3 cm [77.5%]).

OBES SURG (2013) 23:2013–2017
DOI 10.1007/s11695-013-1040-x

ORIGINAL CONTRIBUTIONS



Survey on laparoscopic sleeve gastrectomy (LSG) at the Fourth International Consensus Summit on Sleeve Gastrectomy

Michel Gagner • Mervyn Deitel • Ann L. Erickson •
Ross D. Crosby

Of the 130 surgeons, 40 (32 %) use a 36F bougie, which was most common (range 32–50F).

Resection in the antrum typically began 4–5 cm (in 32.2 %), followed by 3–4 cm (in 27.3 %), and 5–6 cm (in 22.7 %) proximal to the pylorus.



Published in final edited form as:

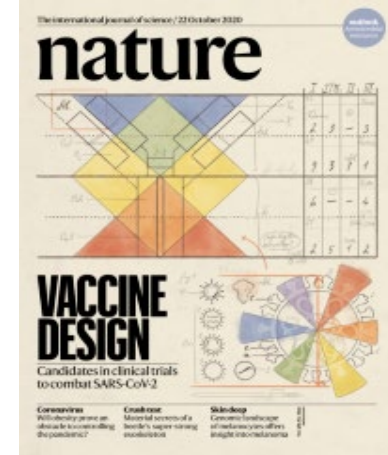
Nature. 2014 May 8; 509(7499): 183–188. doi:10.1038/nature13135.

FXR is a molecular target for the effects of vertical sleeve gastrectomy

Karen K. Ryan¹, Valentina Tremaroli², Christoffer Clemmensen^{1,3}, Petla Kovatcheva-Datchary², Andriy Myronovych⁴, Rebekah Karns⁵, Hillary E. Wilson-Pérez¹, Darleen A. Sandoval¹, Rohit Kohli⁴, Fredrik Bäckhed^{2,6}, and Randy J. Seeley¹

SPUNTO DI RIFLESSIONE

Therapeutic value of SG does not result from mechanical restriction imposed by a smaller stomach. Rather, we report that SG is associated with increased circulating bile acid and associated changes to gut microbial communities.





WEBINAR
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STAGIONE

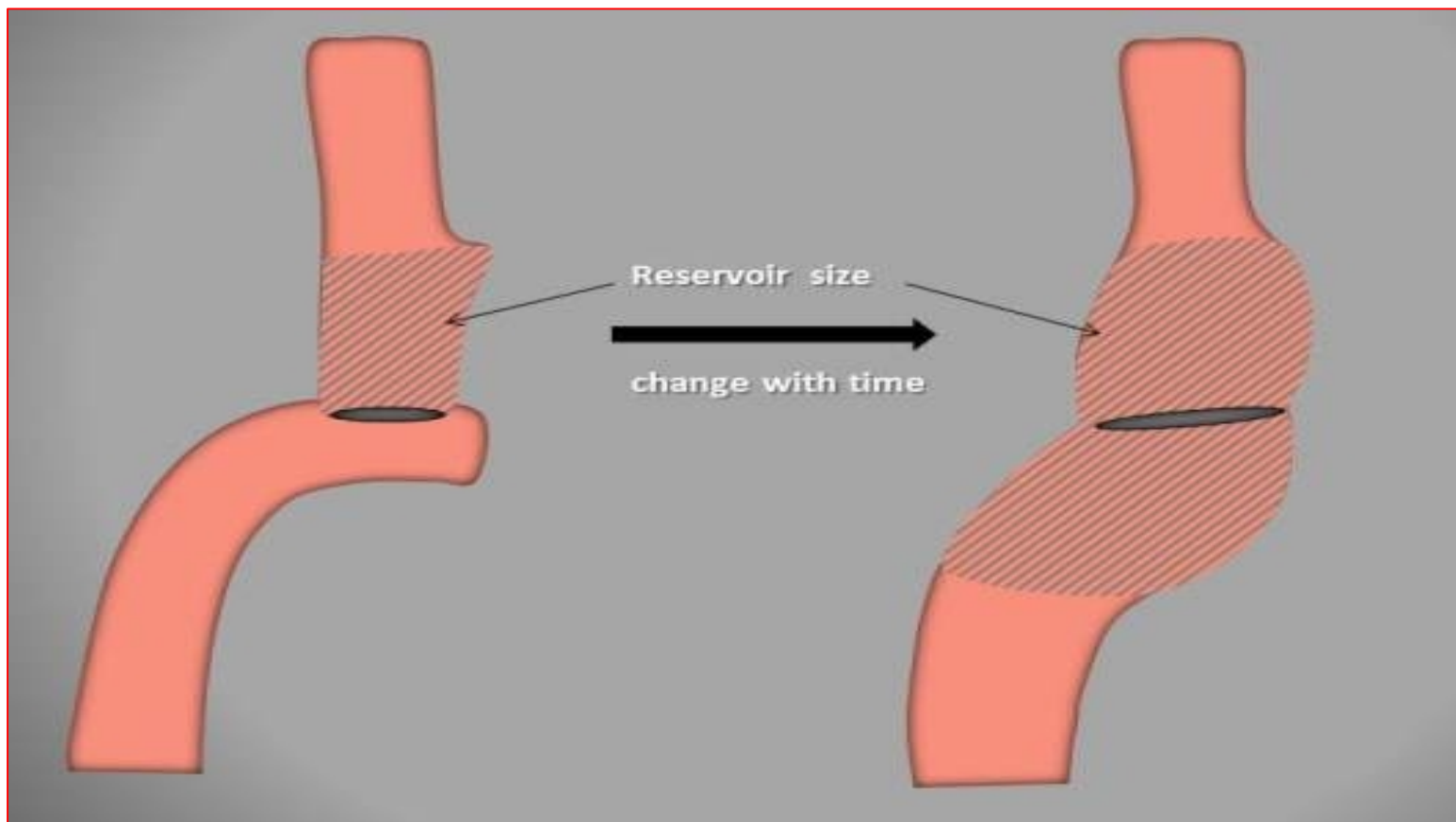
S.I.C.O.B. Società Italiana di Chirurgia dell'Obesità
e delle malattie metaboliche

CAUSE ANATOMO-CHIRURGICHE DI WEIGHT REGAIN NEL LUNGO TERMINE

MECHANISMS FOR WEIGHT REGAIN FOLLOWING GASTRIC BYPASS

- Dilation of the pouch/gastro-jejunal anastomosis
- Gastric pouch anatomy
- Gastro-gastric fistula
- Metabolic
- Follow-up support
- Lifestyle behaviours
- Caloric intake
- Hormonal changes
- Binge eating disorders
- Physical activity

CAUSE ANATOMO-CHIRURGICHE DI WEIGHT REGAIN NEL LUNGO TERMINE



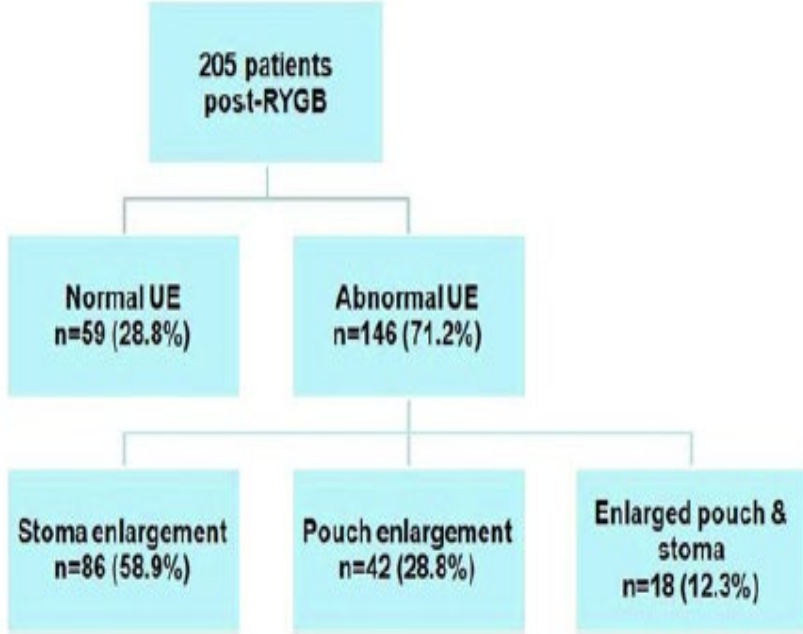
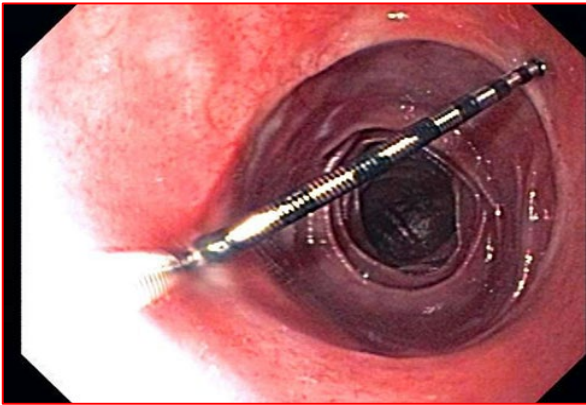
Endoscopic findings and outcomes of revisional procedures for patients with weight recidivism after gastric bypass

Panot Yimcharoen · Helen M. Heneghan ·
Manish Singh · Stacy Brethauer · Philip Schauer ·
Tomasz Rogula · Matthew Kroh · Bipan Chand

