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Valutazione nel lungo periodo del rischio di carenze nutrizionali e di recupero di peso in soggetti sottoposti a chirurgia bariatrica

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Conflict of interest disclosure

The authors declare that there is no conflict of interest

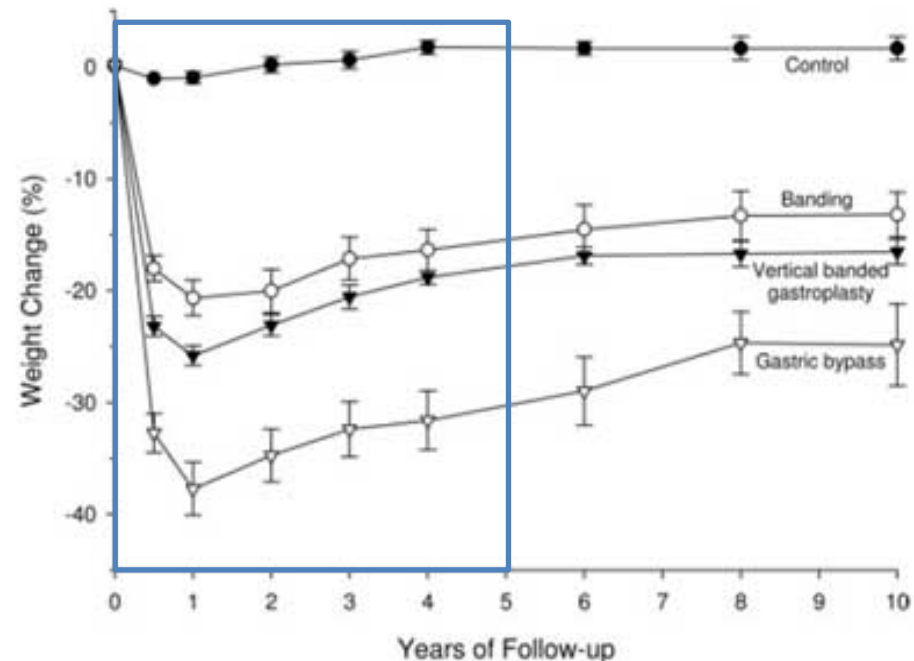
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Literature: weight recovery after bariatric surgery (SOS study)

One study in their review was a 10 year follow-up on several procedures.

- 627 control patients
- 156 banding
- 451 vertical banding gastroplasty
- 34 gastric bypass

The greatest weight loss was during the first year, with a gradual increase in weight gain over the next 8-9 years.



Literature: Risks of nutritional deficiencies after bariatric surgery

HIGH RISK

Risk of developing nutritional deficiencies after bariatric surgery			
Micronutrient	Laparoscopic adjustable gastric band	Roux-en-Y gastric bypass	Biliopancreatic diversion with or without duodenal switch
Calcium	Medium	Medium	High
Copper	Low	Low	Low
Folate	Low	Low	Low
Iron	Medium	High	High
Selenium	Low	Low	Low
Thiamine (B ₁)	Low	Low	Low
Vitamin A	Low	Low	Medium
Vitamin B ₁₂	Low	High	Medium
Vitamin D	High	High	High
Vitamin E	Low	Low	Low
Vitamin K	Low	Low	Medium
Zinc	Low	Medium	Medium

