

Evidence Based Medicine

精神醫學部 實證醫學
2018,11,19



我們的團隊

R：謝懷德 醫師

R：何予甯 醫師

NP：楊堯郡 專科護理師



實證是守護病患健康最好的工具



臨床場景 Clinical Scenario

阿國，男性，45歲，身高165公分，體重100公斤，**BMI：36.73**，近期診斷出高血壓、糖尿病、膽固醇過高情形。醫師建議他可以先從飲食控制及運動著手，他想知道，吃魚油及吃蛋，對於心血管疾病的效益。

經過半年**飲食控制**，阿國的抽血及體重皆無改善，他想知道自己適不適合**減重手術**，以及手術對於三高的控制是不是也有幫助。

希望醫師給他一點建議，以供判斷。



背景資訊 Background knowledge

APPROACH TO MANAGEMENT

[Circulation](#). 2017 Apr 11;135(15):e867-e884. doi: 10.1161/CIR.0000000000000482. Epub 2017 Mar 13.

Omega-3 Polyunsaturated Fatty Acid (Fish Oil) Supplementation and the Prevention of Clinical Cardiovascular Disease: A Science Advisory From the American Heart Association.

[Siscovick DS](#), [Barringer TA](#), [Fretts AM](#), [Wu JH](#), [Lichtenstein AH](#), [Costello RB](#), [Kris-Etherton PM](#), [Jacobson TA](#), [Engler MB](#), [Alger HM](#), [Appel LJ](#), [Mozaffarian D](#); [American Heart Association Nutrition Committee of the Council on Lifestyle and Cardiometabolic Health](#); [Council on Epidemiology and Prevention](#); [Council on Cardiovascular Disease in the Young](#); [Council on Cardiovascular and Stroke Nursing](#); and [Council on Clinical Cardiology](#).

Abstract

Multiple randomized controlled trials (RCTs) have assessed the effects of supplementation with eicosapentaenoic acid plus docosahexaenoic acid (omega-3 polyunsaturated fatty acids, commonly called fish oils) on the occurrence of clinical cardiovascular diseases. Although the effects of supplementation for the primary prevention of clinical cardiovascular events in the general population have not been examined, RCTs have assessed the role of supplementation in secondary prevention among patients with diabetes mellitus and prediabetes, patients at high risk of cardiovascular disease, and those with prevalent coronary heart disease. In this scientific advisory, we take a clinical approach and focus on common indications for omega-3 polyunsaturated fatty acid supplements related to the prevention of clinical cardiovascular events. We limited the scope of our review to large RCTs of supplementation with major clinical cardiovascular disease end points; meta-analyses were considered secondarily. We discuss the features of available RCTs and provide the rationale for our recommendations. We then use existing American Heart Association criteria to assess the strength of the recommendation and the level of evidence. On the basis of our review of the cumulative evidence from RCTs designed to assess the effect of omega-3 polyunsaturated fatty acid supplementation on clinical cardiovascular events, we update prior recommendations for patients with prevalent coronary heart disease, and we offer recommendations, when data are available, for patients with other clinical indications, including patients with diabetes mellitus and prediabetes and those with high risk of cardiovascular disease, stroke, heart failure, and atrial fibrillation.

KEYWORDS: AHA Scientific Statements; cardiovascular disease; fatty acids, omega-3; fish oils; prevention and control; randomized controlled trials

背景資訊 Background knowledge

APPROACH TO MANAGEMENT

- Protein — Protein should **make up 10 to 35 percent of total caloric intake**, as recommended by the United States Dietary Guidelines. Individuals should be counseled to eat a variety of healthy protein-rich foods, including fish, lean meat, poultry, **eggs**, beans, peas, soy products, and unsalted nuts and seeds.
- Protein-rich foods — Individuals should be advised to take 5.5 ounces of protein-rich foods daily **(approximately two to three servings) for a 2000-calorie diet**, as recommended by the United States Dietary Guidelines (table 7).

背景資訊 Background knowledge

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USDA recommended daily or weekly caloric intake of different food groups (USDA recommended average daily food intake)

Calorie level of pattern*	1000	1200	1400	1600	1800	2000
Food group [¶]	Daily amount ^Δ of food from each group (vegetable and protein foods subgroup amounts are per week)					
Vegetables	1 c-eq	1½ c-eq	1½ c-eq	2 c-eq	2½ c-eq	2½ c-eq
Dark-green vegetables (c-eq/week)	½	1	1	1½	1½	1½
Red and orange vegetables (c-eq/week)	2½	3	3	4	5½	5½
Legumes (beans and peas) (c-eq/week)	½	½	½	1	1½	1½
Starchy vegetables (c-eq/week)	2	3½	3½	4	5	5
Other vegetables (c-eq/week)	1½	2½	2½	3½	4	4
Fruits	1 c-eq	1 c-eq	1½ c-eq	1½ c-eq	1½ c-eq	2 c-eq
Grains	3 oz-eq	4 oz-eq	5 oz-eq	5 oz-eq	6 oz-eq	6 oz-eq
Whole grains [◇] (oz-eq/day)	1½	2	2½	3	3	3
Refined grains (oz-eq/day)	1½	2	2½	2	3	3
Dairy	2 c-eq	2½ c-eq	2½ c-eq	3 c-eq	3 c-eq	3 c-eq
Protein foods	2 oz-eq	3 oz-eq	4 oz-eq	5 oz-eq	5 oz-eq	5½ oz-eq
Seafood (oz-eq/week)	3	4	6	8	8	8
Meats, poultry, eggs (oz-eq/week)	10	14	19	23	23	26
Nuts seeds, soy products (oz-eq/week)	2	2	3	4	4	5
Oils	15 g	17 g	17 g	22 g	24 g	27 g
Limit on calories for other uses, calories (% of calories) ^{§‡}	150 (15%)	100 (8%)	110 (8%)	130 (8%)	170 (9%)	270 (14%)

背景資訊 Background knowledge

INDICATIONS of Bariatric operations—

Candidates for a bariatric surgical procedure include [19]:

- Adults with a **BMI ≥ 40 kg/m² without comorbid illness** [20-30].
- Adults with a **BMI 35.0 to 39.9 kg/m² with at least one serious comorbidity**, including but not limited to [31-48]:
 - Type 2 diabetes [49,50].
 - Obstructive sleep apnea (OSA).
 - Hypertension.
 - Hyperlipidemia.
 - Obesity-hypoventilation syndrome (OHS).
 - Pickwickian syndrome (combination of OSA and OHS).
 - Nonalcoholic fatty liver disease (NAFLD).
 - Nonalcoholic steatohepatitis (NASH).
 - Pseudotumor cerebri.
 - Gastroesophageal reflux disease.
 - Asthma.
 - Venous stasis disease.
 - Severe urinary incontinence.
 - Debilitating arthritis.
 - Impaired quality of life.
 - Disqualification from other surgeries as a result of obesity (ie, surgeries for osteoarthritic disease, ventral hernias, or stress incontinence).

