S.I.C.OB.
Venezia
SPRING MEETING
13-14 MAGGIO 2025
Presidente Onorario del Congresso
Pietro Forestieri
Presidente del Congresso
Maurizio De Luca
PALAZZO DEL CASINÒ/LIDO DI VENEZIA
www.springsicob.it

LA GRAVIDANZA DOPO CHIRURGIA BARIATRICA

Il corretto timing e la gestione delle supplementazioni

DOTT.SSA ALESSANDRA FREDA
DIETISTA
C.I.B.O. MILANO

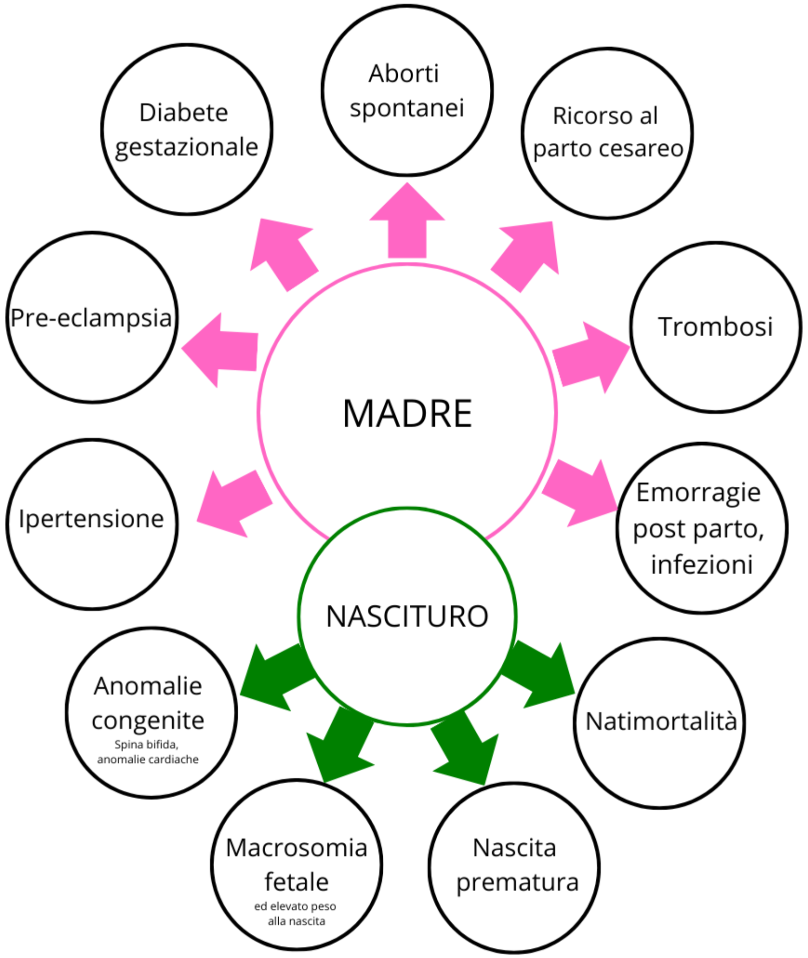
Obesità ed infertilità femminile

Disfunzioni dell'ovulazione

Alterata responsività ovarica e qualità degli ovociti durante i trattamenti per l'infertilità

Funzionalità endometriale

L'obesità materna: complicanze a breve e a lungo termine sia per la madre che per il bambino



MADRE

Diabete gestazionale

Aborti spontanei

Ricorso al parto cesareo

Trombosi

Emorragie post parto, infezioni

Pre-eclampsia

Ipertensione

NASCITURO

Anomalie congenite
Spina bifida, anomalie cardiache

Macrosomia fetale
ed elevato peso alla nascita

Nascita prematura

Natimortalità

- L'obesità materna è associata ad un aumentato rischio ostetrico e neonatale.
- Ogni gravidanza intrapresa in una condizione di obesità è da considerarsi una gravidanza a rischio.
- Bambini nati da madri obese hanno un rischio più elevato di sviluppare obesità infantile → aumentato rischio di sviluppare DM II e patologie cardiovascolari in età adulta

Rischi relativi per le complicanze della gravidanza attribuibili all'obesità nelle donne senza altre malattie croniche documentate (USA)

	BMI normale			Sovrappeso			Obesità classe 1			Obesità classe 2			Obesità classe 3		
Esito	**N. (%)**	**RR**	**AR**	**N. (%)**	**RR**	**AR**	**N. (%)**	**RR**	**AR**	**N. (%)**	**RR**	**AR**	**N. (%)**	**RR**	**AR**
Disturbi ipertensivi gestazionali	3.351 (5%)	–	–	2.096 (8%)	1,.65 (1,57–1,74)	3%	1.274 (11%)	2,34 (2,20-2,49)	6%	631 (13,2%)	2,78 (2,56–3,01)	8,2%	536 (17,3%)	3,55 (3,26–3,86)	12,3%
Diabete mellito gestazionale	1.834 (2,8%)	–	–	1.495 (5,7%)	1,99 (1,86–2,13)	2.9%	959 (8,3%)	2,94 (2,73-3,18)	5,5%	517 (10,8%)	3,97 (3,61–4,36)	8%	452 (14,6%)	5,47 (4,96–6,04)	11,8%
Taglio cesareo	14.872 (22,4%)	–	–	7.562 (28,7%)	1,26 (1,23–1,29)	6.3%	3.936 (33,9%)	1,49 (1,45-1,53)	11,5%	1.830 (38.3%)	1,7 (1,64–1,77)	15,9%	1.457 (46,9%)	2,01 (1,93–2,10)	23,6%
Natimortalità	206 (0,3%)	–	–	91 (0,4%)	1,07 (0,83–1,37)	0,1%	53 (0,5%)	1,43 (1,05–1,96)	0,2%	15 (0,3%)	1,01 (0,59–1,74)	0%	14 (0,5%)	1,41 (0,82–2,45)	4,7%
Nati grandi per età gestazionale	5.272 (7,9%)	–	–	3.171 (12%)	1,52 (1,45 1,58)	4,1%	1.584 (13,7%)	1,74 (1,65–1,83)	5,8%	712 (14,9%)	1,93 (1,79–2,07)	7%	538 (17,3%)	2,32 (2,14–2,52)	9,4%
Anomalie congenite	3.923 (5,9%)	–	–	1.673 (6,4%)	1,08 (1,02 –1,14)	0,5%	728 (6,8%)	1,07 (0,99–1,16)	0,9%	317 (6,6%)	1,12 (1,00–1,25)	0,7%	449 (14,5%)	1,2 (1,05–1,36)	1,4%
Ricovero in terapia intensiva neonatale	5.880 (8-9%)	–	–	2.848 (10,8%)	1,16 (1,11-1,21)	1,9%	1.335 (11,5%)	1,20 (1,13–1,27)	2,6%	610 (12,8%)	1,3 (1,20–1,41)	3,9%	-	1,38 (1,26–1,51)	5,6%

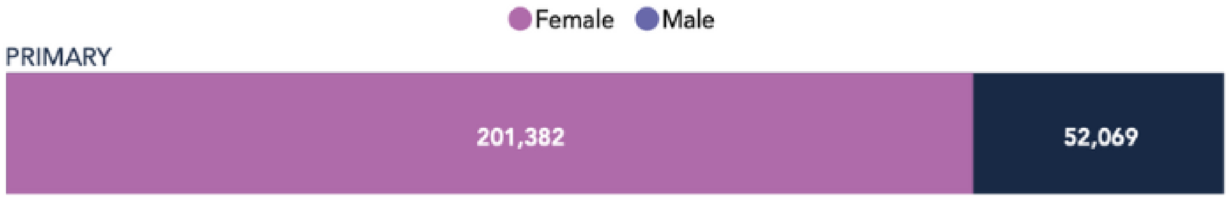
Nota: RR aggiustato per età materna, etnia materna, tipo di assicurazione, stato civile, parità, fumo e consumo di alcol.
AR% = percentuale di rischio attribuibile, percentuale di donne con complicanze nella categoria della classe di obesità meno la percentuale di donne con complicanze nella categoria di peso normale; BMI = indice di massa corporea; RR = rischio relativo.

Tabella 2. Complicanze ostetriche dovute all'obesità pregravidica in donne con gravidanza singola senza malattie prima della gravidanza, Consortium on Safe Labor 2002–2008 (adattato da: Kim SS, et al. Obstet Gynecol 2016;128:104-12)

IFSO

8TH GLOBAL REGISTRY REPORT 2023

Data on sex was provided by 24 registries. More females than males are undergoing metabolic bariatric procedures in all contributing registries in both the primary and revisional surgical setting.