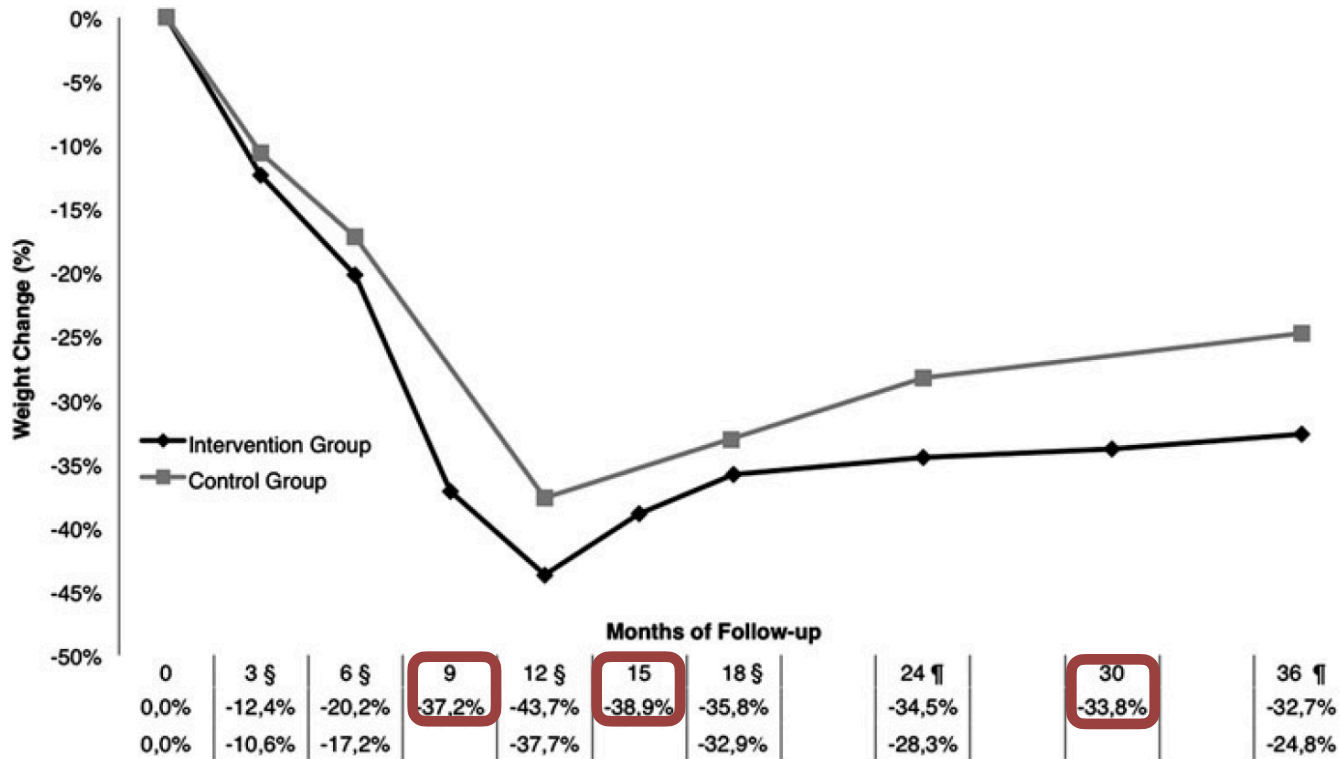
Rickers L, McSherry C, Nurs Stand 2012

- The Good News (and Caution) for Sleeve Gastrectomy
- The Food Label: A Guide to Educating Bariatric Patients
- Laparoscopic Gastric Plication: An Emerging Bariatric Procedure with High Surgical Revision Rate
- Effect of Banded Laparoscopic Sleeve Gastrectomy on Weight Loss Maintenance
- The Pain of Regain: Psychosocial Impacts of Weight Regain Among Bariatric Patients
- Frequent Follow-Up Visits Reduce Weight Regain in Long-Term Bariatric Management



