



MINICORSO METABOLICO 2 APPROCCIO STEP BY STEP ALL'OBESITA' SEVERA



ITALIAN CHAPTER

Roma, 8-11 novembre 2018

LA CHIRURGIA BARIATRICA

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Conflitti di interesse



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Ai sensi dell'art. 3.3 sul conflitto di interessi, pag 17 del Regolamento Applicativo Stato-Regioni del 5/11/2009, dichiaro che negli ultimi 2 anni ho avuto rapporti diretti di finanziamento con i seguenti soggetti portatori di interessi commerciali in campo sanitario:

NESSUN CONFLITTO DI INTERESSE DA DICHIARARE



Fig 1 - Patient-centric approach in seeking weight loss options that range from commercial to medical and surgical treatment approaches.



Kushner. Weight loss strategies:
Intensification of Therapies to Achieve Weight Loss Goals

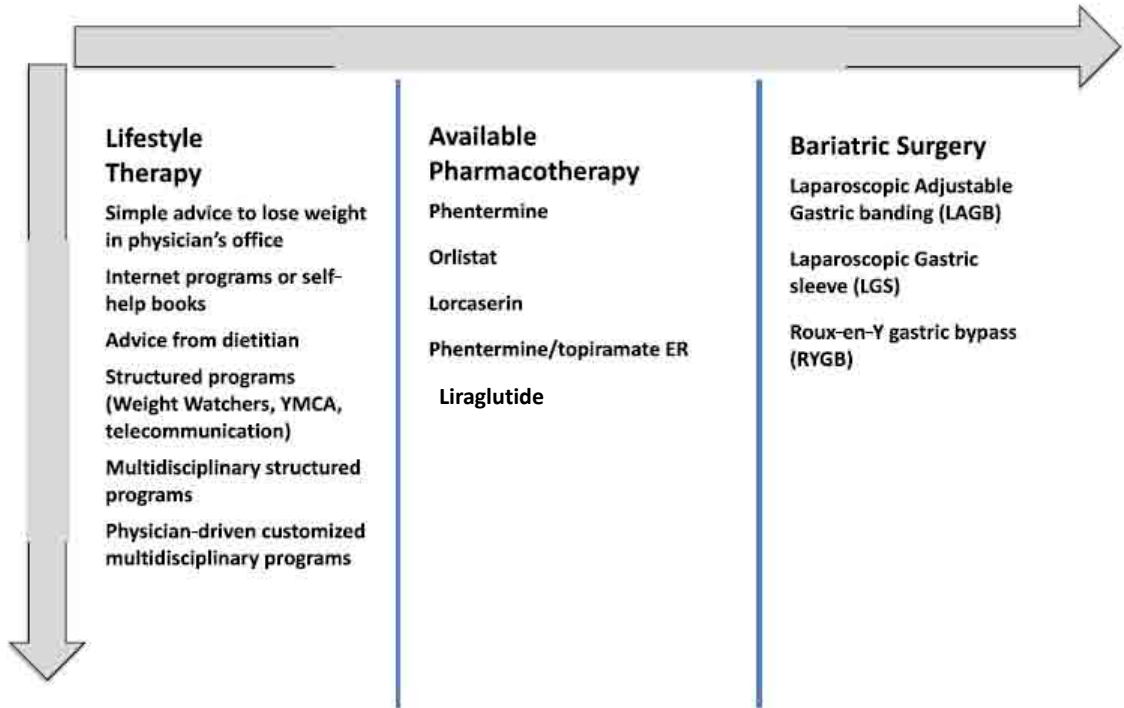


Fig 2 – Three-stepped intensification of care approach to weight management.



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TERAPIA CHIRURGICA



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*Si prefigge lo scopo di **ridurre i rischi di mortalità e morbilità** legati all'obesità*

può essere presa in considerazione solo in pazienti opportunamente informati e motivati

dopo il fallimento di programmi integrati di trattamento non chirurgico:

- dieta
- esercizio fisico
- terapie medico - comportamentali



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Chirurgia Bariatrica Indicazioni



(NIH Consensus Development Conference Panel 1991)

- ✓ BMI \geq 40 kg/m²
- ✓ BMI \geq 35 kg/m² con co-morbilità:
 - ✓ Ipertensione arteriosa
 - ✓ DMT2
 - ✓ Dislipidemia grave
 - ✓ OSAS
 - ✓ Artrosi grave



Chirurgia Bariatrica

Controindicazioni



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- Età < 18 o > 60 anni
- Assenza di un periodo di trattamento medico verificabile
- Paziente incapace di partecipare ad un prolungato protocollo di follow-up
- Disordini psicotici, depressione severa, disturbi della personalità e del comportamento alimentare valutati da uno psichiatra o psicologo dedicato
- Obesità secondaria (studio dell'assetto ormonale)
- Etilismo e/o tossicodipendenze
- Patologie intestinali gravi
- Pazienti inabili a prendersi cura di se stessi e senza un adeguato supporto familiare e sociale



CHIRURGIA BARIATRICA: INTERVENTO IDEALE



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- ✓ Riduzione ponderale soddisfacente (EWL)
- ✓ Mantenimento del calo ponderale
- ✓ Assenza di effetti collaterali significativi e di complicanze
- ✓ Buona qualità di vita
- ✓ Semplice esecuzione tecnica
- ✓ Applicabile a tutti i pazienti
- ✓ Semplice follow-up



CHIRURGIA BARIATRICA: STRATEGIE CHIRURGICHE



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1. Riduzione della capacità gastrica (interventi restrittivi)
2. Riduzione dell'assorbimento intestinale (interventi malassorbitivi)
3. Combinazione dei precedenti (interventi misti, restrittivo/malassorbitivi)



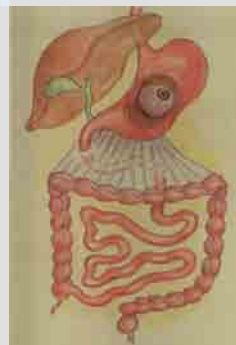
PROCEDURE RESTRITTIVE ENDOSCOPICHE



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PALLONCINO INTRAGASTRICO





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BIB



ITALIAN CHAPTER



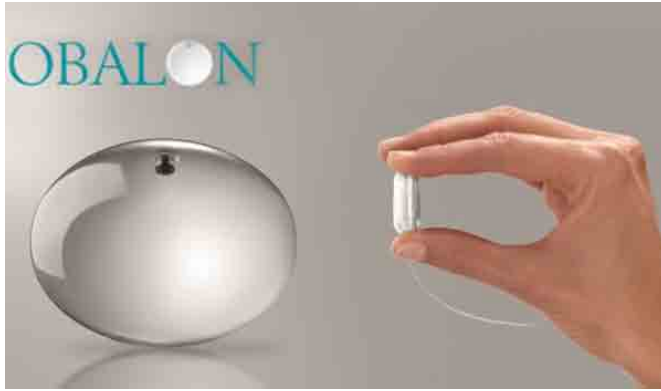


OBALON

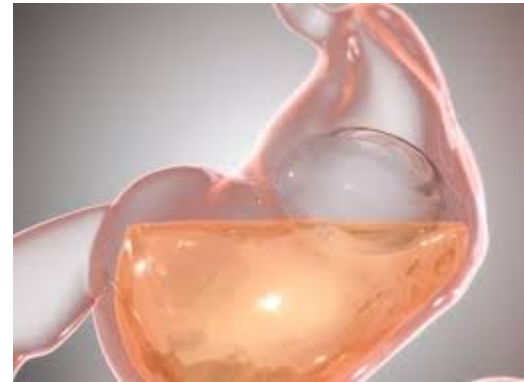


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OBALON INFLATABLE PILL SYSTEM





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ELIPSE



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ELIPSE™

... no surgery... no endoscopy... no anesthesia

Swallowed, self-emptying and excreted



<http://allurion.com/the-ellipse-gastric-balloon/>



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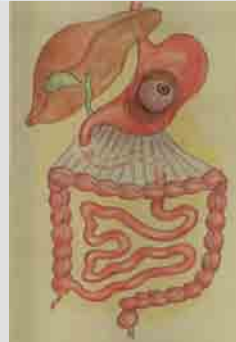
PROCEDURE RESTRITTIVE ENDOSCOPICHE



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PALLONCINO INTRAGASTRICO



Endoscopic restrictive procedures

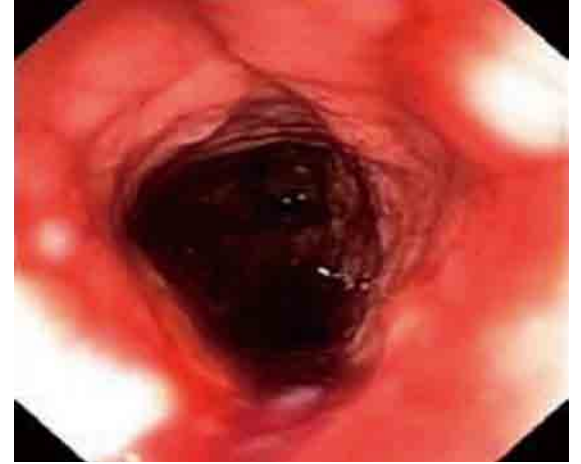


Endoscopic sleeve gastropasty



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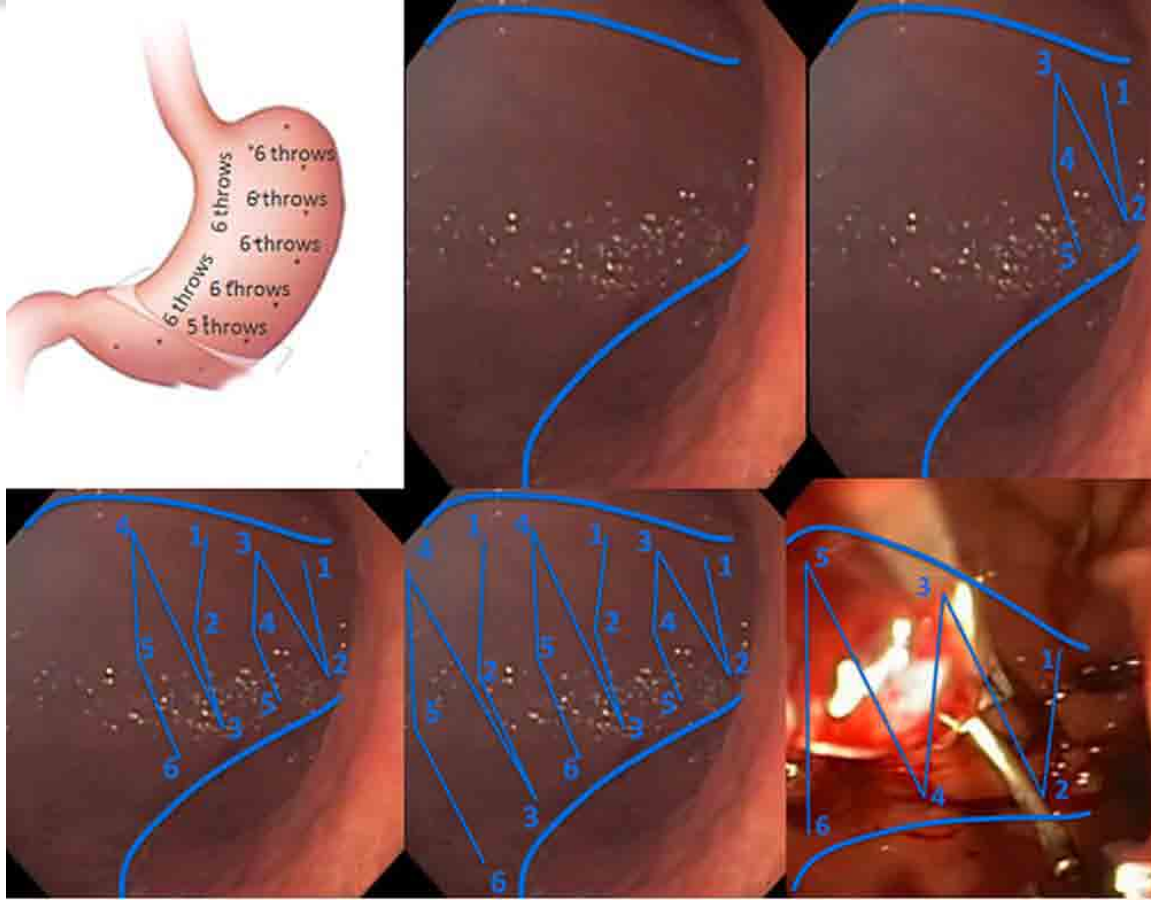


Endoscopic sleeve gastropasty



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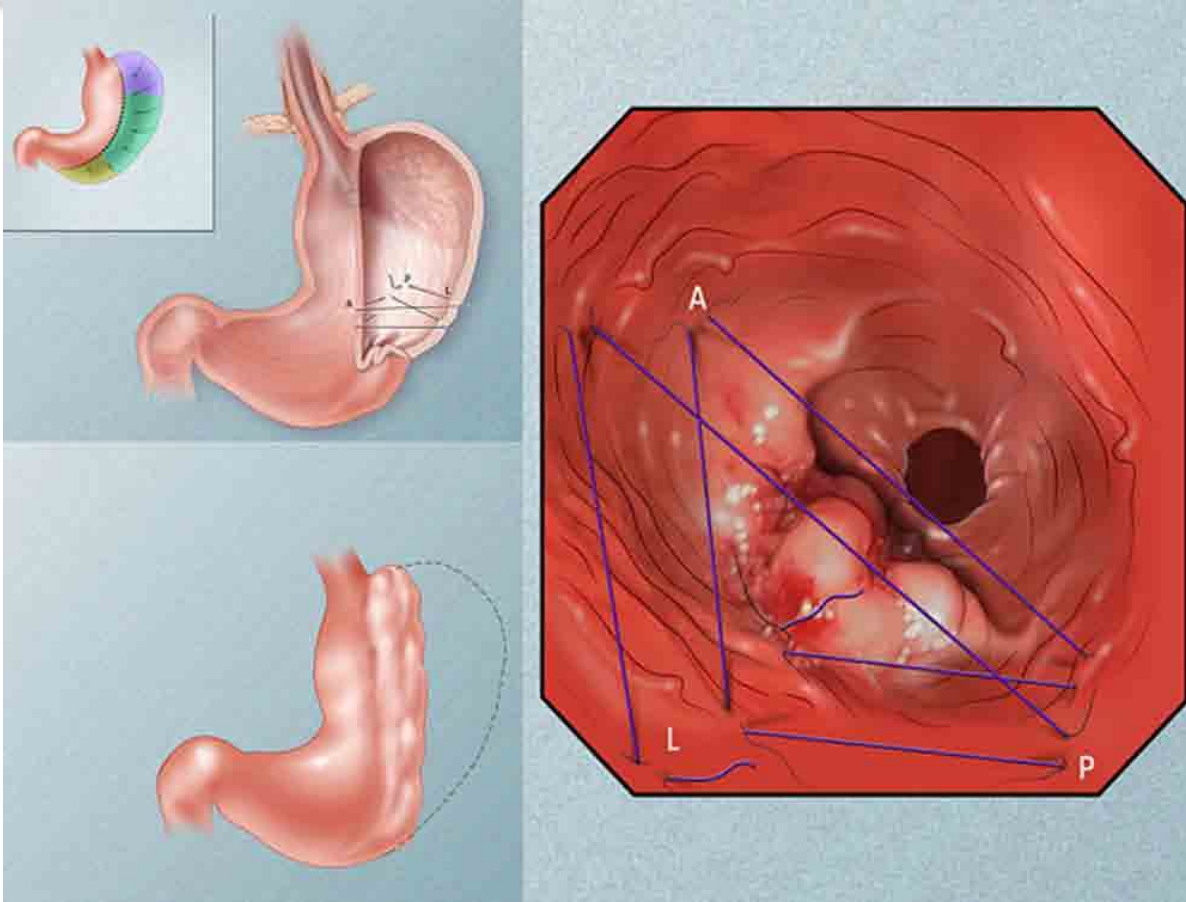


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Endoscopic sleeve gastropasty



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PROCEDURE CHIRURGICHE BARIATRICHE

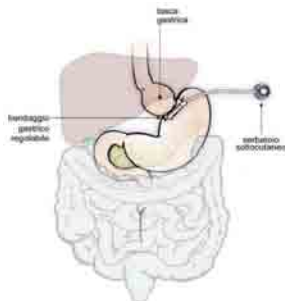


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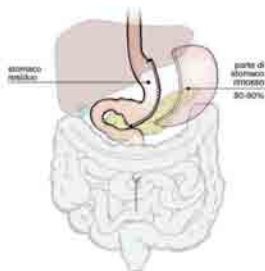
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INTERVENTI RESTRITTIVI

