



# Associations of dietitian follow-up counselling visits and physical exercise with weight loss one year after sleeve gastrectomy

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## Abstract

**Purpose** To examine associations of patients' attendance to follow-up meetings with a registered dietitian (RD) and physical exercise practices with weight loss during the 1 year following laparoscopic sleeve gastrectomy (SG).

**Methods** Of 241 patients with obesity who underwent SG during 2012, 184 (76.3%) participated in a 1-year follow-up telephone interview and had information on number of RD follow-up meetings. Clinical information was available from computerized patient files. Multiple logistic regression analysis, adjusting for propensity score, was computed to reveal factors associated with greater weight loss.

**Results** The mean %TWL was  $31.4 \pm 6.1$  and the mean number of reported RD meetings during the year following SG was 4.6. The proportion of physically active patients increased by 15% (from 23 to 42) among those who attended at least 3 RD follow-up meetings ( $n = 123$ ), and by 5% (from 18 to 23) among those who attended fewer than 3 meetings ( $n = 61$ ) ( $p = 0.05$ ). Patients conducting physical exercise reported a lower level of pain/discomfort on the EQ5D quality-of-life questionnaire ( $p = 0.03$ ). The adjusted regression model revealed no association between the number of RD follow-up meetings and weight-reduction success, but physical exercise during the year following SG conferred a 2.6 times greater odds of belonging to the upper two tertiles of the % excess body weight loss (95% CI 1.2–5.3).

**Conclusions** Patients with better adherence to RD follow-up meetings were also more physically active. Patients on physical exercise also achieved greater weight reduction following SG, and reported less pain or discomfort. Nutritional counselling and physical exercise are necessary to ensure maximal and sustainable benefits from SG.

**Level of Evidence** Level III, Cohort study.

**Keywords** Sleeve gastrectomy · Health-related quality of life · Weight loss · Bariatric surgery · % excess body weight loss · % total weight loss · Registered dietitian

## Introduction

Obesity has reached epidemic proportions. Implications include increased co-morbidities, reduced quality of life (QoL), diminished life expectancy and economic burden due to increased medical treatments and work disability [1–5]. Conventional treatments for obesity such as lifestyle changes, e.g., caloric restriction, nutritional guidance, physical exercise and medications, appear not to be associated with sustained weight reduction over time [2–4, 6]. Compared to other patients with obesity, those who undergo bariatric surgery demonstrate less morbidity, greater weight loss and greater improvement in QoL [2, 4–11]. Postoperative nutritional guidance is important for patients who undergo bariatric surgery [5, 12–17]. While several publications have discussed the importance of medical and social support after

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bariatric surgery [15, 18–22], the literature is scarce regarding postoperative dietitian-conducted follow-up, and its association with weight loss [12–14, 23, 24].

The Israeli Center for Bariatric Surgery (ICBS) is a private clinic specializing in treatment of morbidly obese patients. Surgery is indicated according to the National Institute of Health consensus guidelines for treatment of the morbidly obese patient [25]. During 2006–2012 1,403 bariatric surgeries were performed in the clinic. Patients who underwent surgery in the ICBS during this period were offered to attend, free of charge, five follow-up personal meetings with an ICBS registered dietitian (RD), three meetings with the ICBS psychologist, and two with the bariatric surgeon, during the first year post-surgery.

The aim of this study was to assess the extent of weight loss 1 year after sleeve gastrectomy (SG), according to patients' attendance to dietitian follow-up meetings and according to pre- and post-surgery physical exercise behavior. Health-related quality of life (HRQoL) was evaluated at 1-year post SG.

## Methods

### Study design

This was a historical prospective cohort study, in which clinical data since the date of the SG were extracted from patients' computerized medical records, and current information on weight and HRQoL was collected during a follow-up telephone interviews conducted 1 year after SG. Patients also provided information on attendance to an RD and participation in regular physical exercise after SG.

We attempted to contact by telephone all patients 18 years and older who underwent SG between December 2011 and May 2012 at the ICBS. Study exclusion criteria were past bariatric surgery, pregnancy during the year after SG and medical tourism (patients living overseas were unable to attend dietitian follow-up meetings in Israel).