The mean interval from RYGB to upper endoscopy was 6,9 +/-3,7 years

DILATED G/J STOMA: > 2 cm

DILATION OF GASTRIC POUCH:
➤ length > 6 cm or width > (4)/5 cm
➤ volume > 100 ml

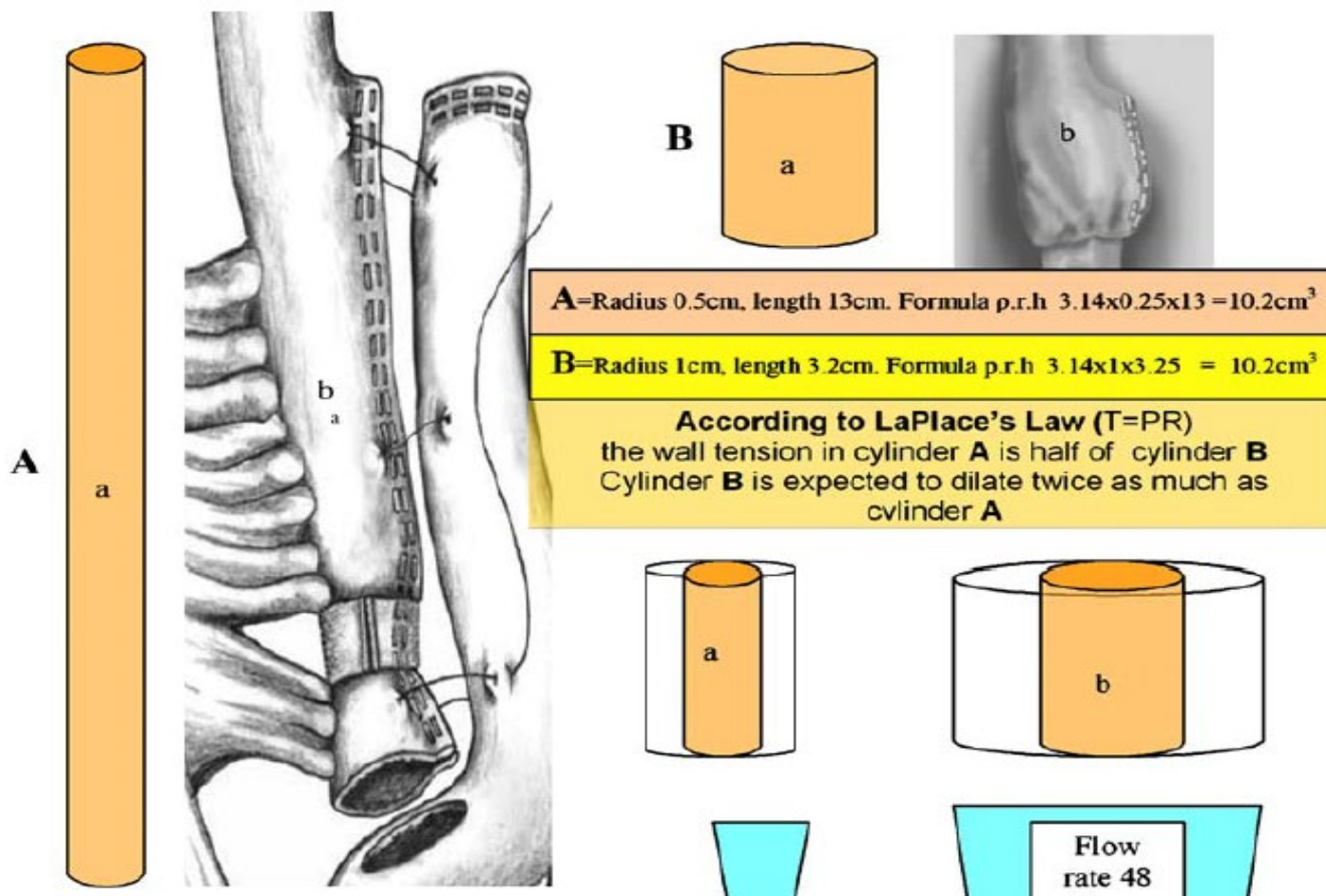


An Analysis of Gastric Pouch Anatomy in Bariatric Surgery

Rafael F. Capella • Vincent A. Iannace • Joseph F. Capella

Conclusions

Long narrow pouches should have less tendency to enlarge and should delay the transit of material to a greater degree than wider pouches, according to the Laplace's and Poiseuille's Laws. Strict application of these physical laws

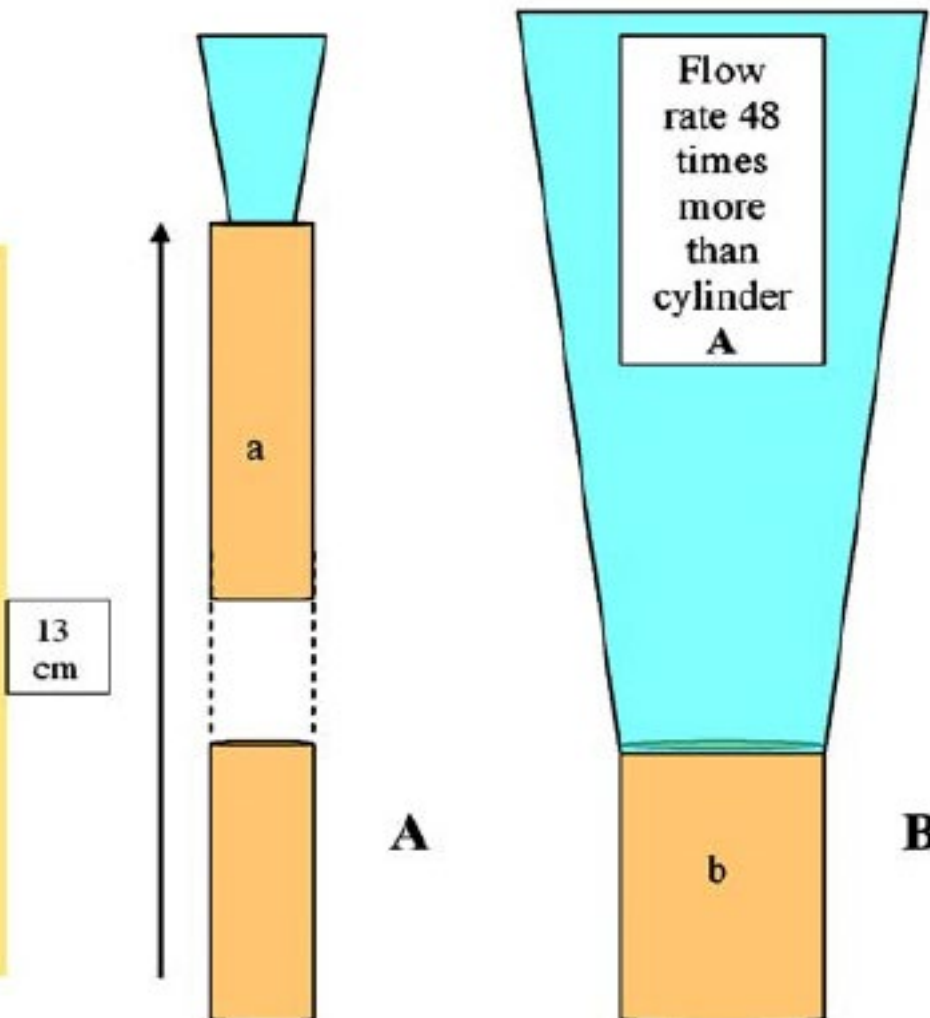


An Analysis of Gastric Pouch Anatomy in Bariatric Surgery

Rafael E. Capella • Vincent A. Iannace • Joseph E. Capella



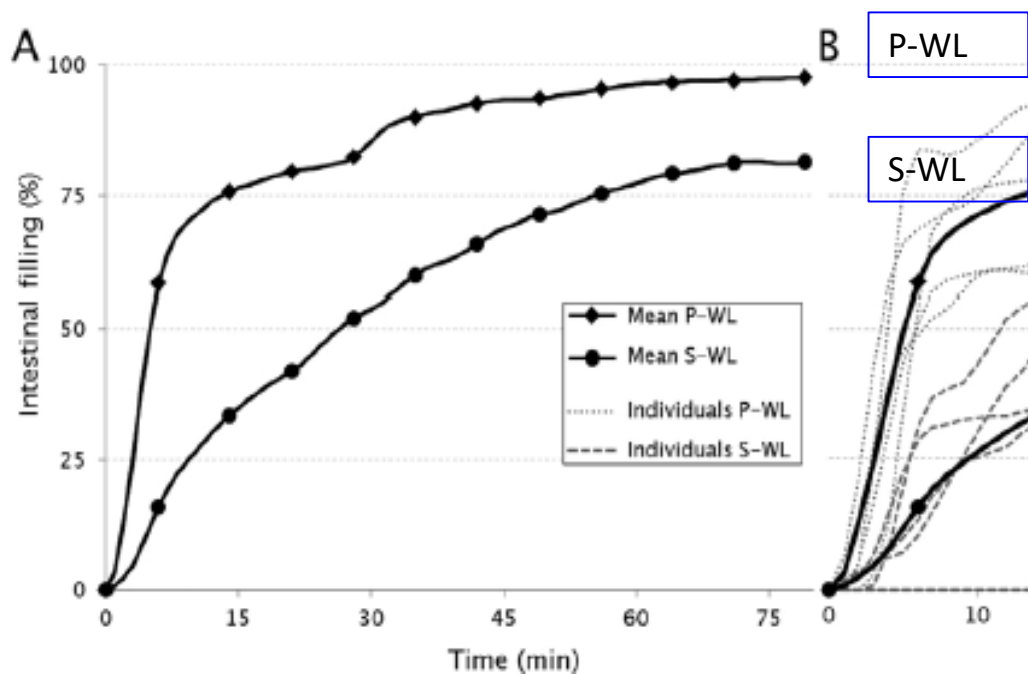
Poiseuille's Law $Q = \frac{p \cdot r^4 \Delta P}{8 \eta L}$ determines that the laminar flow rate of an incompressible fluid along a pipe is proportional to the fourth power of the pipe's radius. Poiseuille's law states that the flow rate is also dependant upon fluid viscosity, pipe length and the pressure difference between the ends. If the viscosity and the pressure are the same, the flow rate on cylinder A is 48 times less than cylinder B.



Original article

Gastric pouch emptying of solid food in patients with successful and unsuccessful weight loss after Roux-en-Y gastric bypass surgery

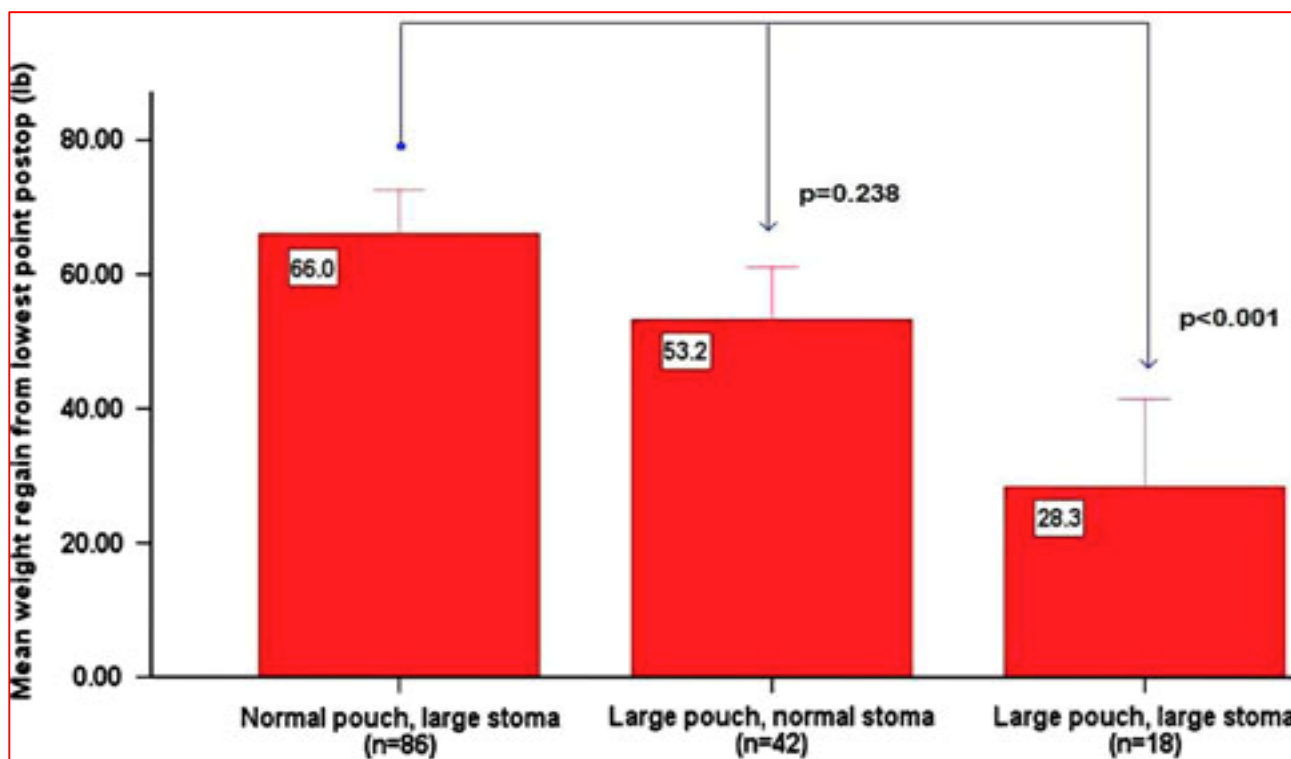
Laura N. Deden, M.Sc.^{a,b,*}, Mellody I. Cooman, M.D.^{a,b}, Edo O. Aarts, M.D., Ph.D.^{a,b},
Ignace M.C. Janssen, M.D.^{a,b}, Martin Gotthardt, M.D., Ph.D.^c, Baudewijn W. Hendrickx, M.D.^d,
Frits J. Berends, M.D., Ph.D.^{a,b}



Conclusions: Pouch emptying for solid food was faster in patients with the least weight loss compared with patients with the most weight loss after RYGB. If pouch emptying is an important mechanism in weight loss, altering the pouch outlet may improve poor weight loss management.