The patient阿國

Height:165cm/Weight:100kg/BMI : 36.73

背景資訊 Background knowledge

Medical outcomes following bariatric surgery

- Diabetes mellitus — In addition to achieving weight loss, bariatric procedures result in marked **improvement or resolution of many obesity-related health problems, such as type II diabetes.**
- Bariatric surgical procedures, particularly RYGB, plus medical therapy, are effective interventions for treating type 2 diabetes. Improvement in metabolic control is often evident within days to weeks following RYGB, **most likely reflecting an alteration in metabolism that is independent of weight loss.**

背景資訊 Background knowledge

Medical outcomes following bariatric surgery

- Hypertension — Weight loss, whether by an intensive lifestyle-medical modification program or a bariatric operation, improves obesity-linked hypertension or contributes to remission. A randomized trial that included 120 obese patients (BMI 30.0 to 39.9) found that patients undergoing an RYGB (n = 60) plus intensive lifestyle medical management were able to achieve a similar reduction in systolic blood pressure at 12 months compared with patients managed with lifestyle medical modification alone (84 versus 79 percent).
- While intensive lifestyle modification resulting in weight loss appears beneficial for resolution of hypertension, this is unfortunately not feasible for all patients.

背景資訊 Background knowledge

Medical outcomes following bariatric surgery

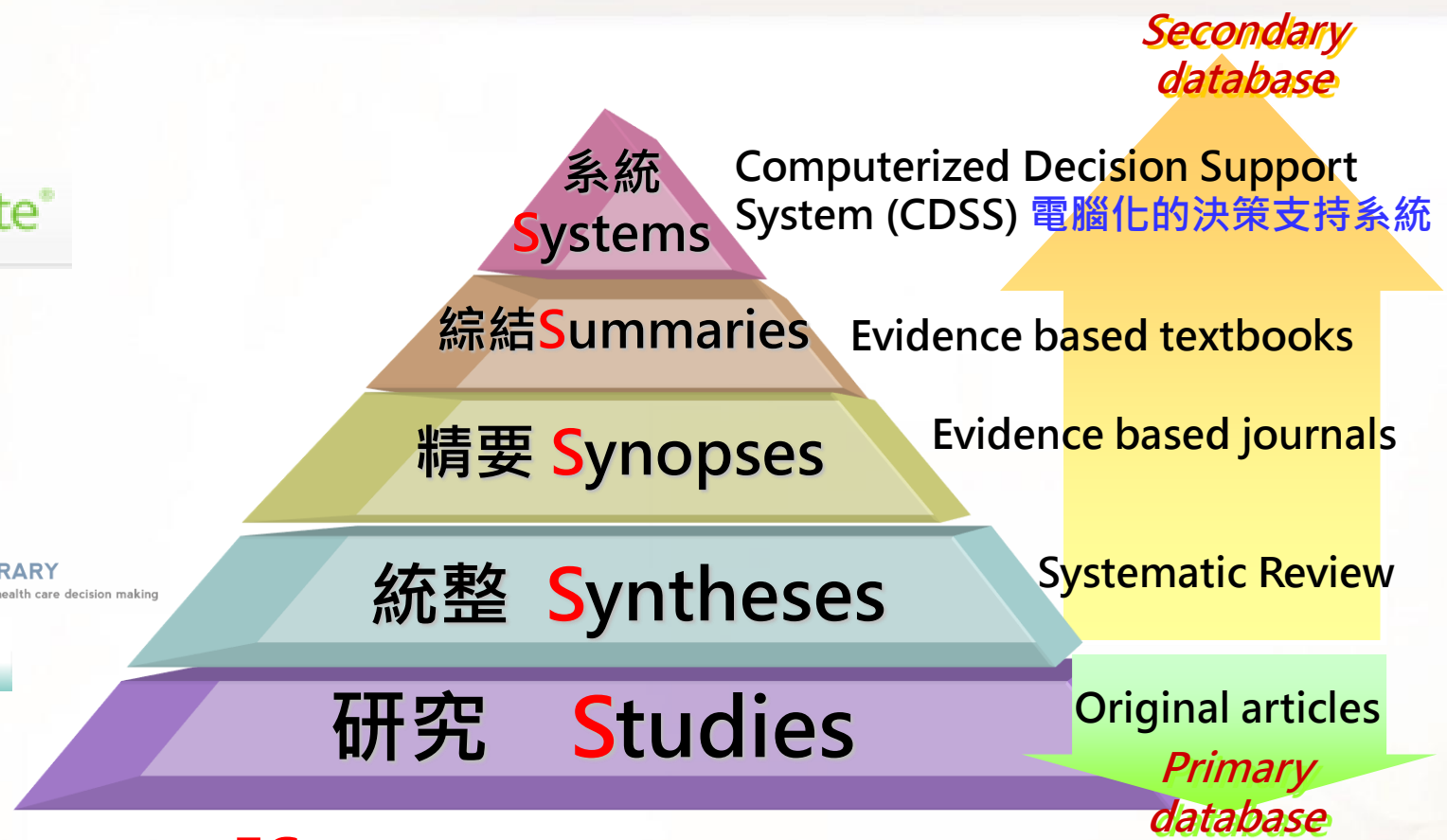
- Dyslipidemia — **Clinical studies have demonstrated improved lipid profiles following bariatric procedures.** Perhaps the most extensively studied procedure is the RYGB. In a retrospective study that included 95 patients one year following RYGB, the mean total cholesterol levels decreased by 16 percent, triglyceride levels decreased by 63 percent, low-density lipoprotein cholesterol levels decreased by 31 percent, very-low-density lipoprotein cholesterol decreased by 74 percent, total cholesterol/high-density lipoprotein cholesterol risk ratio decreased by 60 percent, and high-density lipoprotein cholesterol levels increased by 39 percent.



