



Combining Surgery and best medical treatment for obesity and T2D

RICARDO COHEN

Director, The Center for
Obesity and Diabetes
Oswaldo Cruz German
Hospital, São Paulo - Brazil



OSWALDO CRUZ

CENTRO ESPECIALIZADO EM **OBESIDADE E DIABETES**

Disclosures

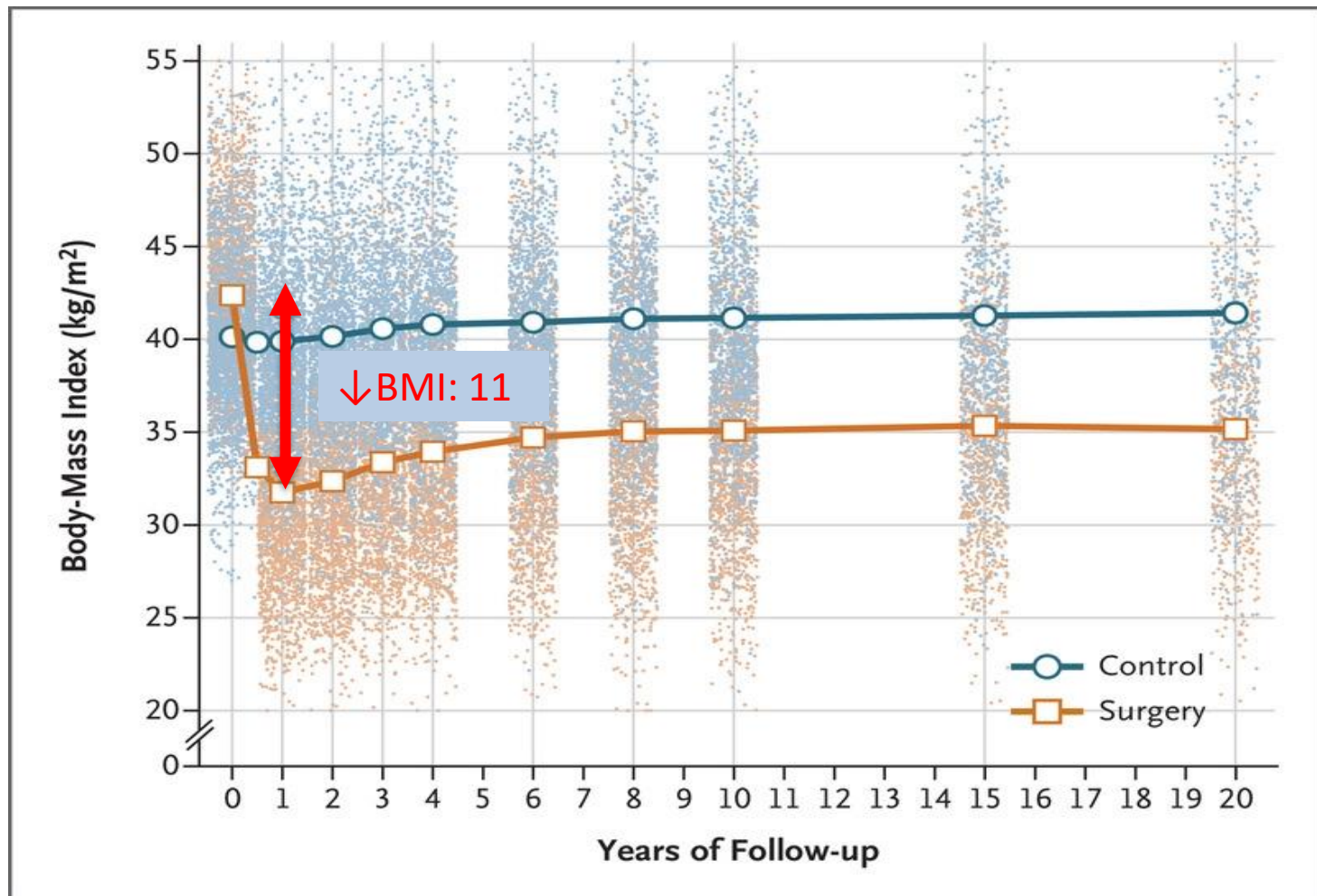
- Research Grant, J&J Medical, Brasil
- Research Grant, Medtronic
- Research Grant, GI Dynamics
- Research Grant, Hospital Oswaldo Cruz Bioscience Institute
- SAB: GI Dynamics, JJ Medical, NovoNordisk, Medtronic, Bariatek
- Speaker: J&J Medical, Medtronic, Jansen



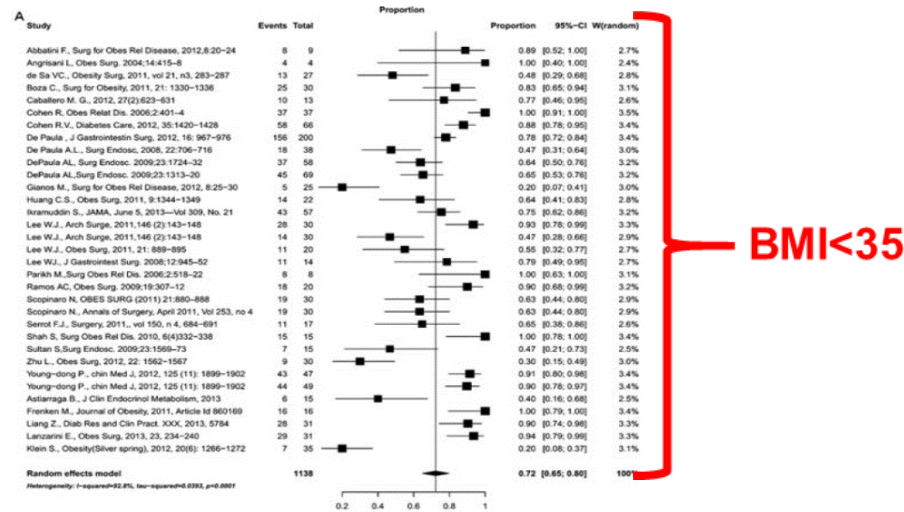
**Surgery is effective to treat
diabetes and obesity**