Endoscopic findings and outcomes of revisional procedures for patients with weight recidivism after gastric bypass

Panot Yimcharoen · Helen M. Heneghan ·
Manish Singh · Stacy Brethauer · Philip Schauer ·
Tomasz Rogula · Matthew Kroh · Bipan Chand



Weight regain according to pouch and stoma dimension

Gastrojejunal Stoma Diameter Predicts Weight Regain After Roux-en-Y Gastric Bypass

BARHAM K. ABU DAYYEH,^{*,+} DAVID B. LAUTZ,[§] and CHRISTOPHER C. THOMPSON^{†,||}

^{*}Gastrointestinal Unit, Massachusetts General Hospital, Boston; [†]Department of Medicine, Harvard Medical School, Boston; [§]Department of Surgery, Brigham and Women's Hospital, Boston; ^{||}Gastroenterology Division, Brigham and Women's Hospital, Boston, Massachusetts

Table 2. Prediction Model for Weight Regain After RYGB

Risk factors	Points	Cut-off point	PPV
GJ stoma diameter, mm		≥4	75%
≤15	0		
15–25	2		
≥25	4		
Race			
Other	0		
White	2		
Percentage maximal body weight lost after RYGB		<4	Indeterminate
≤50%	0		
>50%	1		
Maximum points	7		

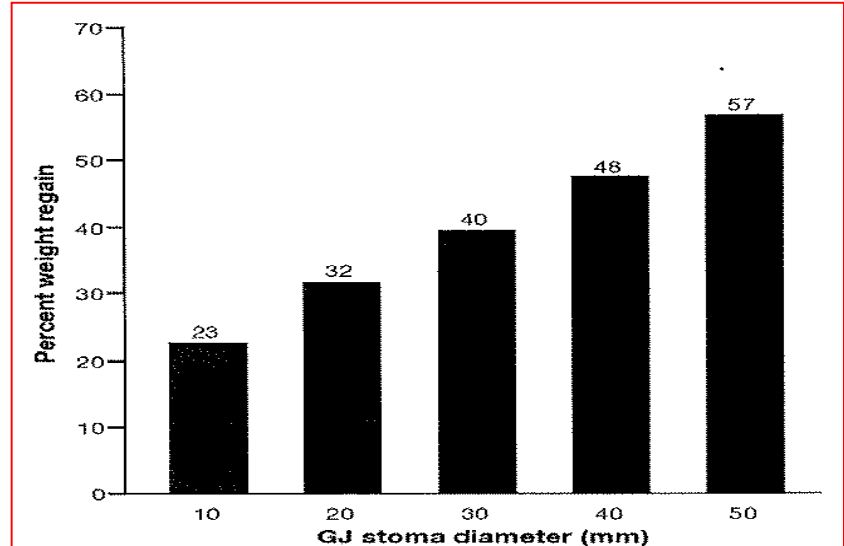


Figure 3. Predicted percentage of maximal weight lost after RYGB that was regained in 5 years after the procedure at different GJ stoma diameters based on the linear regression model.

EACH 10 mm INCREASE IN G/J STOMA DIAMETER WAS ASSOCIATED WITH AN 8% OF WEIGHT REGAIN

PPV: positive predictive value

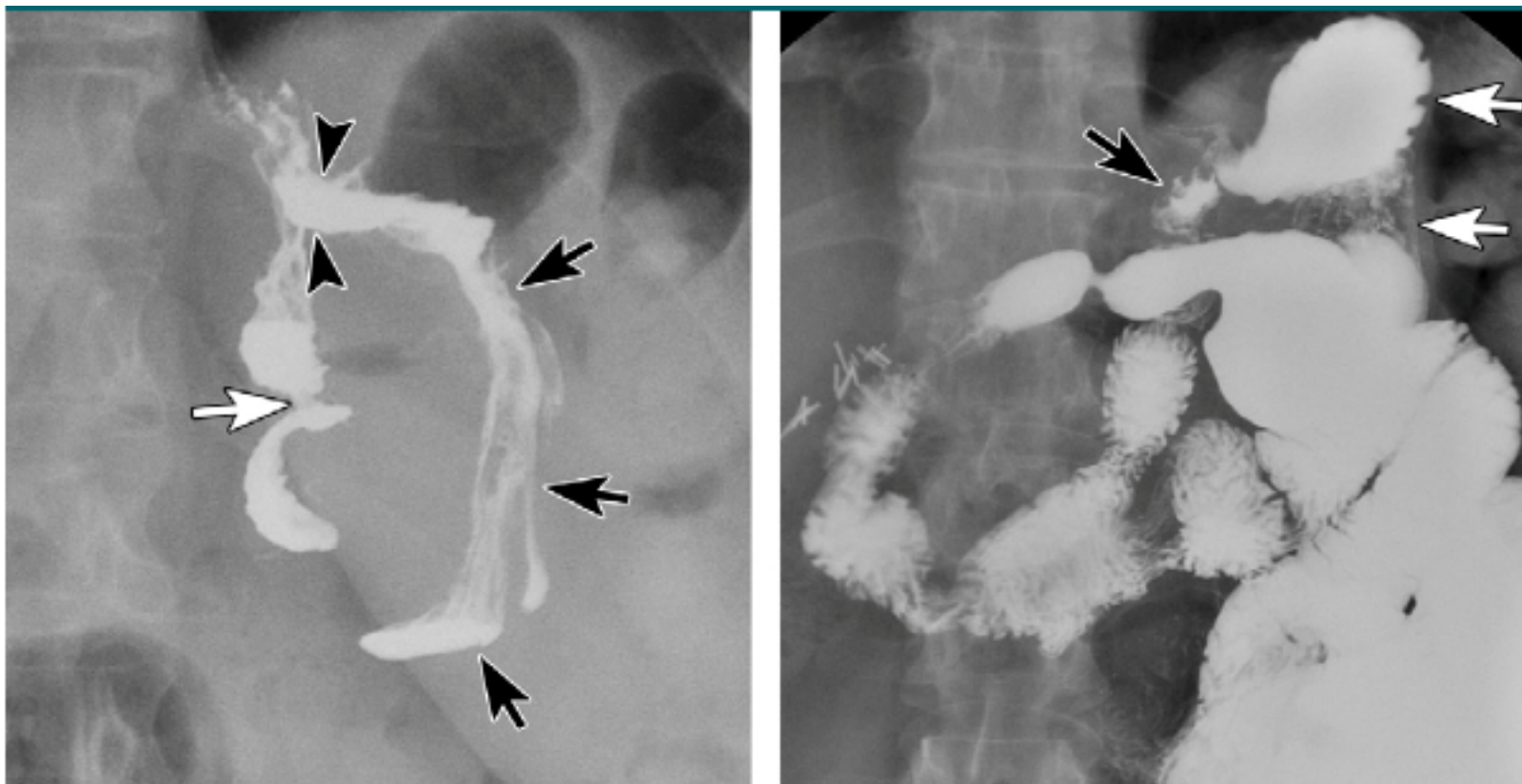
Clin Gastroenterol Hepatol 2011



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CAUSE ANATOMO-CHIRURGICHE DI WEIGHT REGAIN NEL LUNGO TERMINE



GASTRO-GASTRIC FISTULA



GASTROGASTRIC FISTULA AFTER ROUX-EN-Y GASTRIC BYPASS: A CASE REPORT AND REVIEW OF LITERATURE

Fístula gastrogástrica após bypass gástrico em Y-de-Roux: Relato de caso e revisão da literatura

Khaled **ALYAQOUT**¹*, Sulaiman **ALMAZEEDI**²*, Mohanned **ALHADDAD**¹*, Evangelos **EFTHIMIOU**¹*, Marcelo de Paula **LOUREIRO**³*

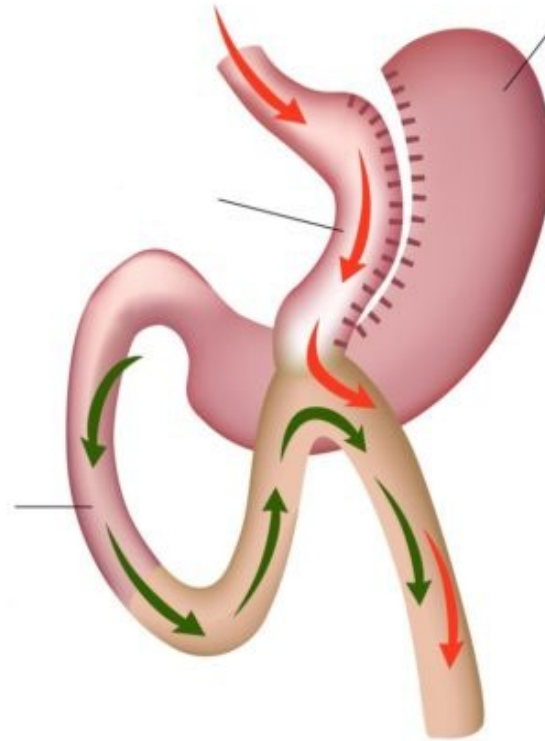
G/G fistula incidence

Author	Year	Total divided RYGB (open+laparoscopic)	GFF	Incidence Rate (%)
Cucchi et al.	1995	100	6	6
Maclea et al.	1997	123	4	3
Corrodeguas et al.	2005	1292	15	1.2
Gumbs et al.	2006	282	5	1.8
Tucker et al.	2007	1763	27	1.5
Salimath et al.	2009	1796	20	1.1
Yao et al.	2010	366	0	0
Ribeiro-parenti et al.	2017	1900	9	0.5
Chahine et al.	2018	1273	15	1.8

Presenting symptoms


	Abdominal Pain	Weight regain	Nausea	Vomiting	Reflux/heartburn	Diarrhea	Bleeding	Failure to thrive	Fever
Chahine et al.	73.3%	80.0%	86.6%	N/A	40.0%	13.3%	N/A	N/A	N/A
Ribeiro-Parenti et al.	77.7%	55.5%	N/A	11.1%	N/A	N/A	11.1%	N/A	N/A
Corcelles et al.	72.2%	50.0%	N/A	50.0%	73.0%	N/A	5.5%	22.0%	N/A
Tucker et al.	37.0%	33.0%	N/A	18.5%	N/A	N/A	11.1%	N/A	N/A
Cucchi et al.	100.0%	N/A	83.0%	66.6%	N/A	33.0%	N/A	N/A	100.0%
Campos et al.	51.6%	100.0%	N/A	N/A	N/A	N/A	9.6%	N/A	N/A

OAGB and weight regain





Dilated Gastric Pouch Resizing for Weight Loss Failure After One Anastomosis Gastric Bypass

Adrien Faul¹ · Jean-Marc Chevallier¹ · Tigran Poghosyan¹ 

The gastric pouch was considered dilated when radiologic and endoscopic criteria were met: gastric pouch was considered dilated when the width was >4 cm measured on CT scan after ingestion of radio-opaque product (Fig. 1), dilation was confirmed when easy retroversion was possible during endoscopy.