Patients are invited for RD consultation meetings held at ICBS, at 2 weeks and 2, 3, 4, and 5 months after SG. The purpose of this consultation is to increase the success in achieving healthy weight loss, to optimize reservation of muscle mass, to prevent nutritional deficiencies and to help patients to adopt well-balanced nutritional habits. Each ICBS RD counselling meeting is 20 min long, during which the RD provides information regarding postoperative dietary recommendations based on a gradual progression in food consistency and contents, recommended food quantities, and vitamin and mineral supplementation. The RD guides patients regarding their eating habits in the short- and long-term periods following bariatric surgery, and addresses patients' personal needs and behaviors in this regard [26].

The RD reviews with patients the results of lab tests for which patients are referred every 3 months during the first year following surgery: for a complete blood count and for blood levels of vitamins, minerals, proteins and biochemical factors. At each ICBS RD visit, patients receive encouragement for doing physical exercise according to their ability and in accordance with their physicians' approval and recommendations.

During a 1-year post-SG telephone interview, study participants were asked if they participated in any physical exercise over the previous year, their current weight and the total number of follow-up meetings they attended since surgery, with any dietitian: regardless of whether the dietitian was affiliated with ICBS.

The Hebrew validated EQ5D HRQoL questionnaire was also filled during the interview [27]. The EQ5D comprises five dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each dimension has three levels: no problems, some problems, and extreme problems. The EQ5D visual analog scale (VAS) assesses patients' self-rated health on a point scale, from 100 = 'The best health you can imagine' to 0 = 'The worst health you can imagine'.

Information collected from the ICBS computerized medical records included patients' age, sex, marital status, number of children, body weight and co-morbidities before surgery, physical exercise habits before surgery, and the number of follow-up meetings with a dietitian at ICBS.

### Exposure variable definition

*RD follow-up meetings* We initially used both sources of information for this variable: as recorded from ICBS computerized file, and as reported by the patient during the telephone interview. In the final analysis we used the ICBS data source, which includes information on ICBS RD counselling meetings only (and not by dietitians out of ICBS). Analysis was both as a continuous variable and as a dichotomous variable, defining 0–2 follow-up meetings as “low compliance” and 3 or more (3+) follow-up meetings as “good compliance”.

### Outcome variable definition

Weight loss is expressed both as % excess body weight loss (%EBWL), with excess considered as BMI > 25 kg/m<sup>2</sup>, and as % total weight loss (%TWL). In a post hoc analysis, %EBWL was also analyzed categorically according to tertiles, in which the lower tertile (T<sub>1</sub>) was compared to the upper two tertiles (T<sub>2+3</sub>), creating a threshold of 66.9% EBWL. This indicates that patients in T<sub>1</sub> lost less than 67% of their excess body weight, while those in T<sub>2+3</sub> lost more than 67%.

## Co-morbidities

Medical information on diabetes, hypertension, and dyslipidemia is routinely recorded by surgeons prior to SG and was accessed from medical records.

## Statistical analysis

The study was originally planned to have a power of 80% to detect a difference in %EBWL of at least 20%, with  $\alpha=5\%$  ( $p=0.05$ ) between patients with good vs. low compliance to dietitian follow-up meetings. Differences between variables in groups of exposure were examined using the independent Student's *t* test for continuous variables and the  $\chi^2$  test for categorical variables. The relationship between dietitian follow-up attendance and weight loss was examined using linear regression and logistic models. Univariate regressions were performed to examine relationships between patients' characteristics and weight loss, and multivariate regressions were then performed, adjusting for age, sex, baseline BMI and physical exercise in the linear models, as well as for additional statistically significant variables. Propensity scoring was calculated and added into the logistic model to overcome the observational nature of the study and the lack of randomization to the exposure of interest, i.e., the number of dietitian follow-up meetings; and included: age, gender, number of children, preoperative BMI, hypertension, dyslipidemia, diabetes and pre-surgery physical exercise. Statistical analysis was performed using SPSS V19 and SAS 9.2.

## Results

Of the 263 patients who underwent SG at the ICBS between December 2011 and May 2012, 241 (92%) qualified for participation in the study according to criteria stated above, and 187 (77.6% of the eligible patients) were reached by telephone and agreed to participate. Three patients were

excluded from the analysis due to lack of information on follow-up meetings with the RD. Thus, the final analytical cohort included 184 patients. Compared to study participants, non-participants ( $n=54$ ) were considerably younger (mean  $38.4 \pm 11.2$  vs.  $45.3 \pm 10.6$  years,  $p<0.001$ ) and included a lower proportion of married individuals (64% vs. 74%,  $p<0.001$ ). Statistically significant differences were not observed between patients who did and did not participate, in gender, pre-surgery weight, BMI difference following surgery, or in the number of ICBS dietitian follow-up meetings attended.