SOS: Results

Surgery Group (N=2007) X Control Group (N=2040)

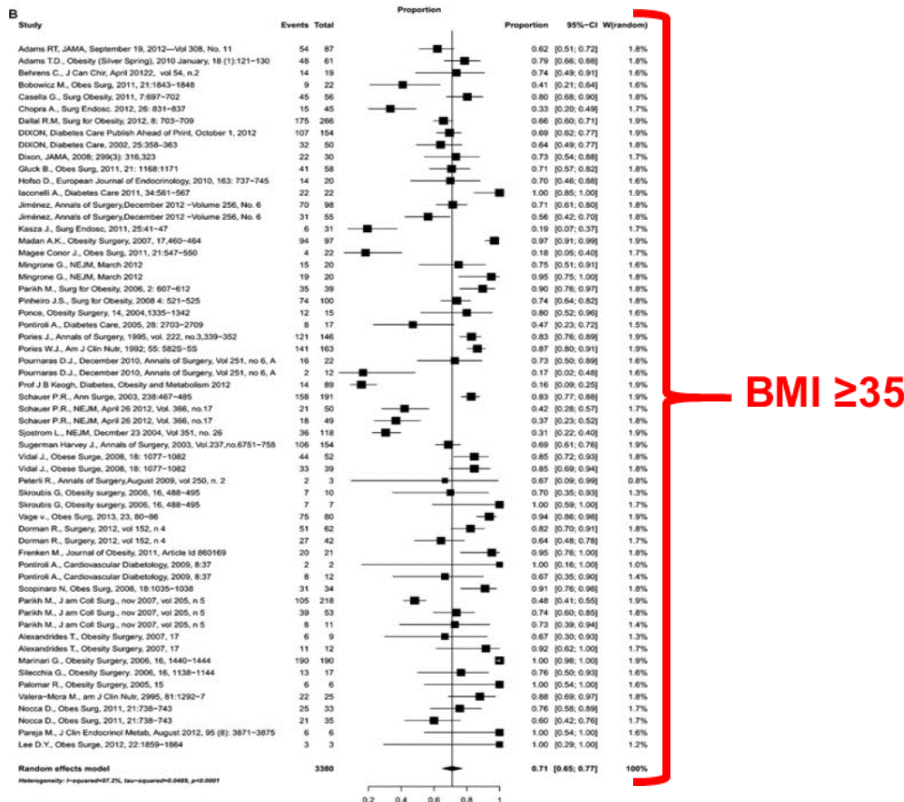


T2D remission after metabolic surgery in 94 published studies



BMI < 35

T2D Remission: 72%



BMI ≥ 35

T2D Remission : 71%

Panunzi S et al.
Ann Surg 261:459 (2015)
Cummings D & Cohen R,
D CAre 2016



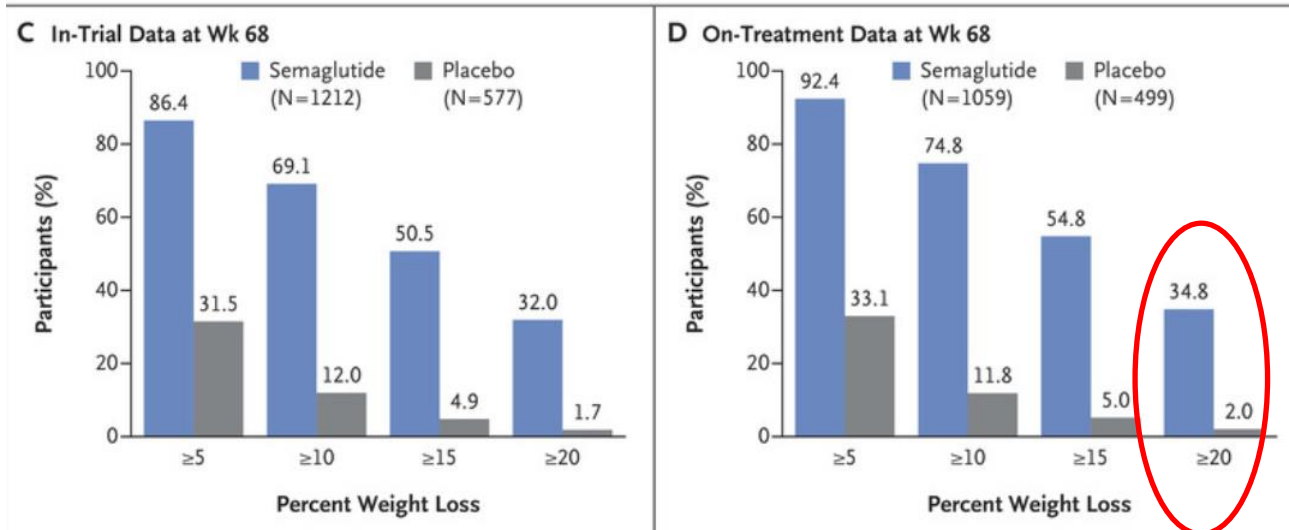
**Medicines are effective to
treat diabetes and obesity**