LAGB

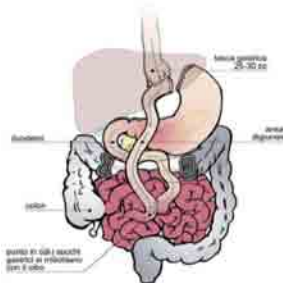


SG

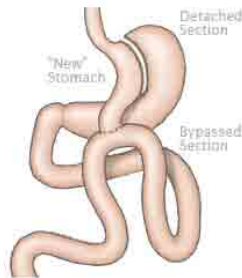


INTERVENTI MISTI

RYGB

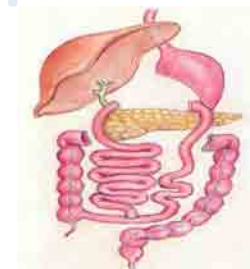


OAGB

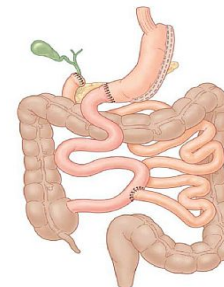


INTERVENTI MALASSORBITIVI

BPD



BPD-DS





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CHIRURGIA BARIATRICA: INTERVENTI RESTRITTIVI



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- *(Gastroplastica verticale)*
- *Bendaggio gastrico regolabile*
- *Sleeve gastrectomy*

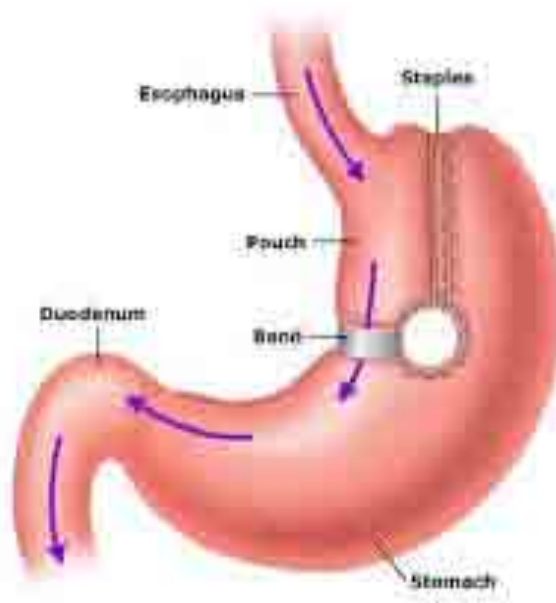


Vertical banded gastroplasty



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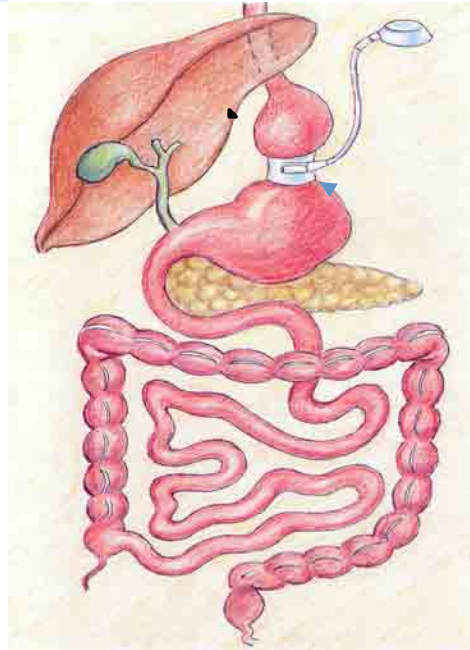


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Bendaggio gastrico regolabile



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La tasca gastrica è ottenuta circondando l'intera parete gastrica con un bendaggio di silicone collegato ad un serbatoio posto nello spessore della parete addominale



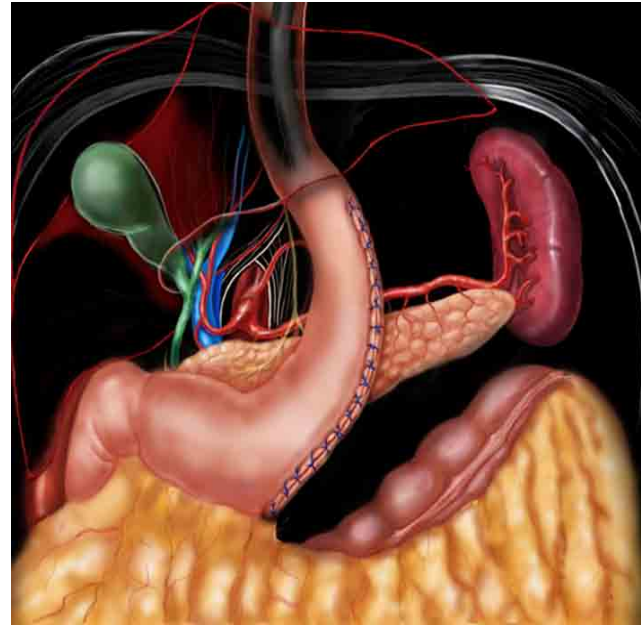
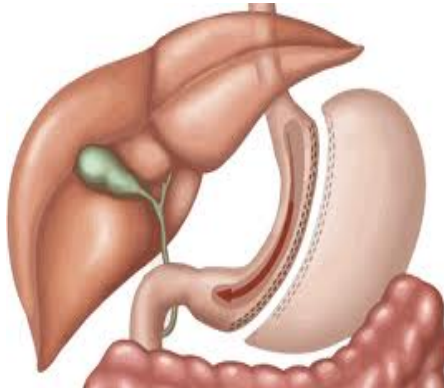
Sleeve gastrectomy



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L'intervento consiste in una gastrectomia verticale ("a manica di camicia")





Sleeve gastrectomy



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CHIRURGIA BARIATRICA: INTERVENTI MISTI (Restrizione gastrica + malassorbimento)



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- ***Bypass gastrico Roux-en-Y***
- ***Bypass gastrico con singola anastomosi (Mini-Bypass gastrico)***

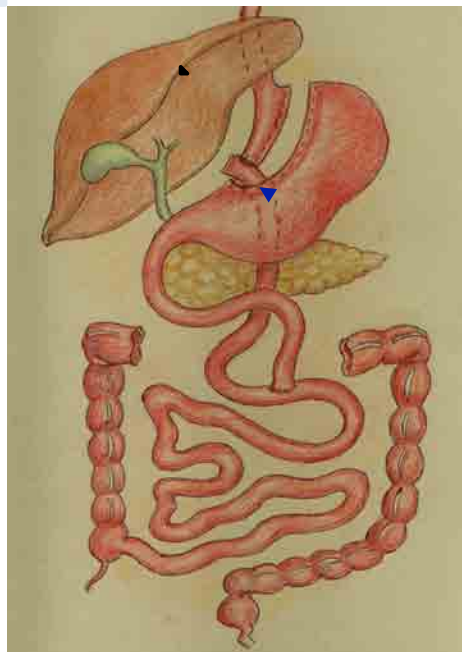


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BYPASS GASTRICO ROUX-EN-Y



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Consiste nella creazione di una tasca gastrica del volume di 25-30 cc ottenuta sezionando il fondo gastrico, separata pertanto dal restante stomaco.

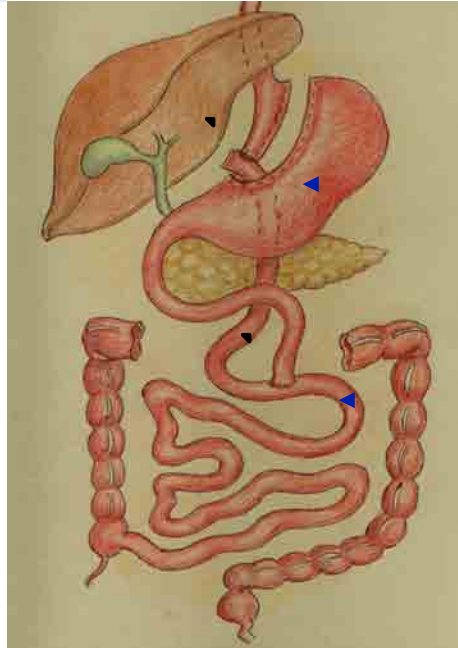


BYPASS GASTRICO ROUX-EN-Y



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- Sezione del digiuno a 50-150 cm dal Treitz
- Gastro-entero anastomosi su ansa alla Roux
- Anastomosi a piede d'ansa realizzata a 100-150 cm dalla G-E anastomosi

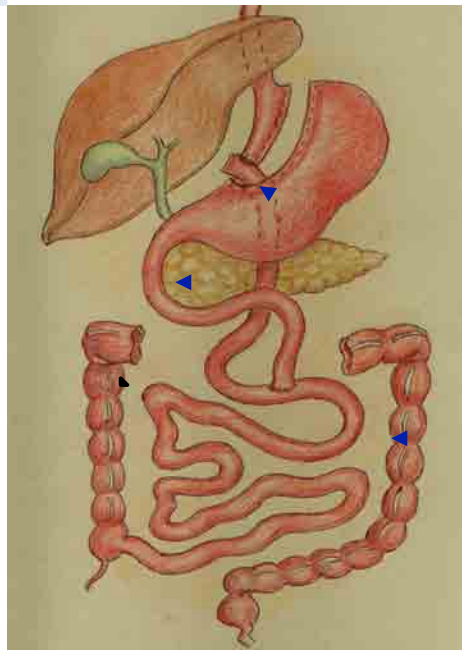


BYPASS GASTRICO ROUX-EN-Y



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Nuovo assetto
anatomico:

-
- ✓ 1. Tratto biliopancreatico
- 2. Tratto alimentare
- 3. Tratto comune

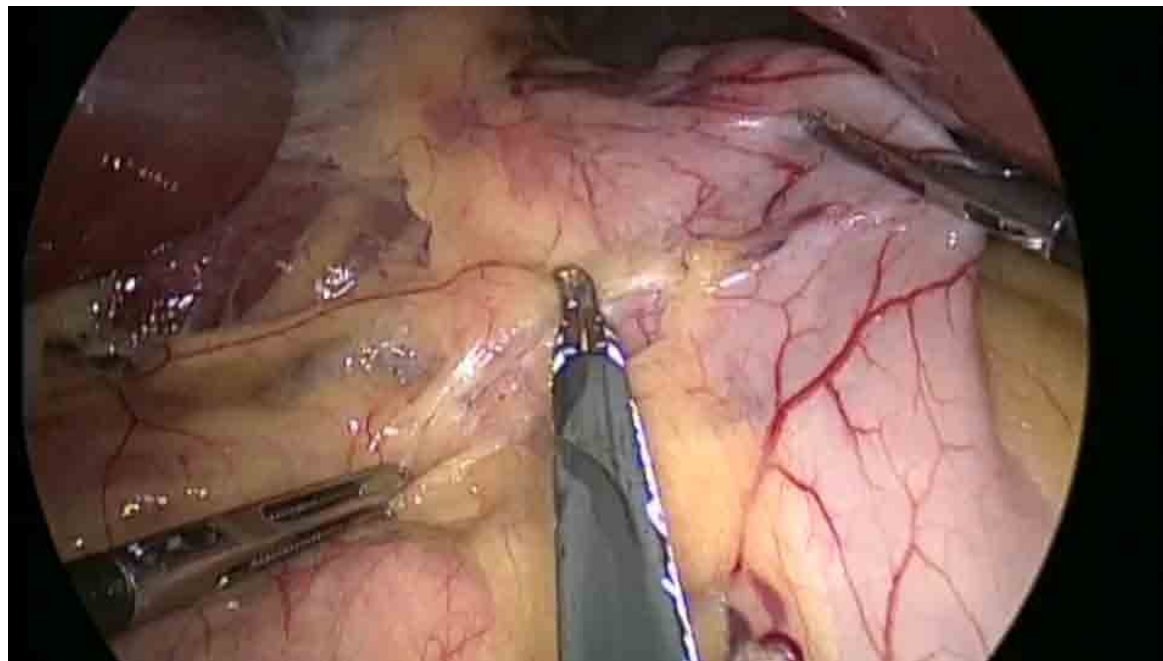


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BYPASS GASTRICO ROUX-EN-Y



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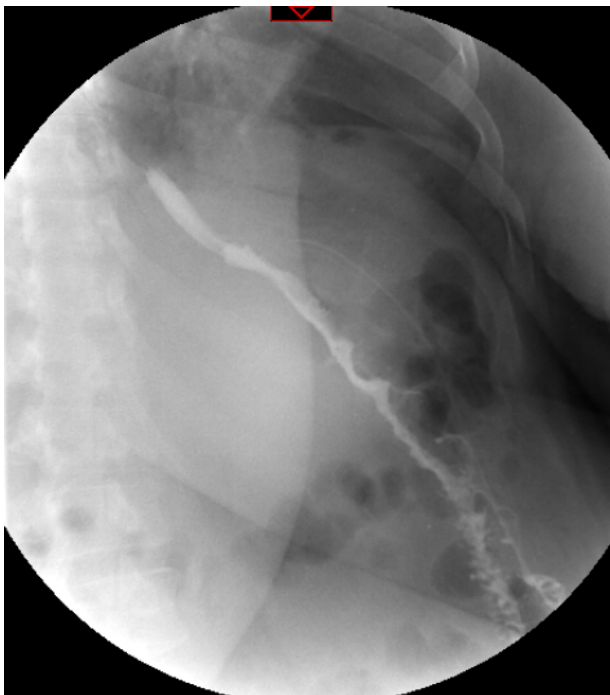


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MINI-BYPASS GASTRICO



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- Tasca gastrica più lunga rispetto al bypass gastrico.
- Anastomosi a 200 cm dal Treitz → maggior malassorbimento



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MINI-BYPASS GASTRICO



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CHIRURGIA BARIATRICA: INTERVENTI MALASSORBITIVI



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- *Diversione bilio-pancreatica*
- *Duodenal switch*
- *Duodenal switch con singola anastomosi (SADI-S)*

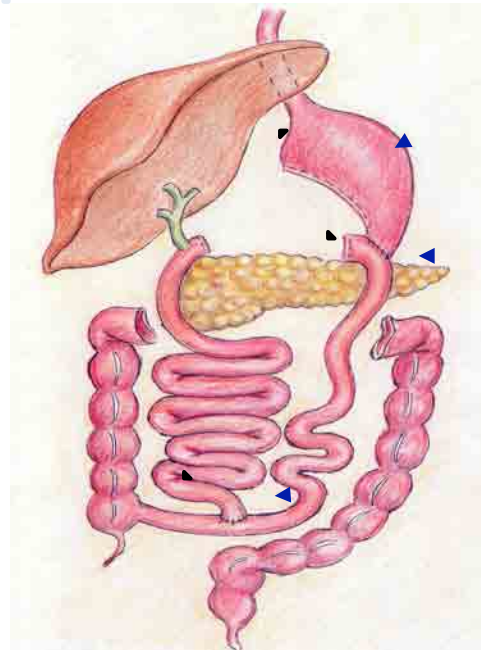


DIVERSIONE BILIOPANCREATICA



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- Gastroresezione parziale mantenendo una tasca gastrica di circa 250-500 cc (ad hoc stomach).
- Gastro-entero anastomosi su ansa ileale sezionata a 250-300 cm dalla valvola ileo-cecale.
- Incontro tra alimenti e secrezioni bilio-pancreatiche a 50-70 cm dalla valvola ileo-cecale.

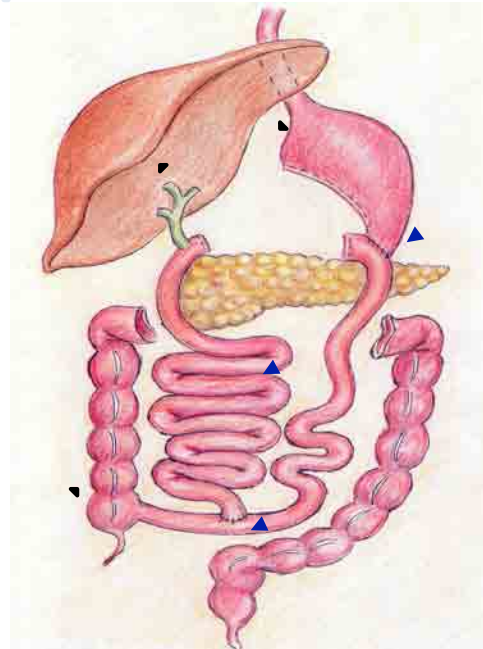


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DIVERSIONE BILIOPANCREATICA



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- 1. Tratto alimentare
- 2. Tratto biliopancreatico
- 3. Tratto comune

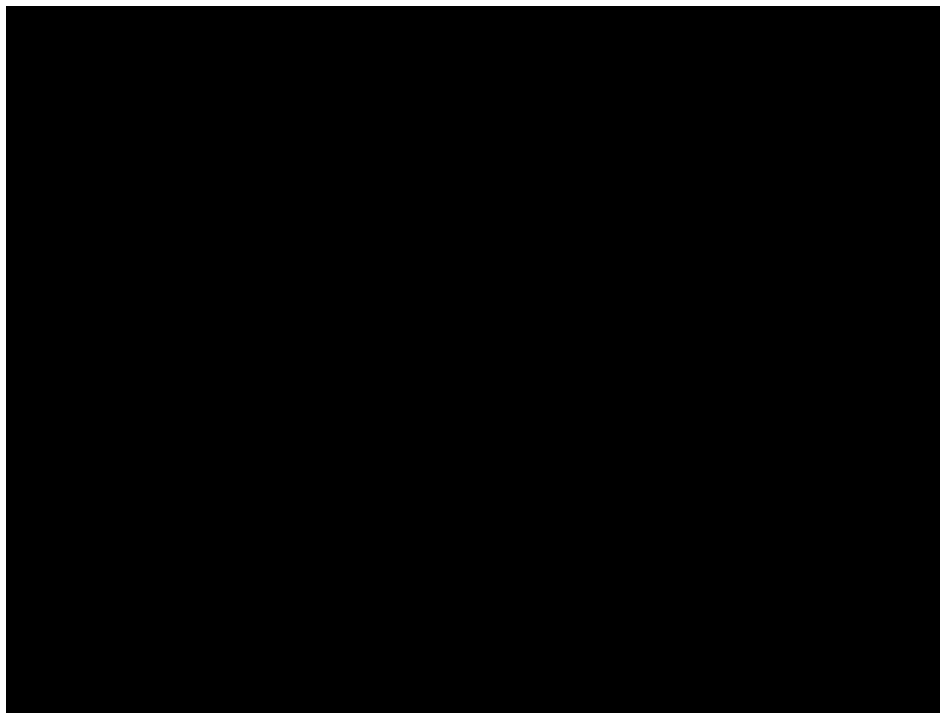


DIVERSIONE BILIOPANCREATICA



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Biliopancreatic Diversion for Severe Obesity: Long-Term Effectiveness and Nutritional Complications

María D. Ballesteros-Pomar¹ · Tomás González de Francisco¹ · Ana Urioste-Fondo¹ · Luis González-Herraez¹ · Alicia Calleja-Fernández¹ · Alfonso Vidal-Casariego¹ · Vicente Simó-Fernández¹ · Isidoro Cano-Rodríguez¹

Abstract

Background Bariatric surgery is currently the treatment of choice for those patients with severe obesity, but the procedure of choice is not clearly established. We describe weight loss and nutritional parameters in severely obese patients after biliopancreatic diversion for 10 years of follow-up.