檢索策略

先以“ P & I” 搜尋，再依結果調整納入關鍵字和同義字

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The "5S" levels of organisation of evidence from healthcare research

Brian Haynes, R Evid Based Med 2006;11:162-164

臨床問題 Asking 提出可以回答的臨床問題



Key Word

**Synonym 1
(MeSH term)**



**Synonym 2
(MeSH term)**

	Key Word	Synonym 1 (MeSH term)	Synonym 2 (MeSH term)
P	A 25 y/o male with traumatic liver injury	Obesity Diabetes Mellitus	Obesity Diabetes Mellitus
I	Surgical intervention Bariatric Surgery	Bariatric Surgery	Bariatric Surgery
C	Lifestyle modification & No surgery	Lifestyle	Non-operative
O	Outcome	Outcome	Outcome



這是一個 治療型 診斷型 預後型 傷害型問題

搜尋結果(Synonym 1)

資料庫	搜尋篇數	符合PICO篇數
 The Cochrane Library Evidence for healthcare decision-making	11	2
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"obesity"
 "bariatric surgery"
 "life style"
 "diabetes mellitus"

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Cochrane Central Register of Controlled Trials

Issue 11 of 12, November 2018

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Three-Year Outcomes of Bariatric Surgery vs Lifestyle Intervention for Type 2 Diabetes Mellitus Treatment: a Randomized Clinical Trial
 AP Courcoulas, SH Belle, RH Neiberg, SK Pierson, JK Eagleton, MA Kalarchian, JP DeLany, W Lang, JM Jakicic
 JAMA surgery, **2015**, 150(10), 931-940 | added to CENTRAL: 31 January 2016 | 2016 Issue 1

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9 **Effects of diet and physical activity interventions on weight loss and cardiometabolic risk factors in severely obese adults: a randomized trial**

BH Goodpaster, JP Delany, AD Otto, L Kuller, J Vockley, JE South-Paul, SB Thomas, J Brown, K McTigue, KC Hames, W Lang, JM Jakicic

JAMA, **2010**, 304(16), 1795-1802 | added to CENTRAL: 31 January 2011 | 2011 Issue 1

[PubMed](#)

10 **Roux-en-Y gastric bypass surgery or lifestyle with intensive medical management in patients with type 2 diabetes: feasibility and 1-year results of a randomized clinical trial**

F Halperin, SA Ding, DC Simonson, J Panosian, A Goebel-Fabbri, M Wewalka, O Hamdy, M Abrahamson, K Clancy, K Foster, D Lautz, A Vernon, AB Goldfine

JAMA surgery, **2014**, 149(7), 716-726 | added to CENTRAL: 30 September 2014 | 2014 Issue 9

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11 **Osa in bariatric population; current evidence among asians**

N Chirakalwasan

Respirology. Conference: 21st congress of the asian pacific society of respirology, APSR 2016. Thailand.

Conference start: 20161112. Conference end: 20161115, **2016**, 21, 12 | added to CENTRAL: 31 January 2017 | 2017 Issue 1

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- #2 #1 AND (2014.py OR 2015.py OR 2016.py OR 2017.py OR 2018.py) AND [male]/lim AND [adult]/lim 29
- #1 ('diabetes mellitus'/exp OR 'obesity'/exp) AND ('bariatric surgery'/exp OR 'bariatric operation' OR 'bariatric operations' OR 'bariatric procedure' OR 'bariatric procedures' OR 'bariatric surgery' OR 'bariatric surgical procedure' OR 'bariatric surgical procedures' OR 'obesity surgery' OR 'surgery, bariatric') AND ('lifestyle'/exp OR 'life style' OR 'lifestyle') AND ('randomized controlled trial'/exp OR 'meta analysis'/exp) 145

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6. Contributory Risk and Management of Comorbidities of Hypertension, Obesity, Diabetes Mellitus, Hyperlipidemia, and Metabolic Syndrome in Chronic Heart Failure: A Scientific Statement From the American Heart Association

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8. The first step to combat the nation's obesity epidemic

KevinMD blog 2015

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9. Three-Year Outcomes of Bariatric Surgery vs Lifestyle Intervention for Type 2 Diabetes Mellitus Treatment: A Randomized Clinical Trial.

JAMA surgery 2015

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40 results for **(Obesity Diabetes Mellitus)(Bariatric Surgery)(Life Style)** by date ▾

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eMedicine Emergency Medicine 2014

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23. Diabetes Mellitus, Type 2 (Diagnosis)

eMedicine.com 2014

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24. Surgical vs Medical Treatments for Type 2 Diabetes Mellitus: A Randomized Clinical Trial.

JAMA surgery 2014 Full Text: Link to full Text with Trip Pro

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25. Roux-en-Y Gastric Bypass Surgery or Lifestyle With Intensive Medical Management in Patients With Type 2 Diabetes: Feasibility and 1-Year Results of a Randomized Clinical Trial.

JAMA surgery 2014 Full Text: Link to full Text with Trip Pro

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[Clinical and Patient-Centered Outcomes in Obese Patients With Type 2 Diabetes 3 Years After Randomization to Roux-en-Y Gastric Bypass Surgery Versus Intensive Lifestyle Management: The SLIMM-T2D Study.](#)

Simonson DC, Halperin F, Foster K, Vernon A, Goldfine AB. Diabetes Care. 2018 Apr;41(4):670-679. doi: 10.2337/dc17-0487. Epub 2018 Feb 6.

PMID: 29432125

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[Obesity and Type 2 Diabetes: Two Diseases with a Need for Combined Treatment Strategies - EASO Can Lead the Way.](#)

Leitner DR, Frühbeck G, Yumuk V, Schindler K, Micic D, Woodward E, Toplak H. Obes Facts. 2017;10(5):483-492. doi: 10.1159/000480525. Epub 2017 Oct 12. Review.

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[The case for stepped care for weight management after bariatric surgery.](#)

3. Kalarchian MA, Marcus MD. Surg Obes Relat Dis. 2018 Jan;14(1):112-116. doi: 10.1016/j.soard.2017.07.023. Epub 2017 Jul 20. Review.

PMID: 28958400

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[Relevance of weight in the management of patients with type 2 diabetes mellitus: towards an adipocentric approach to diabetes.](#)

Gorgojo Martínez JJ. Med Clin (Barc). 2016 Nov;147 Suppl 1:8-16. doi: 10.1016/S0025-7753(17)30619-X. English, Spanish.

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- [Critical review of bariatric surgery, medically supervised diets, and behavioural interventions for weight management in adults.](#)

Beaulac J, Sandre D.

Perspect Public Health. 2017 May;137(3):162-172. doi: 10.1177/1757913916653425. Epub 2016 Jun 27. Review.

