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XXXII CONGRESSO
NAZIONALE SICOB

23 - 25 MAGGIO 2024
G I A R D I N I
N A X O S



NUOVE RACCOMANDAZIONI NUTRIZIONALI:BACKSTAGE IL POSTOPERATORIO: ALERT NUTRIZIONALI

Dott.ssa Barbara Neri
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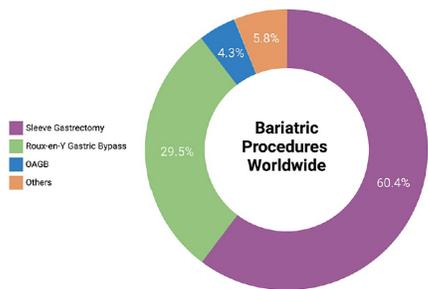
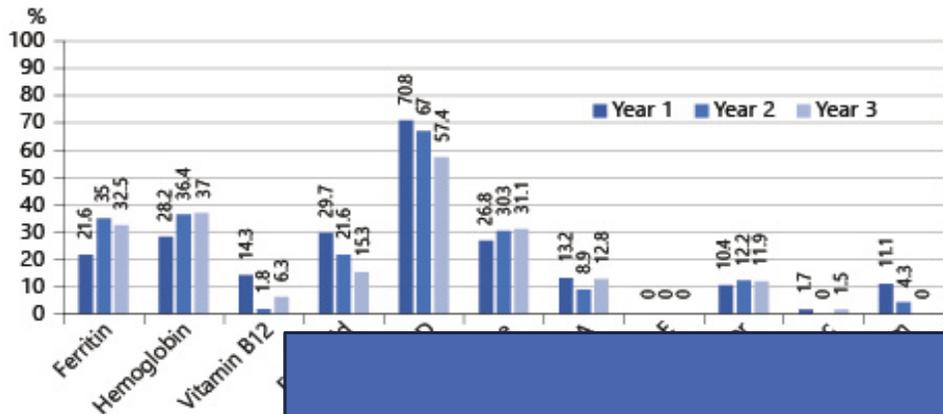
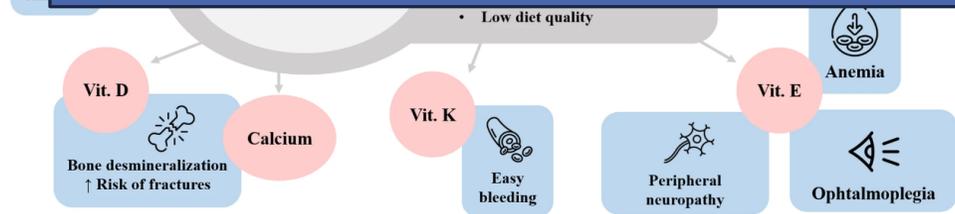
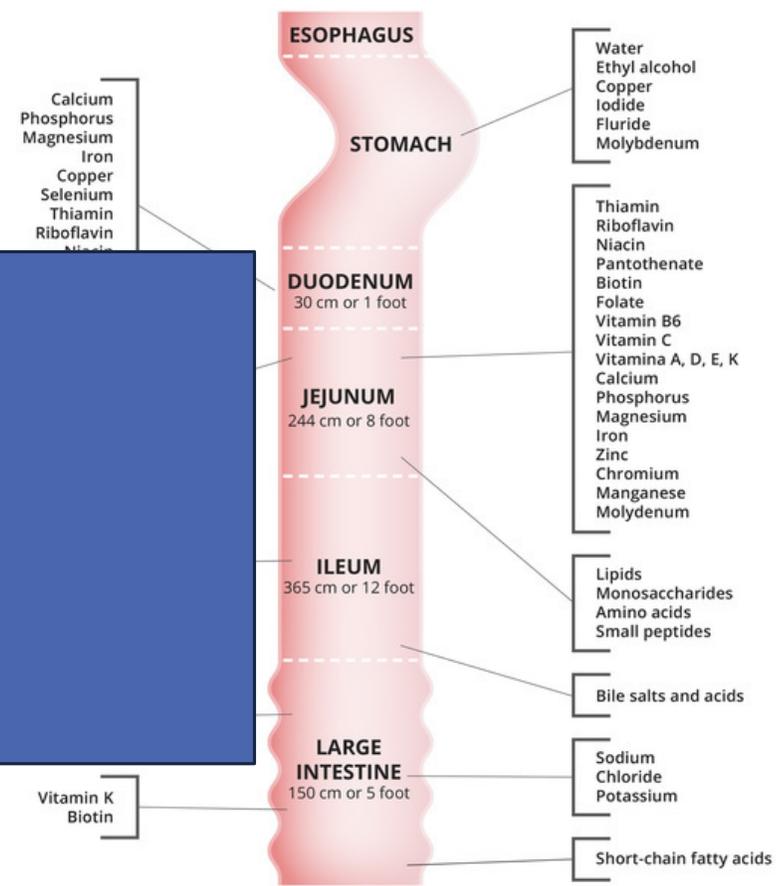