Once-Weekly Semaglutide in Adults with Overweight or Obesity

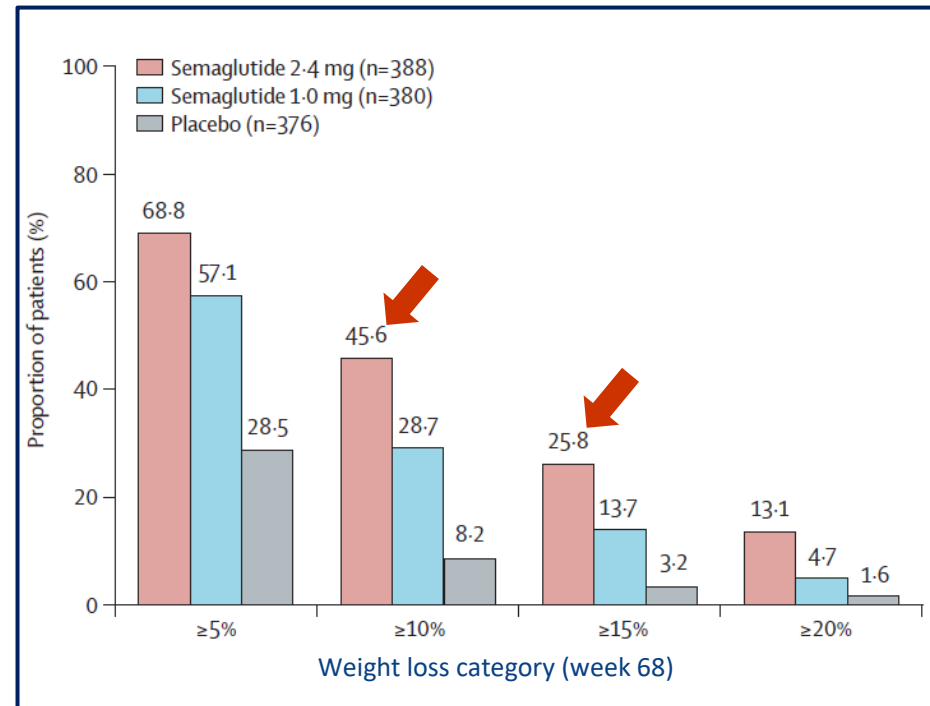
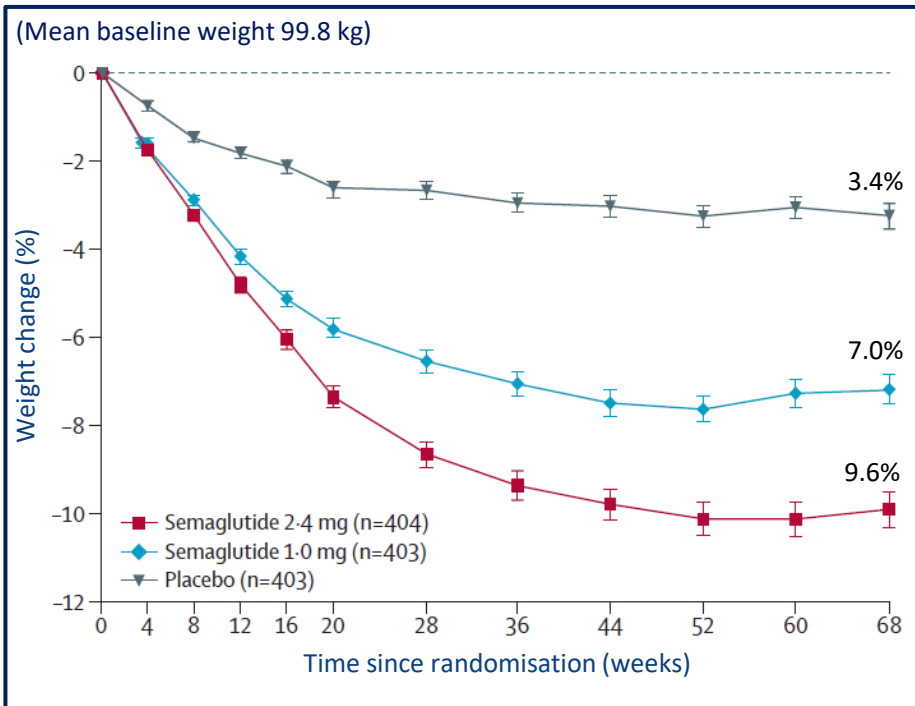
John P.H. Wilding, D.M., Rachel L. Batterham, M.B., B.S., Ph.D., Salvatore Calanna, Ph.D., Melanie Davies, M.D., *et al.*, for the STEP 1 Study Group*

February 10, 2021

DOI: 10.1056/NEJMoa2032183



Semaglutide 2.4 mg – weight change (STEP 2)