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- [Durability of Addition of Roux-en-Y Gastric Bypass to Lifestyle Intervention and Medical Management in Achieving Primary Treatment Goals for Uncontrolled Type 2 Diabetes in Mild to Moderate Obesity: A Randomized Control Trial.](#)

Ikramuddin S, Korner J, Lee WJ, Bantle JP, Thomas AJ, Connett JE, Leslie DB, Inabnet WB 3rd, Wang Q, Jeffery RW, Chong K, Chuang LM, Jensen MD, Vella A, Ahmed L, Belani K, Olofson AE, Bainbridge HA, Billington CJ.

Diabetes Care. 2016 Sep;39(9):1510-8. doi: 10.2337/dc15-2481. Epub 2016 Jun 16.

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- [Improvements in glycemic control after gastric bypass occur despite persistent adipose tissue inflammation.](#)

Kratz M, Hagman DK, Kuzma JN, Foster-Schubert KE, Chan CP, Stewart S, van Yserloo B, Westbrook EO, Arterburn DE, Flum DR, Cummings DE.

Obesity (Silver Spring). 2016 Jul;24(7):1438-45. doi: 10.1002/oby.21524. Epub 2016 May 26.

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- [Three-Year Outcomes of **Bariatric Surgery** vs Lifestyle Intervention for Type 2 Diabetes Mellitus](#)
15. [Treatment: A Randomized Clinical Trial.](#)
Courcoulas AP, Belle SH, Neiberg RH, Pierson SK, Eagleton JK, Kalarchian MA, DeLany JP, Lang W, Jakicic JM.
JAMA Surg. 2015 Oct;150(10):931-40. doi: 10.1001/jamasurg.2015.1534.
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- [Obesity and diabetes in an aging population: time to rethink definitions and management?](#)
16. Rothberg AE, Halter JB.
Clin Geriatr Med. 2015 Feb;31(1):1-15, vii. doi: 10.1016/j.cger.2014.08.016. Epub 2014 Oct 16. Review.
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- [Clinical trial demonstrates exercise following **bariatric surgery** improves insulin sensitivity.](#)
17. Coen PM, Tanner CJ, Helbling NL, Dubis GS, Hames KC, Xie H, Eid GM, Stefanovic-Racic M, Toledo FG, Jakicic JM, Houmard JA, Goodpaster BH.
J Clin Invest. 2015 Jan;125(1):248-57. doi: 10.1172/JCI78016. Epub 2014 Dec 1.
PMID: 25437877 **Free PMC Article**
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- [Obesity and type 1 diabetes mellitus management.](#)
18. Chillarón JJ, Benaiges D, Mañé L, Pedro-Botet J, Flores Le-Roux JA.
Minerva Endocrinol. 2015 Mar;40(1):53-60. Epub 2014 Nov 21. Review.
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嚴格評讀 critical appraisal

Clinical and Patient-Centered Outcomes in Obese Patients With Type 2 Diabetes 3 Years After Randomization to Roux-en-Y Gastric Bypass Surgery Versus Intensive Lifestyle Management: The SLIMM-T2D Study

Donald C. Simonson¹†, Florencia Halperin¹, Kathleen Foster², Ashley Vernon³ and Allison B. Goldfine²

Author Affiliations

Corresponding author: Donald C. Simonson, dsimonso@hsph.harvard.edu.

Diabetes Care 2018 Apr; 41(4): 670-679.

<https://doi.org/10.2337/dc17-0487>



這篇文獻「納入理由」

- ✓ 最符合臨床問題
- 最佳的研究設計

April 2018 ,
Randomised controlled trial , RCT

- ✓ 發表年份較新
- ✓ 有全文可供評讀

評讀工具 Critical Appraisal tools

Medical outcomes following bariatric surgery

- 使用 **CASP Systematic Review Checklist** (目前最新 31.05.13版, 共10題)
- 並以**VIP**進行評讀
 - **Validity** 效度
研究方法評析以判斷結果之可信與否
 - **Importance** 重要性
結果差異的重要性及對臨床的意義
 - **Practicability** 實用性
可否用來照顧我的病人

1. Did the review address a clearly focused question?

This paper: Yes No Unclear

- Yes，依據標題及摘要，問了一個清楚、明確的臨床問題，並符合PICO、最新發表年份

Abstract

OBJECTIVE To compare the effect of Roux-en-Y gastric bypass (RYGB) surgery versus intensive medical diabetes and weight management (IMWM) on clinical and patient-reported outcomes in obese patients with type 2 diabetes.

RESEARCH DESIGN AND METHODS We prospectively randomized 38 obese patients with type 2 diabetes (15 male and 23 female, with mean \pm SD weight 104 ± 16 kg, BMI 36.3 ± 3.4 kg/m², age 52 ± 6 years, and HbA_{1c} $8.5 \pm 1.3\%$ [69 ± 14 mmol/mol]) to laparoscopic RYGB ($n = 19$) or IMWM ($n = 19$). Changes in weight, HbA_{1c}, cardiovascular risk factors (UKPDS risk engine), and self-reported health status (the 36-Item Short-Form [SF-36] survey, Impact of Weight on Quality of Life [IWQOL] instrument, and Problem Areas in Diabetes Survey [PAID]) were assessed.

Validity

2. Did the authors look for the right type of papers?

This paper: Yes No Unclear

- Yes，搜尋文獻皆與PICO一致，有隨機分派，並且有在 Results of Participants 清楚說明納入及排除條件

Abstract

OBJECTIVE To compare the effect of Roux-en-Y gastric bypass (RYGB) surgery versus intensive medical diabetes and weight management (IMWM) on clinical and patient-reported outcomes in obese patients with type 2 diabetes.

RESEARCH DESIGN AND METHODS We prospectively randomized 38 obese patients with type 2 diabetes (15 male and 23 female, with mean \pm SD weight 104 ± 16 kg, BMI 36.3 ± 3.4 kg/m², age 52 ± 6 years, and HbA_{1c} $8.5 \pm 1.3\%$ [69 ± 14 mmol/mol]) to laparoscopic RYGB ($n = 19$) or IMWM ($n = 19$). Changes in weight, HbA_{1c}, cardiovascular risk factors (UKPDS risk engine), and self-reported health status (the 36-Item Short-Form [SF-36] survey, Impact of Weight on Quality of Life [IWQOL] instrument, and Problem Areas in Diabetes Survey [PAID]) were assessed.