## Extent of weight reduction

During the first year following SG, patients lost a mean  $38.2 \pm 11.7$  kg (range 9.5–83.0 kg), which is on average  $77.3\% \pm 21.3\%$  (range 21.9–137.8%) of their excess body weight.

## The frequency of dietitian follow-up visits

During the postoperative year, the mean number of RD follow-up meetings was  $3.5 \pm 1.8$  (range 0–8) according to ICBS computerized data and 4.2 (range 0–20) according to patient self-report. The median number of meetings was 4 according to both data sources (mean = 4.6). As many as 66.0 and 75.5% had 3 or more dietitian follow-up meetings according to ICBS data and to self-report, respectively. Individuals who attended fewer dietitian follow-up visits tended to be of male sex and to have more children, a lower preoperative BMI, a lower proportion of co-morbidities, and to have been more physically active prior to SG (Table 1). Among patients who attended fewer dietitian visits, the proportion that reported being physically active increased from baseline to 1-year follow-up by only 5%, from 33 to 38%. In contrast, the increase in reported physical activity almost doubled among those who attended more dietitian visits, from 19 to 34%. Thus, at the end of the follow-up period, the proportion

**Table 1** Baseline characteristics of 184 sleeve gastrectomy patients according to the number of dietitian follow-up meetings during the post-operative year

Baseline characteristic	0–2 meetings ( $n=61$ )	3+ meetings ( $n=123$ )	<i>P</i>
Age (years), mean $\pm$ SD	44.1 $\pm$ 10.7	45.9 $\pm$ 10.7	0.3
Male sex ( $n=61$ ) <i>n</i> (%)	26 (42.6)	35 (28.4)	0.05
BMI ( $\text{kg}/\text{m}^2$ ), mean $\pm$ SD	41.4 $\pm$ 4.0	44.3 $\pm$ 5.6	<0.001
Total weight (kg), mean $\pm$ SD	119.2 $\pm$ 18.1	122.5 $\pm$ 20.0	0.3
Excess body weight (%), mean $\pm$ SD	80.1 $\pm$ 21.2	76.1 $\pm$ 21.3	0.2
Hypertension, <i>n</i> (%)	12 (19.6)	47 (38.2)	0.01
Diabetes, <i>n</i> (%)	13 (21.4)	34 (27.6)	0.4
Dyslipidemia, <i>n</i> (%)	29 (47.6)	79 (64.2)	0.03
Number of children, mean $\pm$ SD	2.7 $\pm$ 1.7	2.2 $\pm$ 1.5	0.02
Physical exercise before SG	18 (32.8)	23 (19.0)	0.046
Physical exercise after SG, <i>n</i> (%)	23 (37.8)	42 (34.2)	0.8

of participants that was physically active was similar among those who attended fewer or more dietitian visits.

### Characteristics related to greater weight loss 1 year after surgery

Compared to patients in the lower %EBWL tertile ( $T_1 = \text{EWBL} < 66.9\%$ ), those in the upper two tertiles of %EBWL ( $T_{2-3} = \text{EBWL} \geq 66.9\%$ ) were younger [mean age  $43.5 \pm 10.2$  and  $48.9 \pm 10.8$  years ( $P < 0.001$ )], had lower mean preoperative BMI ( $41.9 \pm 4.7$  vs.  $45.9 \pm 5.5$  kg/m<sup>2</sup>,  $P < 0.001$ ), and had attended, on average, slightly more self-reported dietitian counselling meetings ( $4.3 \pm 3.5$  vs.  $4.1 \pm 2.5$ , respectively,  $P = 0.6$ ) (Table 2). No statistically significant difference was found in either %TWL or %EBWL between participants with good vs. poor compliance to dietitian follow-up meetings ( $P = 0.3$ ). This finding remained unchanged after adjusting for age, gender, hypertension, type 2 diabetes, and baseline BMI. Linear regression models adjusting for age, sex, BMI before SG and physical exercise during the year following SG revealed no association

between number of dietitian follow-up consultations and both %TWL and %EBWL (not shown).

In a stratified logistic regression model that adjusted for propensity score, no association was found between compliance to dietitian follow-up, as assessed by attendance to 3 or more RD follow-up meetings, and weight loss success (%EBWL<sub>t2+t3</sub>) (OR = 1.30, 95% CI 0.54–3.16). However, a 2.3 times greater likelihood for success was observed in patients who reported being physically active during the follow-up year, compared to sedentary individuals (95% CI 1.02–5.12,  $P = 0.04$ ) (Table 3). In addition, a positive linear correlation was found between the number of dietitian follow-up meetings and the report of physical exercise during the year following SG ( $r = 0.15$ ,  $P = 0.046$ ).

