Comparing the Effects of Laparoscopic Sleeve Gastrectomy and Roux-en-Y Gastric Bypass on Dietary Habits: Asian Context

Presented by:
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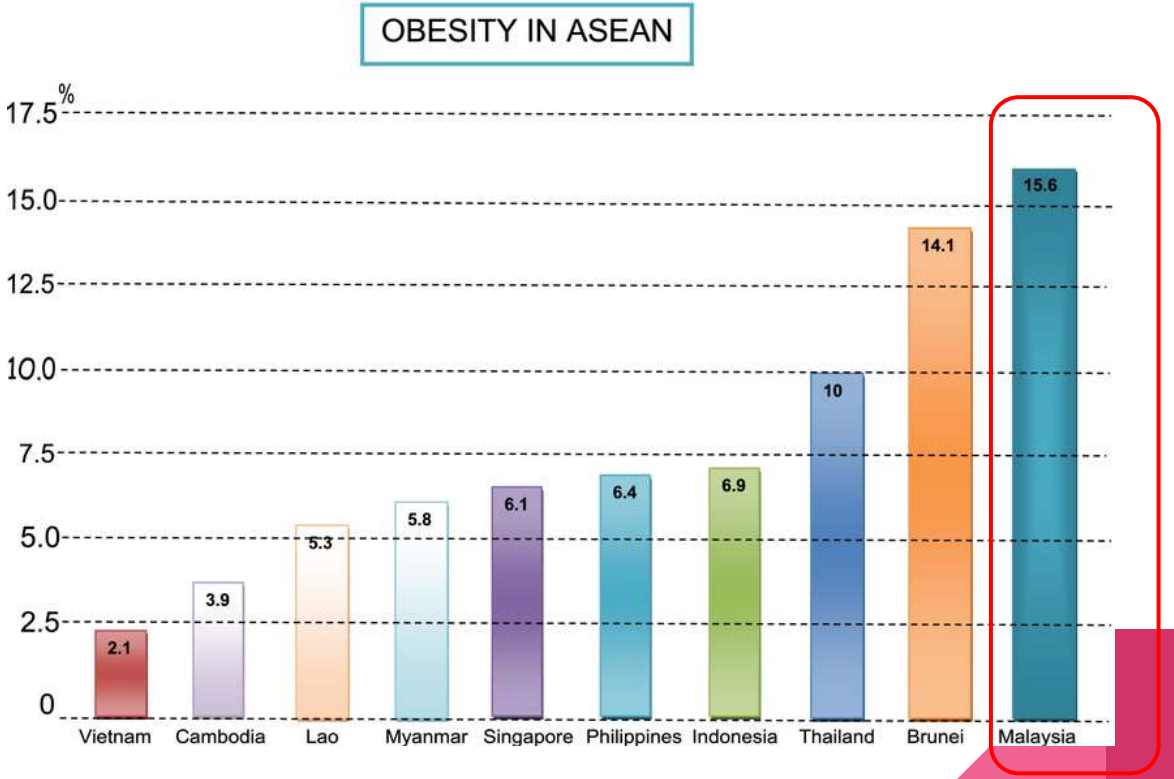
CONFLICT OF INTEREST DISCLOSURE

I declare that I have no conflict of interest to report

ETHICAL APPROVAL

This study has obtained ethical approval from IRB (NMRR/MREC)

Background



1. World Health Organisation. (2021, June 9) Obesity and Overweight

Background

- SG & RYGB most common procedure performed worldwide
- There are changes in dietary habits observed following SG and RYGB [1,2]
- The available studies are scarce. Limited study comparing the dietary habits between types of surgery

1. El Labban, S., Safadi, B. & Olabi, A. The Effect of Roux-en-Y Gastric Bypass and Sleeve Gastrectomy Surgery on Dietary Intake, Food Preferences, and Gastrointestinal Symptoms in Post-Surgical Morbidly Obese Lebanese Subjects: A Cross-Sectional Pilot Study. *OBES SURG* 25, 2393–2399 (2015).
2. Kimura Y, Fujishima Y, Nishizawa H, Saito T, Miyazaki Y, Shirahase K, Tokuzawa C, Nagai N, Fukuda S, Maeda K, Maeda N, Doki Y, Shimomura I. Changes in Eating Behaviors and Their Associations with Weight Loss in Japanese Patients Who Underwent Laparoscopic Sleeve Gastrectomy. Nutrients. 2023 Jan 10

Research Questions

How does dietary habits change following SG and RYGB and what is their excess weight loss?