Validity

3. Were all of the patients who entered the trial properly accounted for at its conclusion?

This paper: Yes No Unclear

- Yes，使用 Intention-To-Treat (ITT) analysis 分析方式

Statistical Analyses

The primary outcome was achievement of glycemic goal, defined as fasting plasma glucose levels <126 mg/dL and $\text{HbA}_{1c} <6.5\%$ (48 mmol/mol) at 1 year of follow-up, regardless of whether patients were using pharmacological interventions. Longer time interval observational follow-up was conducted to assess durability of effects and emergent differences. The primary analysis was **intention to treat** and involved all randomly assigned patients who received at least one postrandomization assessment. Follow-up was prespecified to be censored at the time of bariatric surgery for those who were randomized to medical intervention but subsequently underwent surgery. Sample size was estimated assuming that RYGB would result in resolution of hyperglycemia in 80% of the patients and medical management in 20%. Twenty participants per group provided 97% power to detect a significant difference between groups with $\alpha = 0.05$. Baseline results are presented as mean \pm SD and outcome data as mean (95% CI) or median (interquartile range).

4. Were patients, health workers and study personnel 'blind' to treatment?

This paper: Yes No Unclear

- No，此研究介入為手術，無法做到double-blind或triple-blind

5. Were the groups similar at the start of the trial?

This paper: Yes No Unclear

- Yes，此研究兩組病患的基本特質是相似的

Table 1—Continued

	Baseline*		1 year		2 years		3 years		P
	RYGB	IMWM	RYGB	IMWM	RYGB	IMWM	RYGB	IMWM	
10-year UKPDS risk scores									
CHD, %	9.8 ± 9.6	10.8 ± 6.9	-4.1 (-5.7, -2.5)	0.5 (-1.1, 2.0)	-2.6 (-4.3, -0.8)	-0.7 (-2.6, 1.2)	-2.5 (-4.3, -0.7)	0.1 (-2.0, 2.1)	0.009 ^e
Fatal CHD, %	6.5 ± 7.7	6.9 ± 4.9	-3.0 (-4.3, -1.7)	0.4 (-0.9, 1.8)	-1.8 (-3.3, -0.3)	0.1 (-1.5, 1.7)	-1.5 (-3.2, 0.2)	1.1 (-0.8, 2.9)	0.012
Stroke, %	4.0 ± 4.1	4.0 ± 2.3	-0.2 (-0.6, 0.2)	0.6 (0.2, 1.0)	0.6 (0.1, 1.1)	1.2 (0.6, 1.8)	1.4 (0.8, 2.0)	2.2 (1.5, 2.9)	0.024
Fatal stroke, %	0.6 ± 0.6	0.5 ± 0.3	-0.1 (-0.2, 0.0)	0.1 (0.0, 0.2)	0.0 (-0.2, 0.1)	0.2 (0.0, 0.4)	0.2 (0.0, 0.3)	0.5 (0.3, 0.7)	0.004
Laboratory measurements									
HbA _{1c} , %	8.24 ± 1.42	8.78 ± 1.02	-1.97 (-2.52, -1.41)	-0.09 (-0.66, 0.47)	-1.91 (-2.49, -1.33)	-0.32 (-0.99, 0.35)	-1.79 (-2.38, -1.20)	-0.39 (-1.06, 0.28)	<0.001 ^e
HbA _{1c} , mmol/mol	66.6 ± 15.5	72.5 ± 11.1	-21.5 (-27.5, -15.4)	-1.0 (-7.2, 5.1)	-20.9 (-27.2, -14.5)	-3.5 (-10.8, 3.8)	-19.6 (-26.0, -13.1)	-4.3 (-11.6, 3.1)	<0.001 ^e
Fasting plasma glucose, mg/dL	132 ± 50	162 ± 54	-47 (-62, -32)	-3 (-19, 13)	-47 (-64, -31)	-11 (-30, 8)	-46 (-62, -29)	-9 (-29, 10)	<0.001 ^e
Total cholesterol, mg/dL	154 ± 34	162 ± 39	-4 (-18, 10)	7 (-7, 22)	7 (-8, 24)	-16 (-35, 3)	5 (-12, 33)	-12 (-33, 9)	0.022 ^f
Direct LDL cholesterol, mg/dL	88 ± 28	99 ± 29	-6 (-18, 6)	9 (-4, 21)	5 (-9, 19)	-15 (-32, 2)	3 (-13, 19)	-11 (-30, 8)	0.037 ^f
HDL cholesterol, mg/dL	44 ± 10	39 ± 10	10 (7, 13)	0 (-3, 4)	12 (7, 16)	-1 (-6, 5)	15 (10, 21)	2 (-4, 9)	<0.001 ^e
Triglycerides, mg/dL	120 ± 66	156 ± 76	-46 (-61, -30)	-6 (-23, 10)	-42 (-58, -25)	6 (-13, 26)	-39 (-55, -22)	-22 (-42, -2)	<0.001 ^e
Creatinine, mg/dL	0.71 ± 0.14	0.86 ± 0.21	-0.06 (-0.10, -0.02)	0.00 (-0.04, 0.04)	-0.06 (-0.11, -0.01)	0.07 (0.01, 0.13)	0.03 (-0.03, 0.10)	0.05 (-0.02, 0.12)	0.011 ^e
Urine albumin/creatinine, μg/mg ^g	3 (0-7)	3 (0-10)	4 (2-7)	3.5 (0-4)	5 (2.5-15)	6.5 (4-17)	6 (3-9)	6.5 (0-8)	0.873 ^h
Hematocrit, %	36.8 ± 3.3	40.2 ± 4.3	-2.4 (-3.6, -1.2)	0.4 (-0.9, 1.6)	-3.0 (-4.4, -1.7)	1.3 (-0.4, 2.9)	-2.6 (-4.2, -1.0)	1.0 (-0.8, 2.9)	<0.001
White blood count, ×10 ⁶ /mL	6.8 ± 2.1	6.5 ± 1.8	-0.9 (-1.4, -0.4)	0.1 (-0.5, 0.6)	-1.1 (-1.7, -0.5)	0.1 (-0.6, 0.9)	-0.9 (-1.6, -0.2)	0.4 (-0.4, 1.2)	<0.001
ALT, IU/L	32 ± 16	27 ± 12	-10 (-14, -7)	-5 (-9, -1)	-13 (-18, -9)	-9 (-14, -4)	-15 (-19, -10)	-7 (-12, -1)	0.023
AST, IU/L	31 ± 22	23 ± 13	-6 (-9, -2)	-4 (-7, 0)	-7 (-11, -4)	-8 (-12, -4)	-8 (-12, -5)	-6 (-11, -2)	0.767

ALT, alanine amino transferase; AST, aspartate aminotransferase. *Baseline data are mean ± SD, n (%), or median (interquartile range), unless otherwise stated. ^aHispanic subjects may be any race. ^bP values represent comparison of proportions at 3 years (RYGB vs. IMWM) by Fisher exact test. ^cPrimary end point, defined as proportion with HbA_{1c} <6.5% and fasting plasma glucose <126 mg/dL with or without antidiabetes medication. ^dP values represent differences between groups (RYGB vs. IMWM) from linear mixed-effects model adjusted for baseline values, unless otherwise noted. ^eGroup × time interaction also significant at P < 0.05. ^fP value represents group × time interaction; group effect was not significant. ^gMedian and interquartile range provided due to skewed distribution. ^hBy Kruskal-Wallis test for nonparametric data.



