
# MBS Class II obesity without obesity complications: what is the evidence?

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SURGERY FOR OBESITY AND RELATED DISEASES
ASMBS





## Table 1 Classification of obesity

| Classification | BMI range | Health and survival risk |
|---|---|---|
| Overweight | 25–30 | Mild |
| Class I | 30–35 | Moderate |
| Class II | 35–40 | Severe |
| Class III | >40 | Very severe |

BMI = body mass index.

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# 2022 American Society for Metabolic and Bariatric Surgery (ASMBS) and International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO): Indications for Metabolic and Bariatric Surgery

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PlumX Metrics

# 31 years? What happened

- Safer procedures with less morbidity and mortality
- Open Vs Laparoscopic approaches (1993 start of the laparoscopic era)
- Better anesthesia and perioperative care
- Less hospital stay early ambulation
- Surgical techniques refinement
- A completely different field

FEATURES

# Changes
# States Fr

Campos, Guilhern
Guilherme S. MD,

Author Informatic

*Annals of Surgery*

## Methods:

Adults with obesity diagnosis who underwent primary bariatric surgery in the United States from 1993 to 2016 were identified in the National Inpatient Sample database. Estimates of the yearly number, types and cost of surgeries, patients' and hospital characteristics, complications and mortality rates were obtained. Prevalence of obesity and comorbidities were obtained from the National Health and Nutrition Examination Survey and changes in utilization of surgery were estimated.

## Results:

An estimated 1,903,273 patients underwent bariatric surgery in the United States between 1993 and 2016. Mean age was 43.9 years (79.9% women, 70.9% white race, 70.7% commercial insurance); these and other characteristics changed over time. Surgeries were exclusively open operations in 1993 (n = 8,631; gastric bypass and vertical banded gastroplasty, 49% each) and 98% laparoscopic (n = 162,969; 69.8% sleeve gastrectomy and 27.8% gastric bypass) in 2016. Complication and mortality rates peaked in 1998 (11.7% and 1%) and progressively decreased to 1.4% and 0.04% in 2016. Utilization increased from 0.07% in 1993 to 0.62% in 2004 and remained low at 0.5% in 2016.

## Conclusions:

Perioperative safety of bariatric surgery improved over the last quarter-century. Despite growth in number of surgeries, utilization has only marginally increased. Addressing barriers for utilization may allow for greater access to surgical therapy.

# 1999 Naples 1st international laparoscopic ob
# surgery conference: 30-40 kg/m2 no co-m
# To do or not to do?
# If Do w to do?



*Obesity Surgery*, **14**, 415-418

# Italian Group for Lap-Band System®: Results of Multicenter Study on Patients with BMI ≤35 kg/m $^2$

**L. Angrisani; F. Favretti; F. Furbetta; A. Iuppa; S. B. Doldi; M. Paganelli; N. Basso; M. Lucchese; M. Zappa; G. Lesti; F. D. Capizzi; C. Giardiello; N. Di Lorenzo; A. Paganini; L. Di Cosmo; A. Veneziani; S. Lacitignola; G. Silecchia; M. Alkilani; P. Forestieri; F. Puglisi; A. Gardinazzi; M. Toppino; F. Campanile; B. Marzano; P. Bernante; G. Perrotta; V. Borrelli; M. Lorenzo**

*Italian Group for Lap-Band®, c/o Fondazione IDIS, Città della Scienza, Naples, Italy*