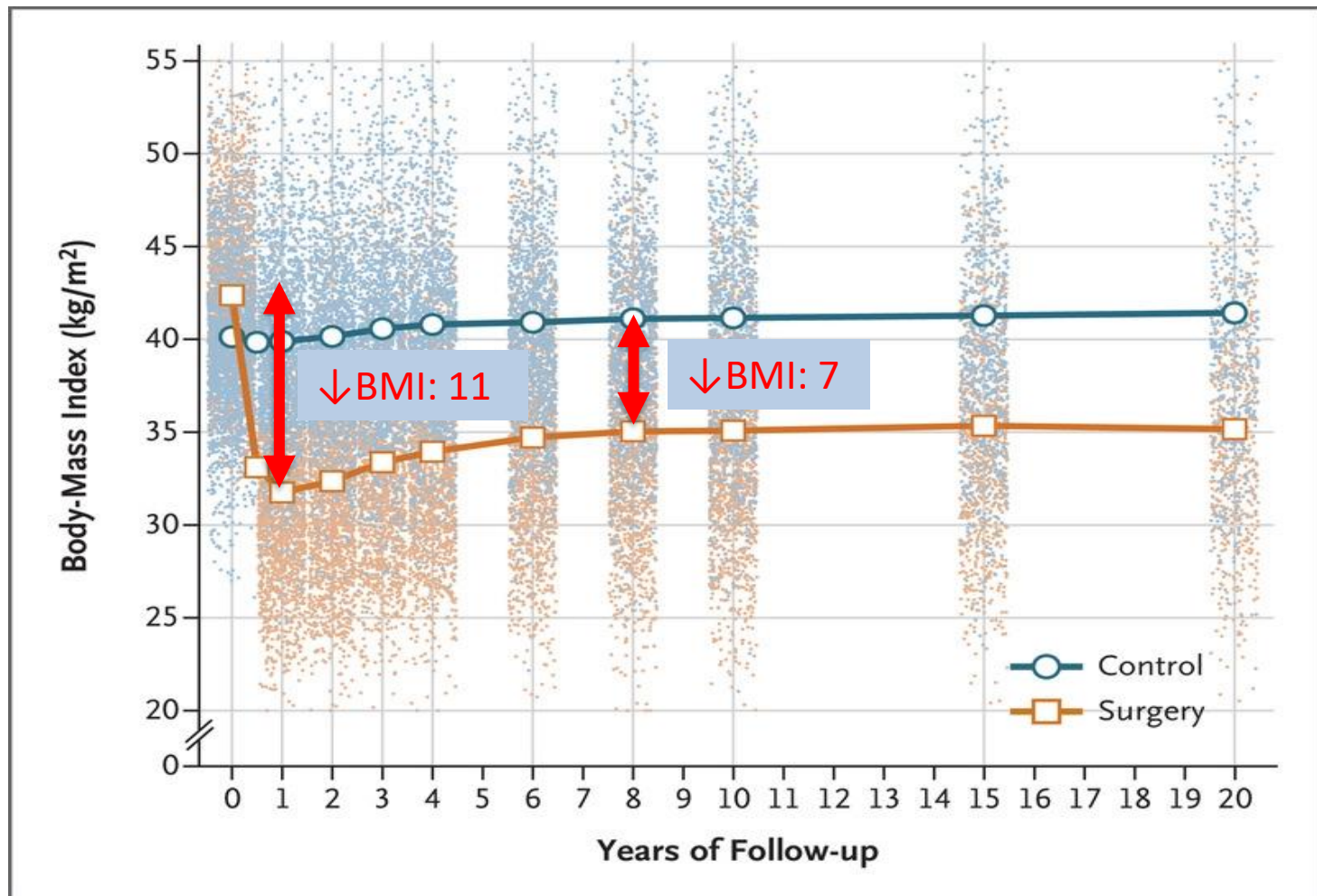


LONG-TERM FOLLOW-UP

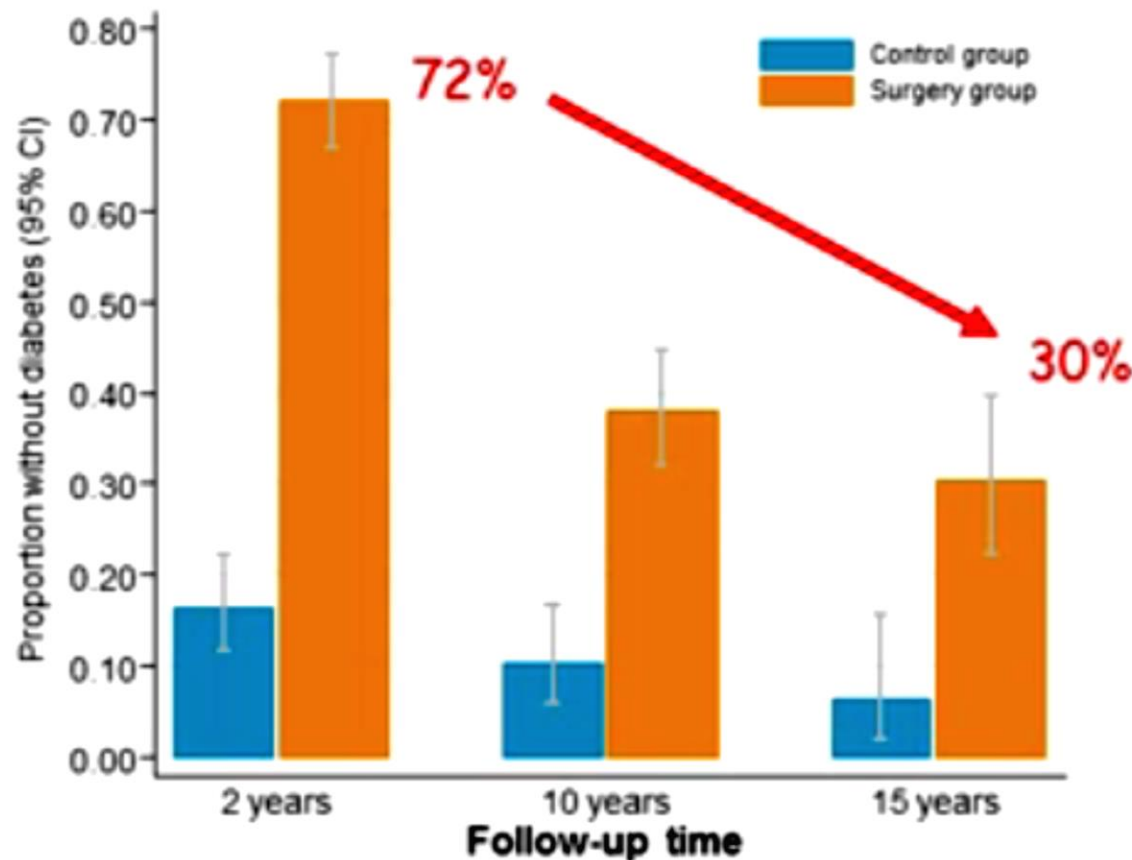


SOS: Results

Surgery Group (N=2007) X Control Group (N=2040)



Diabetes remission in SOS patients with diabetes



n (C/S): 207 / 303
Odds-ratio: 13.3 (8.5-20.7)
p-value: <0.001

135 / 236
5.3 (2.9-9.8)
<0.001

62 / 115
6.3 (2.1-18.9)
0.001

NATIONAL INSTITUTE FOR HEALTH AND WELFARE, FINLAND