OBES SURG (2019) 29:3406–3409

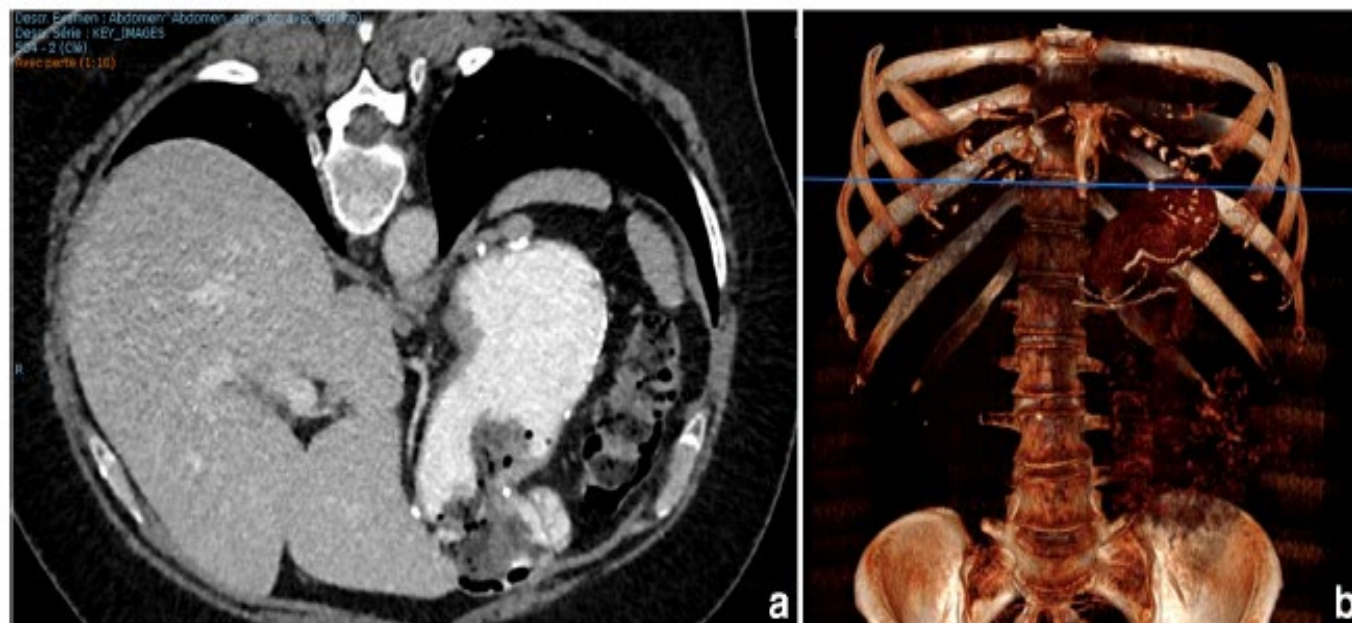



Fig. 1 a Dilated gastric pouch (7 cm) filled with the contrast medium on CT scan. b 3D reconstruction on CT scan of dilated gastric pouch



Dilated Gastric Pouch Resizing for Weight Loss Failure After One Anastomosis Gastric Bypass

Adrien Faul¹ · Jean-Marc Chevallier¹ · Tigran Poghosyan¹ 

Conclusion

In this study, GPR appeared to be a satisfactory option resulting in mid-term secondary weight loss in well selected patients at a cost of non-negligible morbidity rate.

	At GPR	6 months	12 months	18 months	24 months
Eligible/available (<i>n</i>)	17/17	17/16	17/15	14/12	10/8
Lost to follow-up (%)	0%	5.8%	11,6%	14.3%	20%
BMI (kg/m ²), mean ± SD	41.5 ± 11	36.6 ± 5	35 ± 4	34.1 ± 5	33.5 ± 6
%TWL, mean ± SD	15 ± 10	22 ± 7	25 ± 9	28 ± 10	31 ± 13
%EWL, mean ± SD	36 ± 21	51 ± 14	57 ± 16	63 ± 17	69 ± 21

GPR, gastric pouch resizing; *TWL*, total weight loss; *BMI*, body mass index; *EWL* excess weight loss



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CAUSE ANATOMO-CHIRURGICHE DI WEIGHT REGAIN NEL LUNGO TERMINE

MECHANISMS FOR WEIGHT REGAIN FOLLOWING GASTRIC BANDING

- Band malpositioning
- Dilation of the pouch/slippage
- Band erosion
- Tube disconnection/perforation
- Follow-up support
- Lifestyle behaviours
- Caloric intake
- Binge eating disorder
- Physical activity

Laparoscopic Adjustable Gastric Banding: What Radiologists Need to Know¹

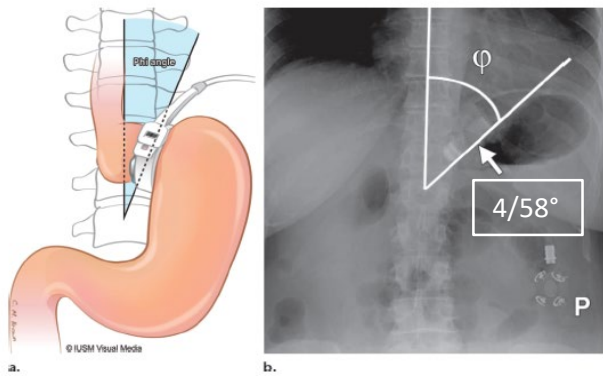
July-August 2012

TEACHING POINTS
See last page

Sushilkumar K. Sonavane, MD • Christine O. Menias, MD • Kartikeya P. Kantavala, MD, DMRD • Alampady K. Shanbhogue, MD • Srinivasa R. Prasad, MD • John C. Eagon, MD • Kumaresan Sandrasegaran, MD

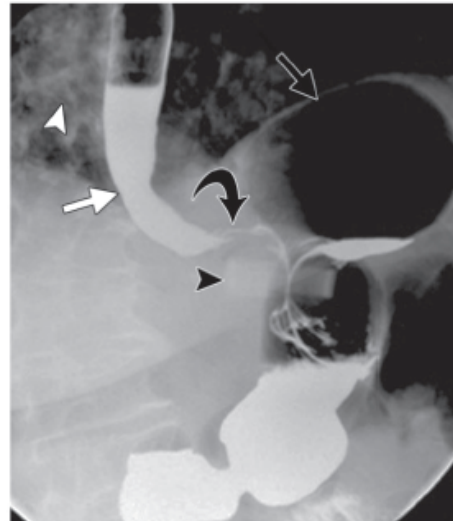
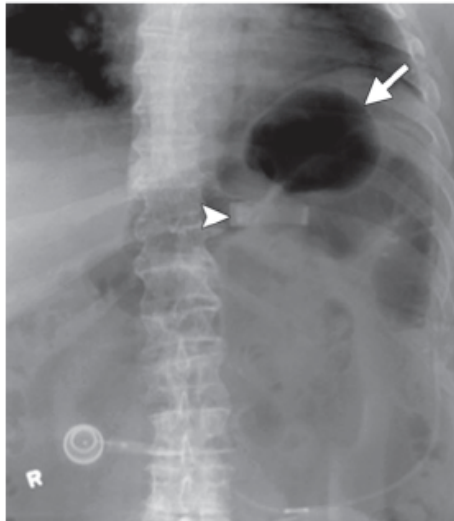
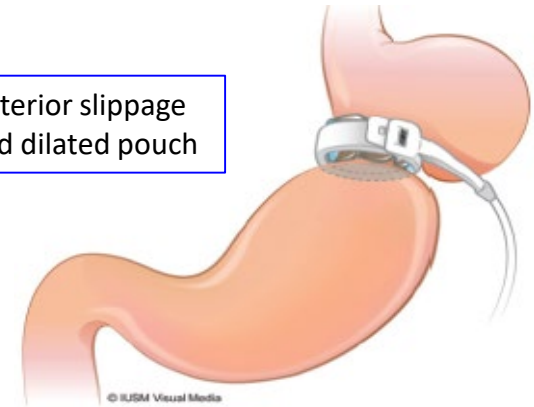
1164 July-August 2012

radiographics.rsna.org



Incidence 4%/13%

Anterior slippage
and dilated pouch

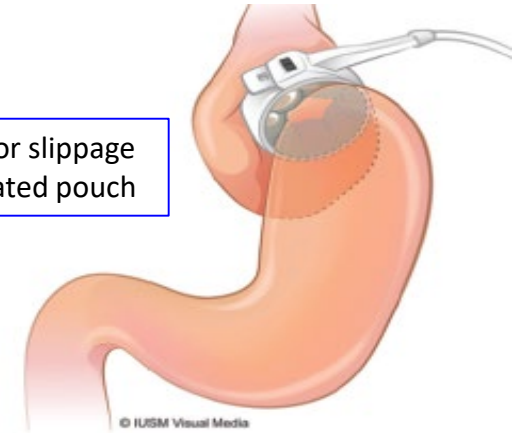


Laparoscopic Adjustable Gastric Banding: What Radiologists Need to Know¹

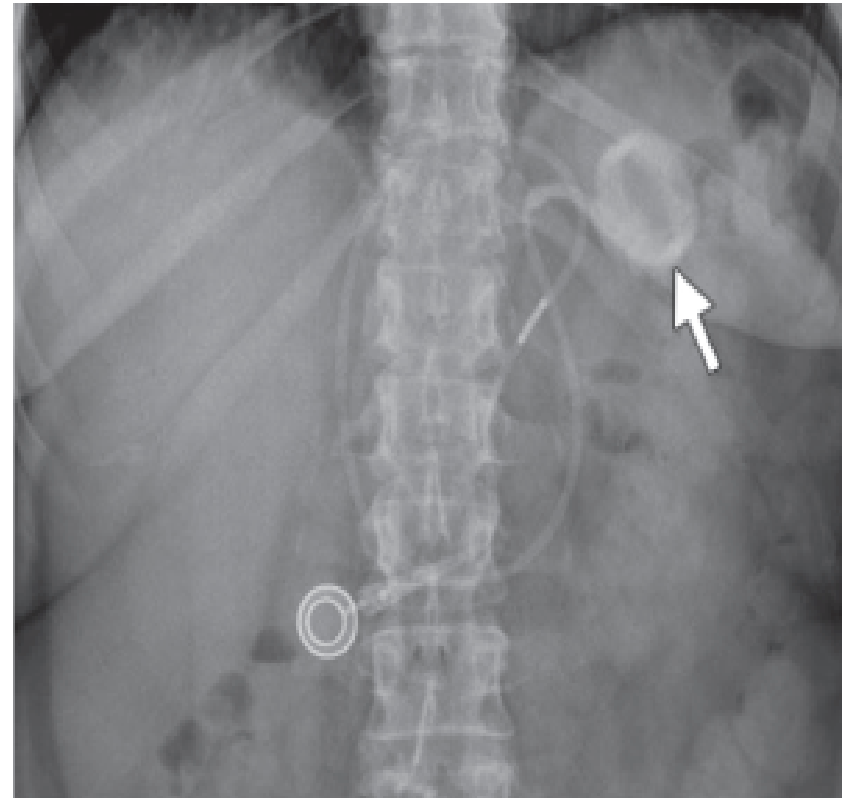
TEACHING POINTS
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July-August 2012



Incidence 4%/13%



Symmetrical Pouch Dilatation After Laparoscopic Adjustable Gastric Banding: Incidence and Management

Wendy A. Brown • Paul R. Burton •
Margaret Anderson • Anna Korin • John B. Dixon •
Geoffrey Hebbard • Paul E. O'Brien

Proximal gastric pouch is above a normally positioned band

Incidence 0%/4%



We postulate that SPD is caused by excessive pressure in the proximal gastric pouch. This may be generated either by eating too quickly or too large a volume or excessive tightening of the band. The radial forces in the pouch may ultimately cause pressure on the phrenoesophageal ligament and a secondary hiatal hernia.