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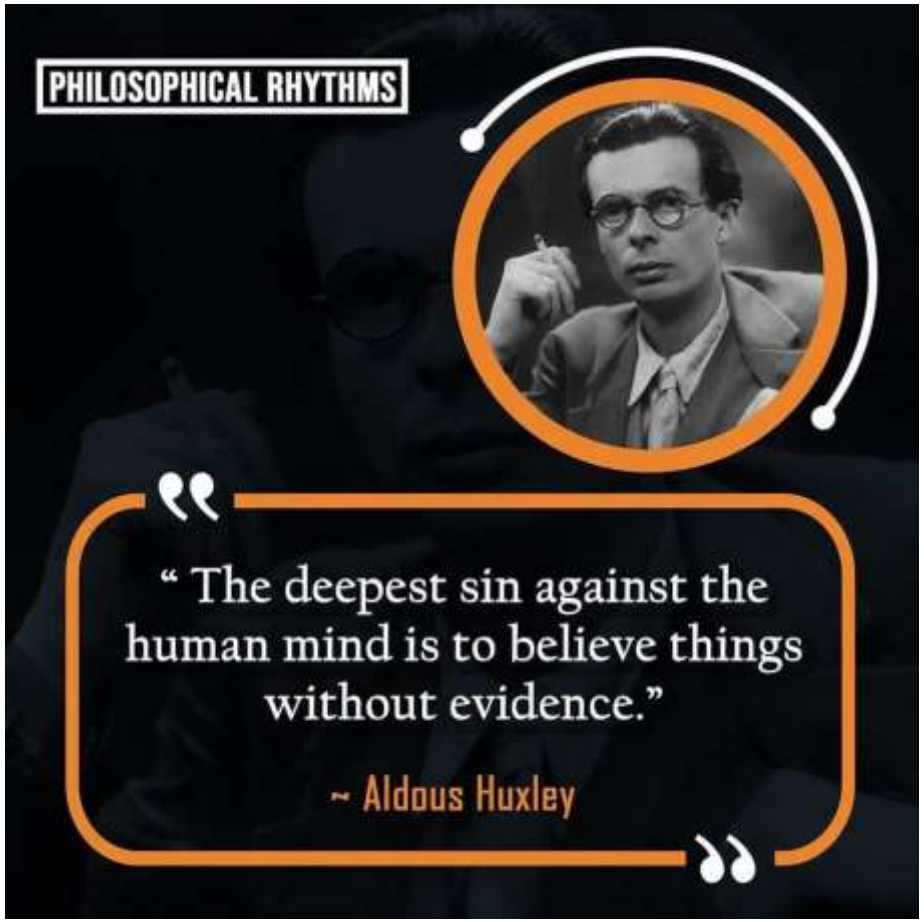


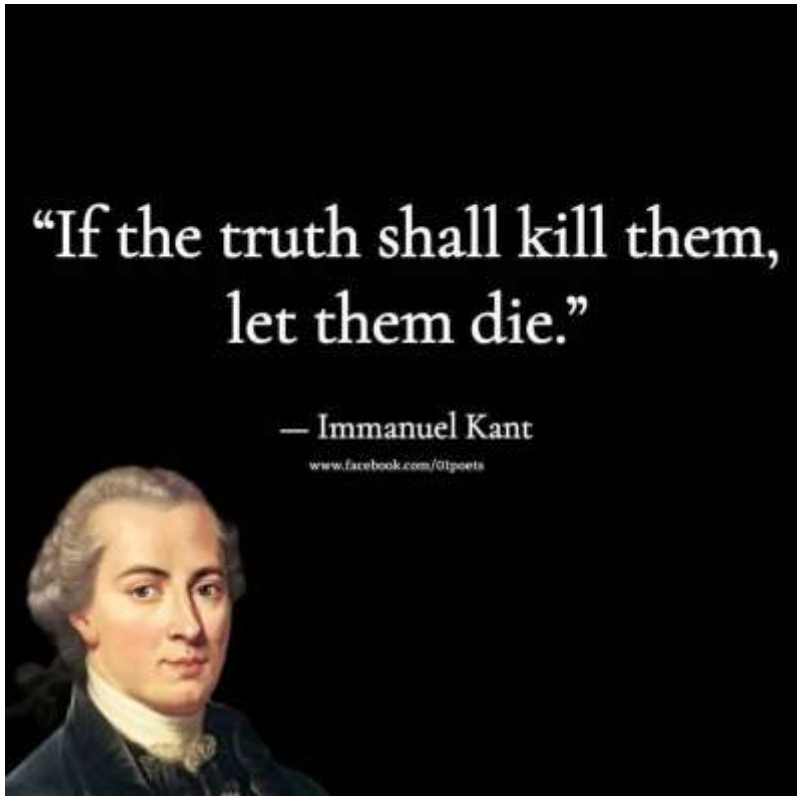

# ASMBS/IFSO Guidelines 2022 References

Randomized clinical trials of bariatric surgery in patients with body mass index <35 kg/m$^2$.