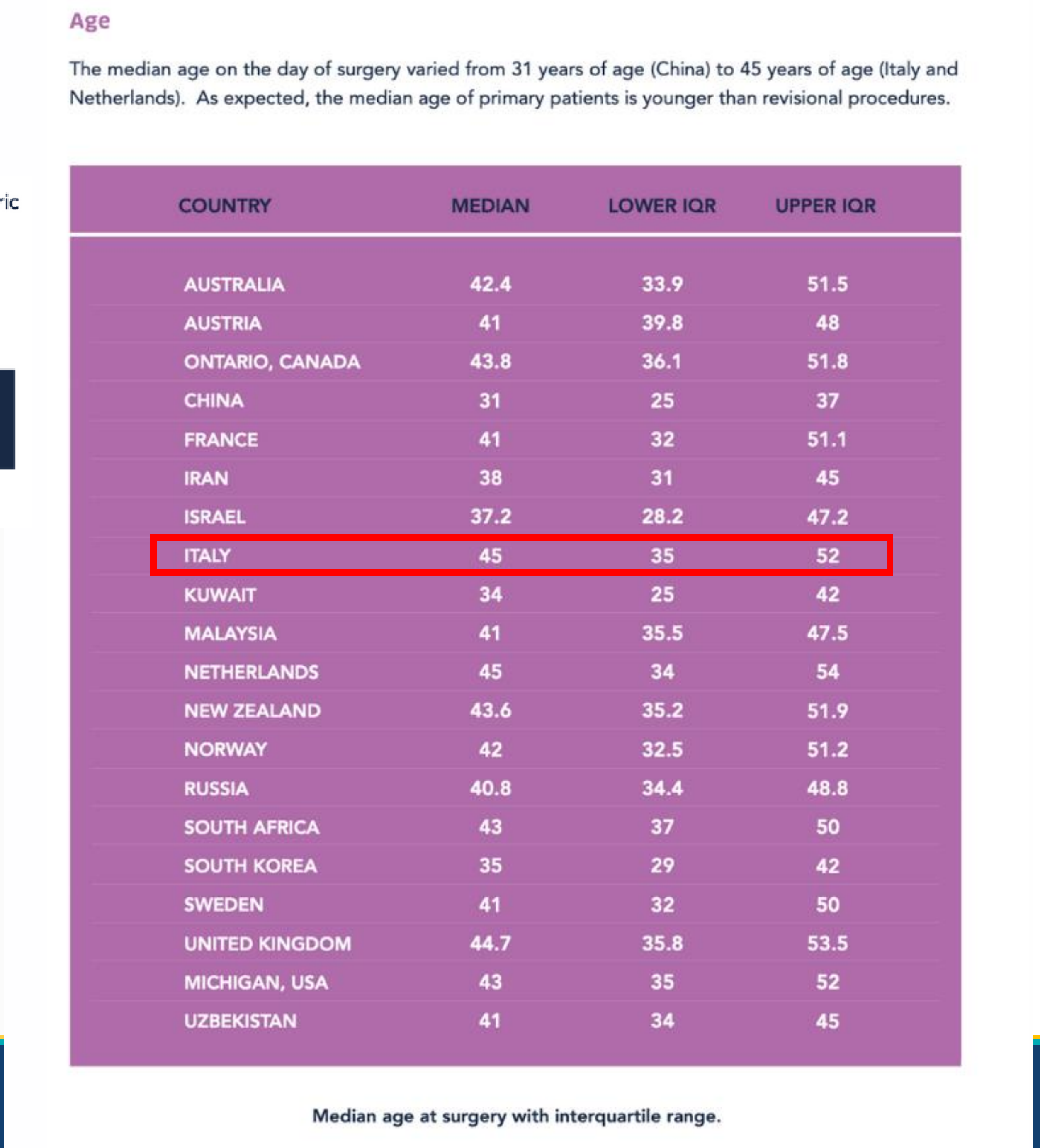
Proportion of males and females undergoing metabolic bariatric surgery.

BS - Italia 2023
73% donne
27% uomini

Età

17-20 anni 2%
21-30 anni 13%
31-40 anni 22%
41-50 anni 30%
51-60 anni 26%
Over 61 anni 7%

Dati ISTAT 2023: età media al parto in Italia = 32,5 anni



Age

The median age on the day of surgery varied from 31 years of age (China) to 45 years of age (Italy and Netherlands). As expected, the median age of primary patients is younger than revisional procedures.

COUNTRY	MEDIAN	LOWER IQR	UPPER IQR
AUSTRALIA	42.4	33.9	51.5
AUSTRIA	41	39.8	48
ONTARIO, CANADA	43.8	36.1	51.8
CHINA	31	25	37
FRANCE	41	32	51.1
IRAN	38	31	45
ISRAEL	37.2	28.2	47.2
ITALY	45	35	52
KUWAIT	34	25	42
MALAYSIA	41	35.5	47.5
NETHERLANDS	45	34	54
NEW ZEALAND	43.6	35.2	51.9
NORWAY	42	32.5	51.2
RUSSIA	40.8	34.4	48.8
SOUTH AFRICA	43	37	50
SOUTH KOREA	35	29	42
SWEDEN	41	32	50
UNITED KINGDOM	44.7	35.8	53.5
MICHIGAN, USA	43	35	52
UZBEKISTAN	41	34	45

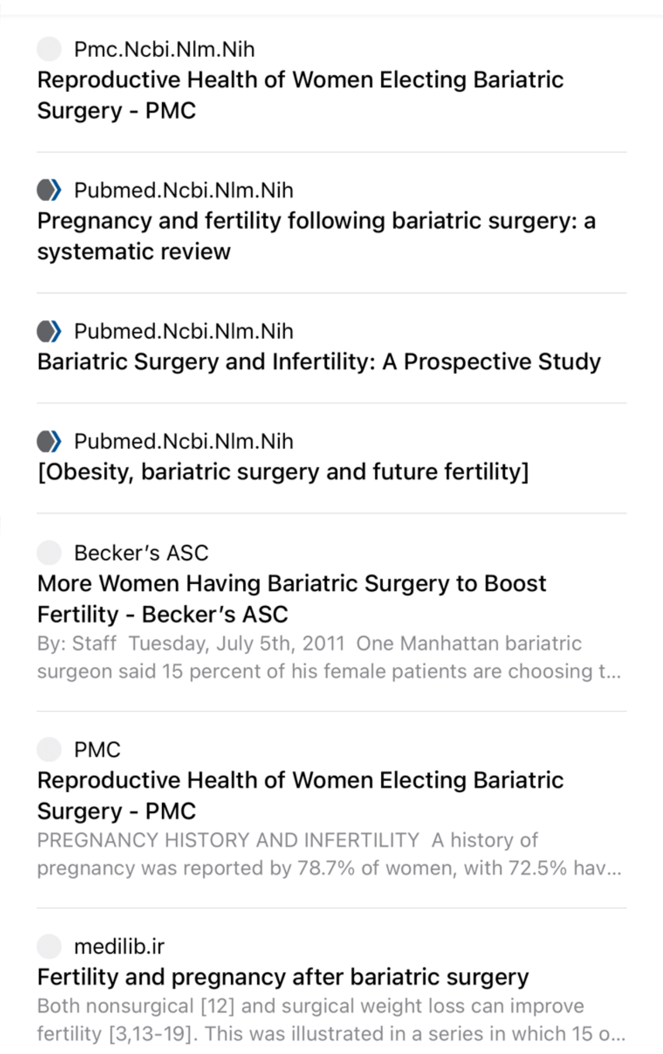
Median age at surgery with interquartile range.

Non esiste una stima precisa della percentuale di donne che si sottopongono a chirurgia bariatrica esclusivamente per motivi legati alla fertilità.

Tuttavia, alcuni studi suggeriscono che ***molte donne obese che affrontano difficoltà nel concepire considerano la chirurgia bariatrica come una possibile soluzione per migliorare la loro fertilità.***

Ad esempio, uno studio ha rilevato che il 15% delle donne che si sono sottoposte a chirurgia bariatrica lo ha fatto per migliorare le proprie possibilità di concepimento (Becker’s ASC).

Inoltre, un altro studio ha evidenziato che il 41,9% delle donne che avevano tentato di concepire senza successo ha sperimentato infertilità, e una parte significativa di queste ha ottenuto una gravidanza dopo l’intervento chirurgico (PMC).



Pmc.Ncbi.Nlm.Nih
Reproductive Health of Women Electing Bariatric Surgery - PMC

Pubmed.Ncbi.Nlm.Nih
Pregnancy and fertility following bariatric surgery: a systematic review

Pubmed.Ncbi.Nlm.Nih
Bariatric Surgery and Infertility: A Prospective Study

Pubmed.Ncbi.Nlm.Nih
[Obesity, bariatric surgery and future fertility]

Becker’s ASC
More Women Having Bariatric Surgery to Boost Fertility - Becker’s ASC
By: Staff Tuesday, July 5th, 2011 One Manhattan bariatric surgeon said 15 percent of his female patients are choosing t...

PMC
Reproductive Health of Women Electing Bariatric Surgery - PMC
PREGNANCY HISTORY AND INFERTILITY A history of pregnancy was reported by 78.7% of women, with 72.5% hav...

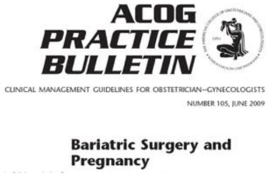
medilib.ir
Fertility and pregnancy after bariatric surgery
Both nonsurgical [12] and surgical weight loss can improve fertility [3,13-19]. This was illustrated in a series in which 15 o...

INFORMAZIONE E TIMING

- **Informare** le donne sottoposte a BS che dopo l'intervento le probabilità di gravidanza aumentano ma che è opportuno **pianificare** la gravidanza dopo la fase di massima perdita di peso.

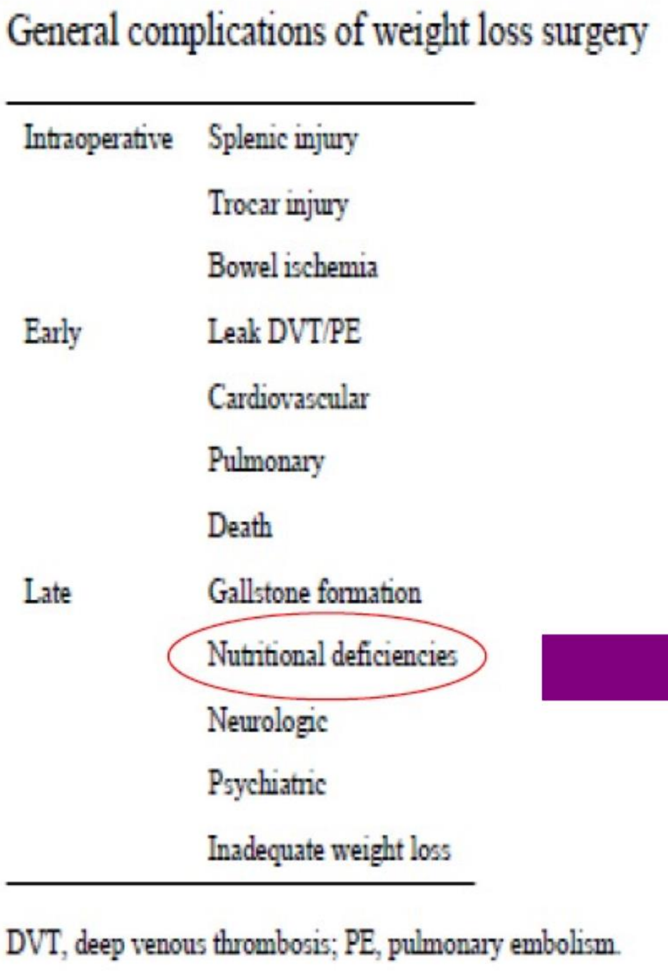
- Le linee guida internazionali raccomandano il concepimento almeno **12-24 mesi dopo l'intervento** non prima della stabilizzazione del peso, del raggiungimento di un equilibrio nutrizionale e con valori ematochimici nella norma.