Primary Objectives

1. *To compare the changes in dietary habits between SG and RYGB, pre and postoperative 6- and 12- months respectively*

2. *To compare the difference in dietary habits between patient who undergo the SG and undergo the RYGB*

Secondary Outcome

To compare the excess weight loss between SG and RYGB groups at 6 & 12 months post operatively

METHODOLOGY

STUDY DESIGN

- Prospective cohort study

SUBJECT RECRUITMENT

- N = 50 (25 SG & 25 RYGB)
- Surgery performed by a single surgeon
- January 2022 - December 2022

INCLUSION & EXCLUSION CRITERIA

Inclusion Criteria

i. Patients aged between 18 and 65 years

ii. Patients who underwent LSG and RYGB

iii. Patients who were >27.5kg/m2 at baseline

Exclusion Criteria

i. Patients aged below 18 years or above 65 years

ii. Patients who underwent revisional bariatric surgery

iii. Patients with incomplete or missing medical records

DIETARY HABITS

1. **Food Frequency Questionnaire (FFQ)**
    - 28 questions **Food Frequency (FF) &** 14 questions **Food Habits (FH)**
    - The total score of each section was divided into 3 tertiles
        - Food Frequency :
            - <38 (1st tertile = inadequate)
            - 39-76 (2nd tertile = moderate)
            - >77 (3rd tertile = satisfactory)
        - Food Habits:
            - <18 (1st tertile = inadequate))
            - 19-38 (2nd tertile = moderate)
            - >39 (3rd tertile = satisfactory)
2. **24-hour diet recall**

RESULTS

DEMOGRAPHIC & ANTHROPOMETRIC DATA

DIETARY HABITS

Results - DEMOGRAPHIC DATA

Variables	All patient (N=50)	LSG (n= 25)	RYGB (n=25)	*p -value*
Age (years) *a*	41∓9	39∓7	40∓11	0.58
Gender *b*				
Male	8 (16)	5 (20)	3 (12)	
Female	42 (84)	20 (80)	22 (88)	
Baseline Weight (kg) *a*	108.1∓23.31	107.1∓28.94	109.0∓16.4	0.78
Height (m) *a*	1.65∓0.06	1.63∓0.07	1.66∓0.04	0.052
BMI (kg/m2) *a*	40∓8.67	40.4∓9.87	39.7∓7.45	0.78

a Data are expressed in mean∓standard deviations; frequency; *b* data are expressed in frequency and percentage; BMI: Body Mass Index; *p-value* is for comparison between LSG and RYGB where $p<0.05$ is significant.

- **84%** Female, **16%** Male
- Mean age: **41 years old**
- Baseline weight: **108kg**
- BMI: **40 kg/m2**

Results - DIETARY HABITS

- No significant difference observed in dietary habits between both groups

a - LSG
b - RYGB

		1st tertile Inadequate dietary habits	2nd tertile Moderate dietary habits	3rd tertile Satisfactory dietary habits	*p-value*
		n (%)	n (%)	n (%)	
FF Food Frequency	Baseline	2 (8)a 2 (8)b	23 (92)a 23 (92)b	0 0	0.22
	At 6-month	1(4)a 0	16 (64)a 18 (72)b	8 (32)a 7 (28)b	0.11
	At 12-month	0 0	10 (40)a 8 (32)b	15 (60)a 17 (68)b	0.73
FH Food Habits	Baseline	2 (8)a 3 (12)b	21 (84)a 17 (68)b	2 (8)a 5 (20)b	0.23
	At 6-month	1(4)a 0	2 (8)a 0	22 (88)a 25 (100)b	0.10
	At 12-month	1(4)a 0	10 (40)a 8 (32)b	14 (56)a 17 (68)b	0.47