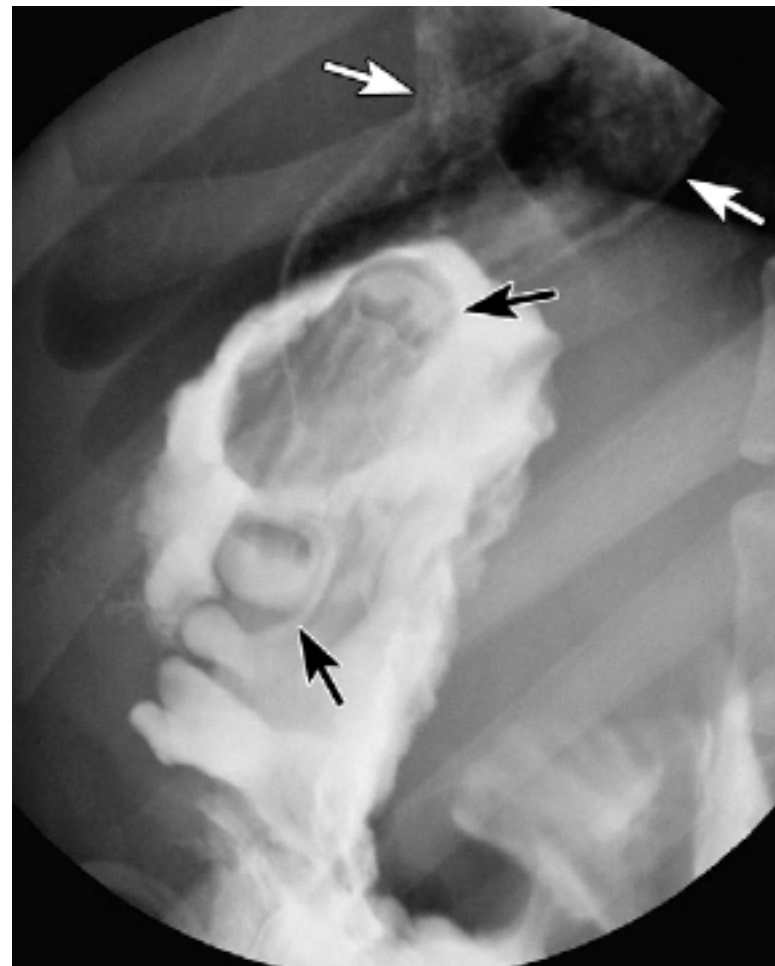
CAUSE ANATOMO-CHIRURGICHE DI WEIGHT REGAIN NEL LUNGO TERMINE

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S.I.C.O.B. Società Italiana di Chirurgia dell'Obesità e delle malattie metaboliche

BAND EROSION

Incidence 0,3%/14%



Laparoscopic Adjustable Gastric Banding: What Radiologists Need to Know¹

July-August 2012

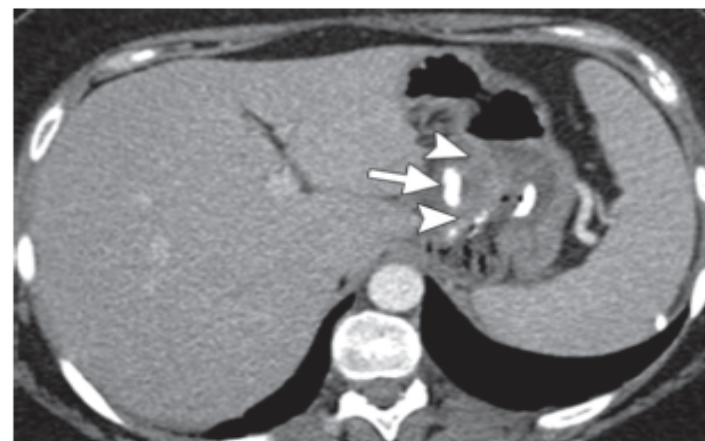
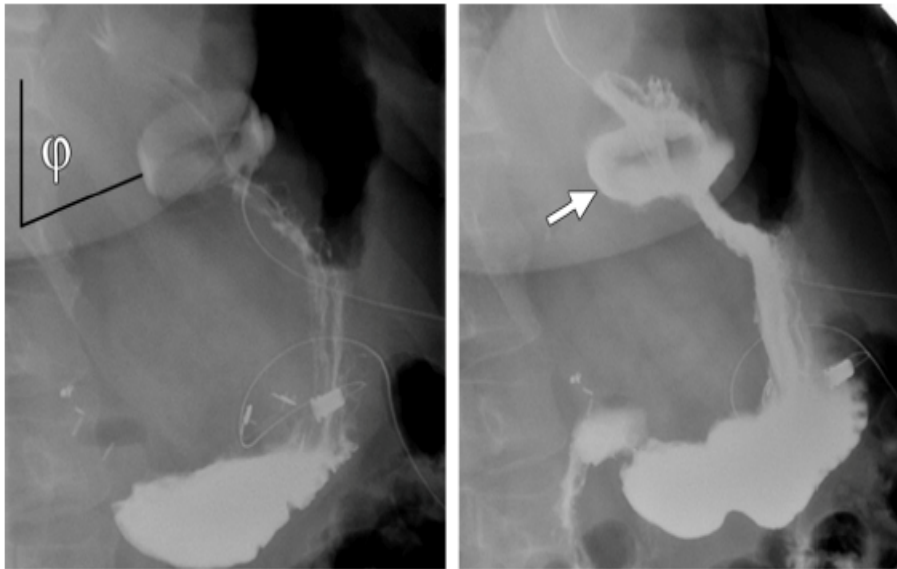
TEACHING POINTS

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BAND EROSION

Incidence 0,3%/14%



a.



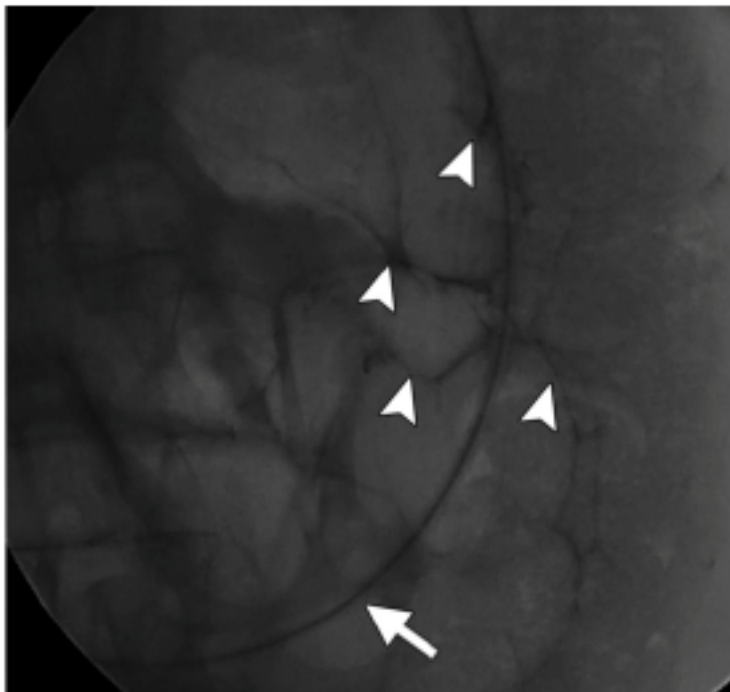
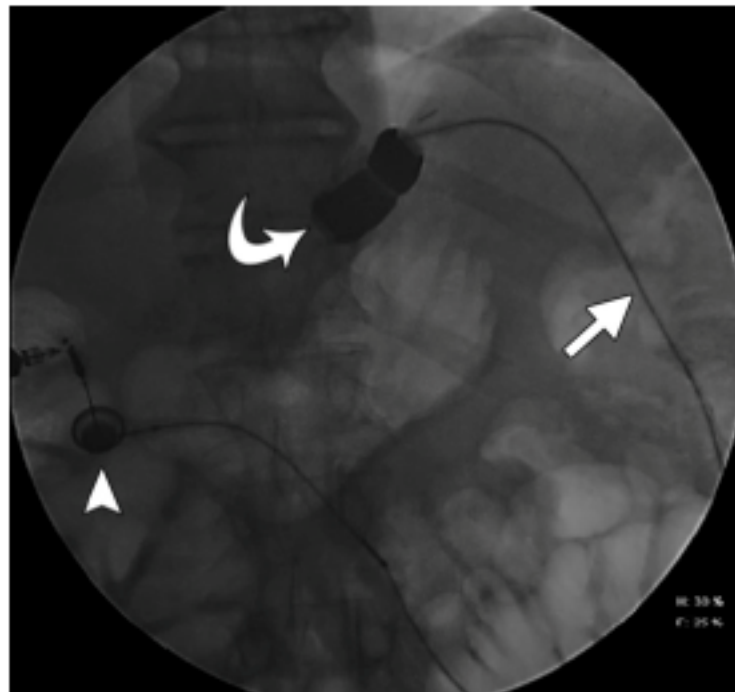
Laparoscopic Adjustable Gastric Banding: What Radiologists Need to Know¹

July-August 2012

TEACHING POINTS

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Sushilkumar K. Sonavane, MD • Christine O. Menias, MD • Kartikeya P. Kantawala, MD, DMRD • Alampady K. Shanbhogue, MD • Srinivasa R. Prasad, MD • John C. Eagon, MD • Kumaresan Sandrasegaran, MD




Leakage around the collector tube

Port related complications: 0%-7%



Gastric Banding: Complications Identified by CT

Ariel Kerpel¹  • Eyal Klang¹ • Eli Konen¹ • Edith Michelle Marom¹ • Marianne Michal Amitai¹



- Pouch dilatation-slippage
- Tube disconnection, perforation
- Band erosion

Port related complications: 0%-7%

Weight regain after bariatric surgery: indication and surgical treatment



Bariatric and Metabolic Surgical Unit



I.R.C.C.S. Policlinico
San Donato

Gruppo San Donato

Head of Unit *Alessandro Giovanelli MD*

Weight regain

Weight recidivism after primary bariatric procedures is an important issue and concern for many bariatric patients.