Cosa ti ha convinto a cambiare vita?
"Il sogno di avere un bambino"


ACOG
PRACTICE
BULLETIN
CLINICAL MANAGEMENT GUIDELINES FOR OBSTETRICIAN–GYNECOLOGISTS
NUMBER 105, JUNE 2009

Bariatric Surgery and Pregnancy

ACOG Clinical Considerations and Recommendations
(Grade B, Grade C)
Recommended waiting 12–24 months after bariatric surgery before conceiving so that the fetus is not exposed to a rapid maternal weight loss environment



General complications of weight loss surgery

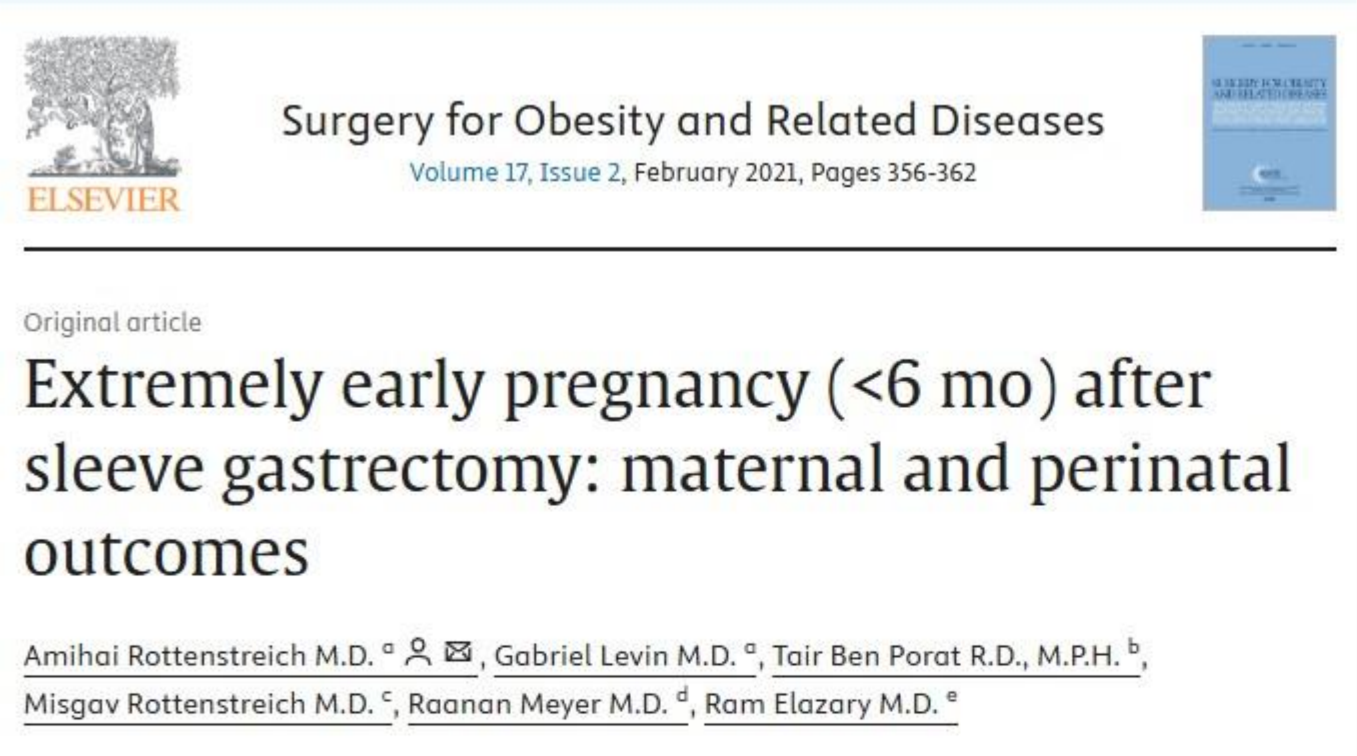
Intraoperative	Splenic injury
	Trocar injury
	Bowel ischemia
Early	Leak DVT/PE
	Cardiovascular
	Pulmonary
	Death
Late	Gallstone formation
	Nutritional deficiencies
	Neurologic
	Psychiatric
	Inadequate weight loss

DVT, deep venous thrombosis; PE, pulmonary embolism.

Curr Probl Surg. 2010 February ; 47(2): 79–174. doi:10.1067/j.cpsurg.2009.11.003.

Deficit nutrizionali da malassorbimento per la madre e il feto

- Ritardo di crescita fetale
- Alterazioni elettrolitiche
- Emorragie cerebrali dovute alla carenza di vitamina K
- Microcefalia, ipotonia, microftalmia e danno retinico permanente per la carenza di vitamina A
- Anemia per la vitamina B12 e carenza di ferro
- Morte fetale



Surgery for Obesity and Related Diseases

Volume 17, Issue 2, February 2021, Pages 356-362

Original article

Extremely early pregnancy (<6 mo) after sleeve gastrectomy: maternal and perinatal outcomes

Amihai Rottenstreich M.D. [a], Gabriel Levin M.D. [a], Tair Ben Porat R.D., M.P.H. [b], Misgav Rottenstreich M.D. [c], Raanan Meyer M.D. [d], Ram Elazary M.D. [e]

- The extremely early pregnancy group had lower gestational weight gain (median 4 versus 10 kg, *P* < .001
- Including negative gestational weight gain in 9 (39.1%) women.
- **Small for gestational age (SGA) infants** was higher among women who conceived within 6 months after surgery rather than later (26.1% versus 10.4%, *P* = .04)

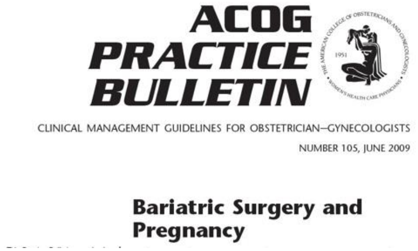
La **denutrizione**, anche per brevi periodi durante la vita intrauterina, porta a cambiamenti persistenti nella pressione sanguigna, nel metabolismo del colesterolo, nella risposta dell’insulina al glucosio e in un’ampia gamma di parametri metabolici, endocrini e immunitari che portano ad un **aumento delle malattie coronariche e ictus nella vita adulta** (Baker D.J., 1997).

L’ipotesi DOHaD (Developmental Origins of Health and Disease) ha introdotto l’esistenza di un’associazione tra **basso peso alla nascita e un aumento del rischio di sviluppare malattia coronarica**, ed ha aperto il campo a studi che hanno dimostrato come **la denutrizione prenatale e postnatale precoce predispongono il corpo a malattie croniche nella vita adulta** (Crystal D. et al., 2018)

FETAL PROGRAMMING

INTRAUTERINE NUTRITIONAL PROGRAMMING

DEFICIT NUTRIZIONALI


ACOG
PRACTICE
BULLETIN
CLINICAL MANAGEMENT GUIDELINES FOR OBSTETRICIAN–GYNECOLOGISTS
NUMBER 105, JUNE 2009

Bariatric Surgery and Pregnancy

ACOG Clinical Considerations and Recommendations

(Grade B, Grade C)

Most common nutritional deficiencies after Bariatric surgery are of **protein, iron, vitamin B12, folate, vitamin D**, and **calcium.**

Daily recommendation for **protein** intake of 60 g

Vitamina A

Ritardo di crescita intrauterino (ipo)
Cecità notturna (ipo)
Malformazioni teratogene (iper)
Nascita pretermine (ipo)

Vitamina B12

Danni neurologici potenzialmente irreversibili
Anemia megaloblastica

Vitamina D

Rachitismo infantile
Riduzione della crescita fetale
Pre-eclampsia
(???)MS

Vitamina B1

Encefalopatia di Wernicke (disturbi visivi, perdita equilibrio e stato confusionale)

Calcio

Aborto spontaneo
Ridotto peso alla nascita
Menomazioni cognitive/neurologiche

Zinco

Nascita prematura
Spina bifida
Limitaizoni dello sviluppo e del Sistema immunitario

Acido Folico

Difetti del tubo neurale
Aborto spontaneo (cercare bibliografia)
Nascita premature (cercare bibliografia)