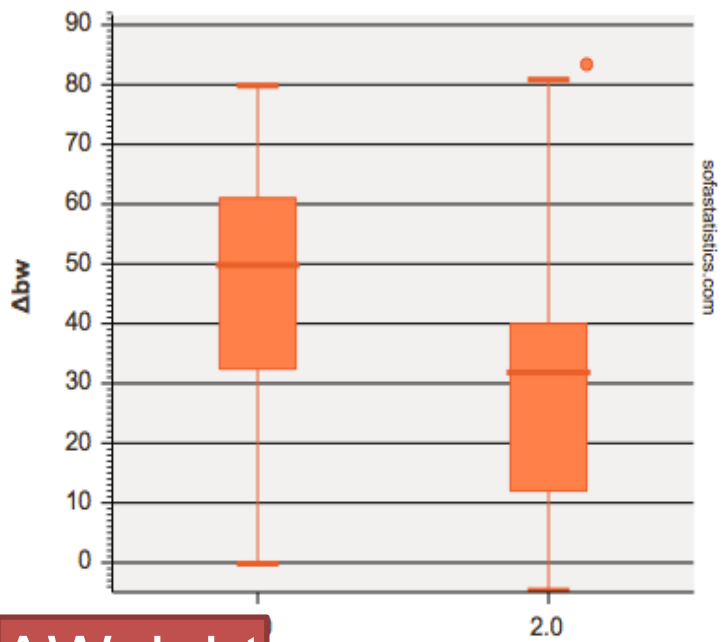
Frequent Follow-Up Visits Reduce Weight Regain in Long-Term Management After Bariatric Surgery

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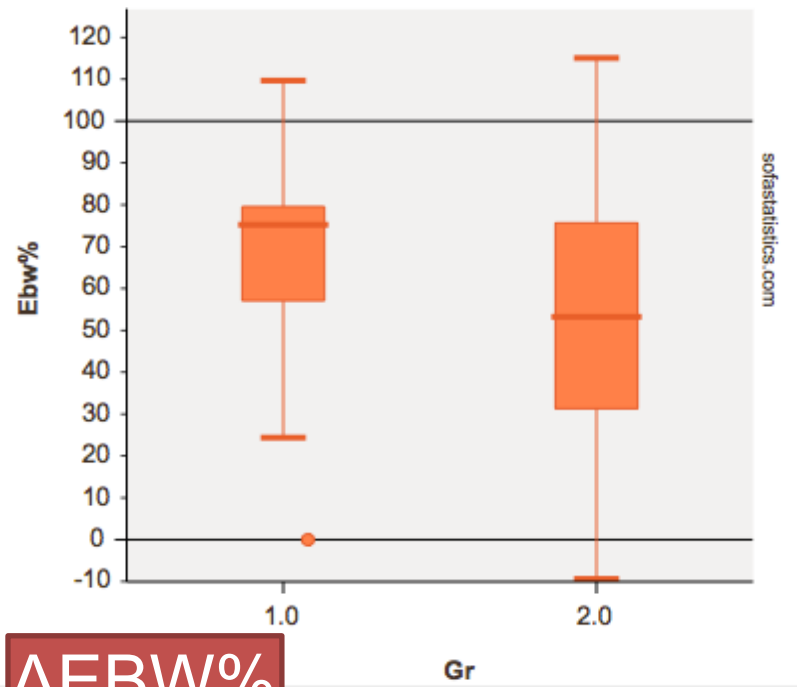


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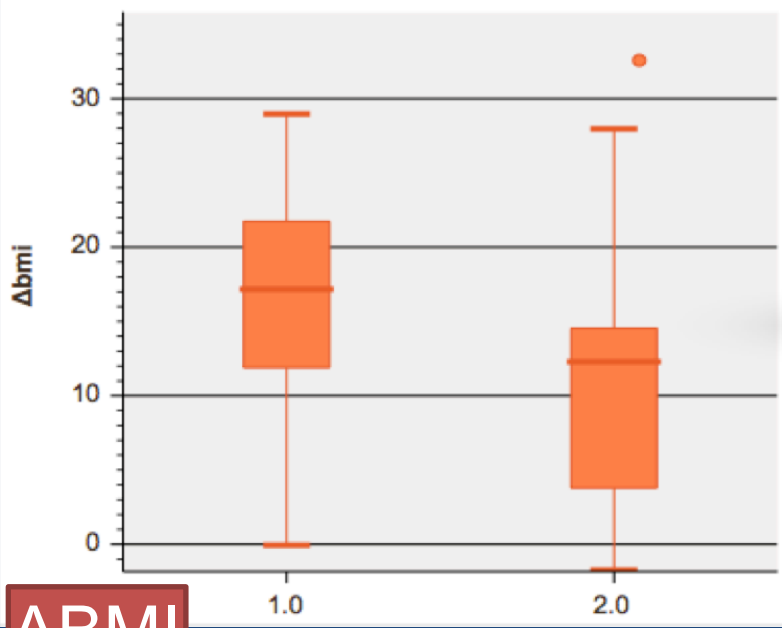
FIG. 1. Weight change (or total weight loss; %TWL) among groups over a 3 year period. §Nonstatistical significance; ¶ $p < 0.05$ for the t -test between the groups.