**Failure rates as high
as 30 percent in five years?**

Regardless of the specific type of bariatric surgery, long term weight regain will occur to a small but significant proportion of patients. This is not a concern limited to the short-term but to the mid and long-term

Weight regain

Review > [Obes Surg.](#) 2013 Nov;23(11):1922-33. doi: 10.1007/s11695-013-1070-4.

Weight Recidivism Post-Bariatric Surgery: A Systematic Review

Shahzeer Karmali ¹, Balpreet Brar, Xinzhe Shi, Arya M Sharma, Christopher de Gara, Daniel W Birch

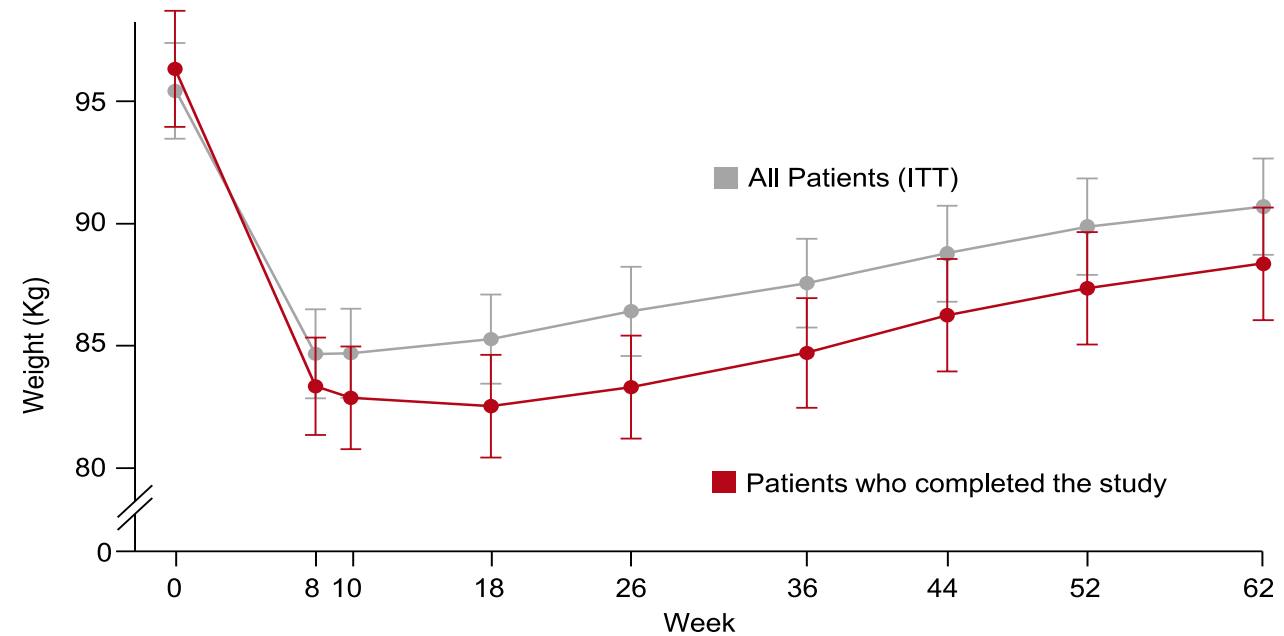
Following an initial screen of **2,204 titles**, **1,437 abstracts** were reviewed and 1,421 met exclusion criteria. Sixteen studies were included in this analysis: seven case series, five surveys and four non-randomized controlled trials, with a total of 4,864 patients for analysis. Weight regain in these patients appeared to be multi-factorial and overlapping.

Aetiologies were categorized as patient specific (psychiatric, physical inactivity, endocrinopathies/metabolic and dietary non-compliance) and operation specific. Weight regain following bariatric surgery varies according to duration of follow-up and the bariatric surgical procedure performed.

The underlying causes leading to weight regain are multi-factorial and related to patient- and procedure-specific factors. Addressing post-surgical weight regain requires a systematic approach to patient assessment focusing on contributory dietary, psychologic, medical and surgical factors.

Weight regain

Why is Weight Regain So Prevalent?



Sumithran *et al.* NEJM 2011; 365:1597-1604.

- Patient selection and surgical indication
- Surgical technical considerations
- Follow-up quality



**Weight
regain**

All the bariatric surgery procedures, failure is likely to be multifactorial and related to a combination of technical, physiological, and psychological parameters, such as

hormonal adaptation
recurrence of improper eating behaviors
gradual post surgical anatomical modification

Weight regain and complications related to redo-surgery

Gastric Banding

- Physical/Psycological Intolerance
- Pouch Dilation Or Continuous Vomit
- *Slippage*
- *Band Erosion*

Sleeve gastrectomy

- *SEQUENTIAL TREATMENT (superobese)*
- NO compliance
- Sleeve dilation
- Presence of gastric fundus (no ghreline effect)
- Antrum dimensions (no antral pump effect)

Gastric Bypass

- gastric pouch enlargement
- Lack of compliance
- Malabsorptive syndroms

Strategies for management of weight recidivism

Weight
regain



- Conservative therapy
- **Surgical revisional approach**

Weight regain after adjustable gastric band

Conservative therapy
Surgical revision

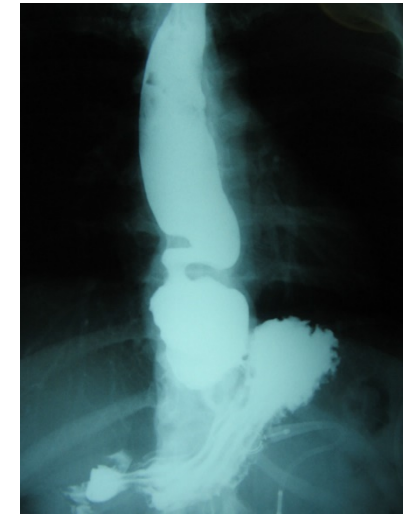
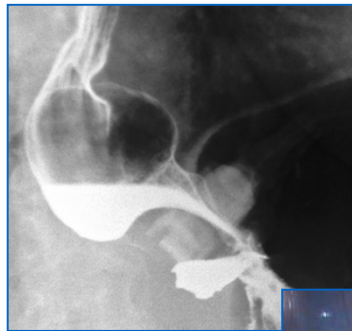
Laparoscopic adjustable gastric banding is gaining popularity in the United States.

From 2004 to 2007, significant growth occurred in the number of laparoscopic adjustable gastric banding (329%)

Hinojosa MW, Varela JE, Parikh D, Smith BR, Nguyen XM, Nguyen NT.
Surg Obes Relat Dis 2009;5:150–5.

Laparoscopic adjustable gastric banding (LAGB) has a failure rate in the US approaching 40–50%

DeMaria EJ, Sugerman HJ, Meador JG, et al. (2001) Ann Surg 233:809–187



**Weight regain
after adjustable
gastric band**

Conservative therapy
Surgical revision

Gastric restriction restoration

Adjustable Gastric rebanding

Sleeve gastrectomy or other restrictive procedures

Natural orifice endoscopic procedures (suturing, stapplers...)

**Conversion from failed restriction to another bariatric procedure
with malabsorptive or metabolic mechanism**

Roux en-Y Gastric Bypass (RYGB)

BPD-DS

Omega gastric bypass

Ileal interposition

Bilio-pancreatic diversion

SADI SAGI

Laparoscopic Roux-en-Y Gastric Bypass, but Not Rebanding, Should Be Proposed as Rescue Procedure for Patients With Failed Laparoscopic Gastric Banding

Markus Weber, MD,* Markus K. Müller, MD,* Jean-Marie Michel, MD,* Rahim Belal, MD,* Fritz Horber, MD,† Renward Hauser, MD,‡ and Pierre-Alain Clavien, MD, PhD, FACS*

Weight regain
after adjustable
gastric band

Conservative therapy
Surgical revision

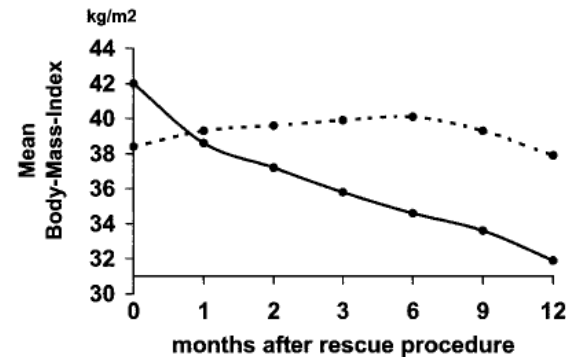


FIGURE 3. Change of BMI after gastric rebanding (---●---) and gastric bypass (—●—) as rescue procedure after failed gastric banding. The BMI was significantly different between the rebanding and gastric bypass groups at each time point 2 months after the rescue procedure.

Laparoscopic revision of gastric banding to biliopancreatic diversion with duodenal switch

Nelson Trelles, M.D., Michel Gagner, M.D., F.R.C.S.C., F.A.C.S.*

Weight regain
after adjustable
gastric band

Conservative therapy
Surgical revision

> [Surg Endosc.](#) 2015 Sep;29(9):2533-7. doi: 10.1007/s00464-014-3995-7. Epub 2014 Nov 27.

Revisions After Failed Gastric Band: Sleeve Gastrectomy and Roux-en-Y Gastric Bypass

Raquel Gonzalez-Heredia ¹, Mario Masrur, Kristin Patton, Vivek Bindal, Shraavan Sarvepalli, Enrique Elli

Comparative Study > [Surg Obes Relat Dis.](#) Nov-Dec 2013;9(6):901-7.

doi: 10.1016/j.soard.2013.04.003. Epub 2013 Apr 17.

Conversion of Failed Laparoscopic Adjustable Gastric Banding: Sleeve Gastrectomy or Roux-en-Y Gastric Bypass?

Rena C Moon ¹, Andre F Teixeira, Muhammad A Jawad

CONCLUSIONS: SG and RYGB are safe options to revise a failed gastric band. Both groups who received either a SG or RYGB had a low complication rate and acceptable %EWL with no statistical difference between the two.

Weight regain
after adjustable
gastric band

Conservative therapy
Surgical revision

One or two steps ?

Conversion from Band to Bypass in Two Steps Reduces the Risk for Anastomotic Strictures

Yves Van Nieuwenhove • Wim Ceelen •
Katrien Van Renterghem • Dirk Van de Putte •
Tom Henckens • Piet Pattyn

Original Paper

A one-step conversion from gastric banding to laparoscopic Roux-en-Y gastric bypass is as safe as a two-step conversion: A comparative analysis of 885 patients

Isabelle Debergh , Barbara Defoort, Marieke De Visschere, Silke Flahou, Sebastiaan Van Cauwenberge, Jan P. Mulier & ...show all

CONCLUSIONS: With increasing experience and full standardization of the conversion, the vast majority of operations can be performed as a single-stage procedure. Only a migrated band remains a formal contraindication for a one-step approach.