FIGURE 1: Most common bariatric surgeries performed worldwide 2021-2022. Data represents 480,970 procedures performed across 25 countries [23]. OAGB = One-Anastomosis Gastric Bypass. Image credits: Omar A. Kamal, 2024 (created with BioRender.com)

ALERT



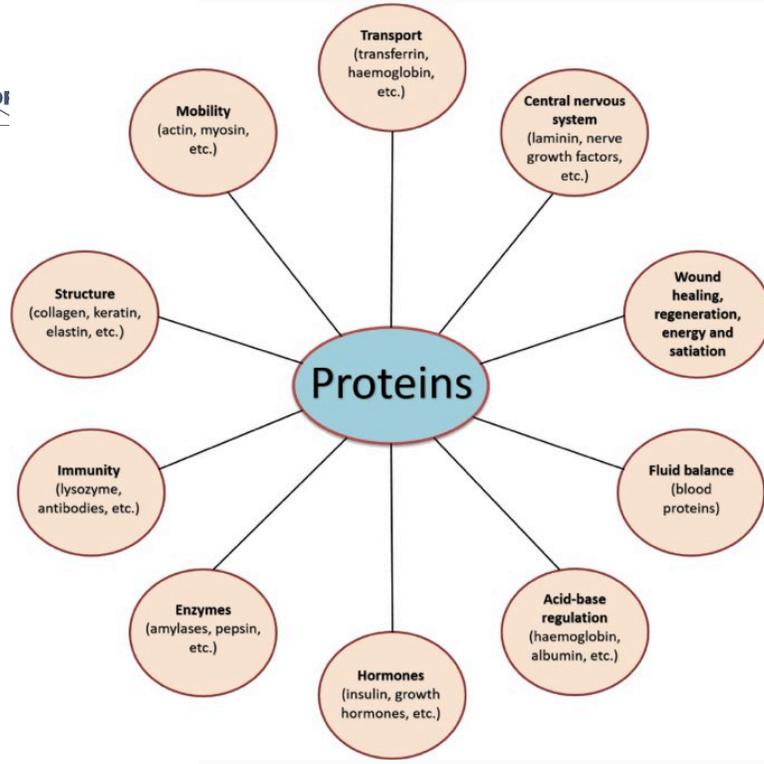
Common nutritional deficiencies after BS and their accompanying alterations



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Article
Nutritional Status, Selected Nutrients Intake, and Metabolic Disorders in Bariatric Surgery Patients

Iwona Boniecka ^{1,*}, Aneta Czerwonogrodzka-Senczyna ¹, Anna Jeznach-Steinhagen ¹, Krzysztof Pańnik ², Dorota Szostak-Węgierek ¹ and Samir Zeair ³



Original article
Bariatric surgery affects obesity-related protein requirements
 C. Guillet ^{a,*}, A. Masgrau ^{a,1}, A. Mishellany-Dutour ^a, A. Blot ^a, A. Caille ^a, N. Lyon ^a, B. Pereira ^b, K. Slim ^c, M. Robert ^d, E. Disse ^e, N. Feugier ^e, P. Le Ruyet ^f, C. Louvet ^g, M. Miolanne ^g, N. Farigon ^g, M. Laville ^e, Y. Boirie ^{a, g}

- un cambiamento temporale nel fabbisogno proteico dopo la chirurgia bariatrica, indipendentemente dal tipo di intervento chirurgico.
- L'assunzione spontanea di proteine dopo la chirurgia bariatrica non copre il fabbisogno proteico per la maggior parte dei pazienti

raccomandazioni proteiche dietetiche specifiche devono essere adattate ai pazienti affetti da obesità dopo l'intervento.

Riduzione Assunzione proteica:

- minore assunzione di cibo,
- ridotto assorbimento correlato alla diminuita produzione di acido cloridrico e enzimi digestivi
- intolleranza ai prodotti ad alto contenuto proteico (in particolare la carne) che può persistere per molti anni

SCOMPENSO EPATICO

Può verificarsi dopo la chirurgia bariatrica e in un periodo di tempo molto variabile.