ΔWeight



ΔEBW%



ΔBMI

from 24 to 36 months, the rate of weight regain was lower in those subjects who underwent a more frequent schedule of visits. These data highlight the need for a more intensive follow-up procedure for the management of weight regain

ΔBW ($p=0.002$) - EBW% ($p=0.005$) - ΔBMI ($p=0.003$)

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TABLE 3. POSTOPERATIVE REMISSION OF DIABETES, HYPERTENSION, OSAs, AND LIPID DISTURBANCES OVER 3 YEARS IN BOTH GROUPS

	<i>Before surgery</i>						<i>After 3 years</i>					
	<i>Intervention group</i> (n = 35)	<i>Control group</i> (n = 36)	<i>AGB</i> (n = 10)	<i>SG</i> (n = 43)	<i>RYGB</i> (n = 18)	<i>Total</i> (n = 71)	<i>Intervention group</i> (n = 35)	<i>Control group</i> (n = 36)	<i>AGB</i> (n = 10)	<i>SG</i> (n = 43)	<i>RYGB</i> (n = 18)	<i>Total</i> (n = 71)
DM (%)	13 (34)	9 (27)	3	11	8	22 (31)	3 (77)*	4 (56)*	1 (66)*	4 (64)*	2 (75)*	7 (68)*
HTN (%)	19 (50)	14 (42)	5	23	5	33 (46)	5 (74)*	6 (57)*	3 (40)*	8 (65)*	0 (100)*	11 (67)*
OSA (%)	10 (26)	7 (21)	2	11	4	17 (24)	5 (50)*	3 (57)*	2 (0)*	4 (64)*	2 (50)*	8 (53)*
LIP (%)	10 (26)	9 (27)	3	13	3	19 (27)	7 (33)*	6 (33)*	3 (0)*	8 (38)*	2 (33)*	13 (33)*

*Remission rate (%).

DM, diabetes mellitus; HTN, hypertension; OSA, obstructive sleep apnea; LIP, hyperlipidemia.

Potential Nutritional Deficiencies in Obese Subjects 5 Years After Bariatric Surgery

The aim of this study was to assess 5 years after surgery in a
group of 60 patients

1. weight loss
2. vitamin deficiencies
3. supplements use

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2019

Study sample:



60 subjects undergoing bariatric surgery of the restrictive (LAGB or SG) or restrictive-malabsorptive (RYGB) type were recruited between 2010 and 2011 at the Centre for the Treatment of Obesity at the "Policlinico Tor Vergata" in Rome directed by Prof. Paolo Sbraccia.

Methods:



Patients were evaluated at 48 and 60 months.