Weight regain
after sleeve
gastrectomy

Conservative therapy
Surgical revision

Review > Eur Rev Med Pharmacol Sci. 2016 Dec;20(23):4930-4942.

Sleeve Gastrectomy: Have We Finally Found the Holy Grail of Bariatric Surgery? A Review of the Literature

I Kehagias¹, A Zygomalas, D Karavias, S Karamanakos

Sleeve Gastrectomy Failure: Just When We Thought We Had the Perfect Operation

BT Online Editor | July 22, 2010

by Amir Mehran, MD, FACS, FASMBS, and Alaa Koleilat

Dr. Mehran and Ms. Koleilat are from the University of California, Los Angeles Department of Surgery, Los Angeles, California.

Bariatric Times. 2010;7(7):16-17



Surgery: Current Research

Switzer and Karmali, Surgery Curr Res 2014, 4:3
DOI: 10.4172/2161-1076.1000180

Review Article

Open Access

The Sleeve Gastrectomy and How and Why it can Fail?

Noah J Switzer¹ and Shahzeer Karmali^{1,2*}

¹Department of Surgery, University of Alberta, Edmonton, Alberta, Canada

²Center for the Advancement of Minimally Invasive Surgery (CAMIS), Royal Alexandria Hospital, Edmonton, Alberta, Canada



**Weight regain
after sleeve
gastrectomy**

Conservative therapy
Surgical revision

Gastric restriction restoration

Resleeve gastrectomy with ring

Gastric plication

Adjustable Gastric band

Natural orifice endoscopic procedures (suturing,
stapplers...)

**Conversion from failed restriction to another bariatric procedure
with malabsorptive or metabolic mechanism**

Roux en-Y Gastric Bypass (RYGB)

BPD-DS

Omega gastric bypass

Ileal interposition

Bilio-pancreatic diversion

SADI SAGI

Weight regain
after sleeve
gastrectomy

Conservative therapy
Surgical revision

Brief Communication | Published: 04 September 2018

Re-sleeve Gastrectomy 4 Years Later: Is It Still an Effective Revisional Option?

F. De Angelis [✉](#), M. Avallone, A. Albanese, M. Foletto & G. Silecchia

Obesity Surgery **28**, 3714–3716(2018) | [Cite this article](#)

Comparative Study > *Obes Surg.* 2016 Oct;26(10):2302-7. doi: 10.1007/s11695-016-2119-y.

Approach to Poor Weight Loss After Laparoscopic Sleeve Gastrectomy: Re-sleeve Vs. Gastric Bypass

Salman AlSabah ¹, Nourah Alsharqawi ², Ahmed Almulla ², Shehab Akrof ², Khaled Alenezi ², Waleed Buhaimed ², Saud Al-Subaie ², Mohammed Al Haddad ²

Observational Study > *Obes Surg.* 2019 Dec;29(12):3919-3927.

doi: 10.1007/s11695-019-04123-9.

Comparison of Repeat Sleeve Gastrectomy and Roux-en-Y Gastric Bypass in Case of Weight Loss Failure After Sleeve Gastrectomy

Christos Antonopoulos ^{1 2}, Lionel Rebibo ^{1 3 4}, Daniela Calabrese ⁵, Lara Ribeiro-Parenti ¹, Konstantinos Arapis ¹, Abdennaceur Dhahri ⁴, Muriel Coupaye ⁶, Boris Hansel ⁷, Jean-Pierre Marmuse ¹, Jean-Marc Regimbeau ^{3 4}, Simon Msika ^{8 9}

CONCLUSIONS: Re-SG and RYGB as revisional surgery for SG are feasible with acceptable outcomes and similar results on weight loss only on the first postoperative year.

Weight regain
after sleeve
gastrectomy

Conservative therapy
Surgical revision

Research article | [Open Access](#) | Published: 12 February 2020

A meta-analysis of the medium- and long-term effects of laparoscopic sleeve gastrectomy and laparoscopic Roux-en-Y gastric bypass

[Lihu Gu](#), [Xiaojing Huang](#), [Shengnan Li](#), [Danyi Mao](#), [Zefeng Shen](#), [Parikshit Asutosh Khadaroo](#), [Derry Minyao Ng](#) & [Ping Chen](#) 

CONCLUSIONS: Overall, 9038 patients (4597, LSG group; 4441, LRYGB group) were included. The remission rate of type 2 diabetes mellitus (T2DM) in the LRYGB group was superior to that in the LSG group at the 3-years follow-up. Five-year follow-up results showed that LRYGB had an advantage over LSG for the percentage of excess weight loss and remission of T2DM, hypertension, dyslipidemia, and abnormally low-density lipoprotein.

Weight regain
after sleeve
gastrectomy

Conservative therapy
Surgical revision

> *Obes Surg.* 2020 Jun;30(6):2259-2265. doi: 10.1007/s11695-020-04461-z.

Obesity surgery

Laparoscopic Conversion of Sleeve Gastrectomy to One Anastomosis Gastric Bypass for Weight Loss Failure: Mid-Term Results

Tarek Debs ¹, Niccolò Petrucciani ², Radwan Kassir ³, Gildas Juglard ⁴, Jean Gugenheim ¹, Antonio Iannelli ¹, Francesco Martini ⁴, Arnaud Liagre ⁴

Randomized Controlled Trial > *Surg Endosc.* 2019 Feb;33(2):401-410.

doi: 10.1007/s00464-018-6307-9. Epub 2018 Jun 25.

Long-term Follow-Up After Sleeve Gastrectomy Versus Roux-en-Y Gastric Bypass Versus One-Anastomosis Gastric Bypass: A Prospective Randomized Comparative Study of Weight Loss and Remission of Comorbidities

Jaime Ruiz-Tovar ^{1 2}, Miguel Angel Carbajo ³, Jose Maria Jimenez ³, Maria Jose Castro ³, Gilberto Gonzalez ³, Javier Ortiz-de-Solorzano ³, Lorea Zubiaga ^{3 4}

CONCLUSIONS: OAGB achieves superior mid- and long-term weight loss than RYGB and SG.

There are no significant differences in weight loss between SG and RYGB at 1, 2, and 5 years. OAGB achieves better short- and long-term resolution rates of DM, HT, and DL than SG and RYGB. RYGB and SG obtain similar T2DM and HT remissions, but RYGB reaches significantly greater rates of DL remission.

Weight regain
after sleeve
gastrectomy

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Laparoscopic Conversion of Failed Gastric Bypass to Duodenal Switch

BT Online Editor | February 28, 2008

Manish Parikh, MD; and Michel Gagner, MD, FRCSC, FACS

Failed Sleeve Gastrectomy: Single Anastomosis Duodenoileal Bypass or Roux-en-Y Gastric Bypass? A Multicenter Cohort Study

[Phillip J. Dijkhorst](#) , [Abel B. Boerboom](#), [Ignace M. C. Janssen](#), [Dingeman J. Swank](#), [René M. J. Wiezer](#), [Eric J. Hazebroek](#), [Frits J. Berends](#) & [Edo O. Aarts](#)

[Obesity Surgery](#) **28**, 3834–3842(2018) | [Cite this article](#)

CONCLUSIONS: in experienced hands, laparoscopic conversion of failed RYGB to DS is highly effective with an acceptable morbidity. Longer follow-up is required to determine if this weight loss is sustained.

Weight regain
after gastric
bypass

Conservative therapy
Surgical revision

Obesity Surgery, 16, 1032-1040

Systematic Review of Medium-Term Weight Loss after Bariatric Operations

Paul E. O'Brien, MD, FRACS; Tracey McPhail, BSc; Timothy B. Chaston, BAppSci, PhD; John B. Dixon, MBBS, PhD, FRACGP

The Centre for Obesity Research and Education (CORE), Monash University, Melbourne, Victoria, Australia

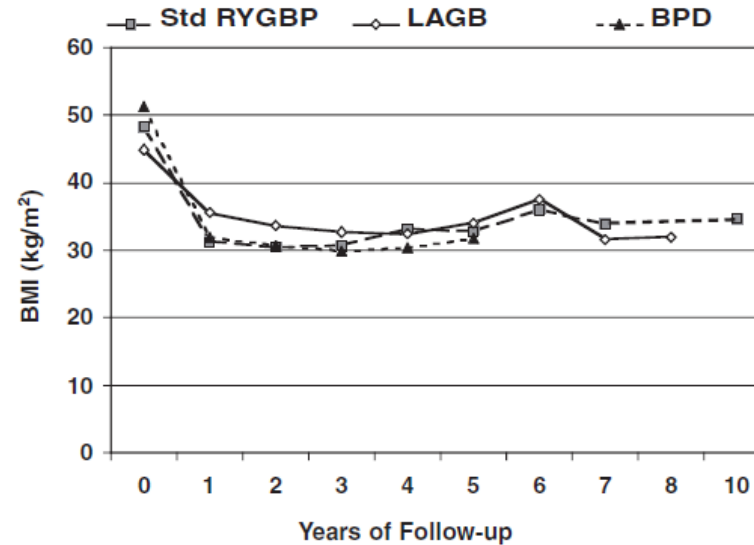


Figure 4. Changes in BMI for LAGB, standard RYGBP and BPD.

Weight regain
after gastric
bypass

Conservative therapy
Surgical revision

> *Obes Surg.* 2012 Oct;22(10):1586-93. doi: 10.1007/s11695-012-0707-z.

Long-term Results of Laparoscopic Roux-en-Y Gastric Bypass: Evaluation After 9 Years

Jacques Himpens ¹, Anneleen Verbrugghe, Guy-Bernard Cadière, Wouter Everaerts, Jan-Willem Greve

Obesity Surgery, 16, 1032-1040

Systematic Review of Medium-Term Weight Loss after Bariatric Operations

Paul E. O'Brien, MD, FRACS; Tracey McPhail, BSc; Timothy B. Chaston, BAppSci, PhD; John B. Dixon, MBBS, PhD, FRACGP

The Centre for Obesity Research and Education (CORE), Monash University, Melbourne, Victoria, Australia

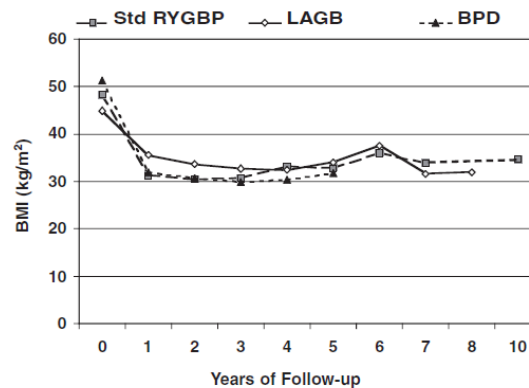


Figure 4. Changes in BMI for LAGB, standard RYGBP and BPD.