Obesity Surgery (2021) 31:3860–3861
<https://doi.org/10.1007/s11695-021-05408-8>



LETTER TO THE EDITOR



Severe Protein Malnutrition After Bariatric Surgery and Liver Failure: a Dangerous Sequence

Antonio Iannelli^{1,2,3} · Niccolò Petruccianni^{1,2} · Luigi Schiavo⁴ · Rodolphe Anty^{1,2,3}

Obesity Surgery (2022) 32:1227–1235

<https://doi.org/10.1007/s11695-022-05930-3>

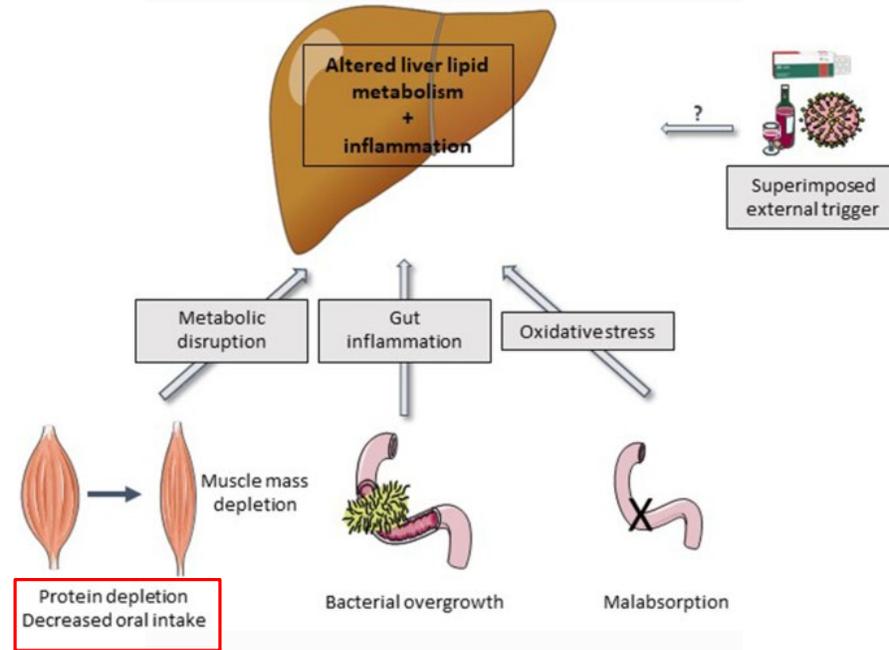


ORIGINAL CONTRIBUTIONS



Liver Decompensation after Bariatric Surgery in the Absence of Cirrhosis

Perrine Vande Berg¹ · Artida Ulaj² · Graziella de Broqueville¹ · Marie de Vos³ · Bénédicte Delire¹ · Philippe Hainaut² · Jean-Paul Thissen⁴ · Peter Stärkel¹ · Mina Komuta⁵ · Paulina Henry⁵ · Nicolas Lanthier¹



Review article
 Liver transplantation for bariatric surgery-related liver failure: a systematic review of a rare condition

Pietro Addeo, M.D.^{a,*}, Manuela Cesaretti, M.D., Ph.D.^b, Rodolphe Anty, M.D., Ph.D.^{c,d}, Antonio Iannelli, M.D., Ph.D.^{b,c}

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^bDigestive Surgery and Liver Transplantation Unit, Archet 2 Hospital, Centre Hospitalier Universitaire de Nice, Université Côte d'Azur, Nice, France
^cINSERM U1065, Mediterranean Center for Molecular Medicine, Team 8 Hepatic Complications of Obesity, Nice, France
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 Received 16 July 2018; accepted 4 June 2019



SUPPORTO NUTRIZIONALE MIGLIORA LA PROGnosi

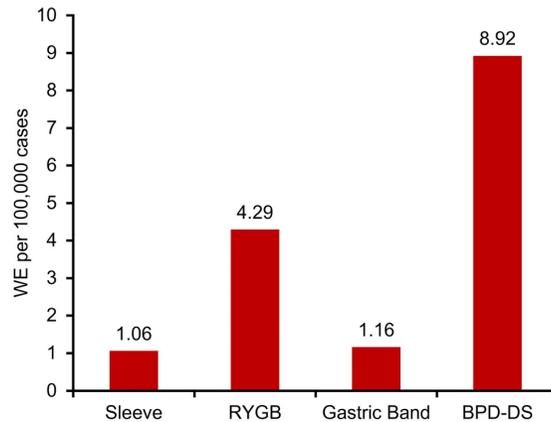
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Complicanze neurologiche

prevalenza
fino al 16%.



Steenackers N, Van der Schueren B, Augustijns P, Vanuytsel T, Matthys C. Development and complications of nutritional deficiencies after bariatric surgery. Nutrition Research Reviews. 2023;36(2):512-525.