6.1.2014

M. Peltonen

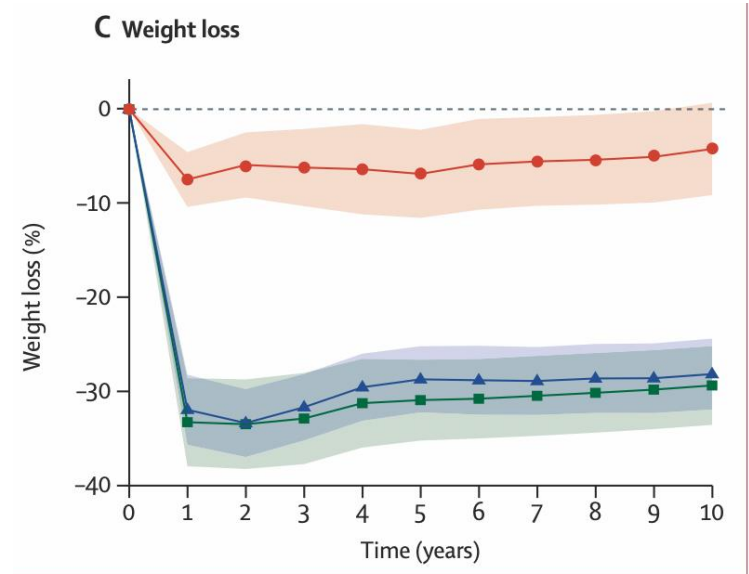
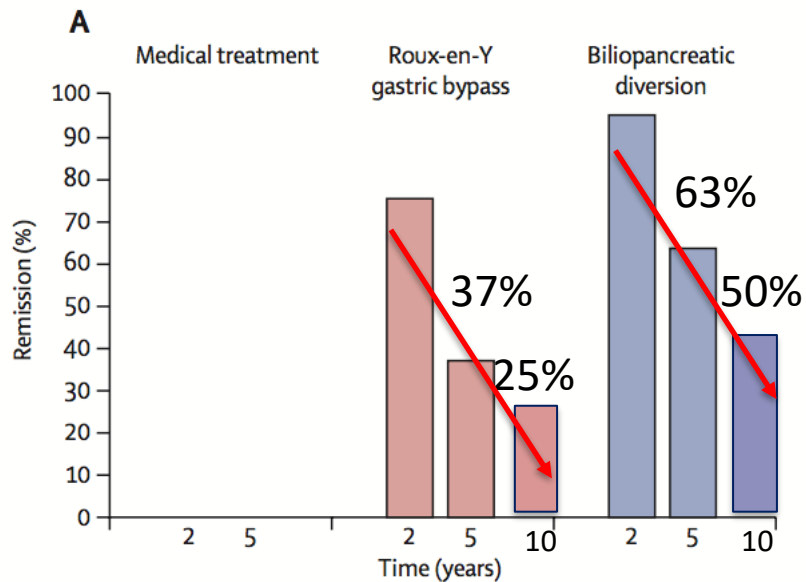
SOS Unpublished 2013

Bariatric surgery, diabetes remission and diabetic complications over 15 years in Swedish Obese Subjects study (SOS)

Metabolic surgery versus conventional medical therapy in patients with type 2 diabetes: 10-year follow-up of an open-label, single-centre, randomised controlled trial