Ferro

Nascita prematura
Basso peso alla nascita

MICRONUTRIENTI

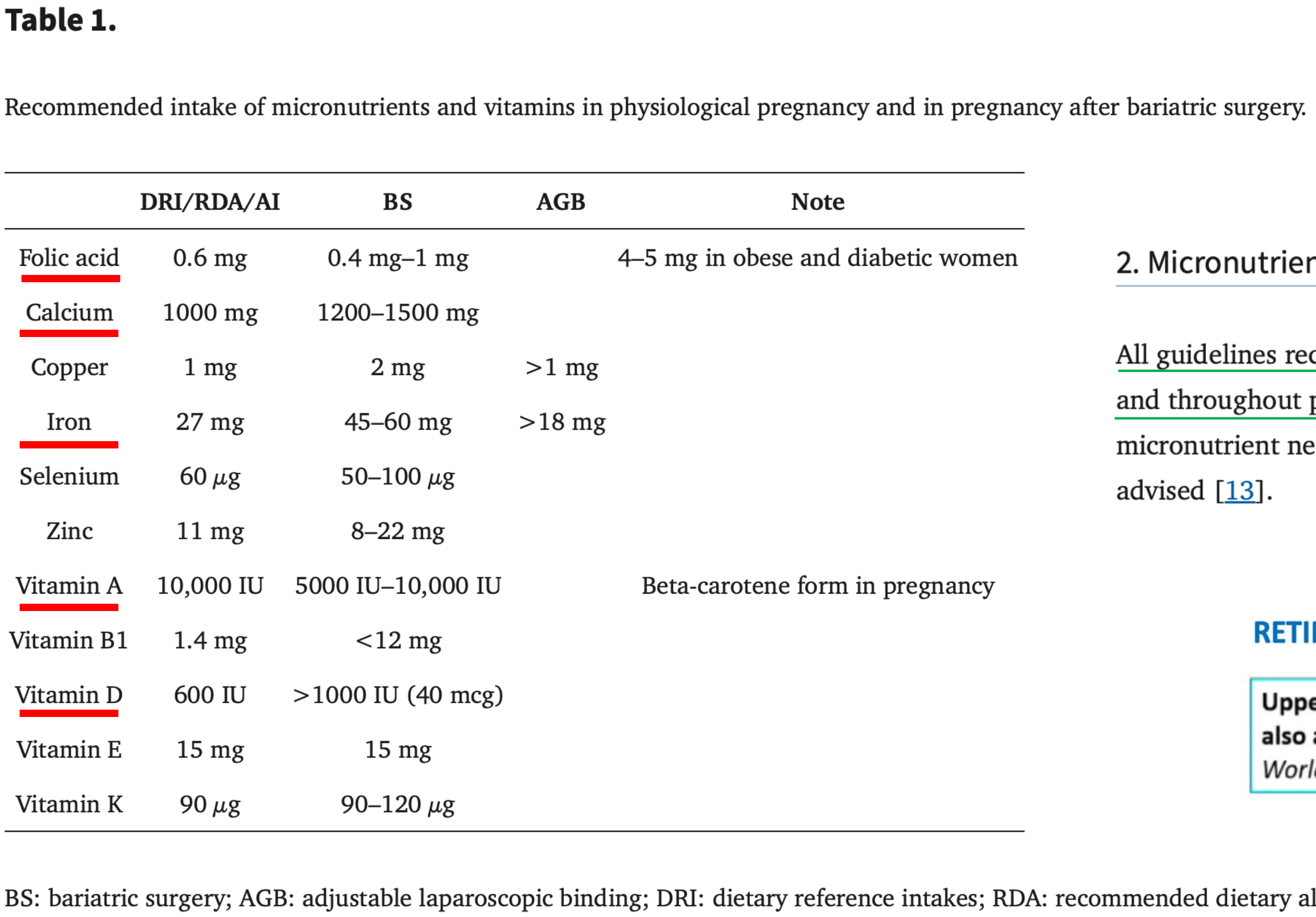
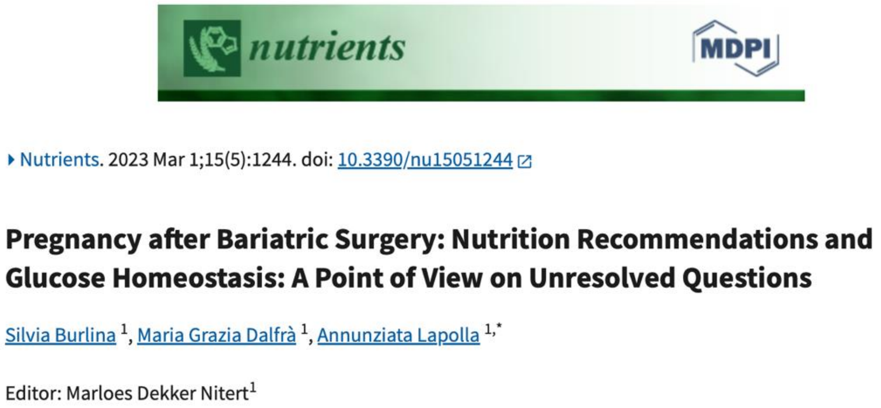


Table 1.

Recommended intake of micronutrients and vitamins in physiological pregnancy and in pregnancy after bariatric surgery.

	DRI/RDA/AI	BS	AGB	Note
Folic acid	0.6 mg	0.4 mg–1 mg		4–5 mg in obese and diabetic women
Calcium	1000 mg	1200–1500 mg		
Copper	1 mg	2 mg	>1 mg	
Iron	27 mg	45–60 mg	>18 mg	
Selenium	60 µg	50–100 µg		
Zinc	11 mg	8–22 mg		
Vitamin A	10,000 IU	5000 IU–10,000 IU		Beta-carotene form in pregnancy
Vitamin B1	1.4 mg	<12 mg		
Vitamin D	600 IU	>1000 IU (40 mcg)		
Vitamin E	15 mg	15 mg		
Vitamin K	90 µg	90–120 µg		

BS: bariatric surgery; AGB: adjustable laparoscopic binding; DRI: dietary reference intakes; RDA: recommended dietary allowances; AI: adequate intake.



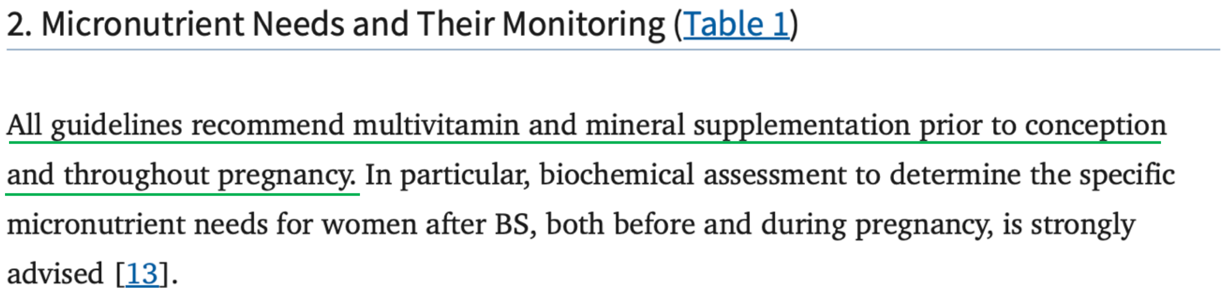
nutrients MDPI

Nutrients. 2023 Mar 1;15(5):1244. doi: 10.3390/nu15051244

Pregnancy after Bariatric Surgery: Nutrition Recommendations and Glucose Homeostasis: A Point of View on Unresolved Questions

Silvia Burlina [1], Maria Grazia Dalfrà [1], Annunziata Lapolla [1,*]

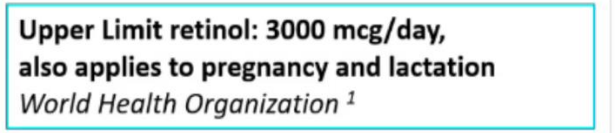
Editor: Marloes Dekker Nitert[1]



2. Micronutrient Needs and Their Monitoring (Table 1)

All guidelines recommend multivitamin and mineral supplementation prior to conception and throughout pregnancy. In particular, biochemical assessment to determine the specific micronutrient needs for women after BS, both before and during pregnancy, is strongly advised [13].

RETINOLO



Upper Limit retinol: 3000 mcg/day, also applies to pregnancy and lactation
World Health Organization [1]

MICRONUTRIENTI

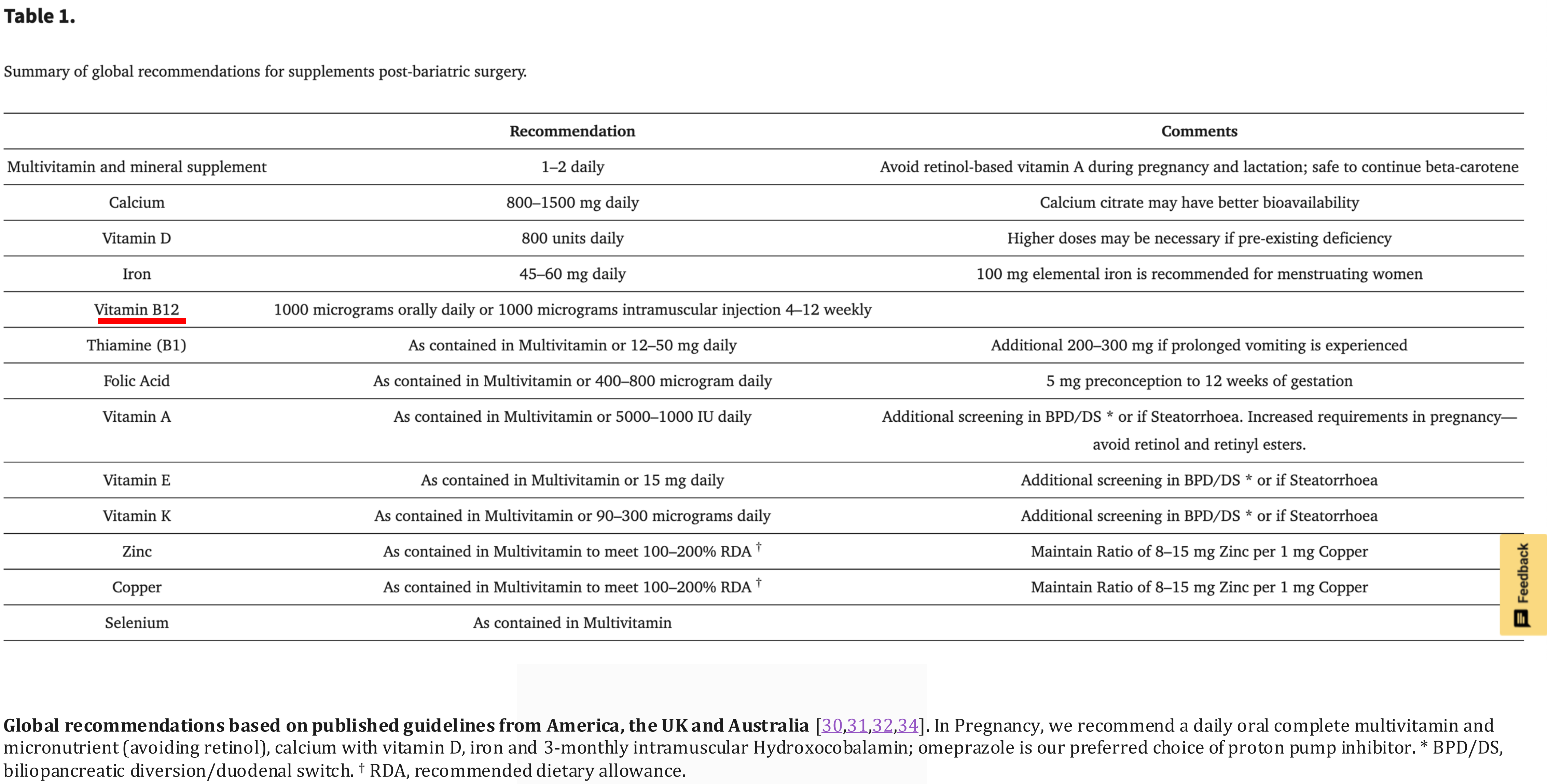
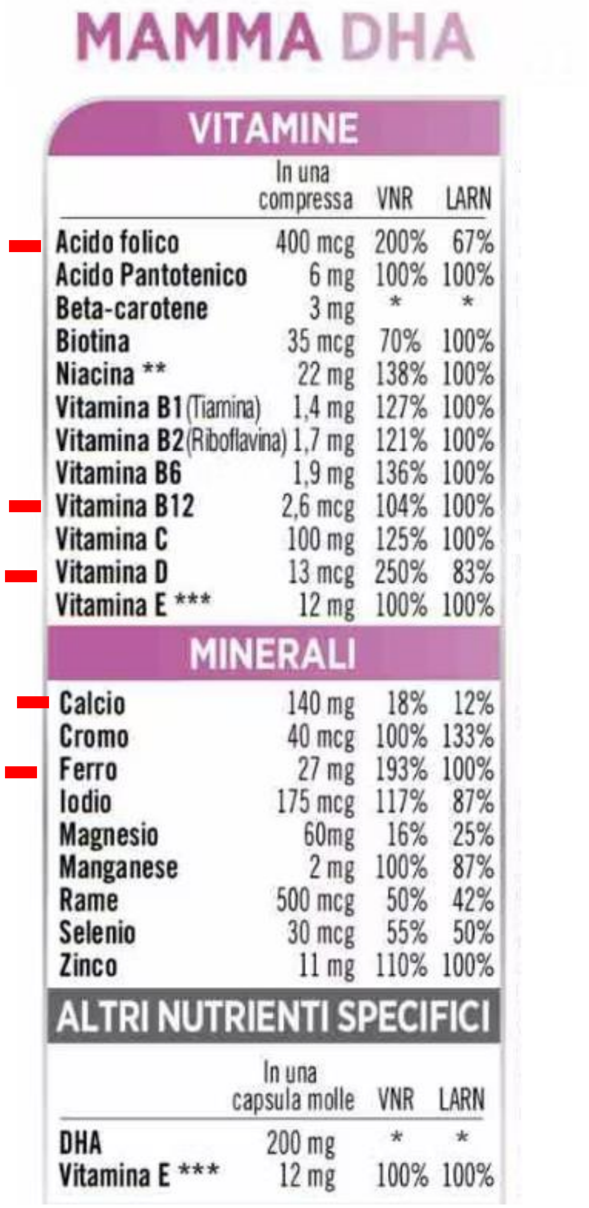