6. Aside from the experimental intervention, were the groups treated equally? 除了實驗介入外，實驗及對照組是否接受一樣的治療？

Participants randomized to the medical arm of the study enrolled in the Why WAIT program, which is designed for clinical practice⁶ and run quarterly at the Joslin Diabetes Center for groups of 10 to 15 patients. Why WAIT’s multidisciplinary approach includes an endocrinologist (O.H.), registered dietician, exercise physiologist, mental health provider (A.G.-F.), and certified diabetes nurse educator. Two-hour weekly group sessions are conducted during a 12-week initiation phase. Patients receive individual medication adjustments and participate in supervised group exercise and support/didactic sessions. Key aspects of Why WAIT include (1) weekly medication adjustments; (2) structured modified dietary intervention with hypocaloric (1500-1800 kcal) diet with carbohydrates (40%-45%), protein (20%-30%), and saturated fat intake reduced to less than 7%,⁷ with the 6 initial weeks including breakfast and lunch meal replacement (Boost Glucose Control; Nestle Health Science; nutrient content per 237 mL [8 fl oz] including calories, 190; protein, 16 g; carbohydrate, 16 g; fiber, 3 g; and fat, 7g), 2 snacks, and structured dinner menus; (3) up to 300 minutes per week of graded, balanced, and individualized exercise, with emphasis on strength training; (4) cognitive behavioral intervention; and (5) group education. A maintenance phase of individual monthly counseling follows for the remainder of the year. Additional information describing the Why

This paper: Yes No Unclear

The RYGB procedure was performed at Brigham and Women’s Hospital. All surgical patients were given routine antibiotic and venous thromboembolism prophylaxis and standardized anesthesia per routine hospital protocols. The RYGB procedure involved a 75-cm antecolic, antegastric Roux limb created with a 50-cm biliopancreatic limb. A 15- to 20-mL gastric pouch was created along the lesser curve of the stomach, and the lesser omentum was divided at that level. A gastrojejunostomy was constructed using a linear cutter stapler, and the gastroenterotomy was closed using a running polyglactin 910 suture (Vicryl 2.0; Ethicon Inc). Provocative leak tests were performed, including “blue dye” and “bubble” tests.

ANS：無法分別，本文章分別敘述手術組以及飲食控制組的介入處置，然除此之外未提及其餘處置是否在觀察下一樣。



7. How large was the treatment effect?

治療效果有多少?

What outcome were measured?

Metabolic Outcomes

Metabolic assessments were performed at baseline and repeated at 10% of initial body weight loss to obtain measurements at a comparable level of weight loss in both groups. If 10% weight loss did not occur by 3 months, metabolic assessments were performed at that time. Metabolic visits were also conducted at 12, 18, 24, and 36 months to obtain a time-based comparison. Assessments included weight, height, waist circumference, seated blood pressure using an automated device (BP742; Omron Healthcare), and medication doses. Clinical laboratory tests (performed by Quest Diagnostics) included HbA_{1c}, fasting plasma glucose, total cholesterol, LDL cholesterol, HDL cholesterol, triglycerides, microalbuminuria, renal function, liver function, and hematology. Body composition was assessed by bioelectrical impedance (TBF-215; Tanita Corporation). A 6-min walk test was performed. The UK Prospective Diabetes Study (UKPDS) Risk Engine was used to calculate risk of fatal and nonfatal cardiovascular events and stroke (14).

This paper: Yes No Unclear

Patient-Reported Outcomes

Self-reported health outcomes were determined using the following validated instruments: 1) the 36-Item Short-Form (SF-36) survey, a generic health status instrument comprising two component scores (physical health and mental health) and eight scales (physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health) (15); 2) Impact of Weight on Quality of Life (IWQOL)-Lite, a 31-item disease-specific quality of life instrument comprising five scales (physical function, self-esteem, sexual life, public distress, and work), for which higher scores indicate greater impact (5); and 3) Problem Areas in Diabetes Survey (PAID), a 20-item questionnaire that assesses difficulty with diabetes self-management, emotional distress, eating behaviors, and other issues related to diabetes management, for which a higher score indicates more problems (16).