Methods Patients were followed by the same multidisciplinary team, and data are shown for 10 years. Bariatric Analysis and Reporting Outcome System (BAROS) questionnaire, data regarding the evolution of obesity-related diseases, and nutritional parameters are reported.

Results Two hundred ninety-nine patients underwent biliopancreatic diversion, 76.1 % women, initial BMI 50.1 kg/m² (7.2). Weight loss was maintained throughout

10 years with EWL% around 65 % and EBML% around 70 %. More than 80 % of the patients showed EWL higher than 50 %. Blood pressure, glucose metabolism, and lipid profile clearly improved after surgery. Mean nutritional parameters remained within the normal range during follow-up. Protein malnutrition affected less than 4 % and anemia up to 16 %. Fat-soluble vitamin levels decreased along the time, with vitamin D deficiency in 61.5 % of patients. No significant differences were found either in nutritional parameters or weight loss regarding gastrectomy or gastric preservation, or common limb length longer or shorter than 55 cm. **Conclusions** Biliopancreatic diversion is an effective surgical procedure in terms of weight loss, quality of life, and evolution of obesity-related diseases. Nutritional deficiencies are less frequent than feared for a malabsorptive procedure, but must be taken into account, especially for fat-soluble vitamins.

✉ María D. Ballesteros-Pomar

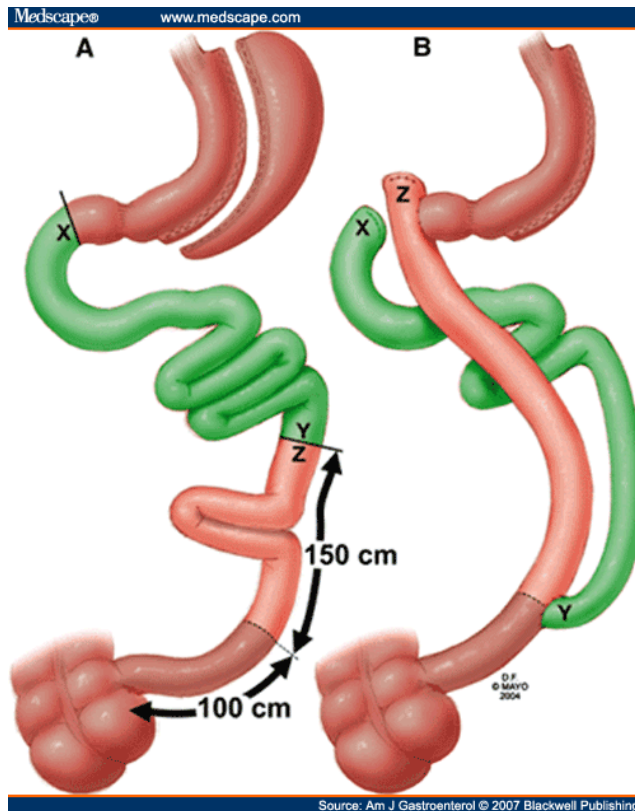


BPD-DUODENAL SWITCH



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(Hess D. 1986)



Ann Surg. 2016 Jan 13. [Epub ahead of print]

Long-term (>10 Yrs) Outcome of the Laparoscopic Biliopancreatic Diversion With Duodenal Switch.

Bolckmans R¹, Himpens J.

Author information

Abstract

OBJECTIVE: The aim of the study was to report 10+ year outcome of laparoscopic biliopancreatic diversion with duodenal switch (LDS), with special focus on quality of life.

BACKGROUND:: Reports on long-term morbidity and quality of life after LDS are rare.

METHODS: Records of all patients who underwent LDS 10+ years ago were analyzed. Patients were contacted to answer a questionnaire based on Bariatric Analysis and Reporting Outcome System. Blood work was reported when performed within the past year.

RESULTS: Of the 153 patients who underwent LDS, follow-up was available for 113 patients (78.5%). Mean follow-up was 130.2±4.6 months. Percentage total weight loss was 40.7±10.8%. Weight loss was greatest in the super obese category (BMI > 50kg/m). Remission rate for type 2 diabetes was 87.5% (21/24) and for arterial hypertension 80.9% (38/47). Dyslipidemia remission rates were 93.3% (28/30) for total cholesterol, 89.7% (26/29) for triglycerides, and 95.0% (19/20) for low-density lipoprotein cholesterol. However, 42.5% of the patients needed reoperation, including 10.6% for correction of protein malnutrition, the latter exclusively in non-super obese individuals. Most common deficiencies concerned vitamin A and D, iron, and zinc. De novo gastroesophageal reflux disease was reported in 43.8%. The Bariatric Analysis and Reporting Outcome System score was good at 4.9±2.2, and 82.3% of participants would choose the procedure again.

CONCLUSIONS: LDS is a very effective metabolic procedure, at the cost of occasional protein and other nutritional deficiencies. Outcome in the long term is best in super obese patients. Overall quality of life is good. The high reoperation rate and incidence of gastroesophageal reflux disease are concerning.



Single Anastomosis Duodeno-Ileal bypass with Sleeve (SADI-S)



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OBES SURG (2007) 17:1614–1618

DOI 10.1007/s11695-007-9287-8

MODERN SURGERY: TECHNICAL INNOVATION

Proximal Duodenal–Ileal End-to-Side Bypass with Sleeve Gastrectomy: Proposed Technique

Andrés Sánchez-Pernaute • Miguel Angel Rubio Herrera •
Elia Pérez-Aguirre • Juan Carlos García Pérez •
Lucio Cabrerizo • Luis Díez Valladares • Cristina Fernández •
Pablo Talavera • Antonio Torres

AIMS:

- TO SIMPLIFY THE SURGICAL PROCEDURE
- TO REDUCE THE OPERATIVE TIME
- TO DECREASE THE POTENTIAL COMPLICATION RATE
- TO MAINTAIN THE OUTCOME OF THE ORIGINAL PROCEDURE (BPD-DS)

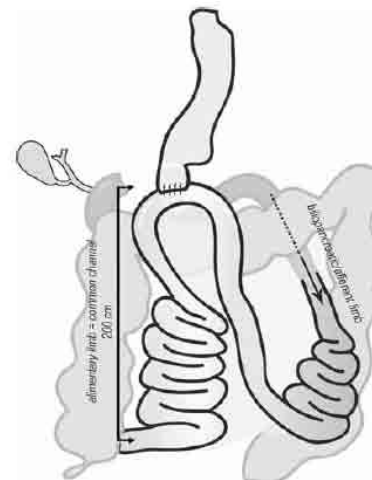


Fig. 1 The proposed technique consists on a sleeve gastrectomy followed by a loop duodeno-ileal anastomosis with a 200-cm effluent limb

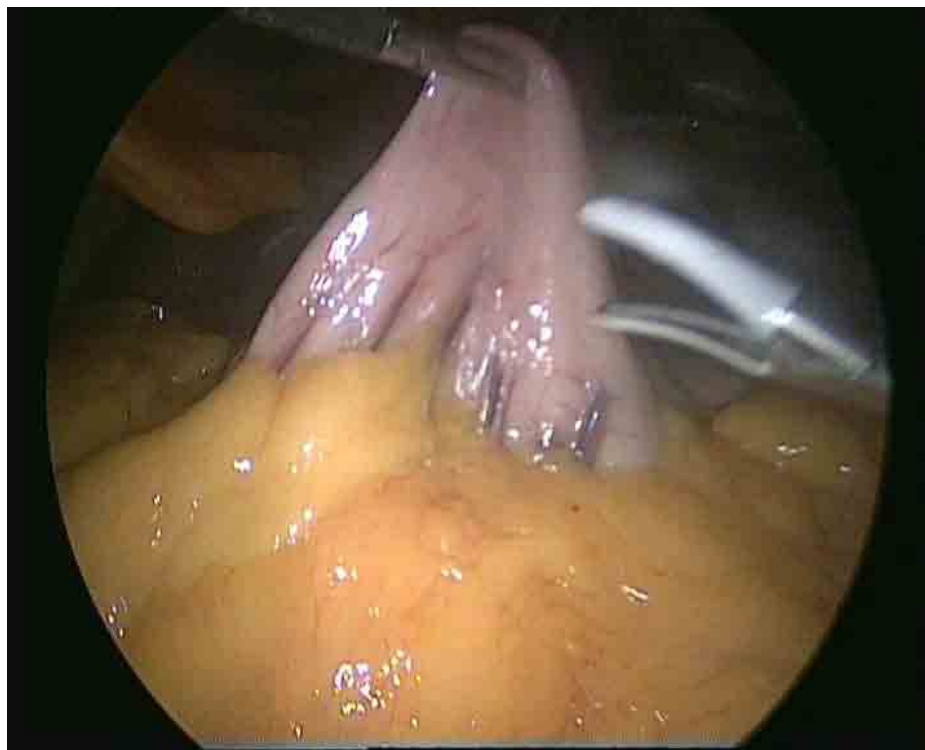


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SADI - S



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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

Fig. 2 Number of the main primary bariatric/metabolic surgical procedures from 2008 to 2016. AGB adjustable gastric banding, RYGB Roux-en-Y gastric bypass, SG sleeve gastrectomy, BPD-DS biliopancreatic diversion-duodenal switch, OAGB one-anastomosis gastric bypass

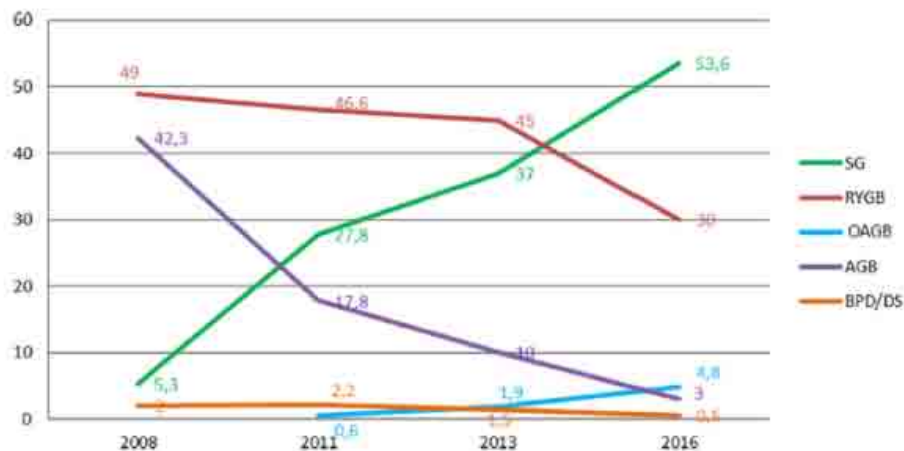




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Fig. 3 Long-term trend in the world's main bariatric/metabolic surgical procedures. AGB adjustable gastric banding, RYGB Roux-en-Y gastric bypass, SG sleeve gastrectomy, BPD-DS biliopancreatic diversion-duodenal switch, OAGB one-anastomosis gastric bypass





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

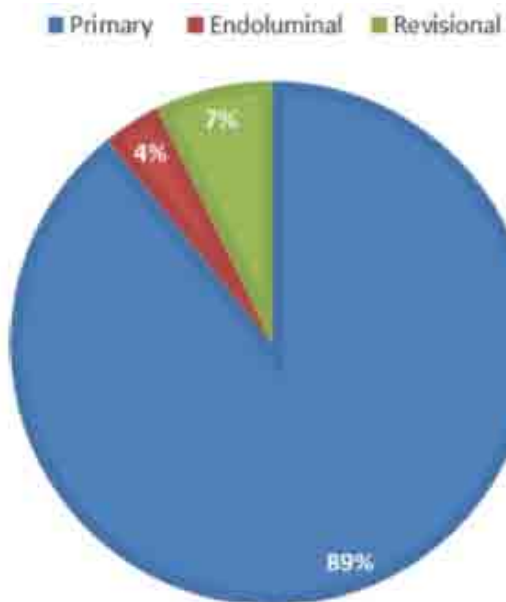


Fig. 8 The number of endoluminal, primary, and revisional procedures

No Procedure is Perfect

Procedure	Patient Concerns	Provider Concerns	Mechanistic Concerns
Biliopancreatic diversion	Gut rearrangement	Macronutrient malabsorption	Micronutrient malabsorption
Roux-en-Y Gastric bypass	Gut rearrangement	Invasiveness	Micronutrient malabsorption
Gastric banding	Foreign body	Need for adjustment; Frequent conversions	Limited weight loss; Esophageal issues
Sleeve Gastrectomy	Removal of normal tissue	Durability	
Gastric plication		Durability; Conversion ability	Role of lumen size
Endoluminal barrier	Foreign body	Need for removal	

There is a wide variability in weight loss after each of these procedures



TERAPIA DELL'OBESITA'



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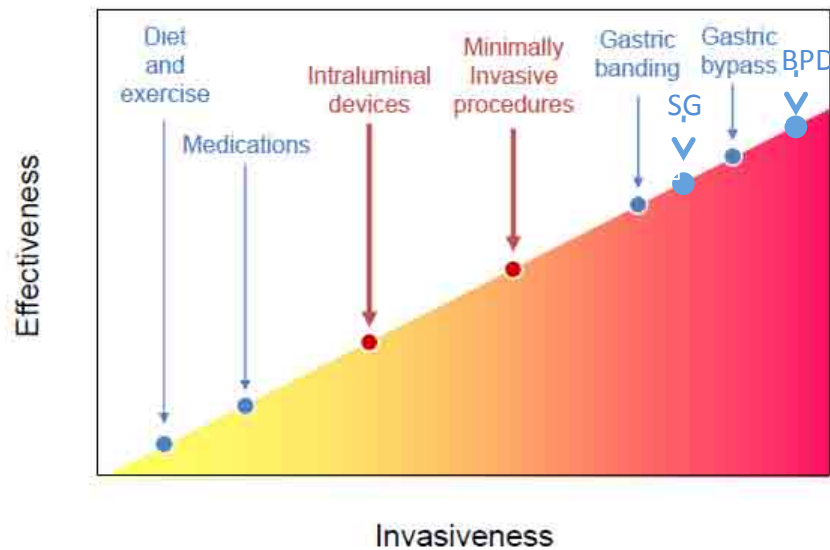


Table 1. Summary of recent studies comparing different bariatric surgical outcomes and results of newer bariatric techniques

Author	Procedure(s)	Number of patients	Follow up	Weight loss (%EWL) unless otherwise noted	Comorbidities remission	Complication
Darman et al. [14]	BPD-DS vs. IRYGB	178, 139	2 years	44% vs. 34%TWL	DM: 82% vs. 64%, HTN: 67% vs. 39%, Lipid: 81% vs. 55%, GERD: 53% vs. 77%	Mortality: 2.8% vs. 2.2%, Reoperation: 29% vs. 23%, Loose stool: 59% vs. 15%, Bloating: 31% vs. 4%
Nelson et al. [15]	BPD-DS vs. IRYGB	1545, 77406	2 years	79% vs. 67%EWL, 85% vs. 79%EBMIL, [BMI>50]: 79% vs. 67%EBMIL	DM: 76% vs. 63%, HTN: 58% vs. 47%, Lipid: 68% vs. 44%, OSA: 79% vs. 49%, GERD: 25% vs. 28%	Mortality: 1.2% vs. 0.3%, Conversion rate: 0.9% vs. 0.8%, Operative time: 191 vs. 114 min, Blood loss: 132 vs. 54 ml, Hospital stay: 4.4 vs. 2.4 days, Reoperation: 11.5% vs. 7.2%, Nutritional deficiencies: 4.1% vs. 2.1%
Lim et al. [16]	IRYGB vs. LSG	226, 208	1, 2, 5 years	IRYGB: 72%, 71%, 68%, LSG: 65%, 66%, 57%		
Kehagias et al. [17]	IRYGB vs. LSG	30, 30	1, 3 years	IRYGB: 73%, 62%, LSG: 66%, 68%	DM: 80% vs. 80%, HTN: 60% vs. 75%, Lipid: 90% vs. 75%, OSA: 67% vs. 67%	Early: 10% vs. 13%, late: 10% vs. 10%
Zhang et al. [18]	IRYGB vs. LSG	358, 200	1 year	IRYGB: 33%EBMIL, LSG: 31%EBMIL	DM: 66% vs. 59%, HTN: 53% vs. 39%, Lipid: 56% vs. 63%, OSA: 83% vs. 91%, GERD: 50% vs. 0.09%	
Dey et al. [19]	SG	50	6 months	50.3%	DM: 89%, OSA: 96%, Joint pain: 87%	5% [3] Major (pneumonitis, SBO), 14% [7] minor complication, No mortality
Saul et al. [20]	SG	50	6 months, 12 months	47%EBMIL, 54%EBWL	DM: 76%, HTN: 50%, Lipid: 70%	0.2% [1] minor bleeding, No anastomotic leak, No mortality
Rawlins et al. [21]	SG	50	5 years	86%	DM: 100%, HTN: 95%, Lipid: 100%, OSA: 100%, GERD: 53%	1.9% [1] staple line leak, 16% [5] new GERD symptoms, No stricture, No bleeding, No mortality
Niazi et al. [24]	LGP	53	1 year, 2 year	70.2%, 74.4%		3.8% [2] reoperations for obstruction, 11.3% [6] nausea, 9.4% [5] epigastric pain
Fried et al. [23]	LGP	244	6 months, 18 months	31.8%, 50%	DM: 54.5%	28% [68] reoperations for vomiting, 1.2% [3] Major complication (gastric perforation, peritonitis, stitch migration), 0.4% [1] conversion to open, 0.8% [2] melena
Talebpour et al. [25]	LGP	800	6 months, 12 months	70%, 55%	(6 vs. 12 months) DM: 70% vs. 95%, HTN: 50% vs. 80%, Lipid: 40% vs. 70%, OSA: 100% vs. 100%	1% [8] reoperations: -3 microperforation, -3 obstruction, -1 vomiting from adhesion, -1 abscess

BPD-DS, biliopancreatic diversions with duodenal switch; DM, diabetes; EBMIL, excess BMI loss; EWL, excess weight loss; GERD, gastroesophageal reflux disease; HTN, hypertension; Lipid, hyperlipidemia; LGP, laparoscopic gastric plication; IRYGB, laparoscopic roux-Y gastric bypass; LSG, laparoscopic sleeve gastrectomy; OSA, obstructive sleep apnea; SG, sleeve gastrectomy; TWL, total weight loss.