Incidence of WE by bariatric procedure

Carenza di **folati B9** può portare a neuropatia periferica o sindrome delle gambe senza riposo.
Carenza di **vitamina B12** può manifestarsi neurologicamente presentandosi come mielopatia, neuropatia, parestesia, atassia e demenza

VITAMINA B1

Carenza nel 27% circa
Assunzione < o > utilizzo

Beri –Beri
SWK

la diagnosi può essere ritardata o sfuggire a personale sanitario non competente nel campo.

REVERSIBILI

Obesity Surgery (2022) 32:3104–3112
<https://doi.org/10.1007/s11695-022-06178-7>



REVIEW



B1 Vitamin Deficiency After Bariatric Surgery, Prevalence, and Symptoms: a Systematic Review and Meta-analysis

Mansour Bahardoust^{1,2} · Foolad Eghbali^{1,3,4} · Shahab Shahabi Shahmiri¹ · Abolhasan alJanpour⁵ · Fahime yarighol¹ · Rohollah Valizadeh^{1,6} · Ahmad Madankan¹ · Amir Bahador Pouraskari¹ · Behnaz Ashtarinezhad¹ · Hossein Farokhi⁷ · Hamid sarafraz¹ · Elham Khanafshar⁸

Vitamina
idrosolubile

IPEPAPATIROIDISMO SECONDARIO

Surgical Endoscopy (2023) 37:8019–8028
<https://doi.org/10.1007/s00464-023-10218-3>

2023 SAGES ORAL



Prevalence and risk factors for secondary hyperparathyroidism (SHPT) in patients undergoing bariatric surgery

Laura E. Fischer^{1,4} · Fernando Moreno-Garcia¹ · Rachel Tran¹ · Allison Harmon¹ · Cooper Little¹ · Grayson Domingue² · Kenneth Stewart³ · Fernando Mier Giraud^{3,4} · Rishi Thakral²

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Fig. 4 Prevalence of SHPT and vitamin D3 deficiency by surgery type. Graph showing prevalence of secondary hyperparathyroidism and vitamin D3 deficiency at multiple time points before and after bariatric surgery, stratified by surgical anatomy (Roux-en-Y gastric bypass versus vertical sleeve gastrectomy)

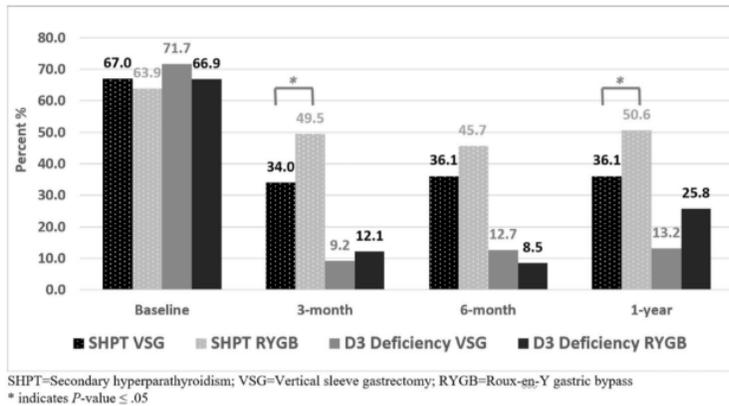
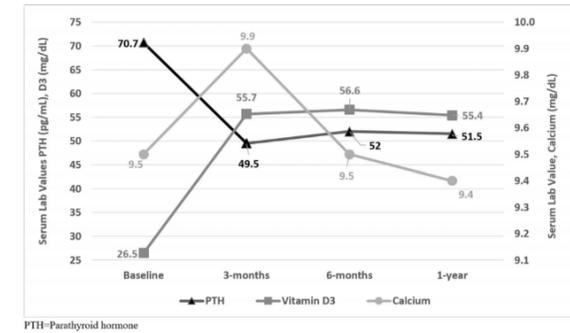


Fig. 2 Change in mean PTH, calcium, and vitamin D3 over time. Graph showing change in mean serum laboratory values for parathyroid hormone, calcium, and vitamin D3 at multiple time points before and after bariatric surgery



Long-term Changes in Bone Density and Bone Metabolism After Gastric Bypass Surgery

METHODS

Retrospective cohort in Brazil
 Adults who underwent RYGB at least 2 years before

Outpatients from clinical visits with at least one DXA scan and complete follow-up exams

N = 127 post-RYGB

RYGB performed between March/2016 - Nov/2018
 Median follow-up 5 years

RESULTS

51 ± 10.6 years
 91.3% female
 52.8% postmenopausal
 87.4% self-declared White

Low BMD prevalence

After 2.5 years: 37.8% (Low bone mass), 6.7% (Osteoporosis)
 After 5 years: 44.4% (Low bone mass), 11.1% (Osteoporosis)
 p<.001

41.5% Hypovitaminosis D in the 2nd year

83.7% SHPT in the 6th year

CONCLUSIONS

After 5 years, most post-RYGB patients presented calcium-vitamin D-PTH axis disruption

Older patients and menopausal women presented higher rates of low BMD in all DXA sites

Older age was a risk marker for low BMD in femoral neck (OR 1.185; 95% CI 1.118-1.256) and in total proximal femur (OR 1.158; 95% CI 1.066-1.258), after adjusting for follow-up and %EWL

Sperb LF, Leotti VB, Silveiro SP, de Azevedo MJ, Viano LV.