| Author, Year | BMI range | Follow-up time | Follow-up rate | Study Arms | N | Weight loss | Health outcomes |
|---|---|---|---|---|---|---|---|
| Dixon et al., 2008 [50] | 30–40 | 2 yr | 92% | AGB | 30 | WL: 20%<br>EWL: 62.5% | Significant improvement in diabetes, lipid profile, metabolic syndrome, and number of cardiovascular and diabetes medications after surgery |
| | | | | Medical therapy | 30 | WL: 1.4%<br>EWL: 4.3% | |
| O'Brien et al., 2013 [65] | 30–35 | 10 yr | 78% | AGB | 40 | 14 kg<br>EWL: 63% | Significant improvement of metabolic syndrome in the surgical/crossover combined group |
| | | | | Medical therapy | 40 | .4 kg<br>EWL: 0% | |
| Liang et al., 2013 [75] | Mean: 30 | 1 yr | 94% | RYGB | 31 | BMI: 30 to 15 | Significant improvement in diabetes, lipid profile, inflammatory markers, and cardiac structure after surgery |
| | | | | Medical therapy | 36 | BMI: 30 to 30 | |
| | | | | Medical therapy including Exenatide | 34 | BMI: 30 to 27 | |
| Lee et al., 2014 [76] | 25–35 | 5 yr | 80% | SAGB | 30 | WL: 23%<br>BMI: 30 to 23 | Significant improvement in diabetes, lipid profile, and blood pressure after SAGB group compared with SG |
| | | | | SG | 30 | WL: 20%<br>BMI: 31 to 25 | |
| Parikh et al., 2014 [66] | 30–35 | 6 mo | 77% | RYGB, SG, or AGB | 29 | 7 kg/m$^2$<br>EWL: 60% | Significant improvement in glucose control and number of diabetes medications after surgery |
| | | | | Medical therapy | 28 | 1 kg/m$^2$<br>EWL: 7% | |
| Wentworth et al., 2014 [68] | 25–30 | 5 yr | 88% | AGB | 25 | WL: 12% | Significant improvement of diabetes, lipid profile, and quality of life after surgery |
| | | | | Medical therapy | 26 | WL: 2% | |
| Halperin et al., 2014 [77] | 30–42 (n = 13 with BMI <35) | 1 yr | 100% | RYGB | 19 | 10 kg/m$^2$ | Significant improvement of diabetes, lipid profile, blood pressure, and cardiovascular risk scores after surgery |
| | | | | Medical therapy | 19 | 2 kg/m$^2$ | |
| Ikramuddin et al., 2015 [71] | 30–39.9 (n = 71 with BMI <35) | 3 yr | 85% | RYGB | 60 | WL: 21% | Significant improvement of diabetes, blood pressure, and lipid profile after surgery |
| | | | | Medical therapy | 60 | WL: 6% | |
| Courcoulas et al., 2015 [78] | 30–40 (n = 26 with BMI <35) | 3 yr | 85% | RYGB | 20 | 25 kg<br>WL: 25% | Significant improvement of diabetes, blood pressure, and lipid profile after surgery |
| | | | | AGB | 21 | 15 kg<br>WL: 15% | |
| | | | | Medical therapy | 20 | 5 kg<br>WL: 6% | |
| Ding et al., 2015 [79] | 30–45 (n = 15 with BMI <35) | 1 yr | 90% | AGB | 18 | 13.5 kg | |
| | | | | Medical therapy | 22 | 8.5 kg | |
| Cummings et al., 2016 [80] | 30–45 (n = 11 with BMI <35) | 1 yr | 100% | RYGB | 15 | WL: 26% | Significant improvement in diabetes, systolic blood pressure, and number of diabetes and antihypertension medications after surgery |
| | | | | Medical therapy | 17 | WL: 6% | |
| Schauer et al., 2017 [73] | 27–43 (n = 49 with BMI <35) | 5 yr | 90% | RYGB | 50 | 23 kg | Significant improvement in diabetes, lipid profile, number of cardiovascular and diabetes medications, and quality of life after surgery |
| | | | | SG | 50 | 19 kg | |
| | | | | Medical therapy | 50 | 5 kg | |