Clinical Practice Guidelines for the Perioperative Nutritional, Metabolic, and Nonsurgical Support of the Bariatric Surgery Patient—2013 Update: Cosponsored by American Association of Clinical Endocrinologists, The Obesity Society, and American Society for Metabolic & Bariatric Surgery*

Jeffrey I. Mechanick, M.D.¹, Adrienne Youdim, M.D.², Daniel B. Jones, M.D.³, Daniel L. Hurley, M.D.⁴, M. Molly McMahon, M.D.⁵, Leslie J. Heimbach, PhD⁶, Ted D. Adams, Ph.D., M.P.H.⁷, Scott Shikora, M.D.⁸, John B. Dixon, M.B.B.

TABLE 6 Postoperative Checklist for Bariatric Surgery*

Checklist Item	LAGB	LSG	RYGB	BPDDS
<i>Early postoperative care</i>				
✓ monitored telemetry at least 24 hr if high risk for MI	✓	✓	✓	✓
✓ protocol-derived staged meal progression supervised by RD	✓	✓	✓	✓
✓ healthy eating education by RD	✓	✓	✓	✓
✓ multivitamin plus minerals (# tablets for minimal requirement)	1	2	2	2
✓ calcium citrate, 1200–1500 mg/d	✓	✓	✓	✓
✓ vitamin D, at least 3000 units/d, titrate to >30 ng/mL	✓	✓	✓	✓
✓ vitamin B ₁₂ as needed for normal range levels	✓	✓	✓	✓
✓ maintain adequate hydration (usually >1.5 L/d PO)	✓	✓	✓	✓
✓ monitor blood glucose with diabetes or hypoglycemic symptoms	✓	✓	✓	✓
✓ pulmonary toilet, spirometry, DVT prophylaxis	✓	✓	✓	✓
✓ if unstable, consider pulmonary embolus (PE), intestinal leak (IL)	PE	PE	PE/IL	PE/IL
✓ if rhabdomyolysis suspected, check CPK	✓	✓	✓	✓
<i>Follow-up</i>				
✓ visits: initial, interval until stable, once stable (months)	1,1–2,12	1,3–6,12	1,3,6–12	1,3,6
✓ monitor progress with weight loss and evidence of complications each visit	✓	✓	✓	✓
✓ SMA-21, CBC/plt with each visit (and iron at baseline and after as needed)	✓	✓	✓	✓
✓ avoid nonsteroidal antiinflammatory drugs	✓	✓	✓	✓
✓ adjust postoperative medications	✓	✓	✓	✓
✓ consider gout and gallstone prophylaxis in appropriate patients	✓	✓	✓	✓
✓ need for antihypertensive therapy with each visit	✓	✓	✓	✓
✓ lipid evaluation every 6–12 months based on risk and therapy	✓	✓	✓	✓
✓ monitor adherence with physical activity recommendations	✓	✓	✓	✓
✓ evaluate need for support groups	✓	✓	✓	✓
✓ bone density (DXA) at 2 years	✓	✓	✓	✓
✓ 24-hour urinary calcium excretion at 6 months and then annually	✓	✓	✓	✓
✓ B ₁₂ (annually; MMA and Hcy optional; then q 3–6 months if supplemented)	✓	✓	✓	✓
✓ folic acid (RBC folic acid optional), iron studies, 25-vitamin D, iPTH	x	x	✓	✓
✓ vitamin A (initially and q 6–12 months thereafter)	x	x	optional	✓
✓ copper, zinc, and selenium evaluation with specific findings	x	x	✓	✓
✓ thiamine evaluation with specific findings	✓	✓	✓	✓
✓ consider eventual body contouring surgery	✓	✓	✓	✓

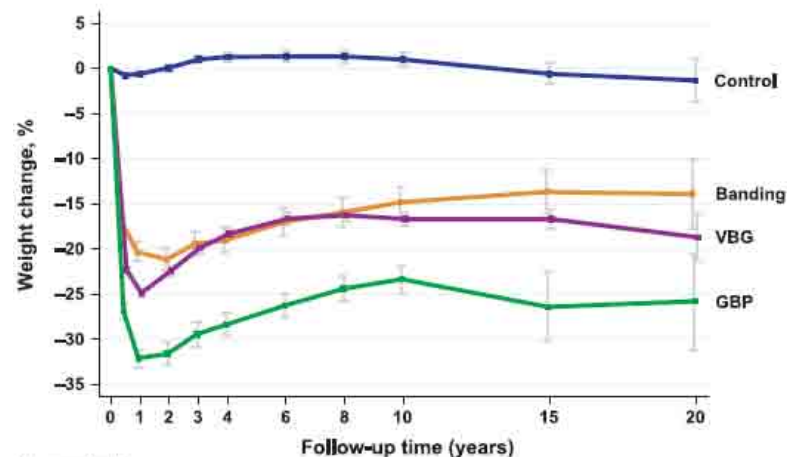
*see text for abbreviations; based on general obesity-related risks, GI functional anatomy, and clinical endpoints after specific bariatric surgical procedures.

Review of the key results from the Swedish Obese Subjects (SOS) trial – a prospective controlled intervention study of bariatric surgery

■ L. Sjöström

From the The SOS secretariat, Department of Molecular and Clinical Medicine, Institute of Medicine, The Sahlgrenska Academy, The University of Gothenburg, Gothenburg, Sweden

Fig. 1 Mean percentage weight change from baseline amongst patients in the control and the three surgery groups during 20 years of follow-up in the Swedish Obese Subjects study. Data shown for controls receiving usual care and for surgery patients undergoing banding, vertical banded gastroplasty (VBG) or gastric bypass (GBP) at baseline. Percentage weight changes from the baseline examination are based on data available on 1 July 2011. Error bars represent 95% confidence intervals. From Sjöström L et al., *JAMA* 2012 with permission [37].



	0	1	3	4	6	8	10	15	20
Control	2037	1490	1242	1267	556	176			
Banding	376	333	284	284	150	50			
VBG	1369	1086	987	1007	489	82			
GBP	265	209	184	180	37	13			



Roma, 8-11 novembre 2018



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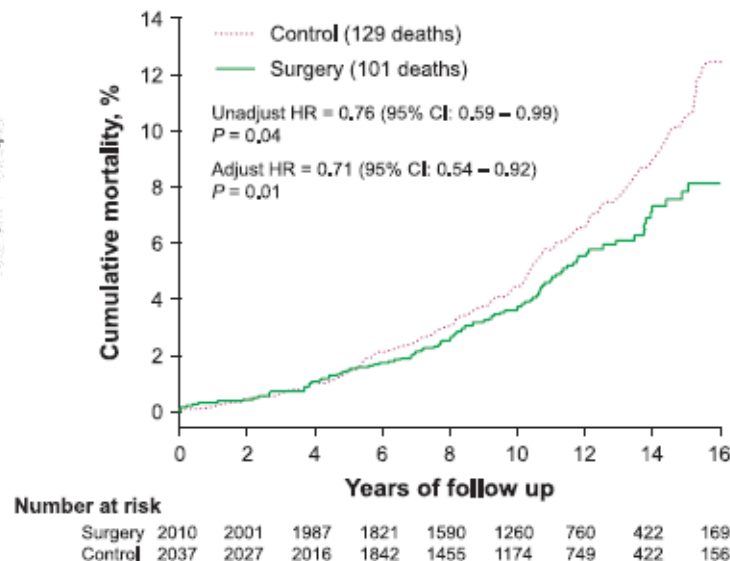


Review of the key results from the Swedish Obese Subjects (SOS) trial – a prospective controlled intervention study of bariatric surgery

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Fig. 2 Unadjusted cumulative mortality amongst patients in the control and the surgery groups during 16 years of follow-up in the Swedish Obese Subjects study. Unadjusted and adjusted hazard ratios (HRs) are shown. Calculations based on data available on 1 November 2005. From Sjöström L et al., *New Engl J Med* 2007 with permission [35].



Review of the key results from the Swedish Obese Subjects (SOS) trial – a prospective controlled intervention study of bariatric surgery

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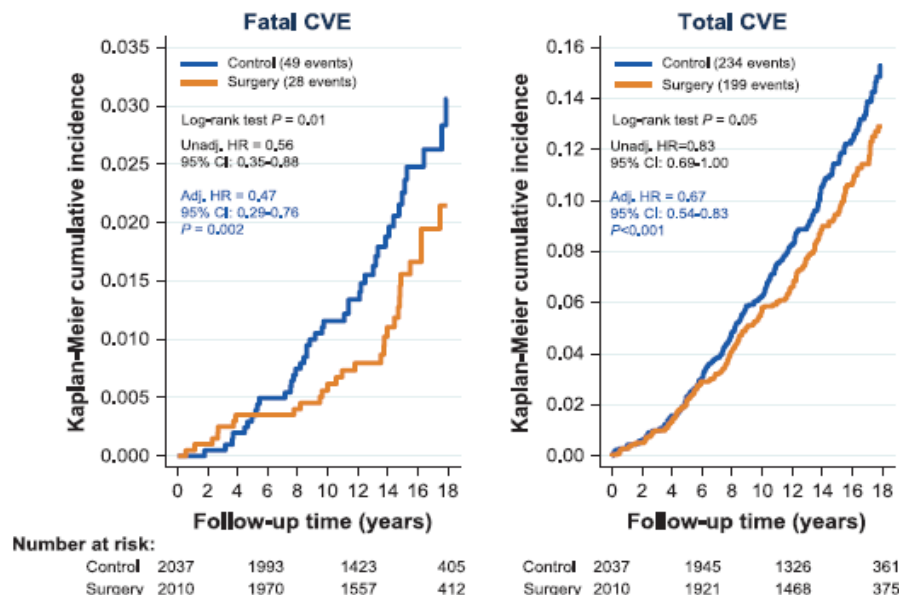
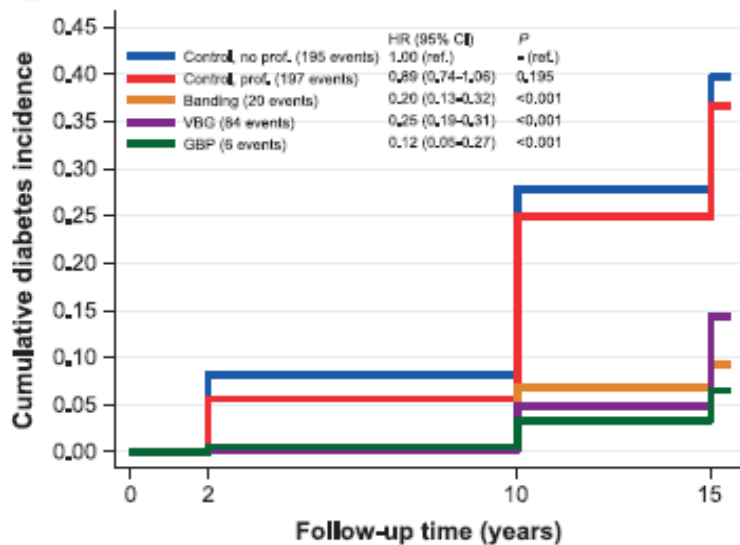


Fig. 5 Cumulative incidence of fatal and total cardiovascular events (myocardial infarction + stroke) in the control and surgery groups of the Swedish Obese Subjects study. Left panel: Fatal cardiovascular events (myocardial infarction + stroke) in control subjects and patients undergoing surgery during follow-up for up to 18 years. Right panel: Total cardiovascular events, i.e. fatal or nonfatal events, in control and surgery patients for up to 18 years. Calculations are based on data available on 1 July 2011. From Sjöström L et al., JAMA 2012 with permission [37].

Review of the key results from the Swedish Obese Subjects (SOS) trial – a prospective controlled intervention study of bariatric surgery

■ L. Sjöström

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Number at risk:

	0	2	10	15
Control, no prof.	871	691	489	207
Control, prof.	900	822	587	197
Banding	311	302	244	121
VBG	1140	1064	841	424
GBP	207	195	140	31

Fig. 4 Cumulative incidence of diabetes during 15 years of follow-up in subgroups of the Swedish Obese Subjects study. Diabetes incidence rates and hazard ratios (HRs) are given for controls receiving professional help with lifestyle changes (prof.) and for controls not receiving such help (no prof.). Incidence rates and HRs are also given for patients undergoing banding, vertical banded gastroplasty (VBG) and gastric bypass (GBP) at baseline. Compared with the incidence of diabetes in the control group, the incidences were significantly lower in all three surgery subgroups. The HRs were not significantly different amongst the surgery subgroups. Calculations were based on data available on 1 January 2012. From Carlsson LMS et al., *New Engl J Med* 2012 with permission.

Weight and Type 2 Diabetes after Bariatric Surgery: Systematic Review and Meta-analysis

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Michael D. Jensen, MD,^c Walter J. Pories, MD,^d John P. Bantle, MD,^e Isabella Sledge, MD, MPH^b

Table 8 Overview of Weight Loss, Surgical Procedure, and Diabetes Resolution

	Total	Gastric Banding	Gastroplasty	Gastric Bypass	BPD/DS
% EBWL	55.9	46.2	55.5	59.7	63.6
% Resolved overall	78.1	56.7	79.7	80.3	95.1
% Resolved <2 y	80.3	55.0	81.4	81.6	94.0
% Resolved ≥2 y	74.6	58.3	77.5	70.9	95.9

%EBWL = percent excess body weight loss; BPD/DS = biliopancreatic diversion/duodenal switch.

CONCLUSION: The clinical and laboratory manifestations of type 2 diabetes are resolved or improved in the greater majority of patients after bariatric surgery; these responses are more pronounced in procedures associated with a greater percentage of excess body weight loss and is maintained for 2 years or more.