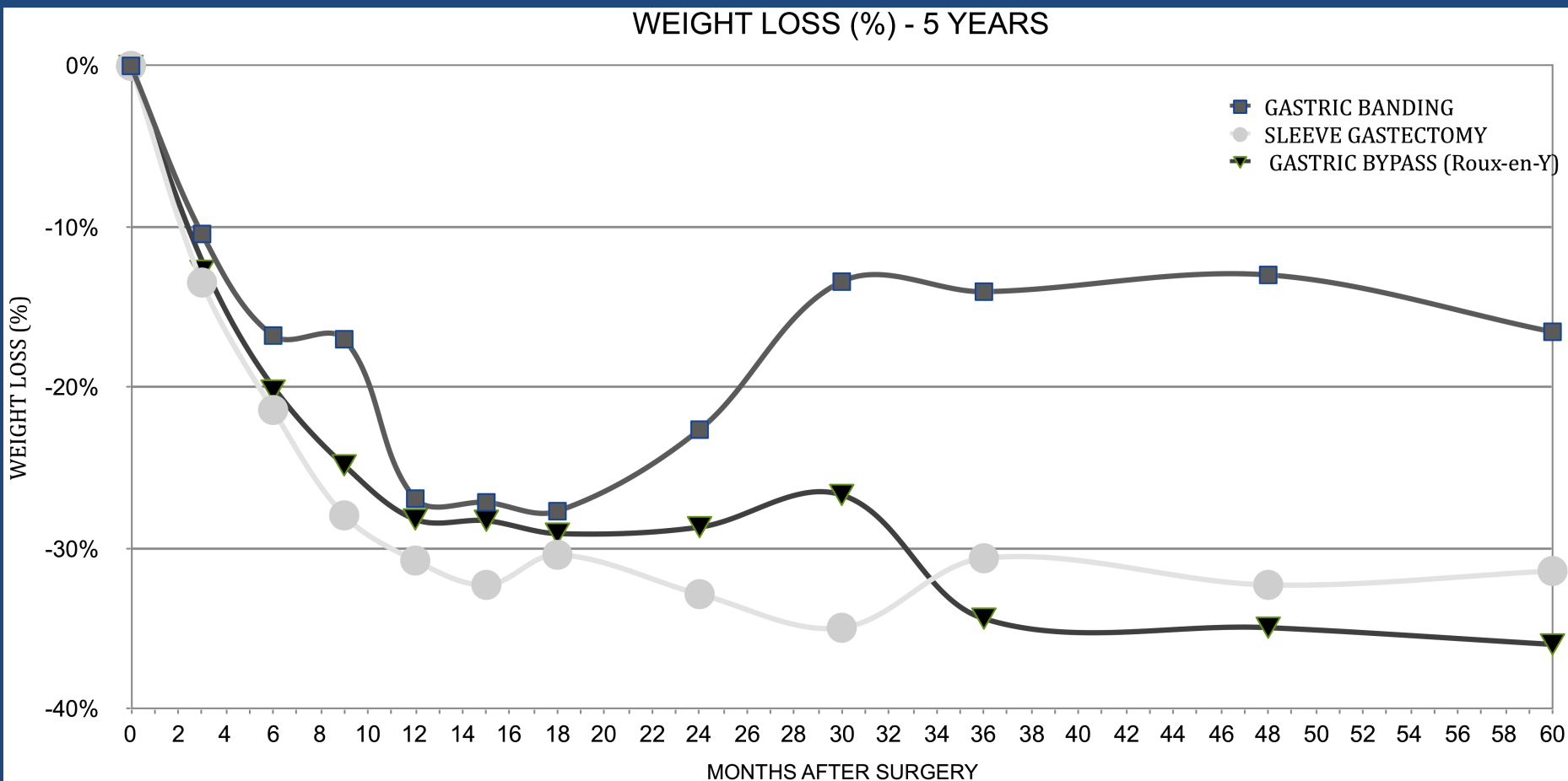
Anthropometric measurements, data on the use of supplements and laboratory analyses to assess nutritional deficiencies were collected from all subjects.