Table 1.

Summary of global recommendations for supplements post-bariatric surgery.

	Recommendation	Comments
Multivitamin and mineral supplement	1–2 daily	Avoid retinol-based vitamin A during pregnancy and lactation; safe to continue beta-carotene
Calcium	800–1500 mg daily	Calcium citrate may have better bioavailability
Vitamin D	800 units daily	Higher doses may be necessary if pre-existing deficiency
Iron	45–60 mg daily	100 mg elemental iron is recommended for menstruating women
Vitamin B12	1000 micrograms orally daily or 1000 micrograms intramuscular injection 4–12 weekly	
Thiamine (B1)	As contained in Multivitamin or 12–50 mg daily	Additional 200–300 mg if prolonged vomiting is experienced
Folic Acid	As contained in Multivitamin or 400–800 microgram daily	5 mg preconception to 12 weeks of gestation
Vitamin A	As contained in Multivitamin or 5000–1000 IU daily	Additional screening in BPD/DS * or if Steatorrhoea. Increased requirements in pregnancy—avoid retinol and retinyl esters.
Vitamin E	As contained in Multivitamin or 15 mg daily	Additional screening in BPD/DS * or if Steatorrhoea
Vitamin K	As contained in Multivitamin or 90–300 micrograms daily	Additional screening in BPD/DS * or if Steatorrhoea
Zinc	As contained in Multivitamin to meet 100–200% RDA †	Maintain Ratio of 8–15 mg Zinc per 1 mg Copper
Copper	As contained in Multivitamin to meet 100–200% RDA †	Maintain Ratio of 8–15 mg Zinc per 1 mg Copper
Selenium	As contained in Multivitamin	

Global recommendations based on published guidelines from America, the UK and Australia [30,31,32,34]. In Pregnancy, we recommend a daily oral complete multivitamin and micronutrient (avoiding retinol), calcium with vitamin D, iron and 3-monthly intramuscular Hydroxocobalamin; omeprazole is our preferred choice of proton pump inhibitor. * BPD/DS, biliopancreatic diversion/duodenal switch. † RDA, recommended dietary allowance.



MAMMA DHA

VITAMINE

	In una compressa	VNR	LARN
Acido folico	400 mcg	200%	67%
Acido Pantotenico	6 mg	100%	100%
Beta-carotene	3 mg	*	*
Biotina	35 mcg	70%	100%
Niacina **	22 mg	138%	100%
Vitamina B1 (Tiamina)	1,4 mg	127%	100%
Vitamina B2 (Riboflavina)	1,7 mg	121%	100%
Vitamina B6	1,9 mg	136%	100%
Vitamina B12	2,6 mcg	104%	100%
Vitamina C	100 mg	125%	100%
Vitamina D	13 mcg	250%	83%
Vitamina E ***	12 mg	100%	100%

MINERALI

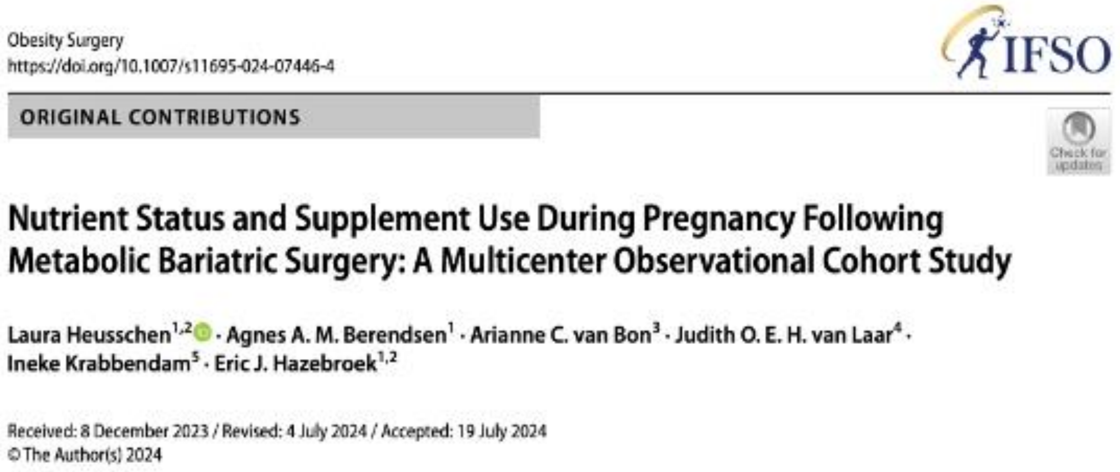
Calcio	140 mg	18%	12%
Cromo	40 mcg	100%	133%
Ferro	27 mg	193%	100%
Iodio	175 mcg	117%	87%
Magnesio	60mg	16%	25%
Manganese	2 mg	100%	87%
Rame	500 mcg	50%	42%
Selenio	30 mcg	55%	50%
Zinco	11 mg	110%	100%

ALTRI NUTRIENTI SPECIFICI

	In una capsula molle	VNR	LARN
DHA	200 mg	*	*
Vitamina E ***	12 mg	100%	100%

	Dosaggi giornalieri raccomandati in gravidanza post BS
Acido folico	0,4-1 mg (4-5 mg se obesa o diabetica)
B12	1000 mcg per via orale o 1000 mcg i.m. al mese
D	> 1000 UI
Ferro	45-60 mg
A	Limite max 3 mg
Calcio	1200-1500 mg
Zinco	8-22 mg
B1	12-50 mg

Multivitaminico standard VS **Multivitaminico specifico per BS**



Obesity Surgery
https://doi.org/10.1007/s11695-024-07446-4

ORIGINAL CONTRIBUTIONS

Nutrient Status and Supplement Use During Pregnancy Following Metabolic Bariatric Surgery: A Multicenter Observational Cohort Study

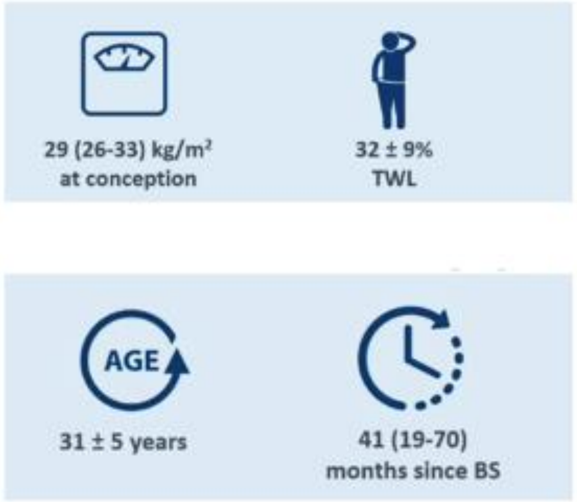
Laura Heusschen[1,2] · Agnes A. M. Berendsen[1] · Arianne C. van Bon[3] · Judith O. E. H. van Laar[4] · Ineke Krabbendam[5] · Eric J. Hazebroek[1,2]

Received: 8 December 2023 / Revised: 4 July 2024 / Accepted: 19 July 2024
© The Author(s) 2024

Disegno dello studio: *studio prospettico su **119 donne** in gravidanza dopo intervento di chirurgia bariatrica (32% -39- sleeve e 68% -80- bypass)* (7)

Scopo dello studio: *confrontare lo stato nutrizionale di chi assume un multivitiminico specifico per la chirurgia bariatrica durante la gravidanza rispetto a chi assume un multivitaminico generico (più o meno specifico per la gravidanza)*