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ORIGINAL ARTICLE

Bariatric Surgery versus Intensive Medical Therapy for Diabetes — 3-Year Outcomes

Philip R. Schauer, M.D., Deepak L. Bhatt, M.D., M.P.H., John P. Kirwan, Ph.D.,
 Kathy Wolski, M.P.H., Stacy A. Brethauer, M.D., Sankar D. Navaneethan, M.D., M.P.H.,
 Ali Aminian, M.D., Claire E. Pothier, M.P.H., Esther S.H. Kim, M.D., M.P.H.,
 Steven E. Nissen, M.D., and Sangeeta R. Kashyap, M.D.,
 for the STAMPEDE Investigators*

Table 1. Primary and Secondary End Points at 3 Years.*

End Point	Medical Therapy (N=40)	Gastric Bypass (N=48)	Sleeve Gastrectomy (N=49)	P Value		
				Gastric Bypass vs. Medical Therapy	Sleeve Gastrectomy vs. Medical Therapy	Gastric Bypass vs. Sleeve Gastrectomy
Glycated hemoglobin						
Level — no. of patients (%)						
≤6%	2 (5)	18 (38)	12 (24)	<0.001	0.01	0.17
≤6% without diabetes medications	0	17 (35)	10 (20)	<0.001	0.002	0.10
≤6.5%	7 (18)	23 (48)	23 (47)	0.003	0.003	0.92
≤6.5% without diabetes medications	0	22 (46)	14 (29)	<0.001	<0.001	0.08
≤7%	16 (40)	31 (65)	32 (65)	0.02	0.02	0.94
≤7% without diabetes medications	0	28 (58)	16 (33)	<0.001	<0.001	0.01
At baseline — %	9.0±1.4	9.3±1.4	9.5±1.7			
At 3 yr — %						
Mean	8.4±2.2	6.7±1.3	7.0±1.3	<0.001	<0.001	0.42
Median (IQR)	7.7 (6.7 to 9.6)	6.6 (5.8 to 7.4)	6.6 (6.1 to 7.5)			
Change from baseline — percentage points	-0.6±2.5	-2.5±1.9	-2.5±2.1	<0.001	<0.001	0.99
Relapse — no./total no. (%) [†]						
Glycemic control	4/5 (80)	5/21 (24)	9/18 (50)	0.03	0.34	0.09
Diabetes	NA	8/21 (38)	6/13 (46)	NA	NA	0.64
Median (IQR) fasting plasma glucose — mg/dl						
At baseline	157 (115 to 199)	193 (142 to 236)	164 (132 to 224)			
At 3 yr	132 (104 to 179)	100 (87 to 141)	106 (86 to 136)	0.001	0.007	0.92
Change from baseline [‡]	-6.0 (-68.5 to 56.0)	-85.5 (-122.0 to -21.5)	-46.0 (-113.0 to -21.0)	0.001	0.006	0.24
Body weight						
At baseline — kg	104.5±14.2	106.8±14.9	100.6±16.5			
At 3 yr — kg	100.2±16.6	80.6±15.5	79.3±15.1	<0.001	<0.001	0.69
Change from baseline — kg	-4.3±8.8	-26.2±10.6	-21.3±9.7	<0.001	<0.001	0.02
% Change from baseline	-4.2±8.3	-24.5±9.1	-21.1±8.9	<0.001	<0.001	0.06



Can Sleeve Gastrectomy “Cure” Diabetes? Long-term Metabolic Effects of Sleeve Gastrectomy in Patients With Type 2 Diabetes

(Ann Surg 2016;264:674–681)

Ali Aminian, MD,* Stacy A. Brethauer, MD,* Amin Andalib, MD,*† Suriya Panchai, MD,*
Jennifer Mackey, MSN,* John Rodriguez, MD,* Tomasz Rogula, MD, PhD,‡ Matthew Kroh, MD,*
and Philip R. Schauer, MD*

TABLE 2. Short-term and Long-term Outcomes of Sleeve Gastrectomy in Patients With Diabetes (n = 134)

Variable	Baseline	Short-term	Long-term	P	
				Short-term vs Baseline	Long-term vs Baseline
Weight outcomes					
Body weight, kg	131.5 ± 37.9	103.2 ± 33.3	109.6 ± 34.8	<0.001	<0.001
Weight change					
Total weight					
Excess weight					
BMI, kg/m ²))
BMI change					
Cardiometabolic					
HbA1c, %))
Fasting blood glucose, mg/dL))
LDL, mg/dL					:
HDL, mg/dL))
Triglyceride, mg/dL))
Systolic blood pressure, mmHg	136.6 ± 16.8	128.6 ± 14.9	127.6 ± 15.7	<0.001	<0.001
Diastolic blood pressure, mmHg	76.8 ± 10.9	75.3 ± 10.4	74.1 ± 10.9	0.12	0.04
Diabetes medications					
Number of drugs, median (IQR)	2 (1–3)	1 (0–1)	1 (0–2)	<0.001	<0.001
On insulin therapy, %	42	21	25	<0.001	0.004
Without medication, %	8	49	29	<0.001	<0.001
Framingham 10-year cardiovascular risk score	26.4 ± 16.5	—	23.1 ± 15.2	—	<0.001

Because late relapse of T2DM can occur in almost half of patients, continued monitoring of glycemic status is highly recommended. Further high-quality clinical studies on long-term effects of LSG on cardiometabolic risk factors, key T2DM outcomes such as retinopathy, nephropathy, and cardiovascular events, overall survival, and quality of life are warranted.

Bariatric Surgery versus Conventional Medical Therapy for Type 2 Diabetes

Geltrude Mingrone, M.D., Simona Panunzi, Ph.D., Andrea De Gaetano, M.D., Ph.D., Caterina Guidone, M.D., Amerigo Iaconelli, M.D., Laura Leccesi, M.D., Giuseppe Nanni, M.D., Alfons Pomp, M.D., Marco Castagneto, M.D., Giovanni Ghirlanda, M.D., and Francesco Rubino, M.D.

Table 2. Average Absolute Values and Percentage Changes at 2 Years.*

v. **Bariatric-metabolic surgery versus conventional medical treatment in obese patients with type 2 diabetes: 5 year follow-up of an open-label, single-centre, randomised controlled trial.**

G Mingrone G, Panunzi S, De Gaetano A, Guidone C, Iaconelli A, Nanni G, Castagneto M, Bornstein S, Rubino F.

Lancet. 2015.

Cl Randomised controlled trials have shown that bariatric surgery is more effective than conventional treatment for the short-term control of type-2 diabetes. However, published studies are characterised by a relatively short follow-up. We aimed to assess 5 year outcomes from our randomised trial designed to compare surgery with conventional medical treatment for the treatment of type 2 diabetes in obese patients.

Ti Surgery is more effective than medical treatment for the long-term control of obese patients with type 2 diabetes and should be considered in the treatment algorithm of this disease. However, continued monitoring of glycaemic control is warranted because of potential relapse of hyperglycaemia.

Diastolic	87.28±9.32	82.37±4.21	84.21±4.79	0.13	0.23	1.00	0.24
Change from baseline (%)	-7.14±11.51	-13.06±8.97	-7.30±9.42				
Weight (kg)	128.06±19.77	89.53±17.84	84.29±13.35	<0.001	<0.001	<0.001	1.00
Change from baseline (%)	-4.74±6.37	-33.82±10.17	-33.31±7.88				
Excess weight lost (%)	9.29±12.94	69.36±17.60	68.08±12.70	<0.001	<0.001	<0.001	1.00
Body-mass index	43.07±6.44	29.19±4.90	29.31±2.64	<0.001	<0.001	<0.001	1.00
Change from baseline (%)	-4.73±6.37	-33.82±10.17	-33.31±7.88				
Waist (cm)	116.33±12.14	103.53±16.94	98.58±13.06	<0.001	<0.001	<0.001	1.00
Change from baseline (%)	-7.69±7.80	-20.70±8.34	-19.91±8.44				

Assessing the obese diabetic patient for bariatric surgery: which candidate do I choose?

This article was published in the following Dove Press journal:
Diabetes, Metabolic Syndrome and Obesity: Targets and Therapy
8 June 2015

[Number of times this article has been viewed](#)

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Abstract: The worldwide prevalence of type 2 diabetes is rising in association with an increasing frequency of overweight and obesity. Bariatric-metabolic procedures are considered as additional therapeutic options, allowing improved diabetes control in most patients. Multiple factors play in concert to achieve the improvements in diabetic remission observed after bariatric-metabolic surgery. Several studies have demonstrated that bariatric-metabolic surgery is an effective treatment for type 2 diabetes when compared with conventional nonsurgical medical treatment. Because the best results are achievable in patients with a relatively short history of diabetes and less advanced controlled disease, the surgical option could be considered early, especially in morbid obese subjects (BMI ≥ 35 kg/m²) after failure of medical treatment. Patients with extensive weight loss are more likely to achieve type 2 diabetes remission after bariatric surgery. At present, Roux-en-Y gastric bypass seems the surgical procedure of choice because it has fewer risks than biliopancreatic diversion, and it is associated with higher weight loss and metabolic improvements compared with adjustable gastric banding. Recent evidences regarding the effectiveness of sleeve gastrectomy in diabetes remission have to be confirmed by controlled trials with longer follow-up.

Keywords: bariatric surgery, metabolic surgery, diabetes, morbid obesity



METABOLIC EFFECT



ITALIAN CHAPTER

Roma, 8-11 novembre 2018

**WHICH IS THE OTHER SIDE OF
THE METABOLIC EFFECT ?**



Prevalence of and Risk Factors for Hypoglycemic Symptoms After Gastric Bypass and Sleeve Gastrectomy

Obesity (2015) **23**, 1079–1084. doi:10.1002/oby.21042

Clare J. Lee¹, Jeanne M. Clark², Michael Schweitzer³, Thomas Magnusson⁴, Kimberley Steele⁵, Olivia Koerner⁶, and Todd T. Brown¹

TABLE 3 Characteristics of 450 individuals by the status of symptoms of hypoglycemia after bariatric surgery

	High suspicion for hypoglycemia (N = 154)	Low suspicion for hypoglycemia (N = 296)	P-value
Race			0.052
Caucasian	119 (77.3%)	203 (68.6%)	
Non-Caucasian	35 (22.7%)	93 (31.4%)	
Sex			<0.001
Male	17 (11.0%)	76 (25.7%)	
Female	137 (89.0%)	220 (74.3%)	
Age (years), mean (SD)	48.9 (11.3)	51.2 (11.2)	
Type of surgery			<0.001
RYGB	137 (89.0%)	218 (73.7%)	
VSG	17 (11.0%)	78 (26.3%)	
Years since surgery, mean (SD)	3.6 (1.3)	3.2 (1.3)	
Percent EWL from surgery, mean (SD)	86.5 (22.9)	77.1 (26.0)	
Pre-existing diabetes			0.081
No	107 (69.5%)	181 (61.2%)	
Yes	47 (30.5%)	115 (38.8%)	
Pre-operative weight in pounds, mean (SD)	296.8 (67.4)	307.3 (74.3)	0.143
Dietary adherence*			0.218
Always/very often	60 (39.0%)	128 (44.0%)	
Sometimes	52 (33.8%)	103 (35.4%)	
Never/seldom	42 (27.2%)	60 (20.6%)	
Pre-operative symptoms of hypoglycemia			<0.001
None	73 (47.4%)	146 (49.3%)	
Mild	33 (21.5%)	101 (34.1%)	
Moderate	31 (20.1%)	41 (13.9%)	
Severe	17 (11.0%)	8 (2.7%)	

Incidence of Hypoglycemia After Gastric Bypass vs Sleeve Gastrectomy: A Randomized Trial

Esmeralda Capristo,¹ Simona Panunzi,² Andrea De Gaetano,² Valerio Spuntarelli,¹ Rocco Bellantone,³ Piero Giustacchini,³ Andreas L. Birkenfeld,^{4,5,6} Stephanie Amiel,⁵ Stefan R. Bornstein,^{4,5,6} Marco Raffaelli,³ and Geltrude Mingrone^{1,5}

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Context: We compared the incidence of hypoglycemia after Roux-en-Y gastric bypass (RYGB) vs sleeve gastrectomy (SG).

Design, Setting, and Main Outcome Measures: Randomized, open-label trial conducted at the outpatient obesity clinic in a university hospital in Rome, Italy. The primary aim was the incidence of reactive hypoglycemia (<3.1 mmol/L after 75-g oral glucose load) at 1 year after surgery. Secondary aims were hypoglycemia under everyday life conditions, insulin sensitivity, insulin secretion, and lipid profile.

Results: Of 175 eligible patients, 120 were randomized 1:1 to RYGB or SG; 117 (93%) completed the 12-month follow-up. Reactive hypoglycemia was detected in 14% and 29% of SG and RYGB patients ($P = 0.079$), respectively, with the effect of treatment in multivariate analysis significant at $P = 0.018$. Daily hypoglycemic episodes during continuous glucose monitoring did not differ between groups ($P = 0.75$). Four of 59 RYGB subjects (6.8%) had 1 to 3 hospitalizations for symptomatic hypoglycemia vs 0 in SG. The static β -cell glucose sensitivity index increased after both treatments ($P < 0.001$), but the dynamic β -cell glucose sensitivity index increased significantly in SG ($P = 0.008$) and decreased in RYGB ($P = 0.004$ for time \times treatment interaction). Whole-body insulin sensitivity increased about 10-fold in both groups.

Conclusions: We show that reactive hypoglycemia is no less common after SG and is not a safer option than RYGB, but RYGB is associated with more severe hypoglycemic episodes. This is likely due to the lack of improvement of β -cell sensitivity to changes in circulating glucose after RYGB, which determines an inappropriately high insulin secretion. (*J Clin Endocrinol Metab* 103: 2136–2146, 2018)



METABOLIC EFFECTS



ITALIAN CHAPTER

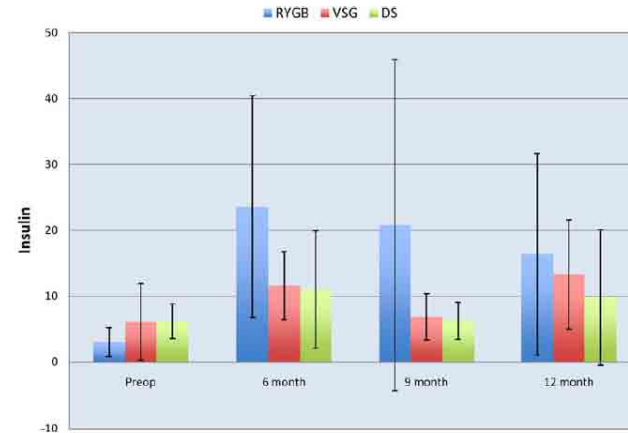
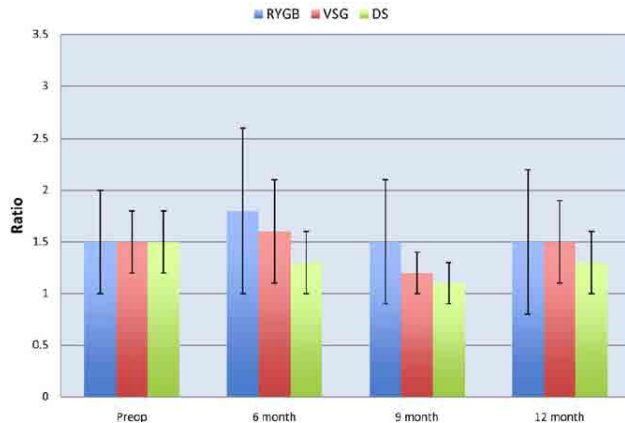
Roma, 8-11 novembre 2018

Surg Endosc (2014) 28:91-99
DOI 10.1007/s00464-013-3176-0



Response to glucose tolerance testing and solid high carbohydrate challenge: comparison between Roux-en-Y gastric bypass, vertical sleeve gastrectomy, and duodenal switch

Mitchell S. Roslin · Yuriy Dudiy · Andrew Brownlee · Joanne Weiskopf · Paresh Shah



Conclusions Compared to gastric bypass, DS results in greater weight loss and improves insulin sensitivity and glucose homeostasis without causing a hyperinsulinemic response. Because the response to challenge after VSG is intermediary, pyloric preservation alone cannot account for this difference.

38 Pz (13 RYGBP Vs 12 VSG Vs 13 BPD-DS)

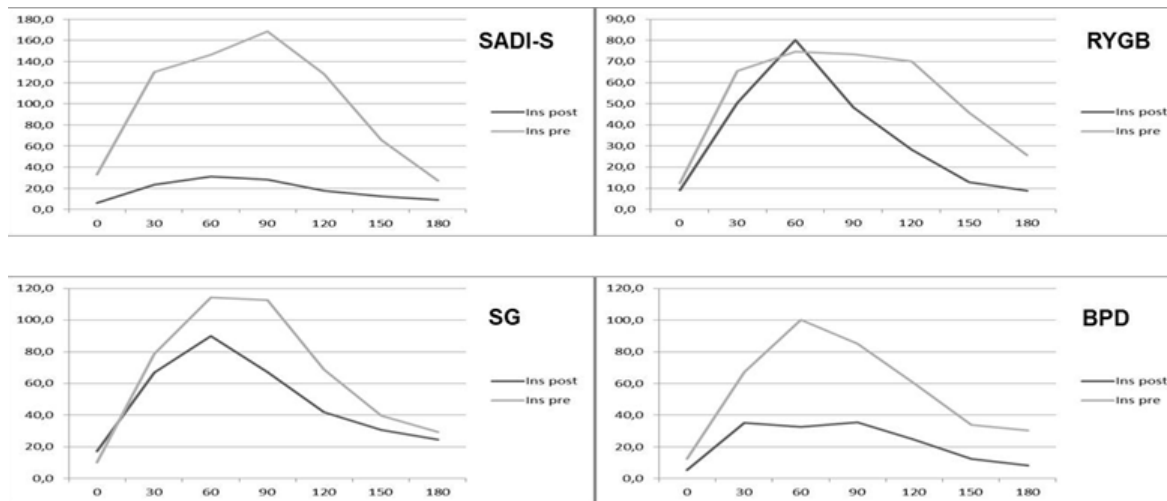


METABOLIC EFFECTS



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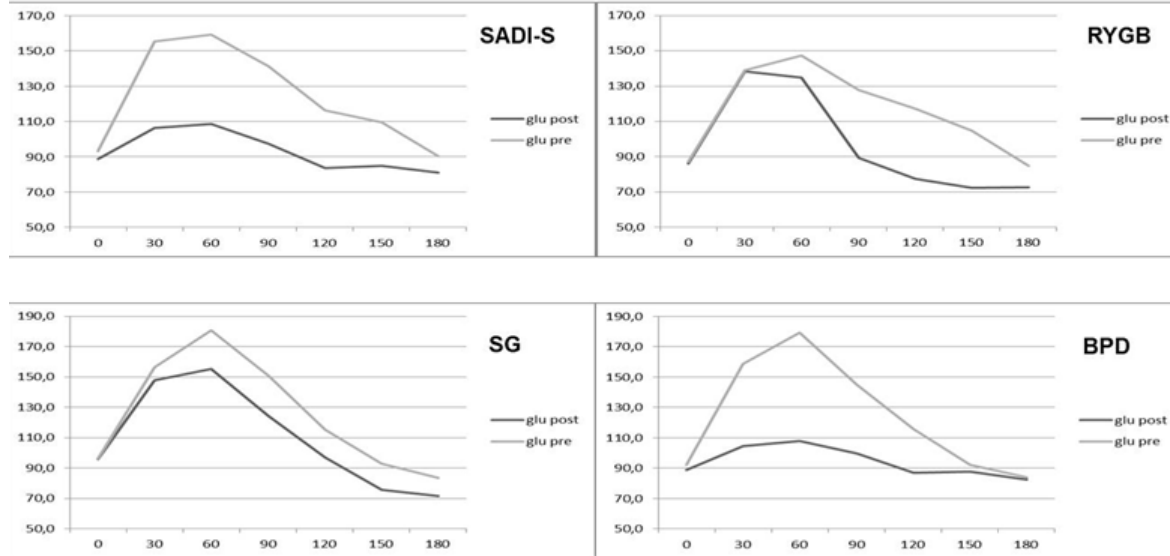


METABOLIC EFFECTS



ITALIAN CHAPTER

Roma, 8-11 novembre 2018



Role of the Gut on Glucose Homeostasis: Lesson Learned from Metabolic Surgery

V. Kamvissi-Lorenz^{1,2} · M. Raffaelli³ · S. Bornstein^{1,2} · G. Mingrone^{2,4}

Abstract

Purpose of Review Bariatric surgery was initially intended to reduce weight, and only subsequently was the remission of type two diabetes (T2D) observed as a collateral event. At the moment, the term “metabolic surgery” is used to underline the fact that this type of surgery is performed specifically to treat diabetes and its metabolic complications, such as hyperlipidemia.