Main characteristics of the study sample before surgery

(n)	banding AGB (8)	sleeve SG (36)	bypass RYGB (16)	Total (60)
Age	33.6±12.6	43.5±11.5	41.4±8.6	41.6±11.3
Gender	M1-F7	M10-F26	M1-F15	M12-F48
Weight (kg)	133.4±22	137.4±26.9	124.7±18	133.4±24.5
BMI	45.5±5.8	49.5±7.8	48±8.1	48.6±7.6
BMI 35-40 (%)	2 (25)	4 (11.1)	3 (18.7)	9 (15)
BMI 40.1-50 (%)	5 (62.5)	15 (41.7)	8 (50)	28 (46.7)
BMI 50.1-60 (%)	1 (12.5)	14 (38.9)	3 (18.7)	18 (30)
BMI >60.1 (%)	0	3 (8.3)	2 (12.6)	5 (8.3)

AGB: Laparoscopic Adjustable Gastric Banding. SG: Sleeve Gastrectomy. RYGB: Roux-en-y Gastric Bypass. BW: Body weight (kg). Data as Means ± SD or proportions (%)

Weight reduction in %: comparison between 3 procedures



Nutritional deficiencies 5 years after surgery

	Before surgery				after 3 yrs				after 5 yrs			
%	AGB (8)	SG (36)	RYGB (16)	Total (60)	AGB (8)	SG (36)	RYGB (16)	Total (60)	AGB (8)	SG (36)	RYGB (16)	Total (60)
Iron	10	12	25	23	13	22	20	25	12	44	73	50
Vit.D	45	55	51	54	18	23	29	25	25	41	60	45
Vit. B12	15	20	13	18	6	13	16	14	0	15	13	15
Vit. B	10	15	8	13	4	22	15	22	0	11	13	6
Magnesium	2	3	1	2	3	9	12	11	12	7	10	9
Calcium	2	5	1	4	3	6	18	7	0	18	27	19
Total°	25	55	52	52	22	53	50	49	28	70	87	73

AGB: Laparoscopic Adjustable Gastric Banding. SG: Sleeve Gastrectomy. RYGB: Roux-en-y Gastric Bypass
 ° Subjects with at least one nutritional deficiencies

Nutritional Supplements Use

	3 yrs after surgery				5 yrs after surgery			
%	AGB (8)	SG (36)	RYGB (16)	Total (60)	AGB (8)	SG (36)	RYGB (16)	Total (60)
Specific supplement for patient bariatric	0	31	14	22	0	31	31	27
Multivitaminic generic	30	15	57	30	12	14	12	13
Calcium/vitamin D	0	27	36	26	25	28	31	26
Vitamin B group supplement	0	23	36	20	0	3	19	5
Iron	0	15	43	22	0	0	31	8
TOTAL	30	54	79	61	37	75	94	73
Patients with nutritional deficiencies who do not take supplements	20	0	0	5	0	3	0	2
Patients without nutritional deficiencies taking supplements	0	19	0	11	0	3	0	2

For oral supplements, patients were considered to take the specified supplement if they reported taking that supplement at least 5 days per week. AGB: Laparoscopic Adjustable Gastric Banding. SG: Sleeve Gastrectomy. RYGB: Roux-en-y Gastric Bypass

Conclusioni

L'aggiunta di un maggior numero di visite di controllo, rispetto al normale programma suggerito dalle linee guida, riduce il recupero del peso e migliora la risoluzione delle comorbidità.

Le carenze nutrizionali più diffuse sono vitaminiche (B12, A, D, Tiamina, Folato) e minerali (Ferro, Zinco e Calcio). Tali carenze possono anche essere presenti prima dell'intervento.

L'integrazione nutrizionale è raccomandata, in tutti i tipi di intervento, per contrastare potenziali carenze nutrizionali. Deve durare per tutta la vita.

Nonostante il diffuso utilizzo di integratori, le carenze nutrizionali sono frequenti nei pazienti 5 anni dopo la chirurgia bariatrica.

Valutazione nel lungo periodo del rischio di carenze nutrizionali e di recupero di peso in soggetti sottoposti

if you have any questions please do not hesitate to contact me at mauro.lombardo@uniroma5.it

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