Results - DIETARY HABITS

- There is an **improvement** in dietary habits between both groups after bariatric surgery

a - LSG
b - RYGB

		1st tertile Inadequate dietary habits	2nd tertile Moderate dietary habits	3rd tertile Satisfactory dietary habits	*p-value*
		n (%)	n (%)	n (%)	
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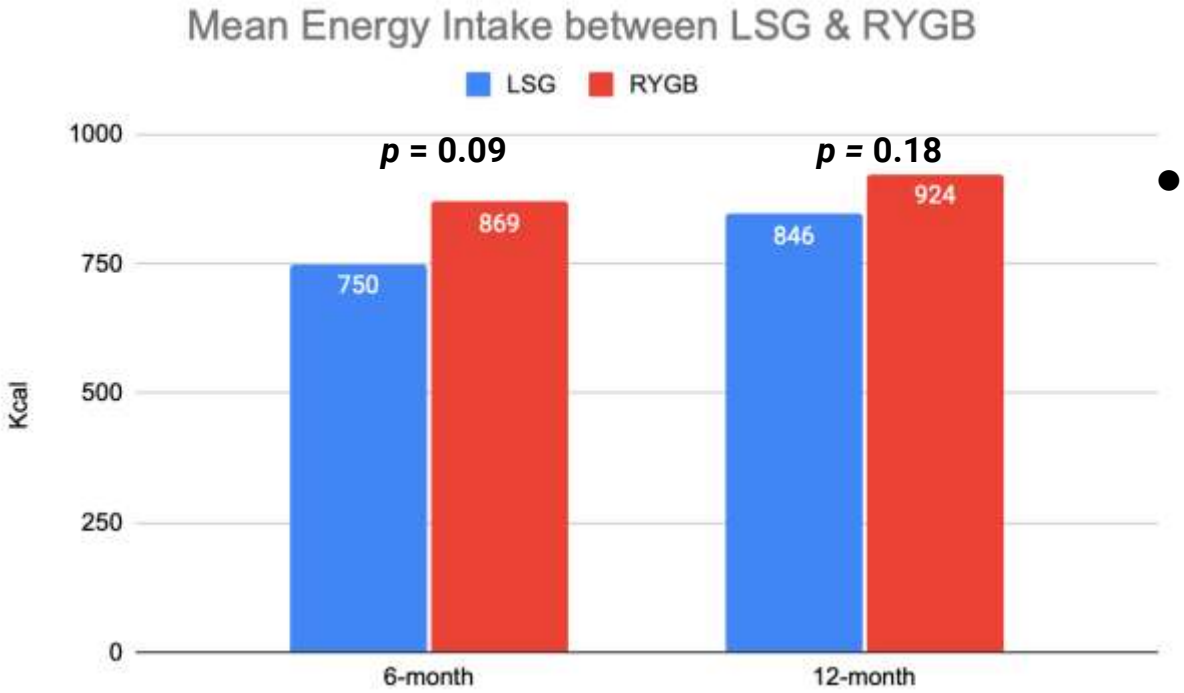
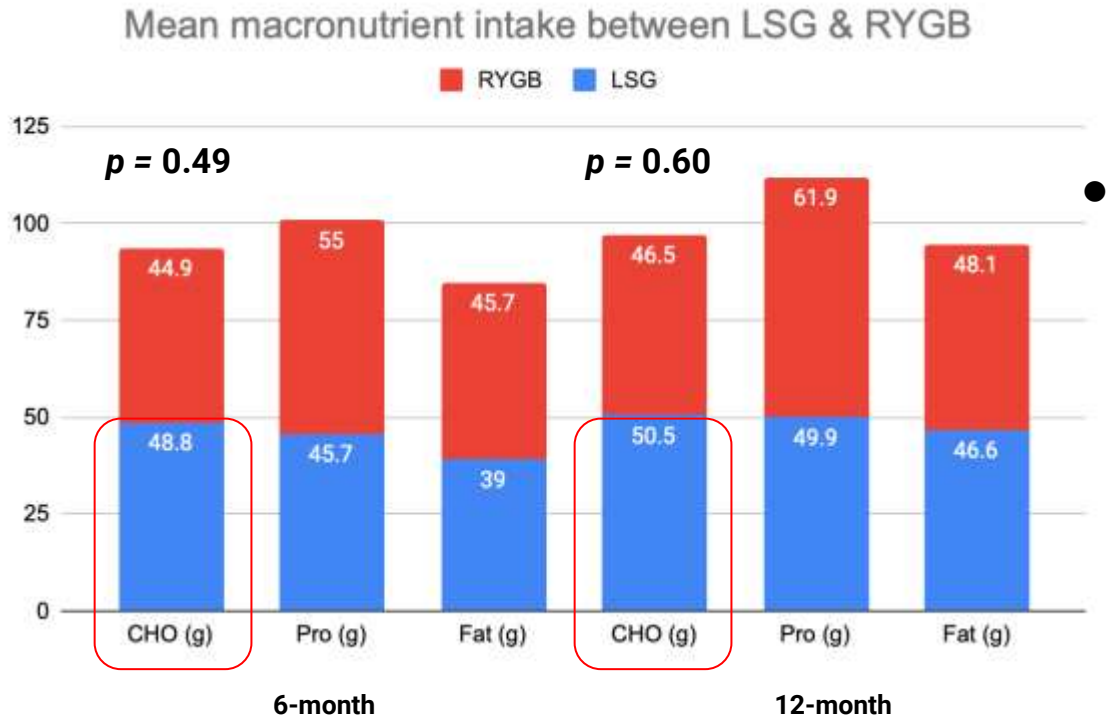
Results - ENERGY INTAKE