7. How large was the treatment effect?

治療效果有多少？

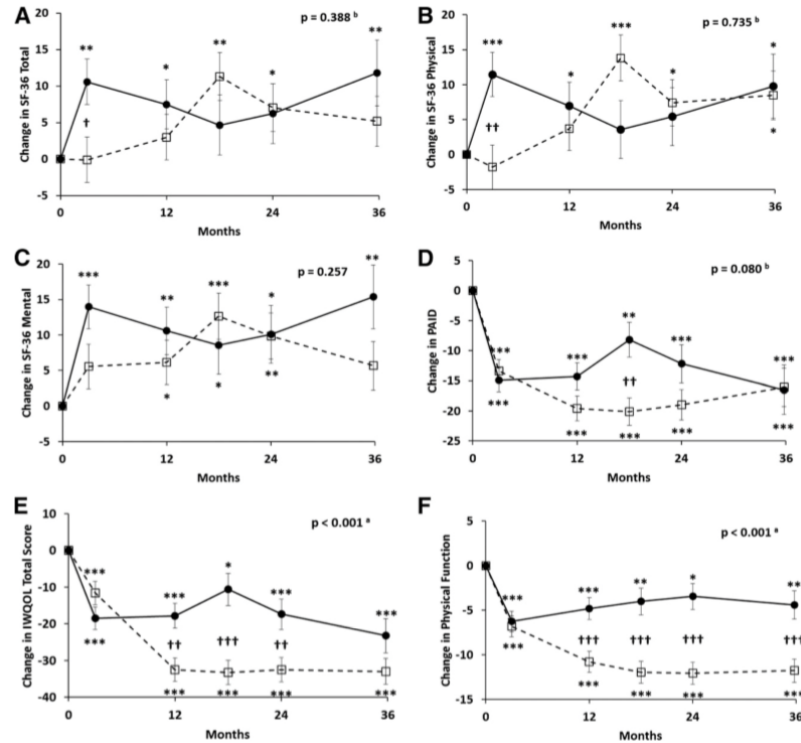
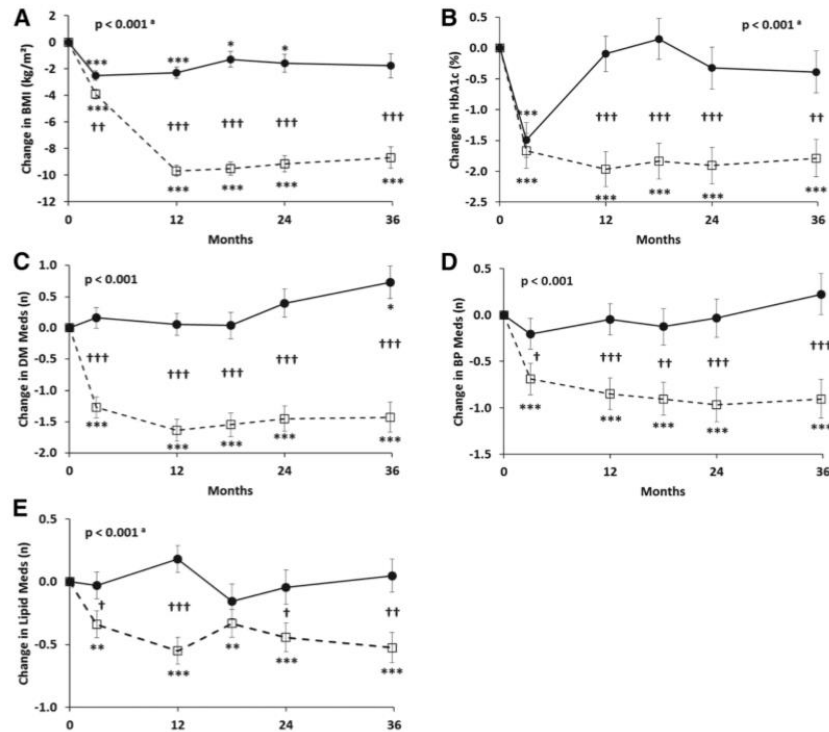
Is the primary outcome clearly specified?

This paper: Yes

No

Unclear

What result were found for each outcome?



ANS :

7. How large was the treatment effect?

治療效果有多少?

Is the primary outcome clearly specified? **This paper: Yes** **No** **Unclear**

What result were found for each outcome?

Duration of diabetes, years	10.6 ± 6.6	10.2 ± 6.1	Clinical end points, n (%) ^b						
Study-defined diabetes resolution ^c			11 (58)	3 (16)	7 (37)	0 (0)	8 (42)	0 (0)	0.005
Meeting ADA treatment goals									
HbA _{1c} <7.0% (<53 mmol/mol)			15 (79)	5 (26)	13 (68)	5 (26)	11 (58)	2 (11)	0.011
Direct LDL cholesterol <100 mg/dL			15 (79)	9 (47)	10 (53)	8 (42)	8 (42)	6 (32)	0.300
Systolic blood pressure <130 mmHg			16 (84)	11 (58)	14 (74)	5 (26)	8 (42)	6 (32)	0.300
Meeting all three goals			11 (58)	1 (5)	7 (37)	3 (16)	2 (11)	1 (5)	0.293
Normoglycemia									
HbA _{1c} <6.0% (<42 mmol/mol)			6 (32)	0 (0)	4 (21)	0 (0)	2 (11)	0 (0)	0.104
Fasting plasma glucose <100 mg/dL			14 (74)	3 (16)	8 (42)	2 (11)	7 (37)	3 (16)	0.216
Meeting both criteria			6 (32)	0 (0)	3 (16)	0 (0)	1 (5)	0 (0)	0.184
Changes in clinical, metabolic, and laboratory measures, mean (95% CI) ^d									
Medications									
Antidiabetes	2.3 ± 1.0	1.8 ± 0.8	-1.6 (-2.0, -1.3)	0.1 (-0.3, 0.4)	-1.4 (-1.8, -1.1)	0.4 (0.0, 0.8)	-1.4 (-1.9, -1.0)	0.7 (0.2, 1.2)	<0.001
Antihypertensive	1.6 ± 1.0	1.2 ± 1.0	-0.8 (-1.2, -0.5)	0.0 (-0.4, 0.3)	-1.0 (-1.3, -0.6)	0.0 (-0.4, 0.4)	-0.9 (-1.3, -0.5)	0.2 (-0.2, 0.7)	<0.001
Lipid lowering	0.9 ± 0.5	0.8 ± 0.5	-0.6 (-0.8, -0.3)	0.2 (0.0, 0.4)	-0.4 (-0.7, -0.2)	0.0 (-0.3, 0.2)	-0.5 (-0.8, -0.3)	0.0 (-0.2, 0.3)	<0.001 ^e
Weight, kg	104.6 ± 15.5	102.7 ± 17.0	-27.9 (-30.2, -25.6)	-6.9 (-9.3, -4.6)	-26.3 (-29.6, -22.9)	-4.8 (-8.6, -1.0)	-24.9 (-29.5, -20.4)	-5.2 (-10.3, -0.2)	<0.001 ^e
BMI, kg/m ²	36.0 ± 3.5	36.5 ± 3.4	-9.7 (-10.5, -8.8)	-2.3 (-3.1, -1.4)	-9.2 (-10.3, -8.0)	-1.6 (-2.9, -0.2)	-8.7 (-10.3, -7.1)	-1.8 (-3.5, 0.0)	<0.001 ^e
Body composition									
Fat mass, kg	45.5 ± 9.4	42.6 ± 9.8	-22.6 (-25.0, -20.2)	-6.0 (-8.6, -3.4)	-21.4 (-24.6, -18.2)	-3.0 (-6.7, 0.7)	-19.9 (-24.0, -15.8)	-4.1 (-8.8, 0.6)	<0.001 ^e
Lean mass, kg	59.2 ± 14.1	60.1 ± 10.8	-5.2 (-6.7, -3.6)	-1.3 (-2.9, 0.3)	-5.2 (-6.9, -3.5)	-1.9 (-3.8, 0.1)	-5.8 (-7.8, -3.8)	-1.3 (-3.5, 1.0)	0.003 ^e
Waist circumference, cm	117.8 ± 14.9	114.1 ± 12.2	-26.9 (-30.5, -23.4)	-6.4 (-10.1, -2.6)	-27.4 (-32.1, -22.6)	-5.4 (-10.9, 0.1)	-24.8 (-31.0, -18.6)	-1.0 (-8.2, 6.2)	<0.001 ^e
Blood pressure									
Systolic, mmHg	132.8 ± 10.5	126.3 ± 14.7	-13.1 (-19.0, -7.1)	-1.6 (-7.9, 4.8)	-10.7 (-17.5, -3.8)	4.2 (-4.1, 12.4)	-0.3 (-8.3, 7.8)	9.7 (0.3, 19.1)	0.011
Diastolic, mmHg	81.7 ± 7.4	76.6 ± 8.8	-5.3 (-8.6, -2.0)	-2.4 (-5.9, 1.1)	-4.3 (-7.8, -0.7)	0.6 (-3.7, 4.9)	2.0 (-2.0, 5.9)	-1.2 (-5.8, 3.5)	<0.001 ^f
Physical fitness									
Distance walked in 6 min, m	464 ± 56	467 ± 56	13 (-11, 37)	25 (0, 50)	34 (5, 62)	32 (-1, 65)	33 (-1, 68)	37 (-4, 79)	0.548
Heart rate recovery at 1 min, bpm	92.2 ± 15.2	87.5 ± 12.0	-10.7 (-15.4, -6.1)	0.9 (-4.0, 5.9)	-5.7 (-11.3, -0.2)	2.7 (-4.0, 9.4)	-7.0 (-13.6, -0.4)	1.4 (-6.9, 9.7)	0.002