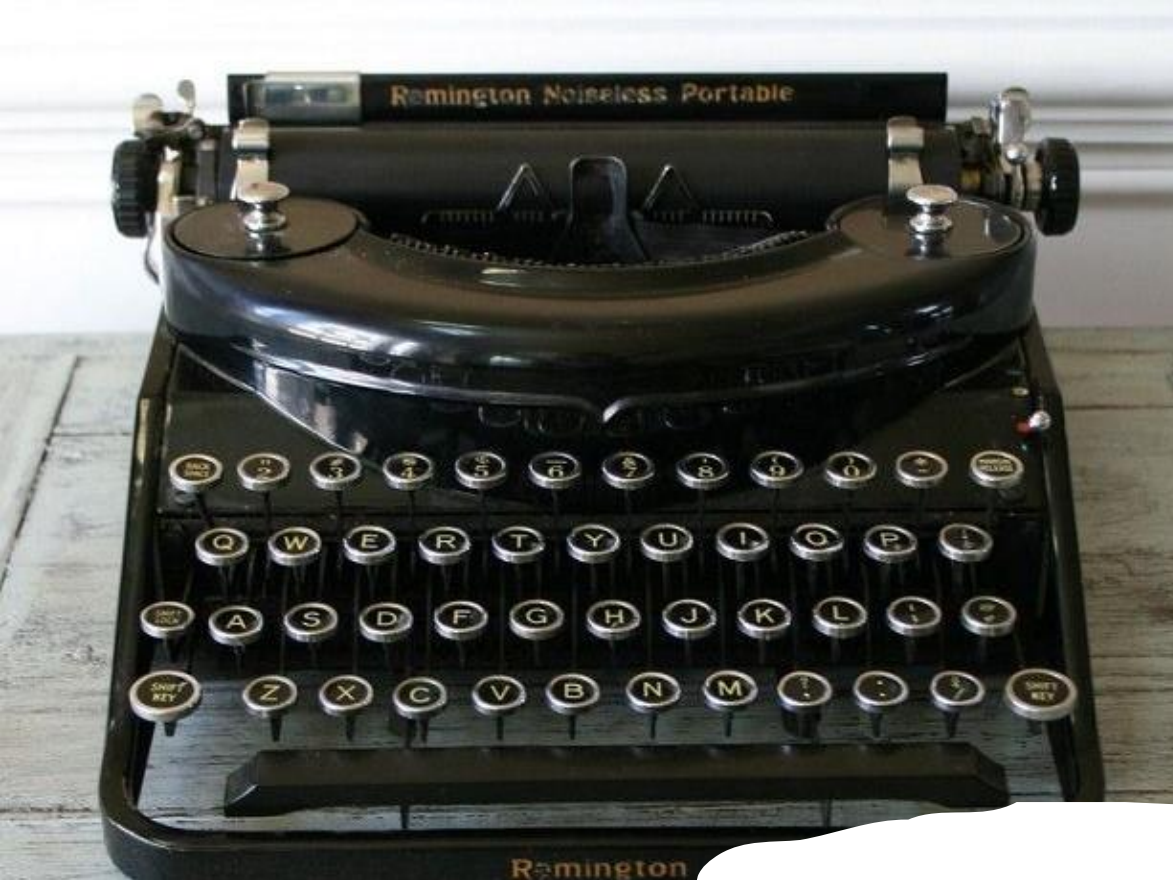
Geltrude Mingrone, Simona Panunzi, Andrea De Gaetano, Caterina Guidone, Amerigo Iaconelli, Esmeralda Capristo, Ghassan Chamseddine, Stefan R Bornstein, Francesco Rubino

- RCT with 5 years follow up, Med Tx x RYGB x BPD
- 60 pts randomized, 88% completed
- 19 RYGB, 19 BPD and 15 medical tx
- Complete remission: A1c < 6.5% and fasting blood glucose < 100 mg/dl with no medication



10 years of follow-up

- 58,8% T2D recurrence, all in a milder form than preoperatively with less meds
- Surgical patients had modest weight regain after 2 Years postoperative year (6.6 kg in the RYGB group and 5.4 kg in the BPD group)



**SHOULD WE STOP
MEDICATIONS AND WAIT FOR
DIABETES AND WEIGHT
EVOLUTION?**



Bariatric Surgery: There Is a Room for Improvement to Reduce Mortality in Patients with Type 2 Diabetes

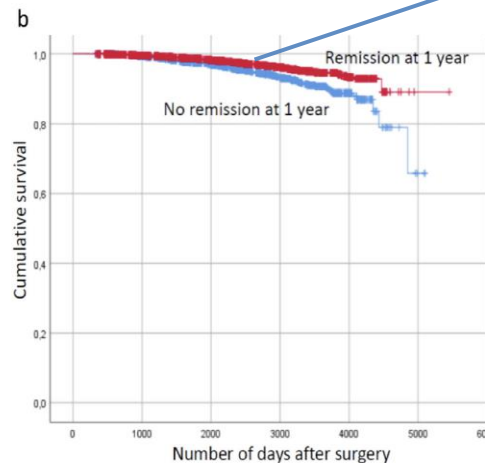
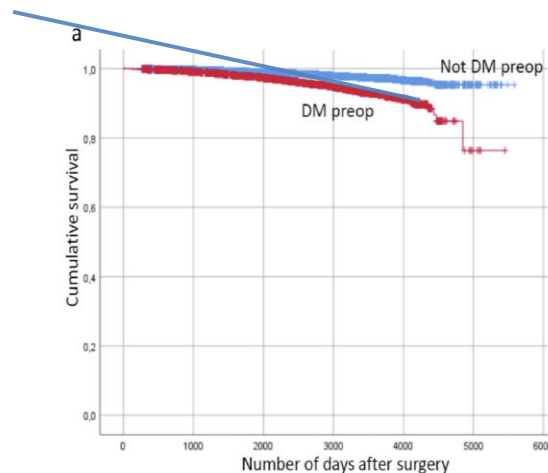
Carel W. le Roux¹ · Johan Ottosson^{2,3} · Erik Näslund^{2,4} · Ricardo V. Cohen⁵ · Erik Stenberg^{2,3} · Magnus Sundbom^{2,6} · Ingmar Näslund^{2,3}