Recent Findings Randomized, controlled studies have recently supported the use of bariatric surgery, and in particular of Roux-en-Y gastric bypass (RYGB) and biliopancreatic diversion (BPD) as an effective treatment for decompensated T2D. The lesson learned from these randomized and many other non-randomized clinical studies is that the stomach and the small intestine play a central role in glucose homeostasis. Bypassing the duodenum and parts of the jejunum exerts a substantial effect on insulin sensitivity and secretion. In fact, with BPD, nutrient transit bypasses duodenum, the entire jejunum and a small portion of the ileum, resulting in reversal of insulin sensitivity back to normal and reduction of insulin secretion, whereas RYGB has little effect on insulin resistance



INOLTRE



ITALIAN CHAPTER

Roma, 8-11 novembre 2018

Miglioramento OSAS

Azione positiva sulla fertilità soprattutto femminile e sulla riduzione del rischio fetale

Può migliorare la condizione di NAFLD e NASH

Diminuisce la progressione del danno articolare

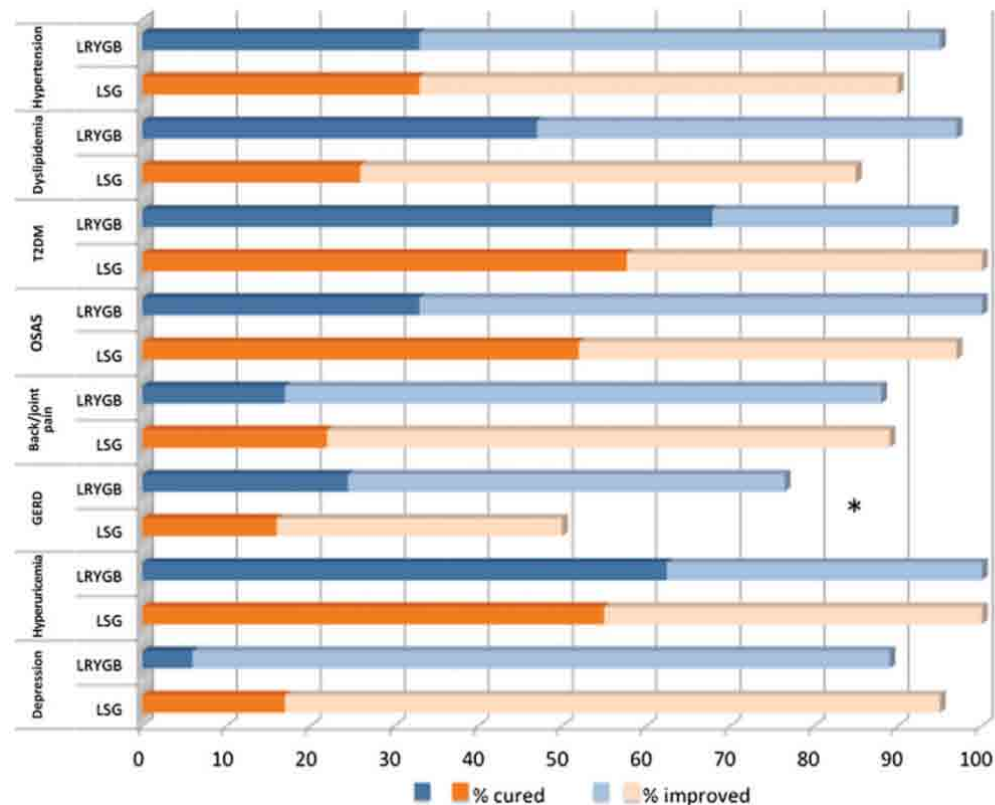
Migliora la percezione di se del soggetto, portando ad un miglioramento della QoL e ad una maggiore produttività

Early Results of the Swiss Multicentre Bypass or Sleeve Study (SM-BOSS)

A Prospective Randomized Trial Comparing Laparoscopic Sleeve Gastrectomy and Roux-en-Y Gastric Bypass

Ralph Peyerl, MD,* Yves Borbély, MD,*† Beatrice Kern, MD,* Markus Gass, MD,* Thomas Peters, MD,*
Martin Thurnheer, MD,‡ Bernd Schultes, MD,‡ Kurt Lüscherich, MD,‡ Marco Buetler, MD, PhD,§
and Marc Schüssler, MD§

METABOLIC EFFECTS



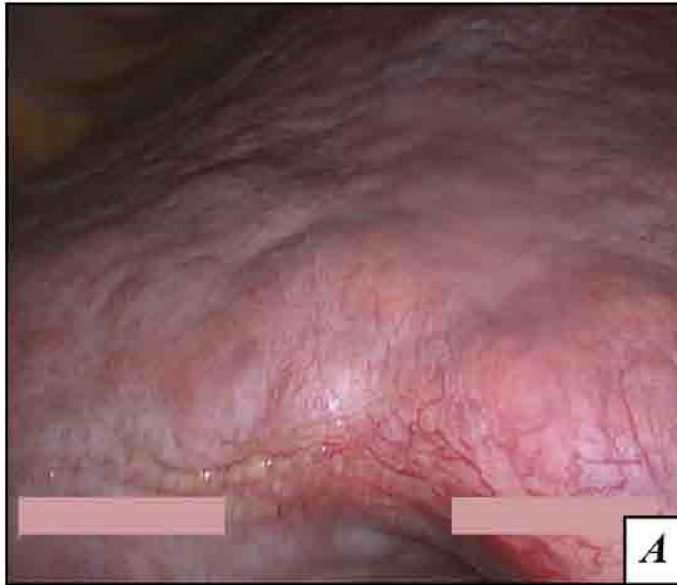


Scoperta di steatosi/cirrosi epatica durante chirurgia bariatrica



ITALIAN CHAPTER

Roma, 8-11 novembre 2018



(A) Discovery of steatosis/cirrhosis during sleeve gastrectomy.

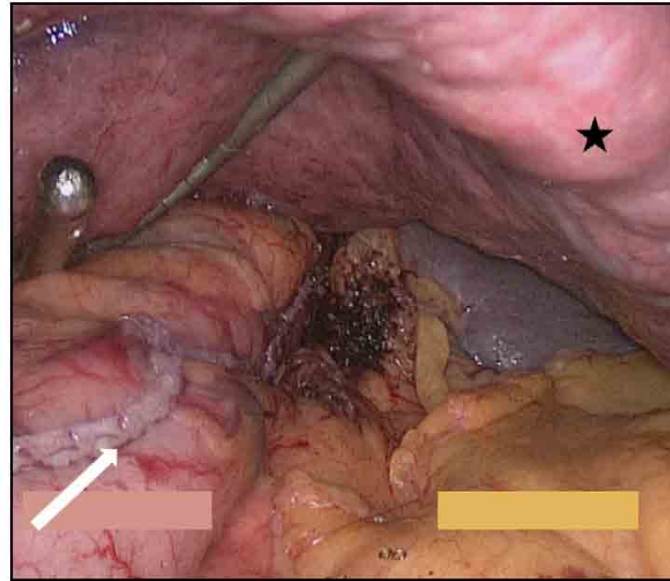


Fig 2. Intraoperative findings after performing sleeve gastrectomy showing gastric remnant (white arrow) and the presence of liver cirrhosis (black star).

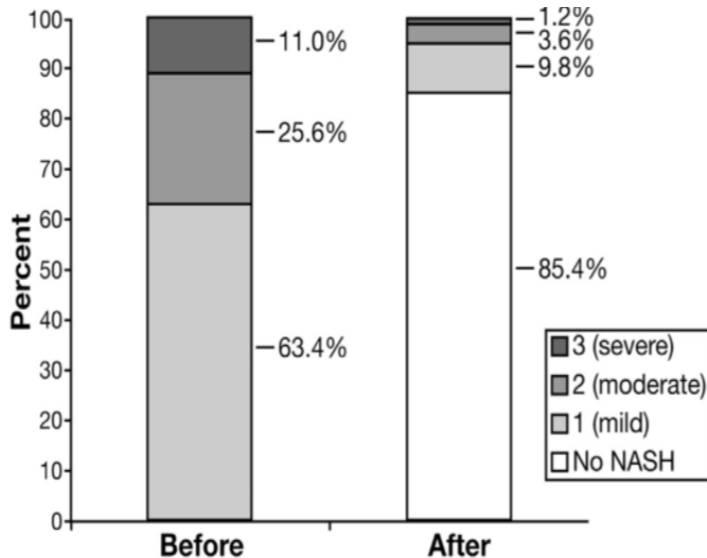
Bariatric Surgery Reduces Features of Nonalcoholic Steatohepatitis in Morbidly Obese Patients



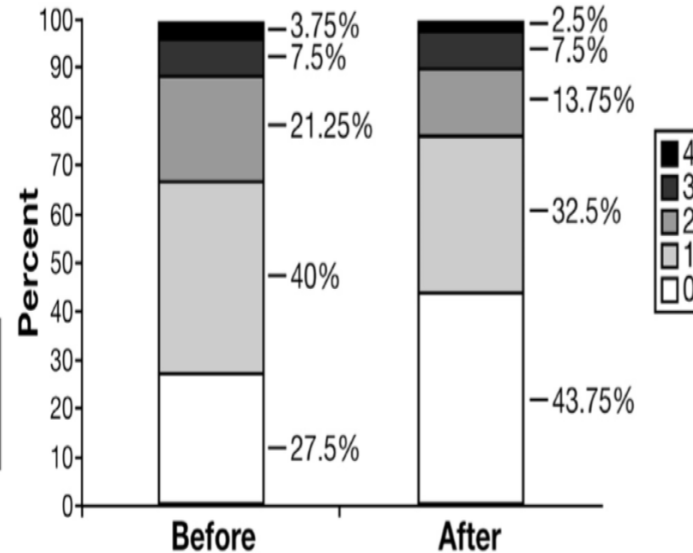
Gastroenterology 2015;149:379–388

Guillaume Lassailly,^{1,2,*} Robert Caiazzo,^{3,4,*} David Buob,⁵ Marie Pigeyre,⁶ H el ene Verkindt,⁴ Julien Labreuche,⁷ Violeta Raverdy,⁴ Emmanuelle Leteurtre,⁵ S ebastien Dharancy,^{1,2} Alexandre Louvet,^{1,2} Monique Romon,⁶ Alain Duhamel,⁷ Fran ois Pattou,^{3,4} and Philippe Mathurin^{1,2}

NASH Amelioration/Resolution
Brunt score



Fibrosis Amelioration/Resolution
Metavir score



Mechanisms of Bariatric Surgery

Classical model:

Mechanical

Restricted food intake

Malabsorption

Current model:

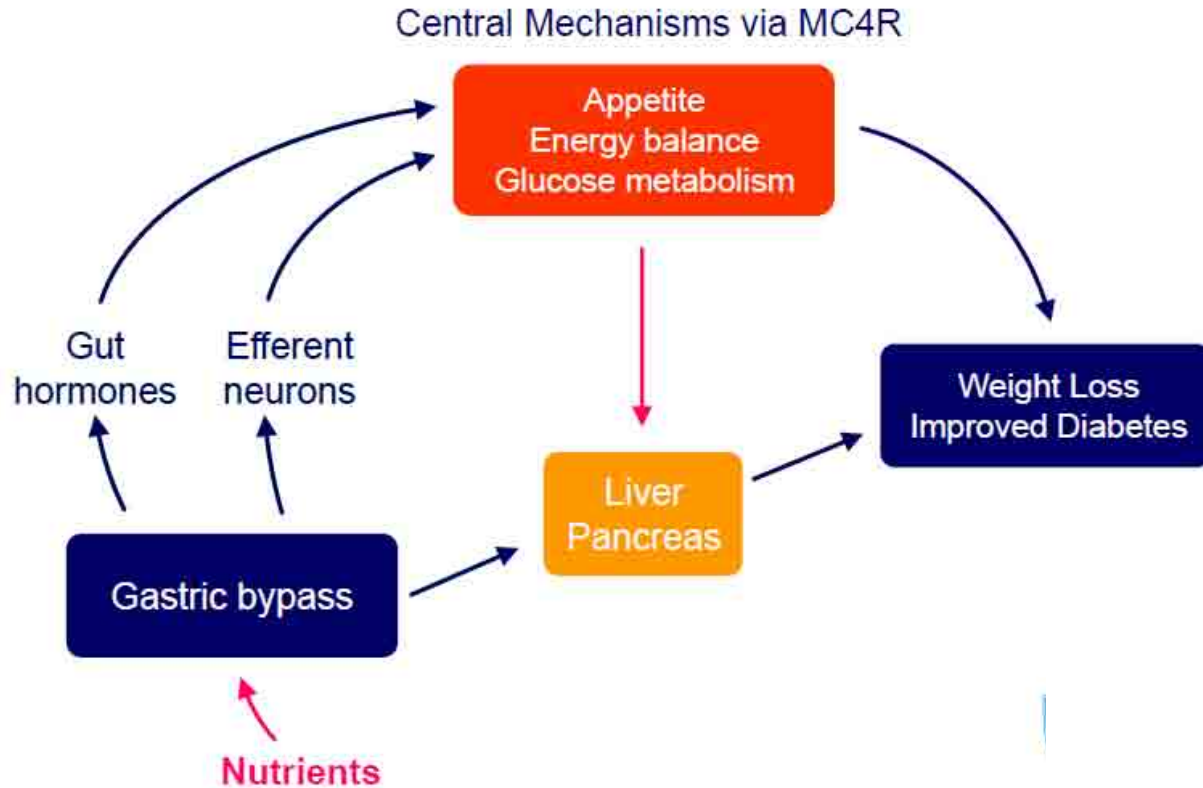
Physiological




Altered GI signals to brain

- Endocrine
- Neuronal

Altered GI signals to other tissues (pancreas, liver)

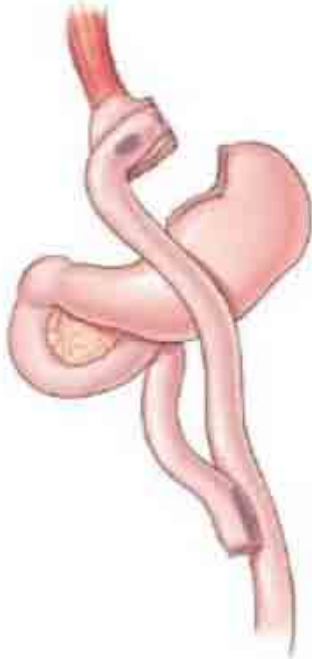
GI Regulation of Metabolic Function



	RYGB	AGB	VSG
			
Lipid homeostasis	Elevated HDL Reduced triglycerides Reduced total cholesterol, LDL	Elevated HDL Reduction in triglycerides not as dramatic as RYGB or VSG	Elevated HDL Reduced triglycerides
Glucose homeostasis	Improved fasting blood glucose and insulin sensitivity, prior to weight loss	Improvements are slower and not as dramatic as after VSG or RYGB	Improved fasting blood glucose and insulin sensitivity, prior to weight loss
Role of gastric restriction	Has not yet been directly tested	Failure of band leads to less gastric restriction and less weight loss	Gastric restriction is not the critical factor preventing hyperphagia
Gastric emptying	Few published studies	No overall change in gastric emptying rate; Emptying rate of proximal pouch created by band is enhanced	Most papers show increase
Energy expenditure	Controversial	Not reported	Unchanged, but only reported in one study
Leptin	Circulating leptin levels lower than expected for body weight Changes to leptin sensitivity not tested	Plasma leptin reduced, as expected for body weight; Changes to leptin sensitivity not tested	Circulating leptin levels lower than expected for body weight; Body weight changes not driven by changes to leptin sensitivity
Ghrelin	Reduced total ghrelin; Controversial, but no change in acylghrelin levels	Increased circulating ghrelin	Reduced total ghrelin; Controversial, but no change in acylghrelin levels
CCK	No change	No change	Not measured
GLP-1 (postprandial)	Weight loss-independent postprandial increase	Increased circulating GLP-1 but much less than RYGB or VSG	Weight loss-independent increase comparable to RYGB
PYY (postprandial)	Increased postprandial PYY levels; Reduced body weight loss in PYY knockout mice	No change	Increased postprandial PYY levels, comparable to levels after RYGB
Bile acids	Increased plasma bile acids	Not reported	Increased plasma bile acids
Diet Change	Decreased fat intake, more fruits and vegetables	Decrease bread intake and increase in caloric liquids; Greater fat intake and fewer fruits/vegetables than RYGB	Decreased fat intake, similar to RYGB
Food Intolerance	Some dumping syndrome, usually well tolerated	More persistent and problematic than RYGB; Mainly vomiting	Little or none

What Are the Luminal Contributors?