### Pre-surgical co-morbidities and weight loss (Fig. 1)

Mean %TWL was lower for patients with pre-surgical type 2 diabetes, hypertension or dyslipidemia, compared to those without these co-morbidities. In an age-adjusted comparison, these results remained statistically significant only for type 2 diabetes (not shown).

**Table 2** Characteristics of 184 sleeve gastrectomy patients according to %EBWL 1 year following surgery

Variable	Prevalence (%)	T <sub>1</sub> EBWL < 66.9% <sup>a</sup> N = 61 n (%)	T <sub>2+3</sub> EBWL ≥ 66.9% <sup>b</sup> N = 123 n (%)	P value*
Age (years), mean ± SD		48.9 ± 10.8	43.5 ± 10.2	0.001
Sex				
Male (n = 61)	33.2	17 (27.8)	44 (35.8)	0.3
Female (n = 123)	66.9	44 (72.2)	79 (64.2)	
BMI before (kg/M <sup>2</sup> ), mean ± SD	–	45.9 ± 5.5	41.9 ± 4.7	< 0.001
Dietitian FU, mean ± SD	–			
ICBS		3.9 ± 1.8	3.3 ± 1.8	0.03
Self-report		4.1 ± 2.5	4.3 ± 3.5	0.6
Physical exercise before SG	23.30	6 (10.0)	35 (30.2)	0.003
Physical exercise during FU	63.59	29 (47.6)	88 (71.6)	0.001
Hypertension (n = 59)	32.1	29 (47.6)	30 (24.4)	0.002
Type-2 diabetes (n = 47)	25.5	27 (44.2)	20 (16.2)	< 0.0001
Dyslipidemia (n = 108)	58.7	44 (72.2)	64 (52)	0.009
EQ5D (% needing assistance)	–			
Mobility		8.1	2.4	0.07
Self-care		0.0	1.6	0.3
Usual activities		4.8	4.9	0.9
Pain or discomfort—intermediate level and above		21.0	25.2	0.5
Anxiety and depression—intermediate level and above		9.7	11.4	0.8
VAS mean ± SD		81.9 ± 12.5	88.5 ± 11.0	< 0.001
Percent total weight loss		24.9 ± 6.1	34.7 ± 6.2	< 0.0001

\*Two sided, P value by  $\chi^2$  (Chi-square test) for categorical variables or by Student's *t* test for continuous variables

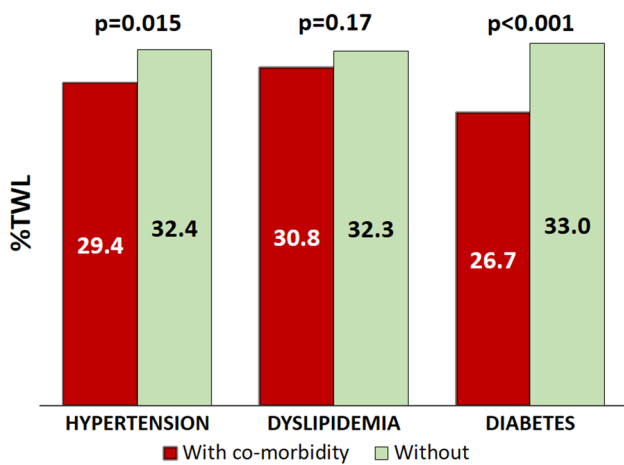
<sup>a</sup>T<sub>1</sub> %EBWL < 66.9% = 33% SG patients achieving less than 66.9% EBWL

<sup>b</sup>T<sub>2+3</sub> %EBWL ≥ 66.9% = 67% SG patients achieving at least 66.9% EBWL

**Table 3** Factors associated with higher ( $T_{2+3}$ ) % EBWL at 1 year after SG, in a propensity score-adjusted multivariate logistic model