Continued on p. 674

8. How precise was the estimate of the treatment effect?

This paper: Yes No Unclear

- Yes

RESULTS

After 3 years, the RYGB group had greater weight loss (mean -24.9 kg [95% CI $-29.5, -20.4$] vs. -5.2 [$-10.3, -0.2$]; $P < 0.001$) and lowering of HbA_{1c} (-1.79% [$-2.38, -1.20$] vs. -0.39% [$-1.06, 0.28$] [-19.6 mmol/mol [95% CI $-26.0, -13.1$] vs. -4.3 [$-11.6, 3.1$]]; $P < 0.001$) compared with the IMWM group. Changes in cardiometabolic risk for coronary heart disease and stroke were all more favorable in RYGB versus IMWM ($P < 0.05$ to $P < 0.01$). IWQOL improved more after RYGB ($P < 0.001$), primarily due to subscales of physical function, self-esteem, and work performance. SF-36 and PAID scores improved in both groups, with no difference between treatments. A structural equation model demonstrated that improvement in overall quality of life was more strongly associated with weight loss than with improved HbA_{1c} and was manifest by greater improvements in IWQOL than with either SF-36 or PAID.

9. Can the results be applied to the local population, or in your context?

This paper: Yes No Unclear

	Baseline*	
	RYGB	IMWM
<i>N</i>	19	19
Age, years	50.7 ± 7.6	52.6 ± 4.3
Sex		
Male	6 (32)	9 (47)
Female	13 (68)	10 (53)
Race/ethnicity		
White	14 (74)	10 (53)
African American	3 (16)	8 (42)
Asian	1 (5)	0 (0)
Hispanic ^a	1 (5)	1 (5)
BMI <35 kg/m ²	6 (32)	7 (37)
Duration of diabetes, years	10.6 ± 6.6	10.2 ± 6.1

10. Were all clinically important outcomes considered?

Metabolic Outcomes

Metabolic assessments were performed at baseline and repeated at 10% of initial body weight loss to obtain measurements at a comparable level of weight loss in both groups. If 10% weight loss did not occur by 3 months, metabolic assessments were performed at that time. Metabolic visits were also conducted at 12, 18, 24, and 36 months to obtain a time-based comparison. Assessments included weight, height, waist circumference, seated blood pressure using an automated device (BP742; Omron Healthcare), and medication doses. Clinical laboratory tests (performed by Quest Diagnostics) included HbA_{1c}, fasting plasma glucose, total cholesterol, LDL cholesterol, HDL cholesterol, triglycerides, microalbuminuria, renal function, liver function, and hematology. Body composition was assessed by bioelectrical impedance (TBF-215; Tanita Corporation). A 6-min walk test was performed. The UK Prospective Diabetes Study (UKPDS) Risk Engine was used to calculate risk of fatal and nonfatal cardiovascular events and stroke (14).

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Self-reported health outcomes were determined using the following validated instruments: 1) the 36-Item Short-Form (SF-36) survey, a generic health status instrument comprising two component scores (physical health and mental health) and eight scales (physical functioning, role-physical, bodily pain, general health, vitality, social functioning, role-emotional, and mental health) (15); 2) Impact of Weight on Quality of Life (IWQOL)-Lite, a 31-item disease-specific quality of life instrument comprising five scales (physical function, self-esteem, sexual life, public distress, and work), for which higher scores indicate greater impact (5); and 3) Problem Areas in Diabetes Survey (PAID), a 20-item questionnaire that assesses difficulty with diabetes self-management, emotional distress, eating behaviors, and other issues related to diabetes management, for which a higher score indicates more problems (16).

成本效益分析 Cost effect



	健保點數
次全或半胃切除術及胃空腸吻合術 Roux-en-Y 型－無迷走神經切除	17414點

阿國先生符合減重手術的標準。

BMI > 35 且合併有肥胖併發症

> 血壓增高：收縮壓 \geq 130mmHg/舒張壓 \geq 85mmHg

> 空腹血糖值升高 \geq 110mg/dl

> 三酸甘油脂升高 \geq 150mg/dl

【減重手術健保給付標準】

台灣健保對於減重手術治療的給付主要是根據美國國家衛生研究院在1991年所公布的標準，

須符合下列條件：

- BMI \geq 40，或BMI \geq 35且合併有肥胖相關併發症。
- 年齡介於18~55歲。
- 經半年以上的內科減重治療失敗。
- 無內分泌系統異常或其他會造成肥胖的疾病。
- 無藥物濫用或精神疾病。
- 無重大器官功能異常並能接受外科手術風險。

臨床問題 Clinical Problems

經過與阿國先生討論後，阿國提問：

接受減重手術治療，對我三高及糖尿病的病情控制是否有幫助？



臨床回覆：

關於阿國先生提出的問題，根據我們從最新實證醫學的方法求證，結果所述接受減重術會比嚴格飲食控制在血糖控制、血脂及血壓等方面都會改善更多。

至於醫療費用的方面，請阿國先生不用擔心，由於阿國先生的目前病情符合健保給付做減重手術，如有意願接受減重手術，手術費用能由健保支付。

感謝聆聽 *Thanks for your attention*

Clinical state and circumstances

“實證醫學 (evidence-based medicine; EBM) 是結合
臨床問題、病患價值、研究證據與臨床經驗的學問...”

Clinical expertise

Brian Haynes MD, PhD

Patients'
preferences
and actions

Research
evidence

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