OBSESITY SURGERY
 The Journal of Metabolic Surgery and Allied Care

Determinato
 malfunzionamento dell'asse
 calcio-vitamina D-PTH

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Recommendations of metaanalyses

French recommendations on the prevention and treatment of osteoporosis secondary to bariatric surgery



Julien Paccou^{a,*}, Laurent Genser^b, Éric Lespessailles^c, Éric Bertin^d, Rose-Marie Javier^e, Martine Duclos^f, Anne-Sophie Joly^g, Yves Boirie^h, François Pattouⁱ, Jacques Delarue^j, Bernard Cortet^a

Valutazione regolare

Assessment of fracture risk in patients with an indication for or who have already undergone bariatric surgery

General measures: For whom?



All patients

Normalise the intake of calcium (1000 mg/day after SG, and 1500 mg/day after RYGB) and protein (at least 60 g/day); attain a 25(OH) vitamin D concentration of at least 30 ng/mL; prevent the risk of falls and introduce a program of weight-bearing physical activity

Who to assess?

- ✓ **Regardless of age, in the case of RYGB and biliopancreatic diversion**
- ✓ **Regardless of age, for patients at high risk of fracture***
- ✓ **Menopausal women and men ≥ 50 years: for other bariatric surgery procedures and excluding patients at high risk of fracture***

How to assess?

- ✓ **Measurement of BMD by DXA**
- ✓ **Vertebral imaging (if necessary)**
- ✓ **Osteoporosis risk factors**

*Patients at high risk of fracture are:

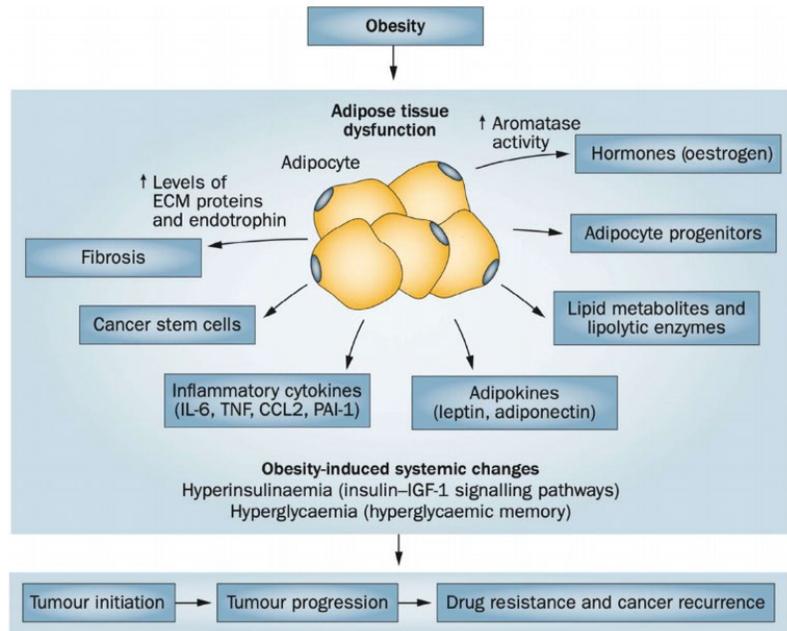
- Those with a history of fragility fracture after the age of 40;
- Those presenting comorbidities that are frequently associated with osteoporosis, i.e. certain endocrinopathies, neurological disorders with neurosensory impairment, hepatic cirrhosis, chronic obstructive pulmonary disease > stage 1, and chronic inflammatory diseases);
- Those taking medications that are frequently associated with osteoporosis (corticosteroids, LH-RH antagonists, antiretroviral drugs, aromatase inhibitors, prolonged chemotherapy).

Who to treat?

Menopausal women and men ≥ 50 years:

- ✓ **If previous history of severe fractures**
- ✓ **If non-severe fracture and T-score ≤ -1**
- ✓ **If T-score ≤ -2 (in the absence of fractures)**

Chirurgia Bariatrica e rischio di cancro



Gender-specific summary of cancer risk for each 5 kg per m² increase in BMI for major cancers with strong evidence of relationship with obesity.