Caratteristiche delle pazienti arruolate



29 (26-33) kg/m² at conception

32 ± 9% TWL

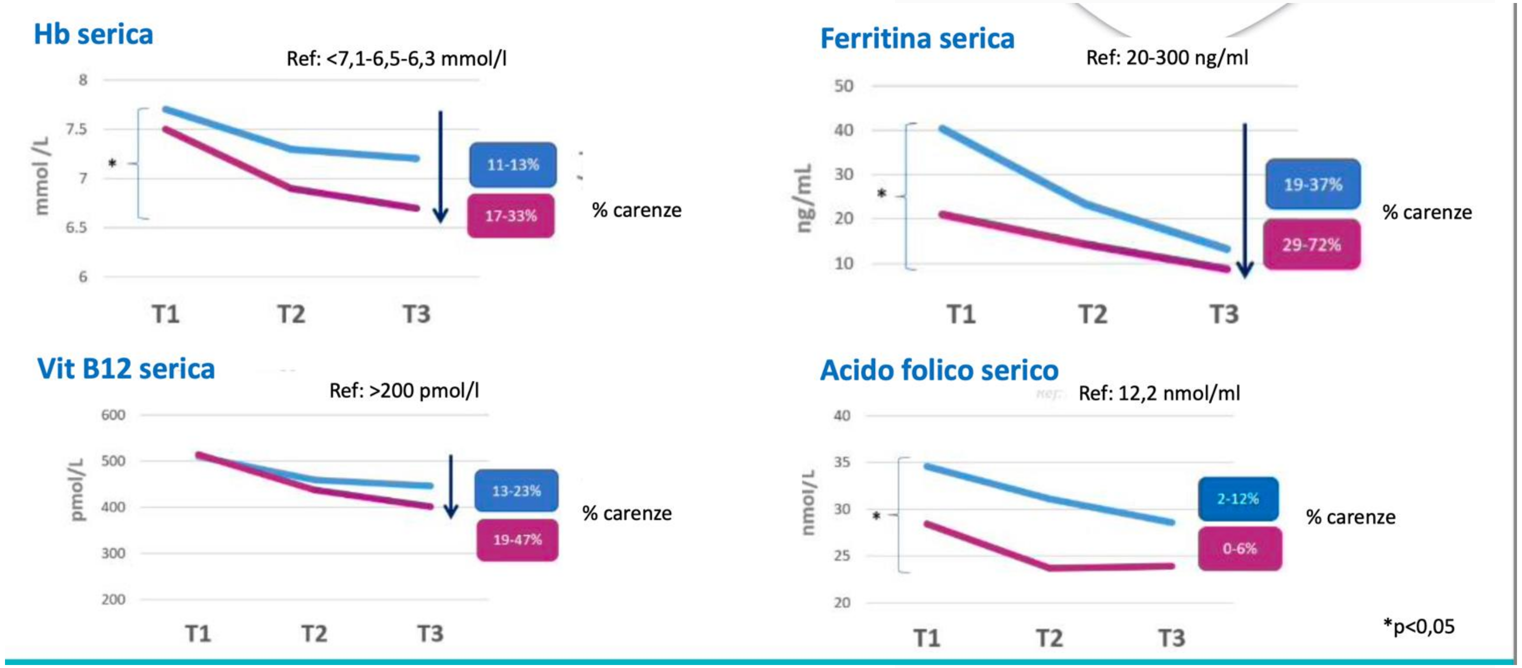
31 ± 5 years

41 (19-70) months since BS

BYPASS GASTRICO

Multivitaminico standard

Multivitaminico specifico per BS



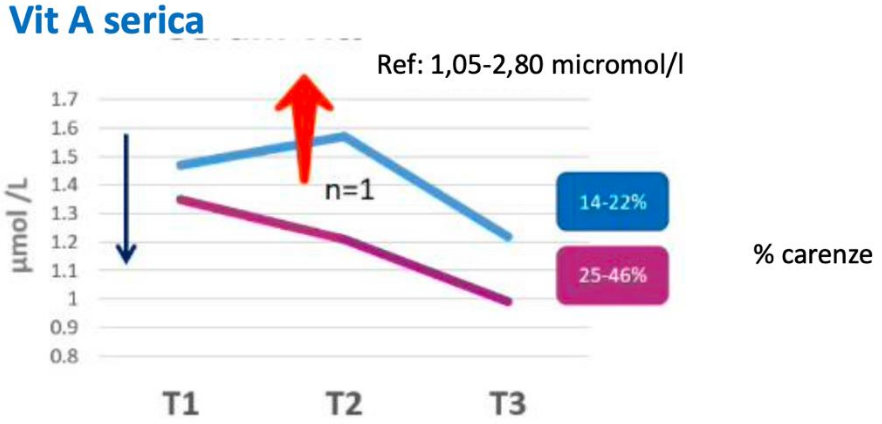
Hb serica

Ferritina serica

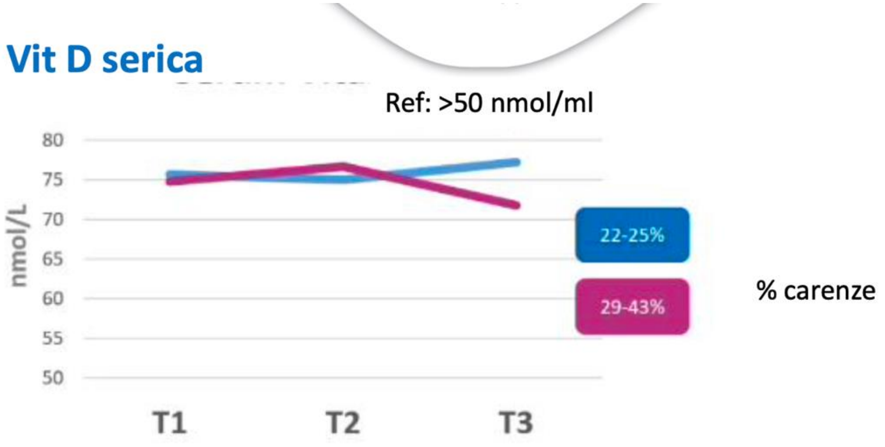
Vit B12 serica

Acido folico serico

*p<0,05



Vit A serica



Vit D serica

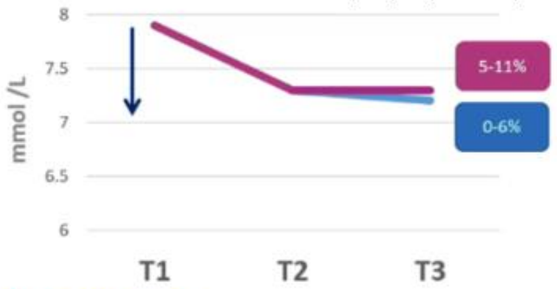
SLEEVE GASTRECTOMY

Multivitaminico standard

Multivitaminico specifico per BS

Hb serica

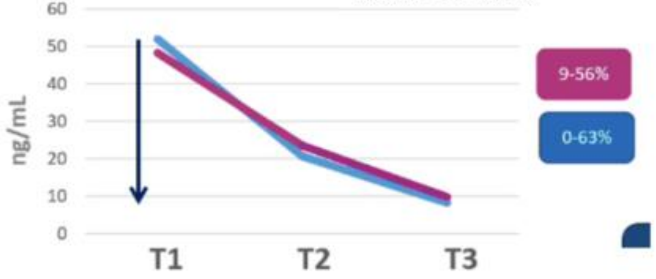
Ref: <7,1-6,5-6,3 mmol/l



% carenze

Ferritina serica

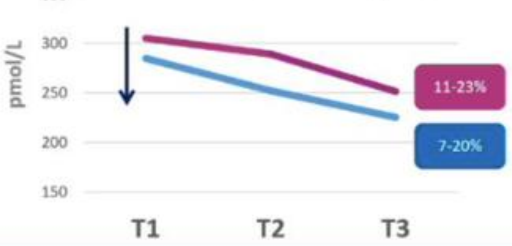
Ref: 20-300 ng/ml



% carenze

Vit B12 serica

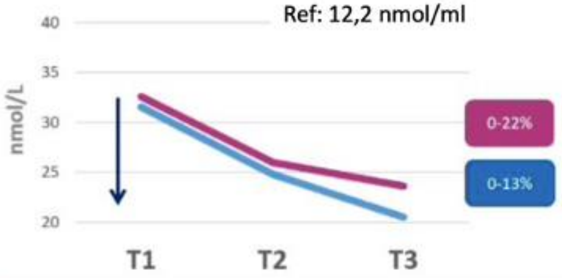
Ref: >200 pmol/l



% carenze

Acido folico serico

Ref: 12,2 nmol/ml

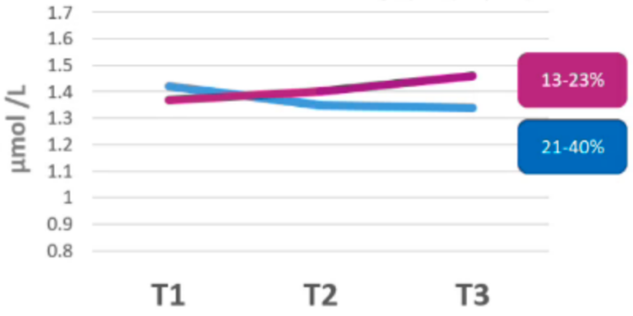


% carenze

*p<0,05

Vit A serica

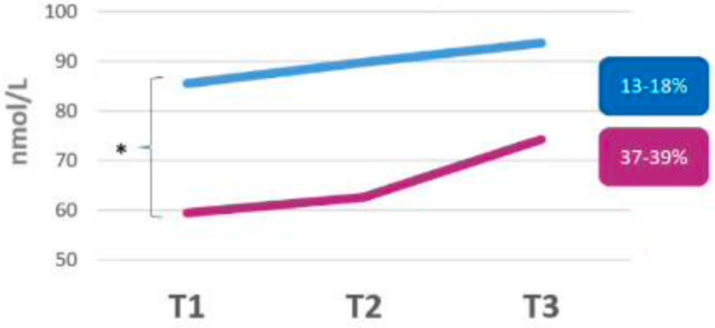
Ref: 1,05-2,80 micromol/l



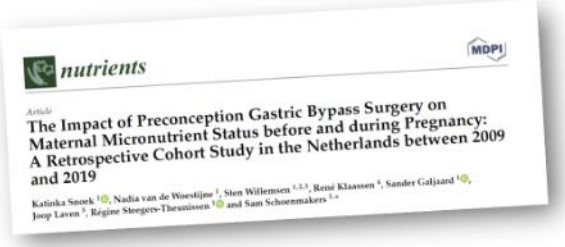
% carenze

Vit D serica

Ref: >50 nmol/ml



% carenze



nutrients

MDPI

Article

The Impact of Preconception Gastric Bypass Surgery on Maternal Micronutrient Status before and during Pregnancy: A Retrospective Cohort Study in the Netherlands between 2009 and 2019