Received: 6 July 2020 / Revised: 13 August 2020 / Accepted: 14 August 2020
© Springer Science+Business Media, LLC, part of Springer Nature 2020

SoReg, Scandinavian Obesity Surgery Registry 65,345 pts up tp 10y FU

Operated pts with
uncontrolled T2D have
higher mortality @ 1
year

Adjuvant
pharmacotherapy



Microvascular Outcomes after Metabolic Surgery

MOMS trial

Research

JAMA Surgery | Original Investigation

Effect of Gastric Bypass vs Best Medical Treatment on Early-Stage Chronic Kidney Disease in Patients With Type 2 Diabetes and Obesity A Randomized Clinical Trial

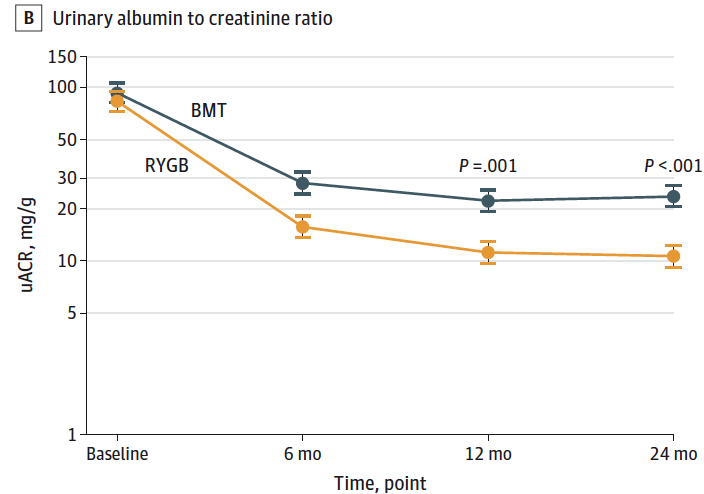
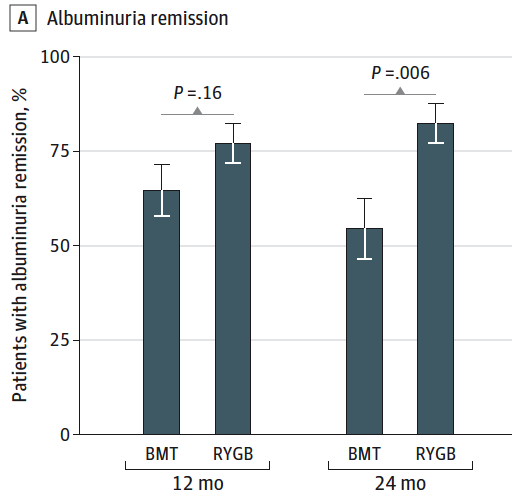
Ricardo Vitor Cohen, MD; Tiago Veiga Pereira, PhD; Cristina Mamédio Aboud, RN;
Tarissa Beatrice Zanata Petry, MD; José Luis Lopes Correa, MD; Carlos Aurélio Schiavon, MD;
Carlos Eduardo Pompílio, MD; Fernando Nogueira Quirino Pechy, MD; Ana Carolina Calmon da Costa Silva, MD;
Fernanda Lendimuth Gomes de Melo, MD; Livia Porto Cunha da Silveira, MD; Pedro Paulo de Paris Caravatto, MD;
Helio Halpern, MD; Frederico de Lima Jacy Monteiro, MD; Bruno da Costa Martins, MD; Rogerio Kuga, MD;
Thais Mantovani Sarian Palumbo, RDN; Neil Gerard Docherty, PhD; Carel Wynand le Roux, MD, PhD

2 years outcomes of a 5 years follow-up trial

June 3, 2020

MOMS trial

Primary outcome - uACR



RYGB + BMT

- ✓ ACE/ARB
- ✓ Statins
- ✓ Metformin
- ✓ Multivitamins



+
BMT

84%*

51 pts

x



56%

49 pts

***p= 0.006**

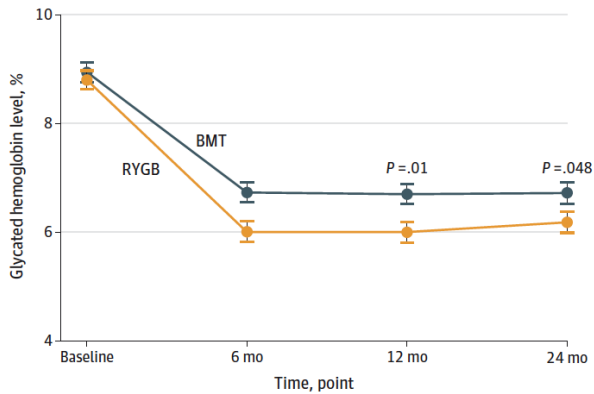
• Best Medical Treatment

- ✓ Metformin
- ✓ GLP1 RA
- ✓ SGLT-2 i
- ✓ Insulin
- ✓ Glitazones
- ✓ DPP4 i
- ✓ ACEi/ARB
- ✓ Statins
- ✓ Diuretics