Weight regain
after gastric
bypass

Conservative therapy
Surgical revision

[Bariatr Surg Pract Patient Care](#). 2014 Mar 1; 9(1): 36–40.

doi: [10.1089/bari.2013.0012](https://doi.org/10.1089/bari.2013.0012)

PMCID: PMC3963694

PMID: [24761371](https://pubmed.ncbi.nlm.nih.gov/24761371/)

Management of Failed Laparoscopic Roux-en-Y Gastric Bypass

[Ahmad Ibrahim Elnahas](#), MD,¹ [Timothy D. Jackson](#), MD, MPH, FRCSC,¹ and [Dennis Hong](#), MD, MSc, FRCSC, FACS^{✉2}

SUMMARY OF LITERATURE ON REVISIONAL PROCEDURES FOR WEIGHT FAILURE FOLLOWING LAPAROSCOPIC ROUX-EN-Y GASTRIC BYPASS

<i>Study</i>	<i>n</i>	<i>Procedure</i>	<i>Weight loss</i>	<i>Mean follow-up (months)</i>
Bessler 2005 ¹	8	LAGB	EWL 38%	12
			EWL 44%	24
Bessler 2010 ⁷	10	LAGB	EWL 47.3%	24
	2		EWL 47%	60
Chin 2009 ⁸	8	LAGB	EWL 24%	12
Gobble 2008 ²	11	LAGB	EWL 21%	12
Irani 2011 ⁵	42	LAGB	EWL 38.3%	26
Müller 2005 ¹⁰	5	Pouch resizing with redo anastomosis	BMI loss 3.9 kg/m ²	11
Parikh 2011 ¹¹	13	Gastrojejunal sleeve reduction	EWL 12%	12
Spaulding 2003 ¹²	15	Sclerotherapy	EWL 9%	6
	5		EWL -4%	
Horgan 2010 ¹³	96	Incisionless operating platform	EWL 18%	6
Mikami 2010 ¹⁵	14	StomaphyX	EWL 17%	6
	6		EWL 19.5%	12
Sugerman 1997 ⁹	25	LDRYGB	EWL 61%	12
	11		EWL 69%	60
Parikh 2007 ¹¹	12	LBPDDS	EWL 63%	11
Keshishian 2004 ²⁰	46	LBPDDS	EWL 69%	30

Weight regain after gastric bypass

Conservative therapy
Surgical revision

Gastric pouch restriction restoration

Resizing of th pouch with ring

Gastric pouch plication

Adjustable Gastric band

Natural orifice endoscopic procedures (suturing, staplers...)

Conversion from failed restriction to another bariatric procedure with malabsorptive or metabolic mechanism

Ileal Distalization with short common channel < 150 cm

DBP

Ileal interposition

Weight regain
after gastric
bypass

Conservative therapy
Surgical revision

Comparative Study *Obes Surg* . 2018 Jan;28(1):212-217. doi: 10.1007/s11695-017-2832-1.

Comparison of Banded Versus Non-banded Roux-en-Y Gastric Bypass: a Series of 1150 Patients at a Single Institution

[Rena C Moon](#)¹, [Ashley Frommelt](#)¹, [Andre F Teixeira](#)¹, [Muhammad A Jawad](#)²

Meta-Analysis *Clin Obes*. 2018 Dec;8(6):424-433. doi: 10.1111/cob.12274.
Epub 2018 Aug 24.

Banded vs. non-banded Roux-en-Y gastric bypass for morbid obesity: a systematic review and meta-analysis

[D E Magouliotis](#)¹, [V S Tasiopoulou](#)², [K A Svokos](#)³, [A A Svokos](#)⁴, [E Sioka](#)¹, [G Tzovaras](#)¹, [D Zacharoulis](#)¹

Banded laparoscopic RYGB may not demonstrate a significant additional weight loss or prevent future weight regain.

Eight studies met the inclusion criteria incorporating 3899 patients. not able to demonstrate a clear advantage of banded RYGB over non-banded RYGB.

Well-designed, randomized controlled studies, comparing BRYGB to NBRYGB, are necessary to further assess their clinical outcomes.

Weight regain
after gastric
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Conservative therapy
Surgical revision

> [Obes Surg. Nov-Dec 2005;15\(10\):1443-8. doi: 10.1381/096089205774859173.](#)

Adjustable Gastric Banding as a Revisional Bariatric Procedure After Failed Gastric Bypass

Marc Bessler ¹, Amna Daud, Mary F DiGiorgi, Lorraine Olivero-Rivera, Daniel Davis

> [Obes Surg. 2005 Sep;15\(8\):1089-95. doi: 10.1381/0960892055002257.](#)

Laparoscopic Pouch Resizing and Redo of Gastro-Jejunal Anastomosis for Pouch Dilatation Following Gastric Bypass

Markus K Müller ¹, Stefan Wildi, Thomas Scholz, Pierre-Alain Clavien, Markus Weber

> [Obes Surg. 2011 May;21\(5\):650-4. doi: 10.1007/s11695-010-0274-0.](#)

Laparoscopic "Gastrojejunal Sleeve Reduction" as a Revision Procedure for Weight Loss Failure After Roux-En-Y Gastric Bypass

Manish Parikh ¹, Laura Heacock, Michel Gagner

CONCLUSIONS: No anastomosis or change in absorption is required may make this an attractive revisional strategy for LAGB.

Pouch resizing did not appear to offer any significant therapeutic benefit since only 12% EWL was seen after a mean follow-up of 12 months

Weight regain
after gastric
bypass

Conservative therapy
Surgical revision

Multicenter Study > Surg Obes Relat Dis. May-Jun 2010;6(3):290-5.

doi: 10.1016/j.soard.2009.12.011. Epub 2010 Feb 13.

Incisionless Revision of post-Roux-en-Y Bypass Stomal and Pouch Dilation: Multicenter Registry Results

Santiago Horgan ¹, Garth Jacobsen, G Derek Weiss, John S Oldham Jr, Peter M Denk, Frank Borao, Steven Gorcey, Brad Watkins, John Mobley, Kari Thompson, Adam Spivack, Dave Voellinger, Chris Thompson, Lee Swanstrom, Paresh Shah, Greg Haber, Matthew Brengman, Gregory Schroder

> Surg Endosc. 2006 Nov;20(11):1744-8. doi: 10.1007/s00464-006-0045-0. Epub 2006 Oct 5.

Peroral Endoscopic Reduction of Dilated Gastrojejunal Anastomosis After Roux-en-Y Gastric Bypass: A Possible New Option for Patients With Weight Regain

C C Thompson ¹, J Slattery, M E Bundga, D B Lautz

CONCLUSIONS: Endoscopic techniques are safe and effective, further evaluation is necessary given that their long-term benefits are unknown.

Weight regain
after gastric
bypass

Conservative therapy
Surgical revision

> [Obes Surg. 2001 Apr;11\(2\):190-5. doi: 10.1381/096089201321577866.](#)

Revision of Failed Gastric Bypass to Distal Roux-en-Y Gastric Bypass: A Review of 65 Cases

M A Fobi ¹, H Lee, D Igwe Jr, B Felahy, E James, M Stanczyk, J Tambi, P Eyong

> [Obes Surg. 2017 Sep;27\(9\):2293-2302. doi: 10.1007/s11695-017-2658-x.](#)

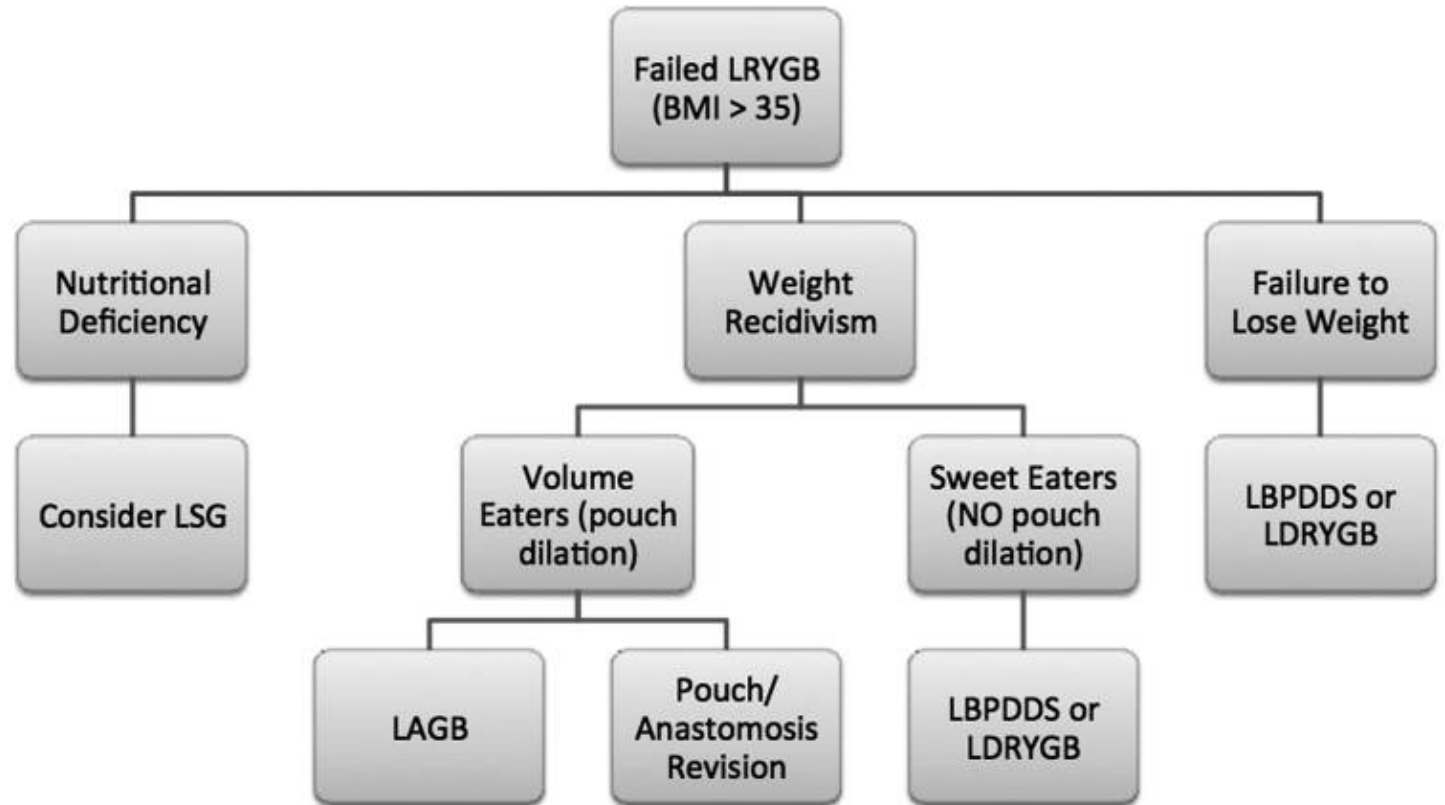
Revision Roux-en-Y Gastric Bypass to Biliopancreatic Long-Limb Gastric Bypass for Inadequate Weight Response: Case Series and Analysis

Henry Buchwald ¹, Danette M Oien ²

CONCLUSIONS: Revision of short-limb gastric bypass to DRYGBP usually enhances weight loss but at a cost of an increased incidence of protein malnutrition and a high necessity for revision.
A Roux segment over 250 cm may improve outcomes.

Weight regain after gastric bypass

Conservative therapy
Surgical revision



Algorithm for patients with failed laparoscopic Roux-en-Y gastric bypass. BMI, body mass index; LAGB, laparoscopic adjustable gastric banding; LBPDDS, laparoscopic biliopancreatic diversion with duodenal switch; LDRYGB, laparoscopic distal Roux-en-Y gastric bypass; LRYGB, laparoscopic Roux-en-Y gastric bypass; LSG, laparoscopic sleeve gastrectomy.