BMI = body mass index; AGB = adjustable gastric banding; WL = weight loss; EWL = excess weight loss; RYGB = Roux-en-Y gastric bypass; SAGB = single-anastomosis gastric bypass; SG = sleeve gastrectomy.

Ali Aminian et al. / Surgery for Obesity and Related Diseases 14 (2018) 1071–1087


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Bariatric surgery in class I obesity (body mass index 30–35 kg/m2)
ASMBS Clinical Issues Committee
Published: September 19, 2012 • DOI: https://doi.org/10.1016/j.soard.2012.09.002
PlumX Metrics

Other | Published: 18 March 2014

# Bariatric Surgery in Class I Obesity

A Position Statement from the International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO)

Luca Busetto, John Dixon, Maurizio De Luca, Scott Shikora, Walter Pories & Luigi Angrisani

*Obesity Surgery* **24**, 487–519 (2014) | Cite this article

Review > JAMA. 2004 Oct 13;292(14):1724-37. doi: 10.1001/jama.292.14.1724.

# Bariatric surgery: a systematic review and meta-analysis

Henry Buchwald [1], Yoav Avidor, Eugene Braunwald, Michael D Jensen, Walter Pories, Kyle Fahrbach, Karen Schoelles

Affiliations + expand

PMID: 15479938 DOI: 10.1001/jama.292.14.1724

**Conclusions** Effective weight loss was achieved in morbidly obese patients after undergoing bariatric surgery. A substantial majority of patients with diabetes, hyperlipidemia, hypertension, and obstructive sleep apnea experienced complete resolution or improvement.

## Erratum in

JAMA. 2005 Apr 13;293(14):1728

JAMA Surg. Author manuscript; available in PMC 2015 Mar 1.
*Published in final edited form as:*
JAMA Surg. 2014 Mar 1; 149(3): 275–287.
doi: 10.1001/jamasurg.2013.3654

PMCID: PMC3962512
NIHMSID: NIHMS494690
PMID: 24352617

# Bariatric surgery: an update

Su-Hsin Chang, PhD,[1] Carolyn R.T. Sto
Christopher J. Eagon, MD,[3] and Graha

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**Results** A total of 164 studies were included (37 randomized clinical trials and 127 observational studies). Analyses included 161756 patients with a mean age of 44.56 years and body mass index of 45.62. We conducted random-effects and fixed-effect meta-analyses and meta-regression. In randomized clinical trials, the mortality rate within 30 days was 0.08% (95% CI, 0.01%-0.24%); the mortality rate after 30 days was 0.31% (95% CI, 0.01%-0.75%). Body mass index loss at 5 years postsurgery was 12 to 17. The complication rate was 17% (95% CI, 11%-23%), and the reoperation rate was 7% (95% CI, 3%-12%). Gastric bypass was more effective in weight loss but associated with more complications. Adjustable gastric banding had lower mortality and complication rates; yet, the reoperation rate was higher and weight loss was less substantial than gastric bypass. Sleeve gastrectomy appeared to be more effective in weight loss than adjustable gastric banding and comparable with gastric bypass.

**Conclusions and Relevance** Bariatric surgery provides substantial and sustained effects on weight loss and ameliorates obesity-attributable comorbidities in the majority of bariatric patients, although risks of complication, reoperation, and death exist. Death rates were lower than those reported in previous meta-analyses.