Type of Cancer	Number of Cohorts	Relative Risk (95% Confidence Interval)	
		Women	Men
Endometrial cancer [4]	19	1.59 (1.50-1.68)	NA
Gallbladder cancer [4]	4	1.59 (1.02-2.47)	1.09 (0.99-1.21)
Esophageal adenocarcinoma [4]	5	1.51 (1.31-1.74)	1.52 (1.33-1.74)
Kidney cancer [4]	12	1.34 (1.25-1.43)	1.24 (1.15-1.34)
Postmenopausal breast cancer [4]	34	1.12 (1.08-1.16)	NA
Hpatocellular cancer [19]	9	1.12 (1.03-1.22)	1.19 (1.09-1.29)
Pancreatic adenocarcinoma [23]	23	1.10 (1.04-1.16)	1.13 (1.04-1.22)
Colon cancer [4]	29	1.09 (1.05-1.13)	1.24 (1.20-1.28)
Ovarian cancer [77]	34	1.06 (1.00-1.12)	NA
Stomach cancer [4]	8	1.04 (0.90-1.20)	0.97 (0.88-1.06)
Rectal cancer [4]	29	1.02 (1.00-1.05)	1.09 (1.06-1.12)
Later stage prostate cancer [73]	23	NA	1.08 (1.04-1.12)

NA = not available.

Wilson R, Aminian A, Tahrani AA. Metabolic surgery: A clinical update. Diabetes Obes Metab. 2021 Feb;23 Suppl 1:63-83

Pati S, Irfan W, Jameel A, Ahmed S, Shahid RK. Obesity and Cancer: A Current Overview of Epidemiology, Pathogenesis, Outcomes, and Management. Cancers (Basel). 2023 Jan 12;15(2):485

Association of Bariatric Surgery with Risk of Incident Obesity-Associated Malignancies: A Multi-Center Population-Based Study

METHODS	RESULTS	CONCLUSIONS
<ul style="list-style-type: none"> Initially identified 60,285 patients in bariatric surgery group and 1,570,440 patients in nonsurgical group After propensity score matching, 55,789 patients were included in each patient group 	<ul style="list-style-type: none"> Cumulative incidence of de novo obesity-associated cancers at 10 years was 4.0% in the bariatric surgery group and 8.9% in the nonsurgical control group. The bariatric surgery group had lower incidence proportions for de novo breast cancer, colon cancer, liver cancer, ovarian cancer, and endometrial cancer when compared to the nonsurgical control group. 	<ul style="list-style-type: none"> Bariatric surgery is associated with a significantly lower cumulative incidence of de novo obesity-associated cancer compared to a nonsurgical matched control group. Incidence proportions of de novo breast, colon, liver, ovarian, and endometrial cancer were significantly lower in adult patients with obesity in the bariatric surgery group compared to the nonsurgical group.



Chittajallu, Vibhu MD; Mansoor, Emad MD; Perez, Jaime PhD; Abu Omar, Yazan MD; Firkins, Stephen A. MD; Yoo, Heesoo MD; Baggott, Brian MD; Simons-Linares, Roberto MD



COLORECTAL CANCER RISK IS IMPACTED BY SEX AND TYPE OF SURGERY AFTER BARIATRIC SURGERY

Source: The MarketScan U.S. nationwide database

Cohort: 88,630 with RYGB or VSG (BRS) & 327,734 propensity-matched controls (Cntrl)

Follow-up years: 2012 - 2020

Outcome: CRC risk

Effect of surgery type and sex on CRC risk vs. controls

Reduced CRC risk, only statistically significant post-RYGB ($p=0.02$)

Higher CRC risk, close to statistically significant ($p=0.06$)

Sex effect post-surgery

Higher risk of CRC in males vs females, mainly rectosigmoid cancer (hazard ratio = 2.69, $p<0.001$)
Improvement in diabetes is not conclusively associated with a lower CRC risk

Conclusion: Our data suggest an increased risk of CRC in males compared to females after bariatric surgery. Compared to controls, there was decrease in the CRC risk in females after RYGB but not conclusively post-VSG