Variable	Reference category	Odds ratio (95% CI)	P value
Age	1-year increment	0.96 (0.92–1.01)	0.09
Male	Female	0.57 (0.24–1.34)	0.2
Number of children	1 additional child	1.01 (0.75–1.35)	0.9
BMI before SG	1 kg/m <sup>2</sup> increment	0.84 (0.78–0.91)	<0.001
Hypertension	No	0.61 (0.24–1.53)	0.3
Diabetes	No	0.27 (0.11–0.70)	0.007
Dyslipidemia	No	0.72 (0.30–1.72)	0.5
Other co-morbidities	None	0.81 (0.22–2.97)	0.8
Physical exercise before SG	None	2.34 (0.76–7.19)	0.1
Physical exercise during FU	Not active	2.29 (1.02–5.12)	0.04
3 + dietitian FU meetings <sup>a</sup>	0–2	1.30 (0.54–3.16)	0.6

<sup>a</sup>ICBS



**Fig. 1** Percent weight reduction (%TWL) at 1-year follow-up according to presence of co-morbidity before sleeve gastrectomy

### Health-related quality of life

No association was found between adherence to dietitian follow-up meetings and categories of EQ5D HRQoL (Table 1). However, an inverse linear correlation was found between compliance with dietitian follow-up and pain or discomfort ( $r = -0.17, P = 0.02$ ); those who had higher compliance with dietitian follow-up tended to report a lower level of pain or discomfort 1 year after the SG (not shown). We also found a negative linear correlation between reported weekly physical exercise and between pain or discomfort ( $r = -0.16, P = 0.03$ ).

Compared to patients in the lowest tertile of %EBWL, those in the upper two tertiles had a higher mean EQ5D score on the VAS ( $P < 0.001$ ) and on the mobility scale ( $P = 0.07$ ). No differences were found between the lowest and upper %EBWL tertiles in any of the other HRQoL parameters (Table 2).

### Discussion

Few studies have evaluated the possibility of a direct relationship between dietitian consultation and the extent of weight reduction at 1 year after bariatric surgery. In an observational study of 1,680 bariatric surgery patients of a single HMO, only 28% of them attended at least 2 dietitian counselling meetings. Those patients were found to be more likely to have a BMI reduction of at least 5%, 1–48 months following the surgery (mean follow-up of ~ 14 months) (OR = 1.56, 95% CI 1.02–2.38) [23]. In that study patients may have attended nutritional counselling outside of the health facility where they were operated, as occurred also in the current study. This raises the possibility of information bias of the exposure variable. No attempt to examine a temporal relationship between nutritional counselling and BMI measurement was reported, so that reverse causation cannot be ruled out. In addition, the outcome measure of 5% reduction in baseline BMI in a 4-year time frame probably reflects the short-term weight reduction and the long-term weight gain, making it difficult to draw direct conclusions on the nature of the association between the exposure and the outcome.

The mean number of dietitian consulting meetings, according to patient report, was similar for participants who lost more weight (classified in the upper two tertiles for % EBWL) and for those who lost less weight (classified in the lower %EBWL tertile) (4.3 vs. 4.1 visits,  $P = 0.6$ ). On the other hand, ICBS records revealed an inverse association, in which patients in  $T_{2-3}$  were recorded as attending an average of 3.3 dietitian visits, and those in  $T_1$  an average of 3.9 dietitian visits during the 1-year follow-up ( $P = 0.03$ ). The difference persisted, although weakened, after adjusting for propensity score, and no association was observed between the total number of dietitian visits, and weight reduction. We suggest that the inverse or null association may be explained by reverse causation, meaning that patients

who have difficulty in adjusting to nutritional guidelines, and therefore lose less weight after surgery, are those who may seek more intensive dietitian counselling. Another explanation may be the relatively short-term follow-up, since most patients lose considerable weight in the first year after bariatric surgery and start regaining weight in the subsequent year [7]. A systematic review with a meta-analysis found that follow-up attendance among gastric bypass patients was associated with greater weight loss at 24 months and beyond, but not within the first 12 months post-surgery [22]. The primary importance of meetings with the dietitian is to provide patients with sustainable tools to achieve and maintain weight reduction, while preventing malnutrition and eliminating behavior-associated side effects like pain, discomfort and vomiting after meals [28, 29]. The 1-year duration of follow-up may be insufficient to fully capture the benefit from dietitian counselling meetings on weight loss and maintenance [29].

Our finding that both greater compliance to dietitian follow-up meetings and participation in physical exercise during the year following SG were associated with lower reporting of pain and discomfort in the EQ5D questionnaire, attest to the importance of patients' adherence to behavioral and nutritional guidelines. We assume that symptoms such as difficulty swallowing or food feeling stuck, dehydration, and occurrence of nausea and vomiting contribute to the pain and discomfort component assessed in the EQ5D.