Katinka Snoek [1], Nadia van de Woestijne [1], Sten Willemsen [1,2,3], René Klaassen [4], Sander Galjaard [1], Joop Laven [5], Régine Steegers-Theunissen [1] and Sam Schoenmakers [1,6]

Disegno dello studio: *studio osservazionale retrospettivo (2009-2019), monocentrico, su **197 donne** con gravidanza accertata dopo intervento di by-pass gastrico.*(5)

Scopo dello studio: *valutare lo **stato nutrizionale** prima e durante la gravidanza e confrontare lo stato nutrizionale delle pazienti che hanno assunto un **multivitaminico standard per la gravidanza (SMVG) rispetto a chi ha assunto un multivitaminico specifico per la bariatrica***

Parametri valutati: *valori ematici di ferritina, ferro, emoglobina , acido folico, vitamina B12, vitamina D e calcio*

Timing: *prima dell'intervento bariatrico, prima della gravidanza, 1-2-3 trimestre*

Pubblicazione *Snoek, K. et al. Nutrients, 14(4), 736, 2022.*(5)

Multivitaminico specifico per BS

Mantenimento emoglobina a livelli più alti e, di conseguenza, il valore del ferro più stabile durante tutta la gravidanza.

Valori ottimali ferritina
La ferritina è il serbatoio del ferro.
Permette di accumulare scorte durante le prime fasi della gravidanza.

Mantenimento livello più elevato di vitamina D.
Questo permette un miglior assorbimento del calcio.

Solo il 18,7% dei pazienti è ricorso ad iniezioni di VIT B12, rispetto al 53,5% di chi era in trattamento con un multivitaminico standard ($p < 0.001$)

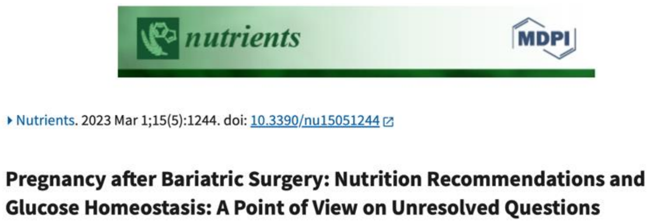
nutrients MDPI

Nutrients. 2023 Mar 1;15(5):1244. doi: 10.3390/nu15051244

Pregnancy after Bariatric Surgery: Nutrition Recommendations and Glucose Homeostasis: A Point of View on Unresolved Questions

It is recommended to **check** the following indices **at least once per trimester** and to use pregnancy-specific ranges for:
serum folate;
serum vitamin B12;
serum ferritin (iron studies including transferrin saturation and full blood count); **serum vitamin D with calcium,**
phosphate, magnesium, and parathyroid hormone;
serum vitamin A;
prothrombin time, INR, and serum vitamin K1 concentration; serum protein and albumin; and renal function and liver function tests [18].

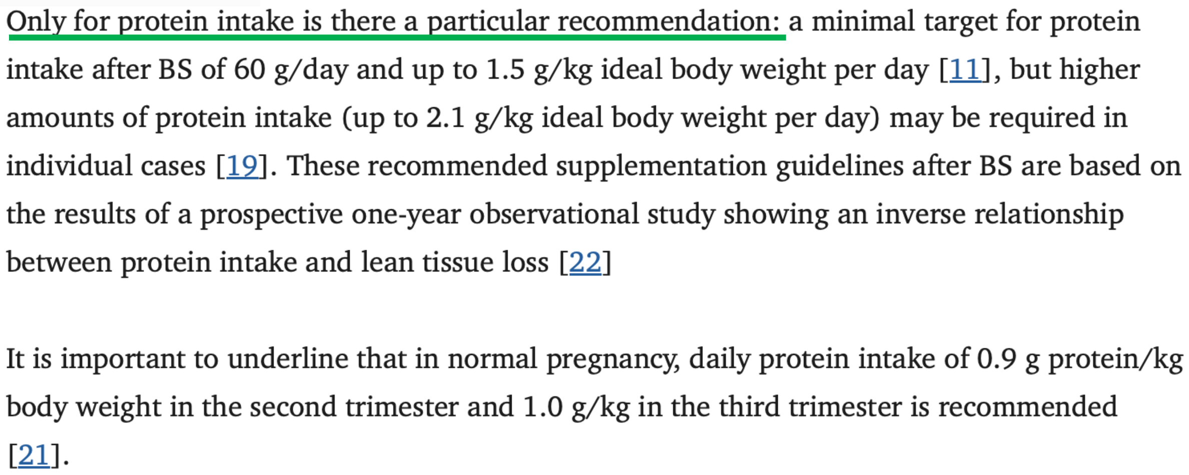
18. Shawe, J.; Ceulemans, D.; Akhter, Z.; Neff, K.; Hart, K.; Heslehurst, N.; Štotl, I.; Agrawal, S.; Steegers-Theunissen, R.; Taheri, S.; et al. Pregnancy after bariatric surgery: Consensus recommendations for periconception, antenatal and postnatal care. Obes. Rev. ***2019****, 20, 1507–1522. [CrossRef]*



Nutrients. 2023 Mar 1;15(5):1244. doi: 10.3390/nu15051244

Pregnancy after Bariatric Surgery: Nutrition Recommendations and Glucose Homeostasis: A Point of View on Unresolved Questions

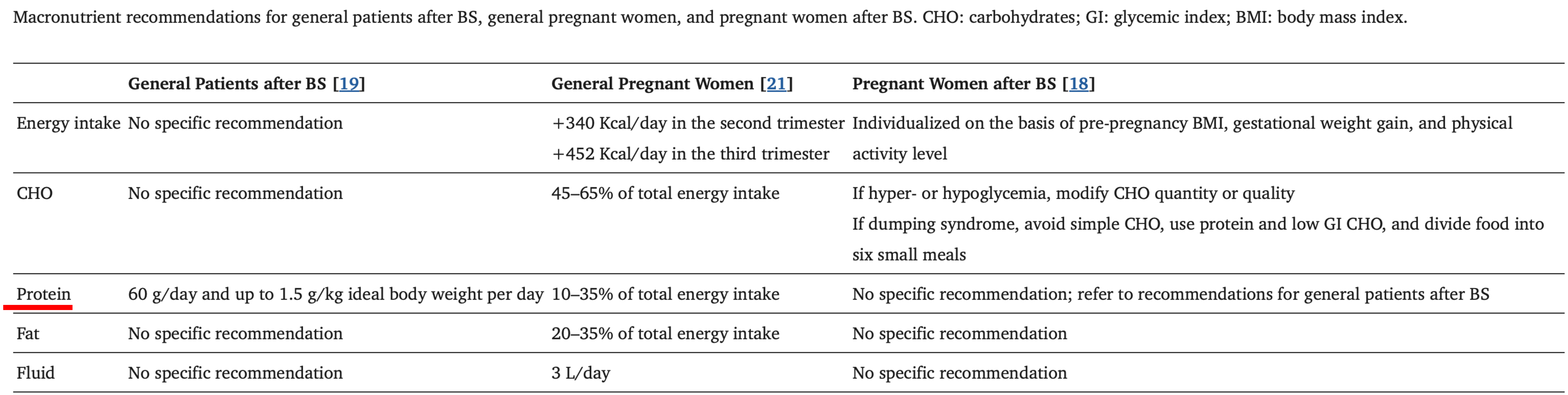
MACRONUTRIENTI



Only for protein intake is there a particular recommendation: a minimal target for protein intake after BS of 60 g/day and up to 1.5 g/kg ideal body weight per day [11], but higher amounts of protein intake (up to 2.1 g/kg ideal body weight per day) may be required in individual cases [19]. These recommended supplementation guidelines after BS are based on the results of a prospective one-year observational study showing an inverse relationship between protein intake and lean tissue loss [22]

It is important to underline that in normal pregnancy, daily protein intake of 0.9 g protein/kg body weight in the second trimester and 1.0 g/kg in the third trimester is recommended [21].

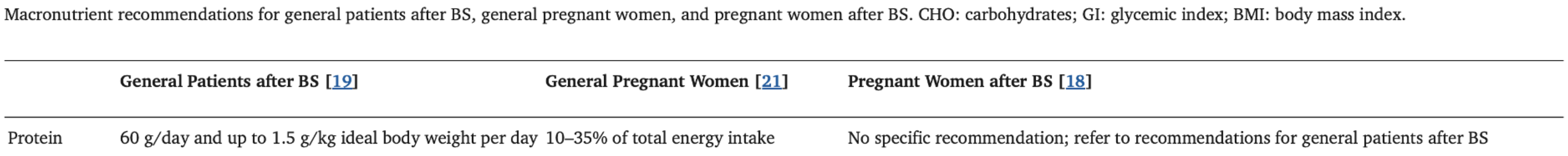
Table 2.



Macronutrient recommendations for general patients after BS, general pregnant women, and pregnant women after BS. CHO: carbohydrates; GI: glycemic index; BMI: body mass index.