Roux-en-Y
Gastric Bypass



Luminal

Nutrients

- Lipids
- Carbohydrates
- Proteins / amino acids

Pancreatic enzymes

Bile acids

Microbiota

Neuronal

Humoral

Alterations in signaling



METABOLIC EFFECT



ITALIAN CHAPTER

Roma, 8-11 novembre 2018

GASTRIC EMPTYING

INTESTINAL MOTILITY

INTESTINAL HORMONES

MICROBIOTA

BILE ACIDS

Key facts

- Obesity increases the risk of NAFLD
- Bariatric surgery should be considered for patients:
 - with a body mass index >40
 - who wish to lose weight
- Bariatric surgery
 - induces long-term weight loss
 - decreases morbidity
 - decreases the incidence of cancer
 - decreases mortality
 - shows a sustained decrease in steatosis
 - do not appear to be associated with development of extensive fibrosis
 - may improve ballooning and inflammation; (larger studies are warranted to confirm this conclusion).

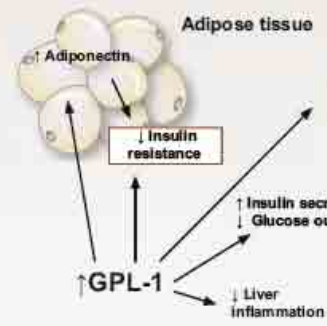


Brain

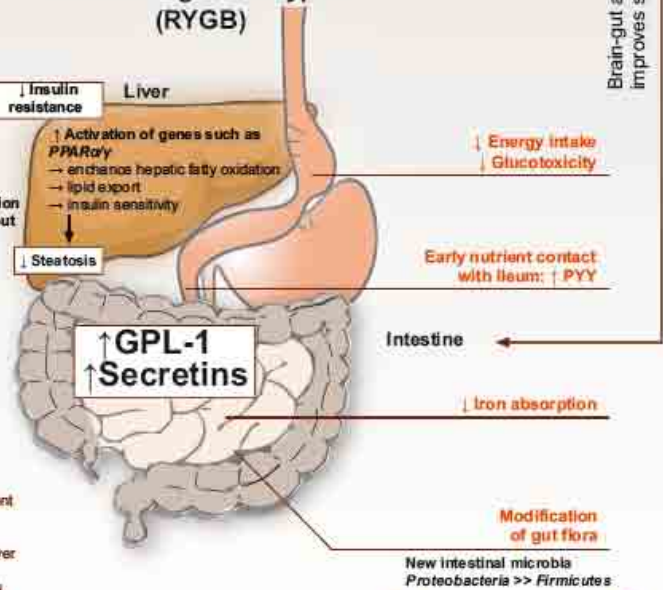
Roux-en-Y gastric bypass

- Is one of the most efficient methods for losing weight
- RYGB achieves its physiological benefits through "BRAVE" effects:
 - Bile flow alteration,
 - Reduction in gastric size,
 - Anatomical rearrangement,
 - Vagal manipulation and subsequent
 - Enteric gut hormone modulation
- Bariatric surgery is a powerful treatment for insulin resistance, with a remission in 42% of cases after RYGB

RYGB mechanisms and pathways



Roux-en-Y gastric bypass (RYGB)



- Between 85-90% of the candidates for bariatric surgery have steatosis
- Steatosis is improved in 90% of cases after surgery

Future

- Bariatric surgery, as an indication, for the treatment of NASH in morbid obesity has to be proved and confirmed
- Long-term (10 yr) efficiency and safety data on liver histology after bariatric surgery are warranted
- The choice of the best bariatric procedure (RYGB, gastric banding, sleeve gastrectomy...) has to be precise for NASH
- Regarding the worldwide epidemiology, bariatric surgery for morbidly obese patients with cirrhosis seems to be a future challenge

- Changes in energy metabolism
- ↑↑ production in short-chain fatty acids
- ↑ expression of key mediators



The role of bile acids in metabolic regulation

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²Institute of Medical Biochemistry and Laboratory Diagnostics, First Faculty of Medicine, Charles University, Prague, Czech Republic;
³Institute of Endocrinology, Charles University, Prague, Czech Republic

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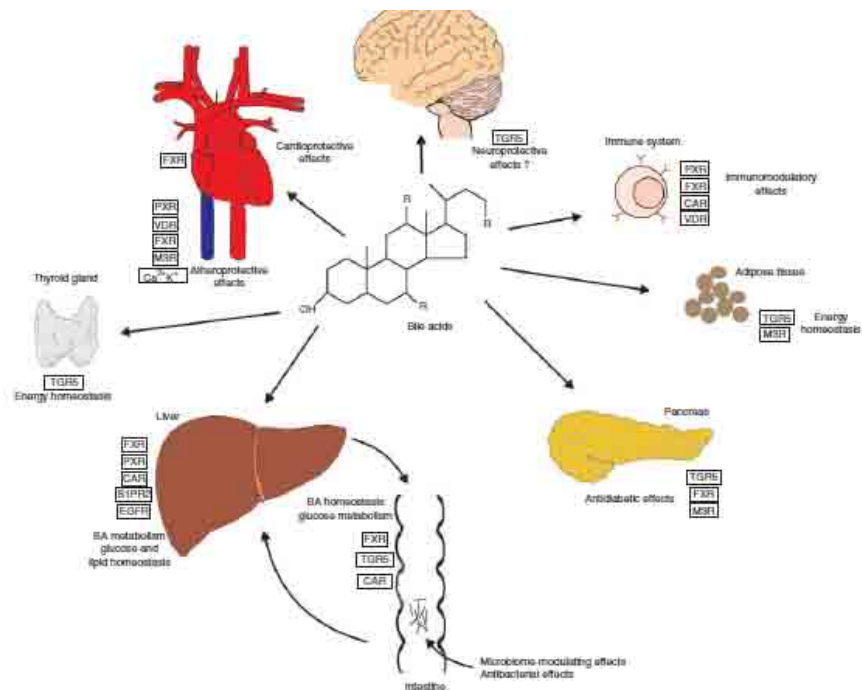
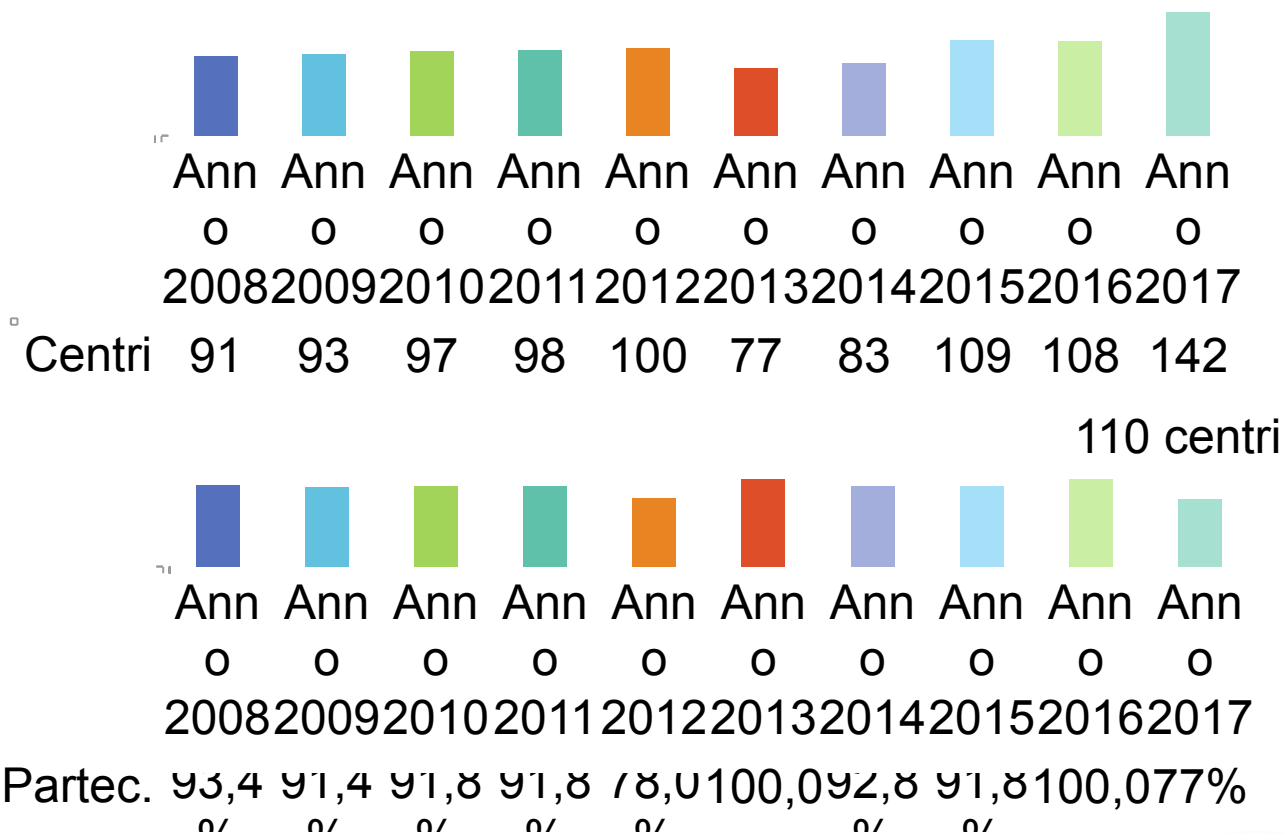


Figure 1

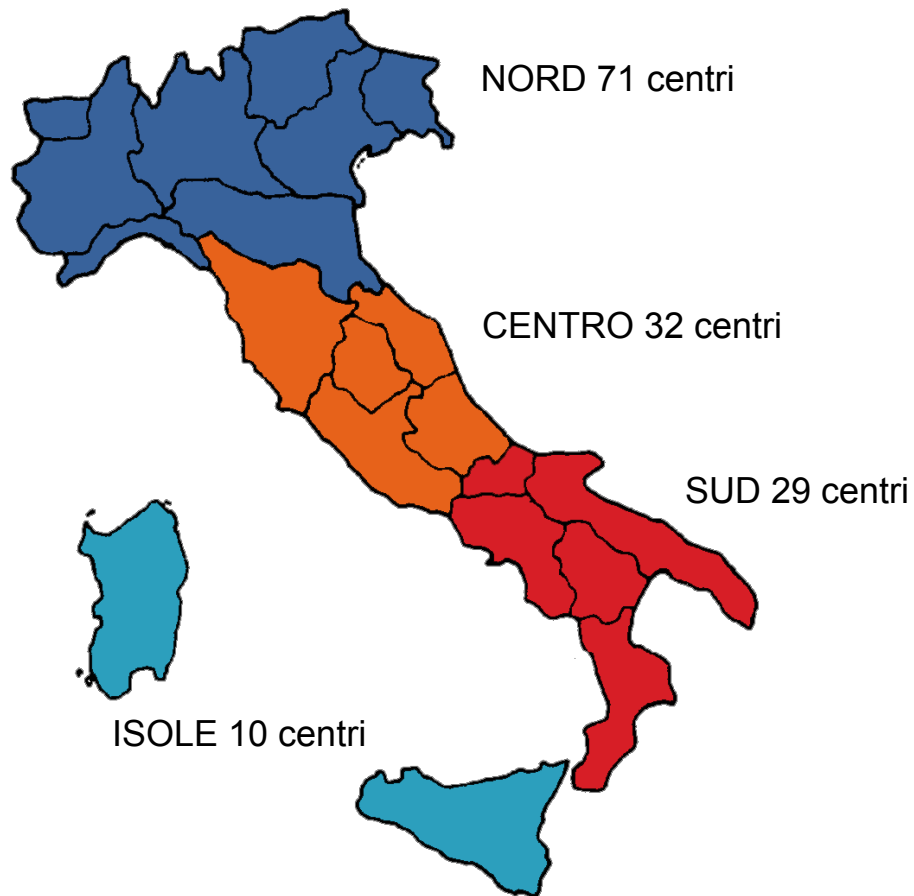
Receptor-mediated effects of bile acids on various tissues and organs involved in energy homeostasis. CAR, constitutive androstane receptor; EGFR, epidermal growth factor receptor; FXR, farnesoid X receptor;

MDR, muscarinic M3 receptor; PXR, pregnane X receptor; S1PR2, sphingosine 1-phosphate receptor 2; TGR5, G protein-coupled bile acid receptor; VDR, vitamin D receptor.

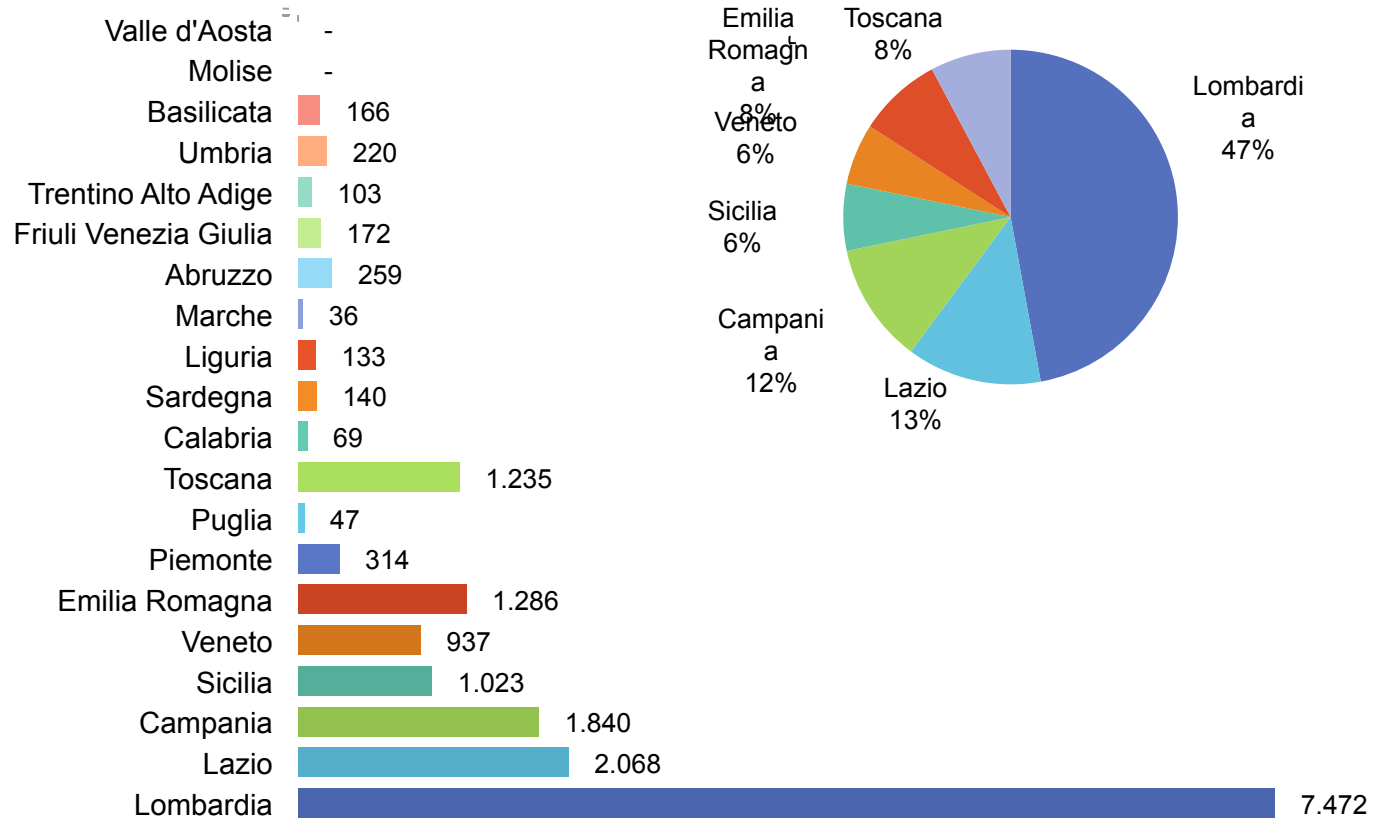
Evoluzione del numero dei centri SICOB dal 2008 al 2017