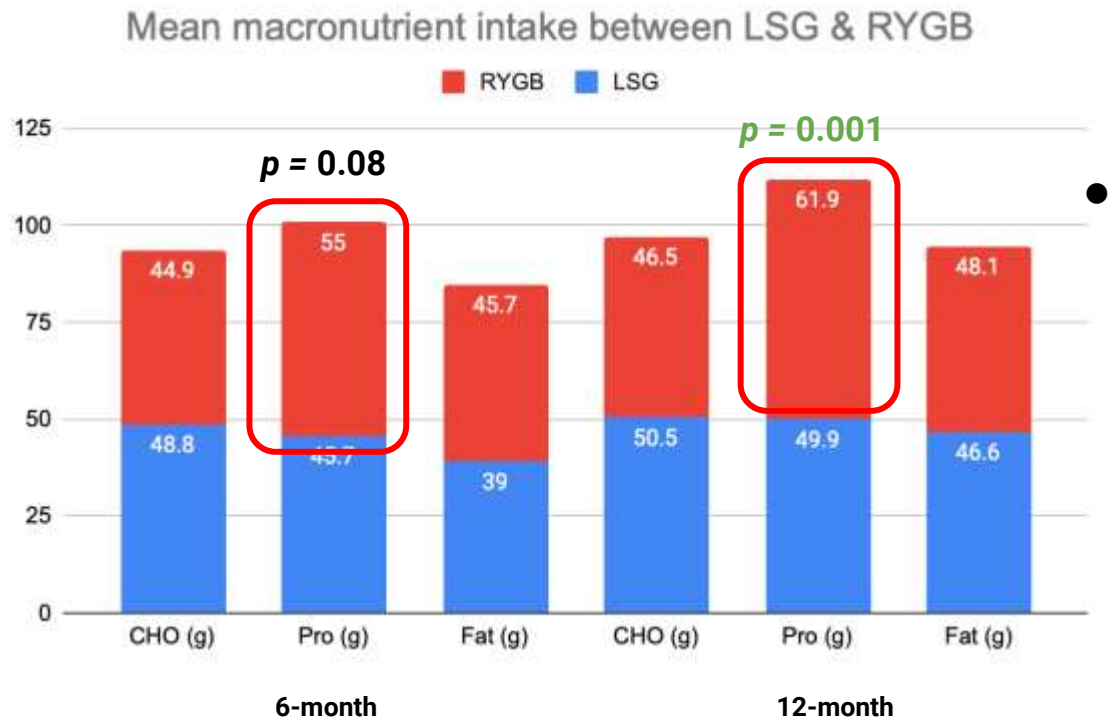
- **No significant** difference between the mean energy intake