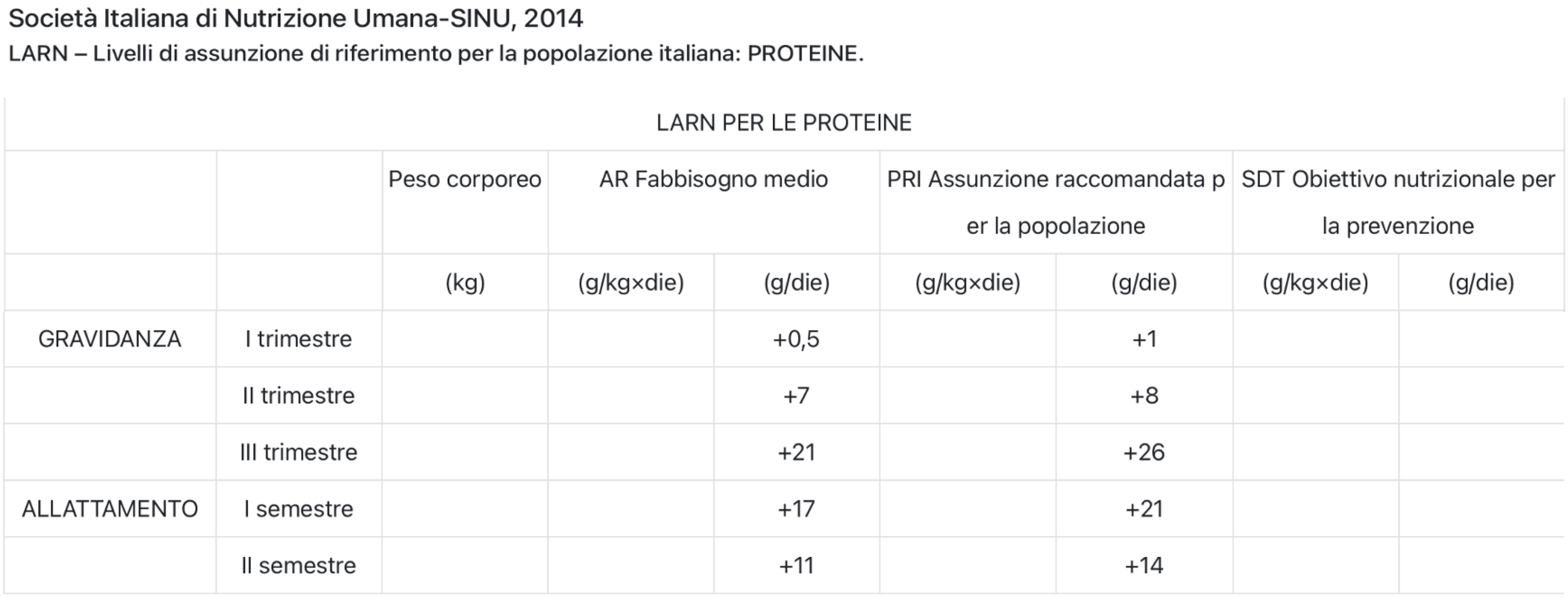
	General Patients after BS [19]	General Pregnant Women [21]	Pregnant Women after BS [18]
Energy intake	No specific recommendation	+340 Kcal/day in the second trimester +452 Kcal/day in the third trimester	Individualized on the basis of pre-pregnancy BMI, gestational weight gain, and physical activity level
CHO	No specific recommendation	45–65% of total energy intake	If hyper- or hypoglycemia, modify CHO quantity or quality If dumping syndrome, avoid simple CHO, use protein and low GI CHO, and divide food into six small meals
Protein	60 g/day and up to 1.5 g/kg ideal body weight per day	10–35% of total energy intake	No specific recommendation; refer to recommendations for general patients after BS
Fat	No specific recommendation	20–35% of total energy intake	No specific recommendation
Fluid	No specific recommendation	3 L/day	No specific recommendation

MACRONUTRIENTI – PROTEINE



Macronutrient recommendations for general patients after BS, general pregnant women, and pregnant women after BS. CHO: carbohydrates; GI: glycemic index; BMI: body mass index.

	General Patients after BS [19]	**General Pregnant Women [21]**	**Pregnant Women after BS [18]**
Protein	60 g/day and up to 1.5 g/kg ideal body weight per day	10–35% of total energy intake	No specific recommendation; refer to recommendations for general patients after BS



Società Italiana di Nutrizione Umana-SINU, 2014

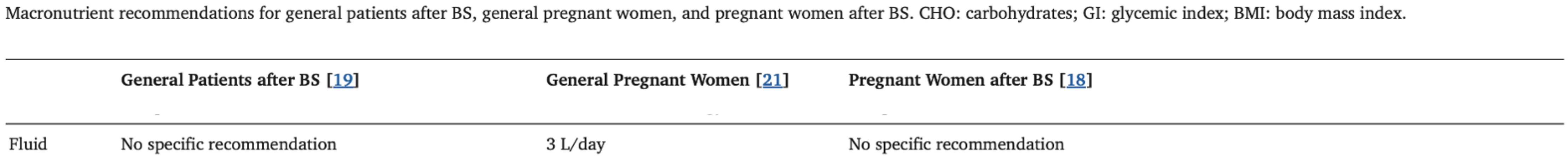
LARN – Livelli di assunzione di riferimento per la popolazione italiana: PROTEINE.

LARN PER LE PROTEINE

		Peso corporeo	AR Fabbisogno medio		PRI Assunzione raccomandata per la popolazione		SDT Obiettivo nutrizionale per la prevenzione	
		(kg)	(g/kg×die)	(g/die)	(g/kg×die)	(g/die)	(g/kg×die)	(g/die)
GRAVIDANZA	I trimestre			+0,5		+1		
	II trimestre			+7		+8		
	III trimestre			+21		+26		
ALLATTAMENTO	I semestre			+17		+21		
	II semestre			+11		+14		

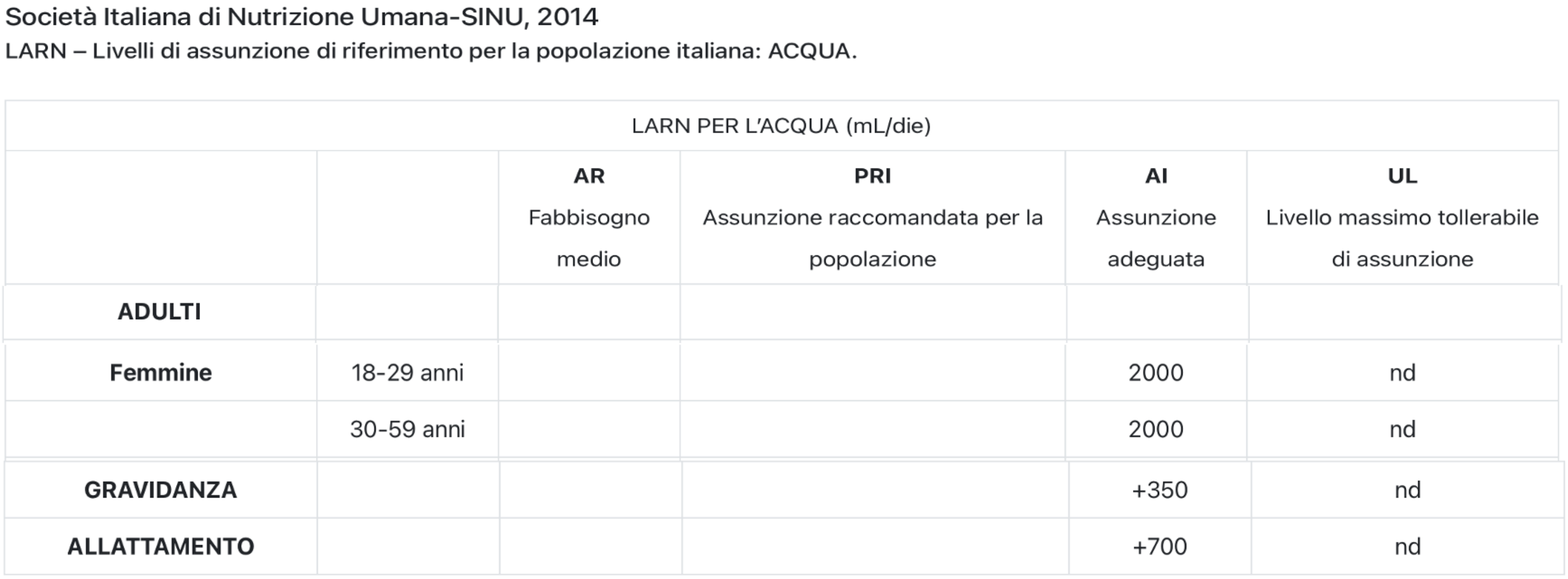
Opportuno valutare per ogni singola paziente l’intake proteico giornaliero, apportare modifiche alla dieta e se necessario predisporre eventuale integrazione.

MACRONUTRIENTI - ACQUA



Macronutrient recommendations for general patients after BS, general pregnant women, and pregnant women after BS. CHO: carbohydrates; GI: glycemic index; BMI: body mass index.

	General Patients after BS [19]	General Pregnant Women [21]	Pregnant Women after BS [18]
Fluid	No specific recommendation	3 L/day	No specific recommendation



Società Italiana di Nutrizione Umana-SINU, 2014

LARN – Livelli di assunzione di riferimento per la popolazione italiana: ACQUA.

LARN PER L'ACQUA (mL/die)					
		AR Fabbisogno medio	**PRI** Assunzione raccomandata per la popolazione	**AI** Assunzione adeguata	**UL** Livello massimo tollerabile di assunzione
ADULTI					
Femmine	18-29 anni			2000	nd
	30-59 anni			2000	nd
GRAVIDANZA				+350	nd
ALLATTAMENTO				+700	nd

Strategie per soddisfare il fabbisogno idrico giornaliero

CONCLUSIONI

- **Ascoltare, informare e pianificare** regolare follow up multidisciplinare per accompagnare la donna ad intraprendere una gravidanza dopo BS nelle migliori condizioni possibili sia per la madre che che per il bambino
- **Timing:** 12-24 mesi post BS
- **Adeguata e specifica supplementazione**
- **Adeguato apporto proteico**
- **Idratazione**

- Regolare follow-up multidisciplinare durante gravidanza e allattamento.

S.I.C.OB.

Venezia

SPRING MEETING

13-14 MAGGIO 2025

Presidente Onorario
del Congresso
Pietro Forestieri

Presidente del Congresso
Maurizio De Luca

PALAZZO
DEL CASINÒ / LIDO
DI VENEZIA

www.springsicob.it

Grazie per l’attenzione