Meta-Analysis > Obes Surg. 2019 Jan;29(1):3-14. doi: 10.1007/s11695-018-3525-0.

# Long-Term Outcomes After Bariatric Surgery: a Systematic Review and Meta-analysis of Weight Loss

**Results:** Systematic review identified 57 datasets of which 33 were eligible for meta-analysis. Weighted means of the percentage of excess weight loss (%EWL) were calculated for all papers included in the systematic review. Eighteen reports of gastric bypass showed a weighted mean of 56.7%EWL, 17 reports of LAGB showed 45.9%EWL, 9 reports of biliopancreatic bypass +/- duodenal switch showed 74.1%EWL and 2 reports of sleeve gastrectomy showed 58.3%EWL. Meta-analyses of eligible studies demonstrated comparable results. Reoperations were common in all groups. At a single centre, 8378 LAGB patients were followed for up to 20 years with an overall follow-up rate of 54%. No surgical deaths occurred. Weight loss at 20 years (N = 35) was 30.1 kg, 48.9%EWL and 22.2% total weight loss (%TWL). Reoperation rate was initially high but reduced markedly with improved band and surgical and aftercare techniques.

**Conclusion:** All current procedures are associated with substantial and durable weight loss. More long-term data are needed for one-anastomosis gastric bypass and sleeve gastrectomy. Reoperation is likely to remain common across all procedures.

Other | Published: 19 July 2012

# Weight Loss Surgery for Mild to Moderate Obesity: A Systematic Review and Economic Evaluation

Joanna I

*Obesity*

## Conclusions

Bariatric surgery appears to be a clinically effective and cost-effective intervention for people with class I or II obesity who also have T2D but is less likely to be cost-effective for people with class I obesity.

Meta-Analysis > Nutr Metab Cardiovasc Dis. 2021 Sep 22;31(10):2815-2824.
doi: 10.1016/j.numecd.2021.06.018. Epub 2021 Jul 2.

# Efficacy and effects of bariatric surgery in the treatment of obesity: Network meta-analysis of randomized controlled trials

Claudia Cosentino [1], Cristiano Marchetti [2], Matteo Monami [3], Edoardo Mannucci [2], Barbara Cresci [3]

**Conclusions:** BS produces a greater weight loss than MT in morbidly obese patients, inducing a greater improvement of obesity-associated metabolic parameters. Available data are insufficient to assess the effect of BS on mortality. Different surgical procedures are heterogeneous for efficacy and safety.

Original Investigation

November 2016

# Bariatric Surgery and Long-term Durability of Weight Loss

Matthew L. Maciejewski, PhD[1,2]; David E. Arterburn, MD, MPH[3,4]; Lynn Van Scoyoc, BA[1]; et al

» Author Affiliations | Article Information

*JAMA Surg.* 2016;151(11):1046-1055. doi:10.1001/jamasurg.2016.2317

## Conclusions

Among obese patients receiving care in the VA health care system, veterans who underwent RYGB lost much more weight than nonsurgical matches and were able to sustain most of this weight loss in the long term. We found that RYGB induced significantly more weight loss at 4 years than SG or AGB. These results provide further evidence for the beneficial association between surgery and long-term weight loss that has been demonstrated in shorter-term studies of younger, predominantly female populations.

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Review | Published: 01 September 2013

# Weight Recidivism Post-Baria Review

Shahzeer Karmali, Balpreet Brar, Xinzhe Shi, Arya M.