Reported physical exercise, both before SG and during the following year, were associated with a greater weight loss at 1 year following SG. The greater likelihood of participation in physical exercise, which was evident among patients who were more adherent to dietitian follow-up visits emphasizes the importance of this active surveillance on patients' behavioral changes. The majority of individuals awaiting bariatric surgery are inactive and do not increase their physical exercise level after the operation [30]. ICBS RDs are highly experienced with bariatric patients. They encourage them to be more physically active and to do physical exercise in accordance with their ability and physicians' recommendations. For achievement of long-term postoperative success, efforts should be made to increase the level of physical exercise of all bariatric surgery patients via comprehensive lifestyle interventions, including exercise physiologists and RDs.

Previous studies have shown HRQoL to improve following bariatric surgery [31]. In the current study, patients in the upper two tertiles of %EBWL showed better QoL measures on the mobility parameter ( $P=0.07$ ) and on the VAS ( $P<0.001$ ) than did those in the lowest tertile. No differences were observed according to the level of weight reduction in the other EQ5D dimensions of self-care, anxiety and depression, usual activities, and pain or discomfort. This suggests that the extent of weight loss

may not associate with all aspects of the HRQoL at 1 year after bariatric surgery. A meta-analysis published in 2014 found strong improvement in both mental and physical components of post-bariatric patients, according to the SF-36 HRQoL questionnaire [9]. Another study reported an association between greater success in bariatric surgery and greater improvement in the physical functioning component and general health perception according to the SF-36, but not in the mental component [32]. The EQ5D, which is a generic assessment tool for HRQoL, was chosen over obesity specific instruments, since it is short and easy to fill over the telephone. Moreover, this tool enabled comparing scores of SG patients with those of the general Israeli population [27]. We acknowledge the use of a generic HRQoL instrument instead of an obesity specific one as a limitation of our study.

The baseline characteristics of the current study population were similar to those reported in the international literature for patients who undergo bariatric surgery [7, 33] and in the recently established Israeli bariatric registry [34]: age of ~45 years, female predominance of ~70%, and BMI of ~43 kg/m<sup>2</sup>. These similarities support the generalizability of this study. A shortcoming of the study is the lack of randomization of the exposure variable, i.e., dietitian follow-up meetings; this is addressed in the statistical analysis using propensity scoring. Both sources for the exposure of interest were initially used, i.e., self-report and the ICBS documented number of dietitian follow-up meetings. The self-reported data source was perhaps more informative, but may be subjected to recall bias. The second data source, i.e., ICBS meeting records, may be considered more objective; the dating of all meetings excludes recall bias. However, on the other hand, these data apparently underestimate the true level of exposure, i.e., the total number of dietitian follow-up meetings, including those that occurred outside the ICBS. In the final multivariable logistic regression model, we used the more conservative ICBS variable, as accessed from the computer files.

While the presence of pre-surgical type 2 diabetes was inversely associated with weight loss at 1 year after SG, younger age and lower BMI before surgery were associated with greater weight loss. This is relevant to the interest that has been discussed in lowering the criteria for bariatric surgery, as in a position statement by the International Federation for the Surgery of Obesity and Metabolic Disorders, published in the Obesity Surgery Journal in 2014 [35]. In this context, the role of the RD may have a greater impact on long-term surgical success. This is relevant to all patients regardless of their baseline characteristics, i.e., obtaining and maintaining proper nutritional and physical exercise habits, and maintaining long-term weight loss [12].

## Conclusion

In this study, attendance at more rather than fewer dietitian follow-up visits was associated with increased physical exercise following SG. Participation in physical exercise was the single strongest predictor of greater weight loss the year following SG. Our study reinforces the importance of comprehensive lifestyle interventions, i.e., increasing physical exercise and adherence to nutritional guidelines, and of postoperative surveillance of patients, for the achievement of sustainable weight reduction after bariatric surgery. Finally, we recommend the addition of an obesity-specific HRQoL assessment before and after bariatric surgery, as a measure of success and as an assessment tool for the RD and the physician.

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## Compliance with ethical standards

**Conflict of interest** The authors declare that they have no conflicts of interest.

**Ethical approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee, and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed consent** The study was approved by the institutional review board of the Maccabi Health Services. All participants were given an explanation about the study at the beginning of the telephone interview, and only those who expressed their verbal consent to participate were included in the study. The study was exempted from a signed informed consent.

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