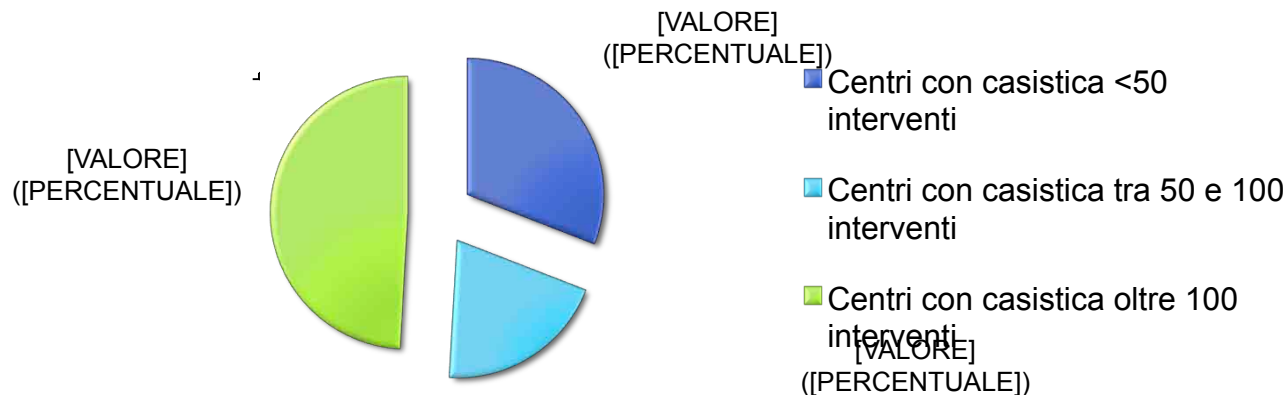
Distribuzione dei 142 centri SICOB censiti nel 2017



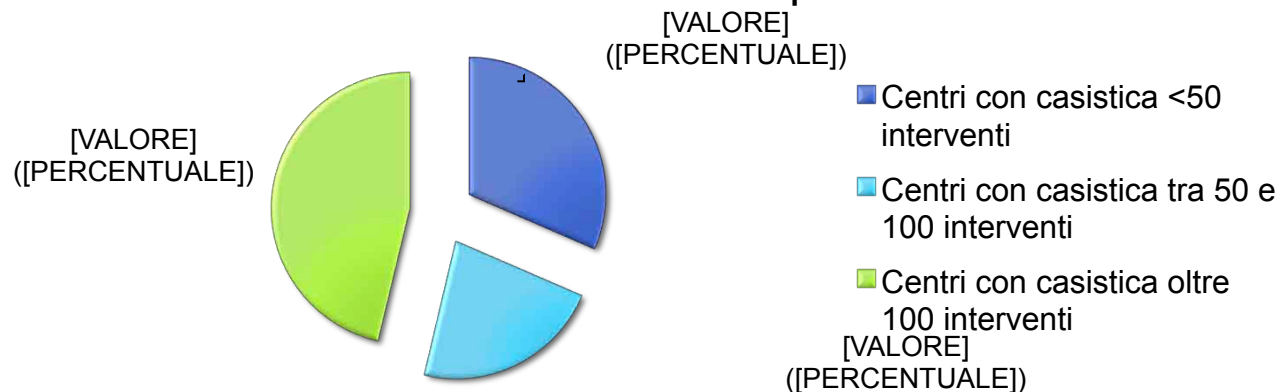
Interventi effettuati per regione



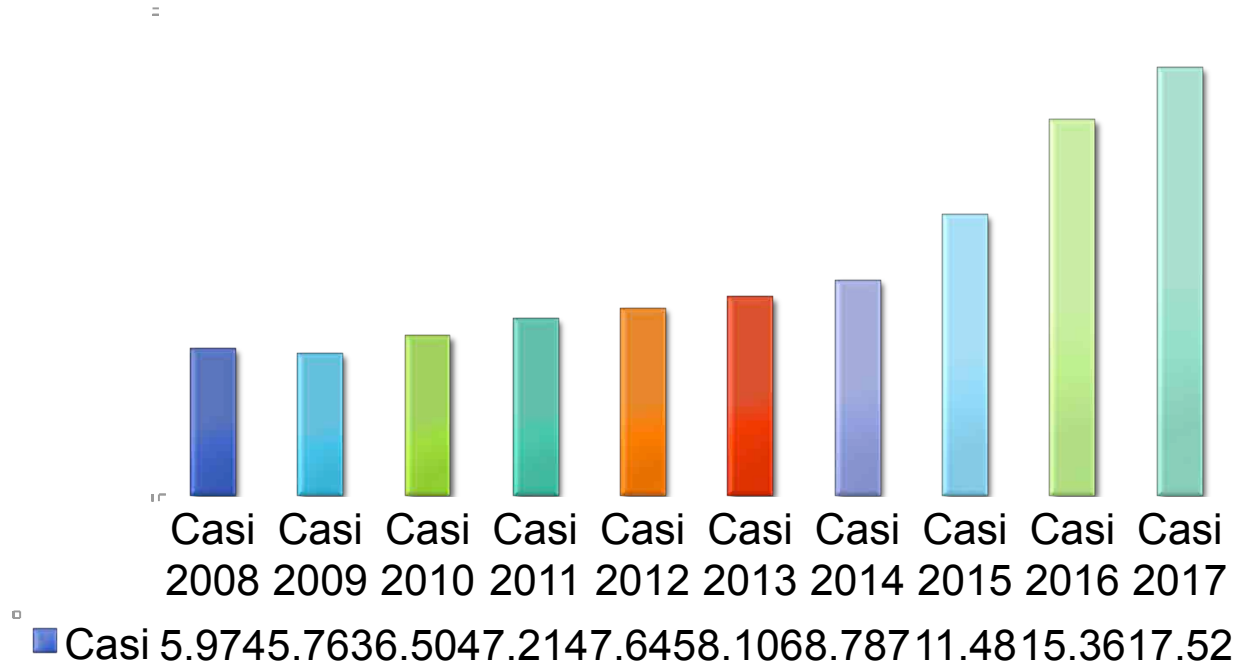
Classificazione delle 110 unità operative nel 2017



Classificazione delle 108 unità operative nel 2016

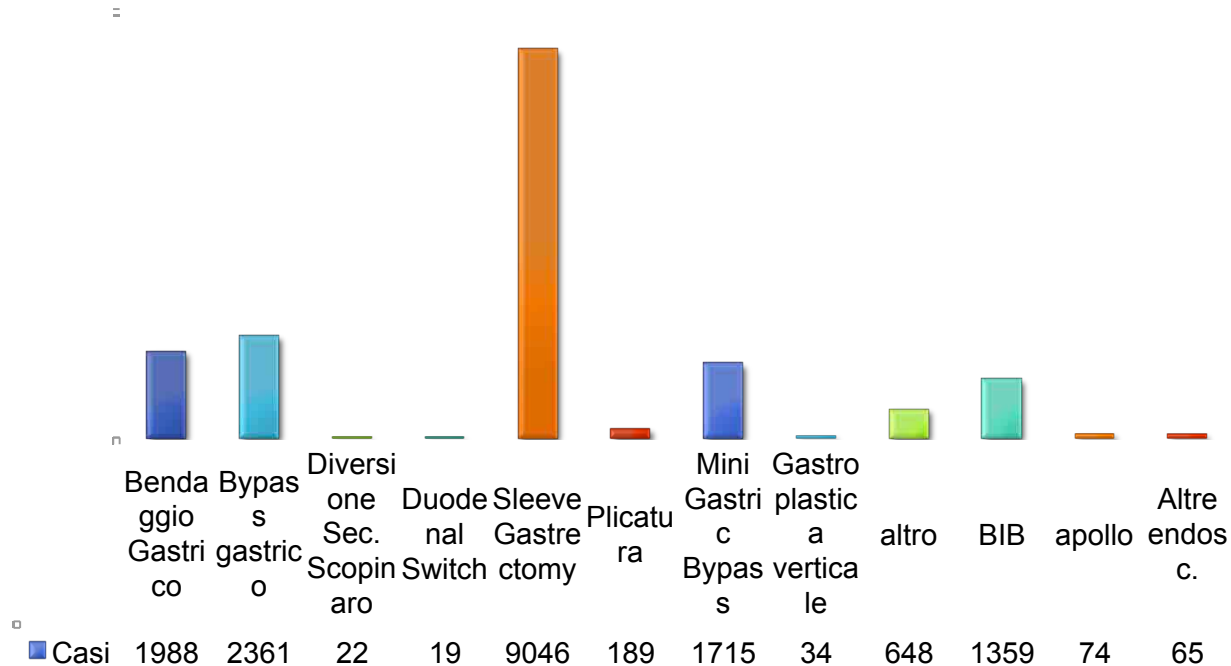


Trend delle procedure eseguite dal 2008 al 2017

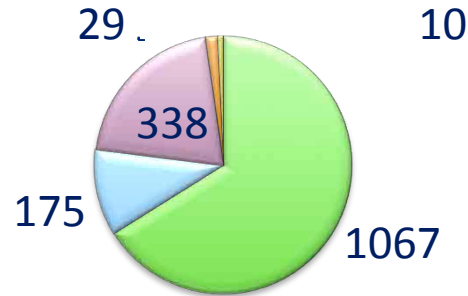


Tipologia delle procedure eseguite nel 2017

Totale 17.520 interventi



**DIVISION OF ENDOCRINE AND METABOLIC SURGERY
SECTION OF METABOLIC SURGERY
(3/2012-10/2018)
1619 LAPAROSCOPIC/ROBOTIC SURGICAL PROCEDURES**



- GBP Roux-en-Y
- OAGB
- Sleeve Gastrectomy
- SADI/SADI-S
- DBP

Hospital Volume and Outcomes for Laparoscopic Gastric Bypass and Adjustable Gastric Banding in the Modern Era

Oliver A. Varban, MD, Bradley N. Reames, MD, MS, Jonathan F. Finks, MD, Jyothi R. Thumma, MPH, and Justin B. Dimick, MD, MPH
University of Michigan Health Systems

Figure 1a:

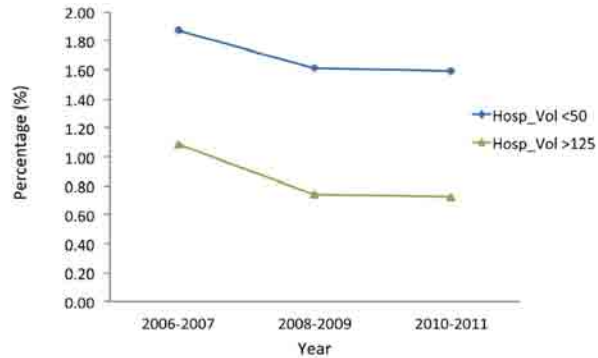


Figure 1b:

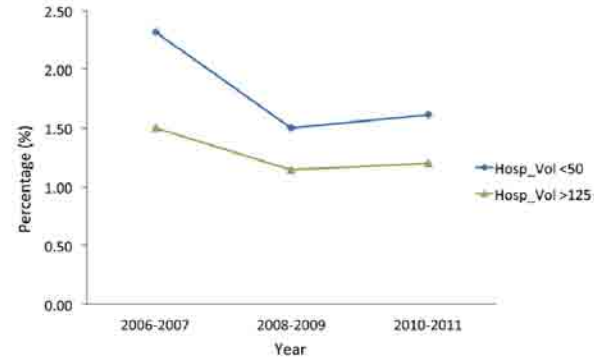


Figure 1.

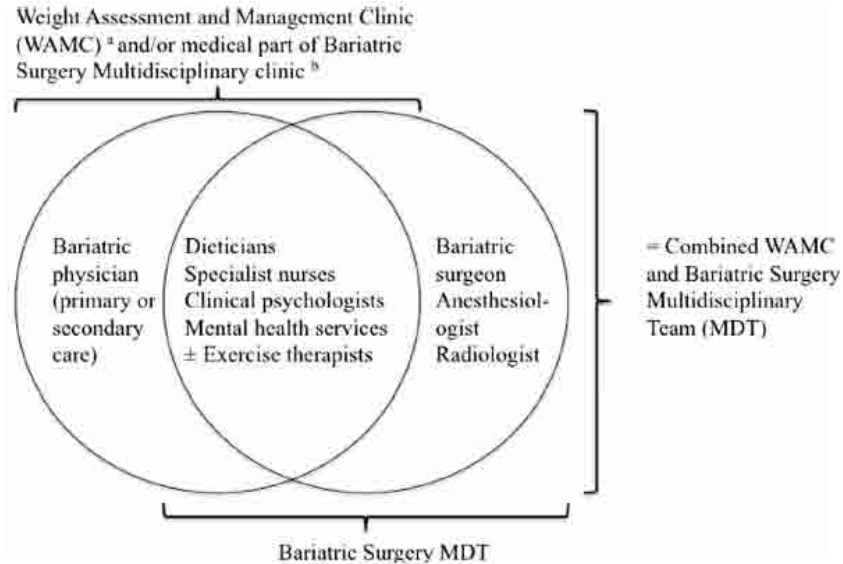
Figure 1a: Serious complications after LAGB among highest (> 125 cases/year) and lowest (<50 cases/year) volume hospitals over the study period (2006–2011).

Figure 1b: Serious complications after LRYGB among highest (> 125 cases/year) and lowest (<50 cases/year) volume hospitals over the study period (2006–2011).

NICE-Accredited Commissioning Guidance for Weight Assessment and Management Clinics: a Model for a Specialist Multidisciplinary Team Approach for People with Severe Obesity

Richard Welbourn¹ · John Dixon² · Julian H. Barth¹ · Nicholas Finer⁴ ·
Carly A. Hughes² · Carel W. le Roux⁵ · John Wass² ·
on behalf of the Guidance Development Group

Fig. 3 A schematic Venn diagram showing the interaction of weight assessment and management clinics (WAMCs) with the bariatric surgery multidisciplinary team (MDT). *a* If located in primary care or community, it has its own staff and refers in to surgery MDT. *b* If located in secondary care, the staff likely shared with surgery service



Il percorso clinico assistenziale dedicato al paziente con obesità

Per far fronte ad una importante esigenza del territorio, al Policlinico Gemelli è stato recentemente istituito un "percorso" clinico dedicato ai pazienti obesi. Malattie come il diabete, l'ipertensione ed altre patologie respiratorie e cardiovascolari (trattamenti connessi all'obesità sono responsabili della riduzione dell'aspettativa di vita. Il calo ponderale può prevenire o migliorare le comorbidità associate all'obesità. La riduzione

del peso può essere ottenuta attraverso cambiamenti nella dieta, con l'aumento

dell'attività fisica e con modifiche dei propri stili di vita. Pertanto, la terapia dietetica, nutrizionale e medica ed il supporto psicologico sono gli elementi cardine della gestione del paziente obeso, ma non sempre sono sufficienti a garantire un adeguato calo ponderale. In casi di obesità grave la soluzione può essere trovata anche attraverso l'eccezione di interventi chirurgici (interventi di chirurgia bariatrica). Di qui la necessità di offrire ai pazienti obesi un percorso diagnostico e terapeutico multidisciplinare che coinvolge numerosi specialisti e servizi diagnostici. A seconda delle necessità riscontrate e secondo le più recenti linee guida il paziente sarà sottoposto all'adeguato trattamento medico-nutrizionale e selezionato per l'intervento chirurgico. In quest'ultimo caso, sulla base della storia personale, delle abitudini alimentari e dello stile di vita ed anche della valutazione clinico-diagnostica eseguita verrà scelto il tipo di intervento chirurgico più adatto. Gli interventi di chirurgia bariatrica vengono realizzati con la tecnica laparoscopica, e talora anche con l'ausilio del robot, che sono in grado di garantire una ripresa più rapida rispetto alla chirurgia convenzionale. Nell'ambito del percorso, inoltre, i pazienti che ne avranno bisogno potranno accedere alla valutazione di chirurgia plastica, per trattare le sequelle estetico-funzionali che sono talora presenti in seguito ad un importante calo ponderale.

Il percorso si prefigge di prendere per mano il paziente obeso e di seguirlo nella sua individualità globale, organizzando, facilitando ed agevolando l'accesso ai servizi diagnostico-clinici, al trattamento più adeguato e garantendo periodici controlli, che valutino i risultati del trattamento intrapreso.

Dal momento che sono già molti i pazienti trattati per obesità presso il nostro Policlinico, si sta anche creando un gruppo di supporto, formato da "ex pazienti", che possano contribuire a sostenere ed aiutare coloro che decidano di intraprendere questo percorso.

Verrà a breve istituito un numero verde che consentirà un accesso diretto al percorso da parte dei pazienti, ma garantirà anche ai medici del territorio la possibilità di confrontarsi con il centro sulle problematiche relative al paziente obeso.

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SICOB**

 **SOCIETÀ ITALIANA DI CHIRURGIA DELL'OBESITÀ
e delle malattie metaboliche**

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Psicologo, Chirurgo, ma anche Anestesista,
Fisioterapista, Endoscopista, Pneumologo,
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**Ambulatorio Patologie dell'Obesità
Ambulatorio Chirurgia dell'Obesità e
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