*Obesity Surgery* **23**, 1922–1933 (2013) | Cite this article



## Conclusion

Bariatric surgery in obese patients is effective in producing sustainable weight loss and improvement in obesity-related co-morbidities. However, suboptimal weight loss and weight regain can be seen in a subset of patients following bariatric surgery. Weight recidivism is an important public health issue with significant ramifications to both the patient (re-emergence of obesity-related co-morbidities) and the health care system (economic costs of obesity, societal impacts of recalcitrant obesity). The underlying aetiologies contributing to weight regain are complex, multi-factorial and oftentimes overlapping. Thus, in an effort to manage weight regain, an organized and systematic approach is essential. A dedicated weight recidivism clinic that offers patients a methodical, organized and multidisciplinary plan may serve as a useful template for practitioners struggling with patients experiencing weight recidivism post-bariatric surgery.

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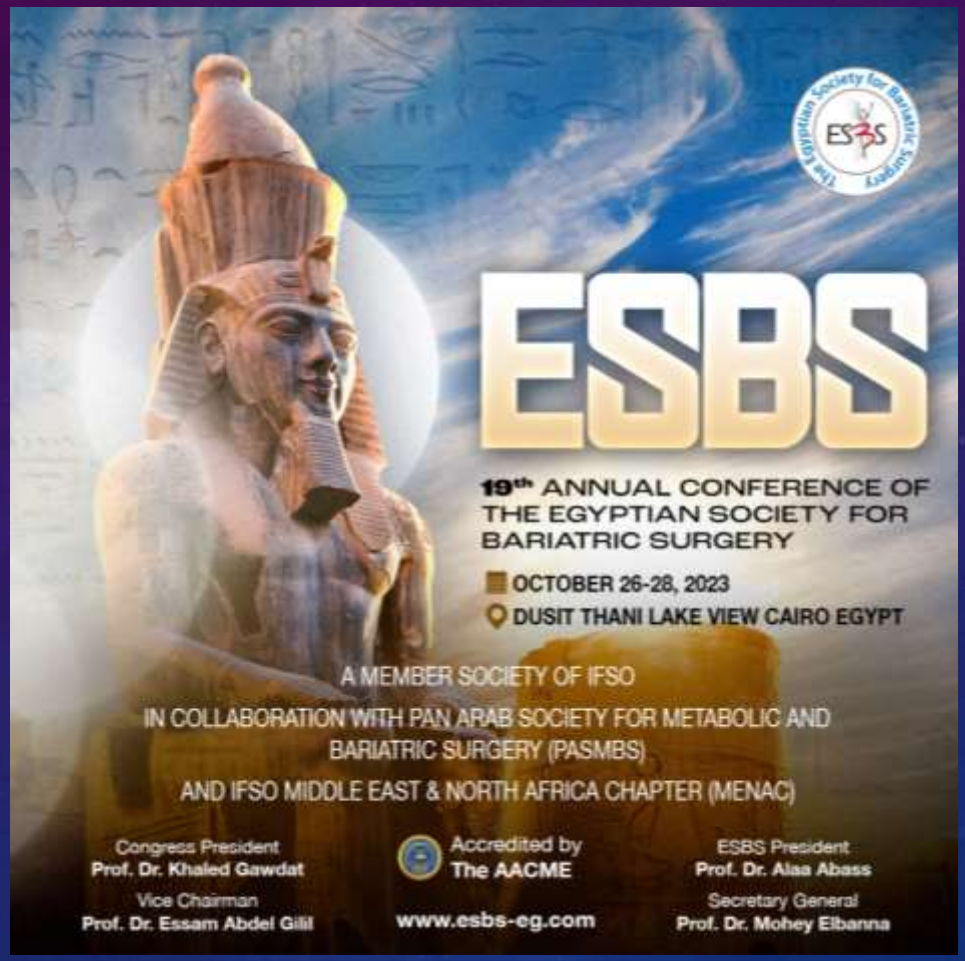
- Specific class 2 without co-morbidities MBS publications before the guide lines : Lacking
- That will change

There are patients whom we cannot help but there are none whom we cannot harm
Alfred Cuschieri

# Conclusion

- MBS For class II obesity with out comorbidity is the most effective treatment strategy in this group of patients.
- Better procedure choice and better follow up can give better long term outcomes.
- Better RCT and long term follow-up data are needed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Thank you