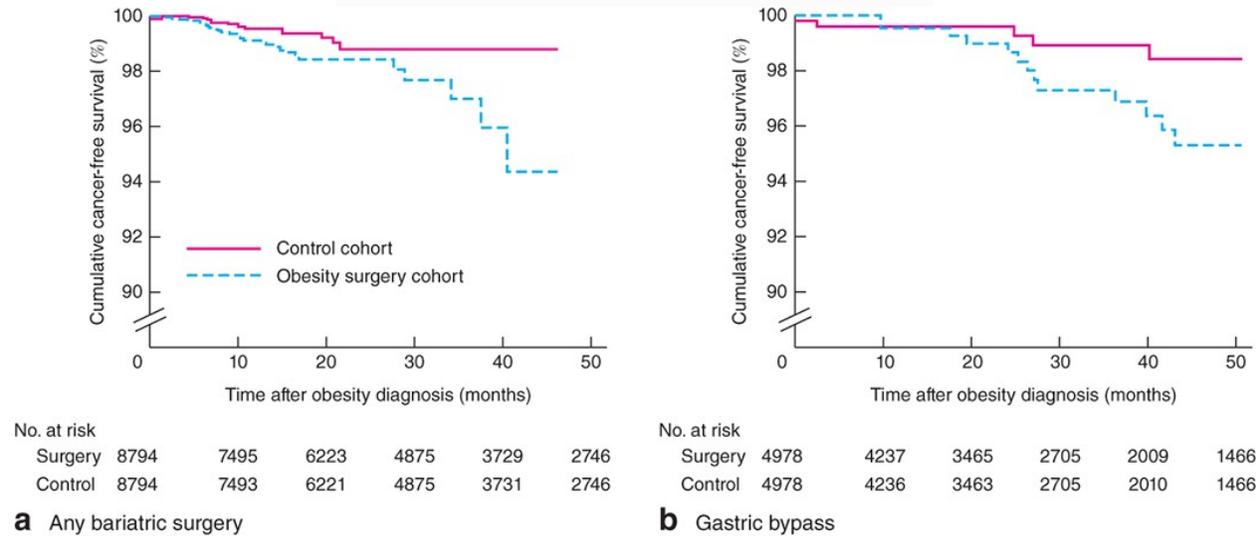
Hisham Hussain; Samuel Akinyeye; Maria Mihaylova; Eric McLaughlin; Chienwei Chiang; Steven K. Clinton; and David Lieberman

Aumento del rischio di CRC, soprattutto nei maschi rispetto alle femmine dopo chirurgia bariatrica

Rischio fortemente ridotto ma non scomparso

SCREENING
Prevenzione/controllo

Fig. 2 Kaplan–Meier curves of freedom from colorectal cancer following a any bariatric surgery and b gastric bypass ...