Results - Carbohydrates intake



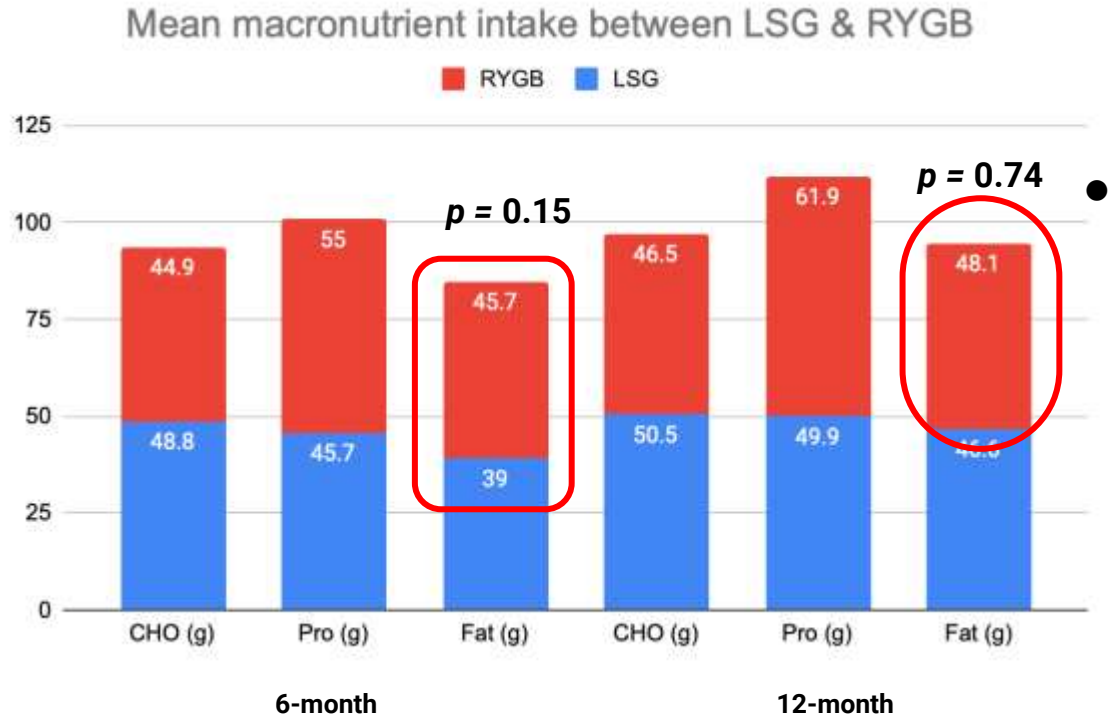
- **No significant** difference in carbohydrate intake between SG and RYGB at both time point

Results - Protein intake



- **There is a significant** difference in protein intake between SG and RYGB at both time point

Results - Fat intake



- **No significant** difference in fat intake between SG and RYGB at both time point

Results - EXCESS WEIGHT LOSS

Table 2: Distribution of percentage of excess weight loss (%EWL), percentage of total body weight loss (%TWL) between LSG and RYGB groups (N=50)

	All patient (N=50)	LSG (n=25)	RYGB (n=25)	*p-value*
EWL% *a*				
6-month	60.4 ∓ 17.68	57.5 ∓ 18.18	63.3 ∓ 17.02	0.248
12-month	85.0 ∓ 17.17	80.7 ∓ 21.01	89.2 ∓ 11.09	0.079
TWL% *a*				
6-month	20.1 ∓ 7.17	18.6 ∓ 6.84	21.4 ∓ 7.35	0.170
12-month	27.9 ∓ 8.17	25.5 ∓ 7.47	30.3 ∓ 8.27	0.035*

a Data are expressed in mean∓standard deviations; LSG: laparoscopic sleeve gastrectomy; RYGB: Roux-en-Y gastric bypass; EWL%: percentage of excess weight loss; %TWL: percentage of total body weight loss; *p-value* is for comparison between LSG and RYGB where $p<0.05$ is significant.

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EXCESS WEIGHT LOSS PERCENTAGE

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DISCUSSION

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Primary outcomes - Dietary Habits

- There is an improvement in dietary habits after bariatric surgery at 6- and 12-months compared to baseline status

- There is a significantly higher protein intake in RYGB group at 6- and 12-months compared to SG group

Discussion

Primary outcomes - Dietary Habits

- There is an improvement in dietary habits after bariatric surgery at 6- and 12-months compared to baseline status
- There is a significantly higher protein intake in RYGB group at 6- and 12-months compared to SG group

Secondary outcomes - Excess weight loss

- In line with 6 studies where EWL following SG and RGYB ranged from 60.0% to 77% and 70% to 76.5%, respectively
- The success of EWL has achieved even at 6- and 12 months in all patients

Strength

- Conducted by trained professional

Limitation & recommendations

- Limited sample size
- Short term : Only at 12 months

CONCLUSION

A substantial change in dietary habits is showed between SG and RYGB at pre and post operatively and EWL success has been achieved even at 6 months after bariatric surgery

Thank You