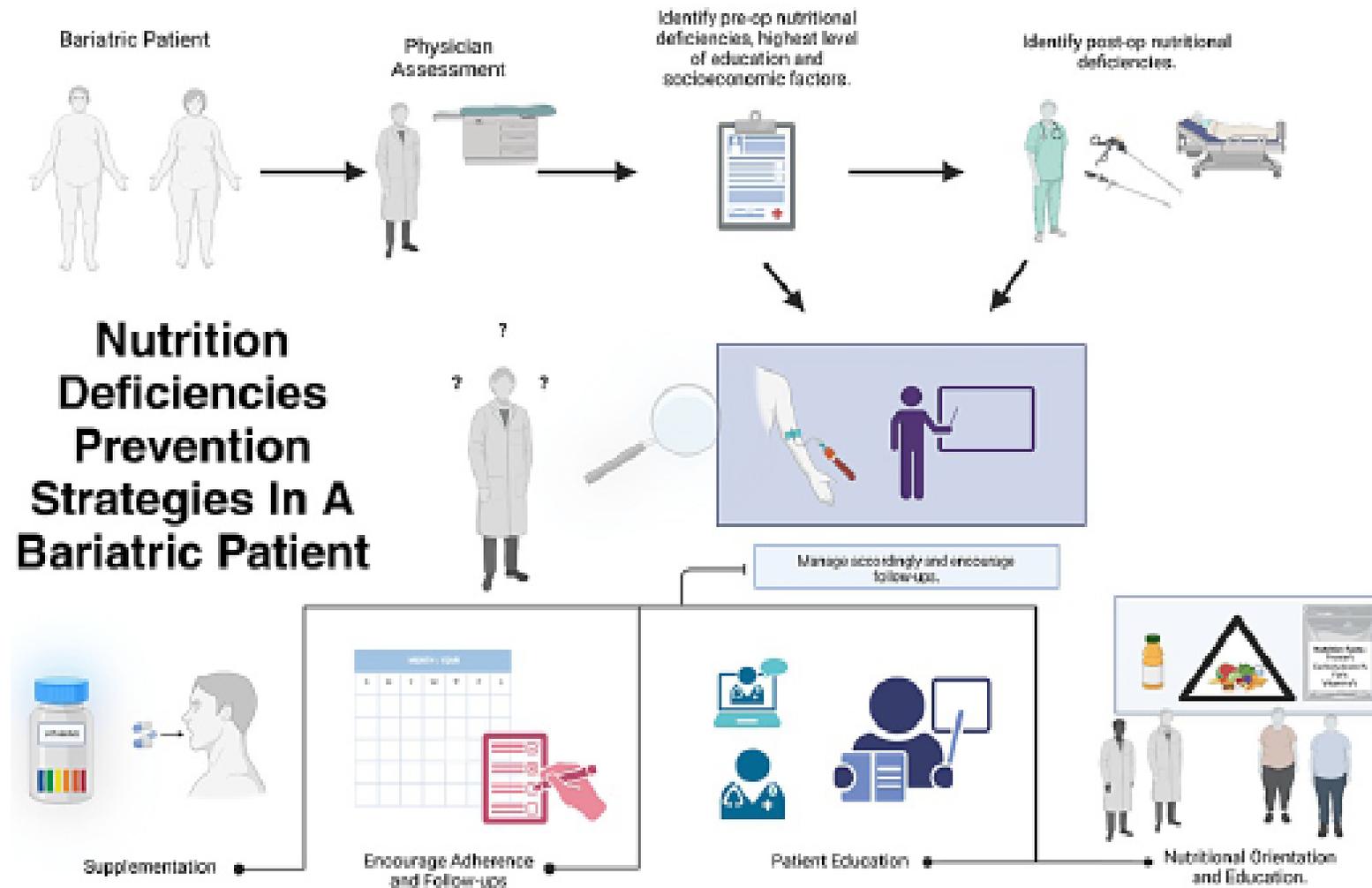


Br J Surg, Volume 105, Issue 12, November 2018, Pages 1650–1657, <https://doi.org/10.1002/bjs.10914>

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CONCLUSIONI



Nutrition Deficiencies Prevention Strategies In A Bariatric Patient

Kamal F A, Fernet L Y, Rodriguez M, et al. (February 27, 2024) Nutritional Deficiencies Before and After Bariatric Surgery in Low- and High-Income Countries: Prevention and Treatment. Cureus 16(2)



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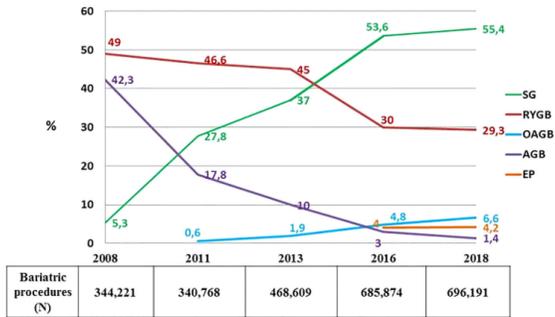


FIGURE 3 Number of metabolic surgeries performed from 2008 to 2018, and endoscopic procedures from 2016 to 2018. Adapted from Angrisani et al. ("Bariatric Surgery Survey 2018")¹⁵⁵

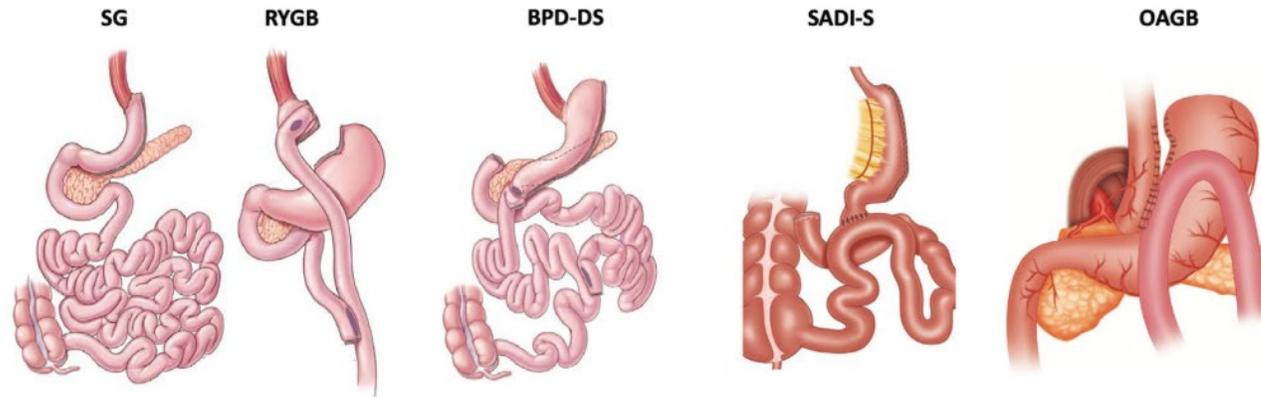


FIGURE 4 Anatomy of metabolic procedures more commonly performed globally.^{17,24,48} BPD-DS, biliopancreatic diversion with duodenal switch; OAGB, one anastomosis gastric bypass; RYGB, Roux-en-Y gastric bypass; SADI-S, single anastomosis duodenoileostomy with sleeve gastrectomy; SG, sleeve gastrectomy