MOMS trial

Metabolic outcomes

C Glycated hemoglobin level



BMT

RYGB+BMT

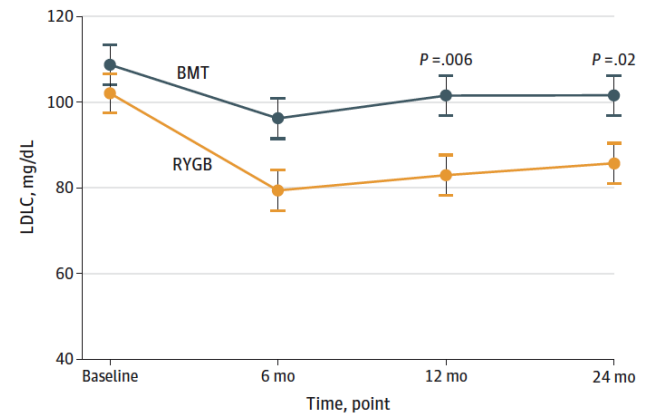
HbA _{1c} level ≤6.0%, %	24.4 (12.3 to 36.7)	44.5 (29.8 to 59.2)
----------------------------------	---------------------	---------------------

P<0.05

Systolic BP <130 mm Hg, %	37.8 (23.6 to 51.9)	32.5 (18.6 to 46.5)
Diastolic BP <80 mm Hg, %	20.1 (8.40 to 31.9)	28.0 (14.5 to 41.4)

n.s

D Low-density cholesterol level



LDL-C level <100 mg/dL, %	51.2 (37.1 to 66.5)	72.6 (59.4 to 85.2)	P<0.05
HDL-C level >50 mg/dL, %	18.7 (6.2 to 27.8)	44.8 (32.9 to 61.2)	P<0.01
Triglyceride levels <150 mg/dL, %	41.9 (26.9 to 55.1)	80.0 (70.2 to 92.6)	P<0.01



Obesity and Diabetes
under control

Obesity management as a primary treatment goal for type 2 diabetes: time to reframe the conversation

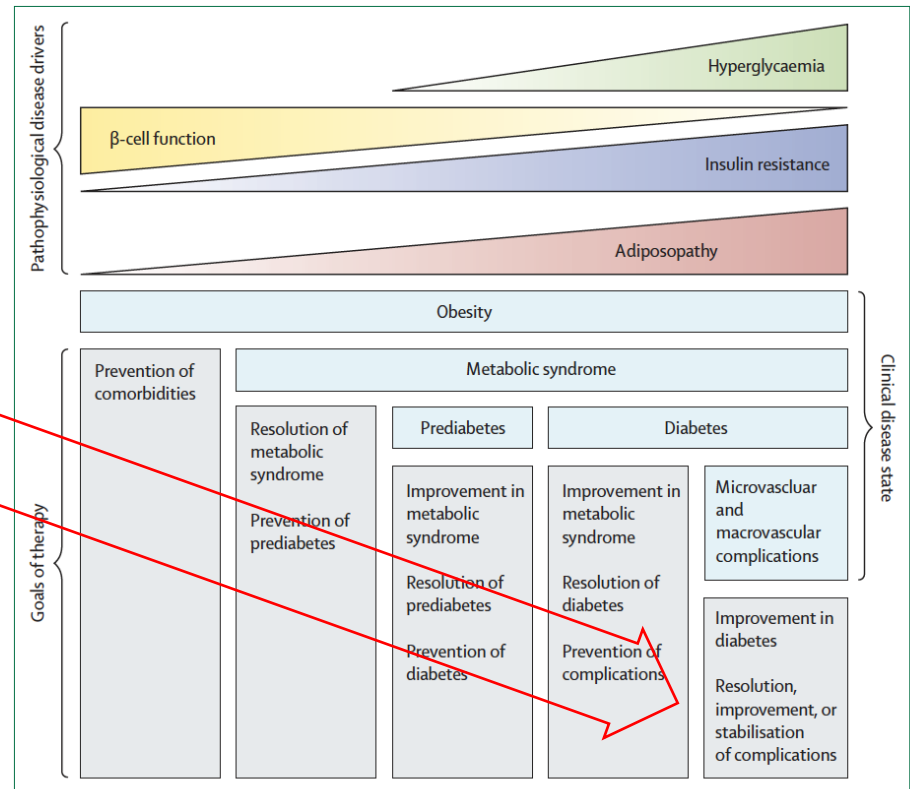


Ildiko Lingvay, Priya Sumithran, Ricardo V Cohen, Carel W le Roux

The Lancet 2022

> 15%TBWL

Disruption of the the disease continuum





Surgery + Medical Treatment

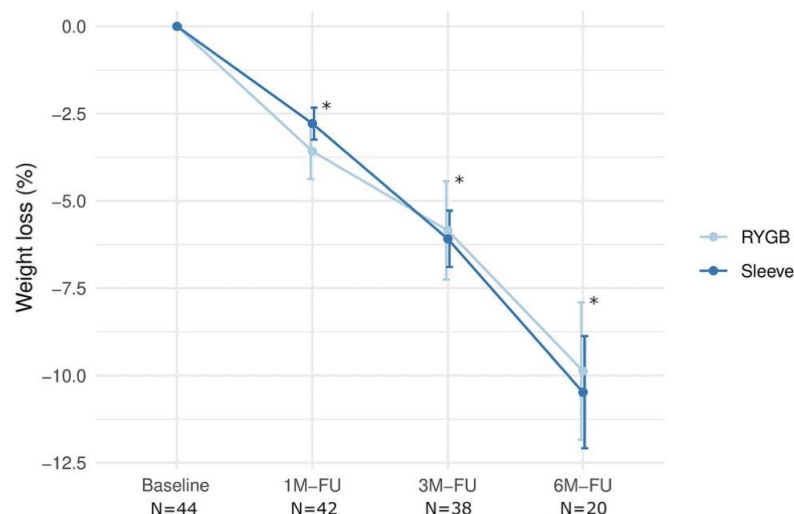


ORIGINAL CONTRIBUTIONS

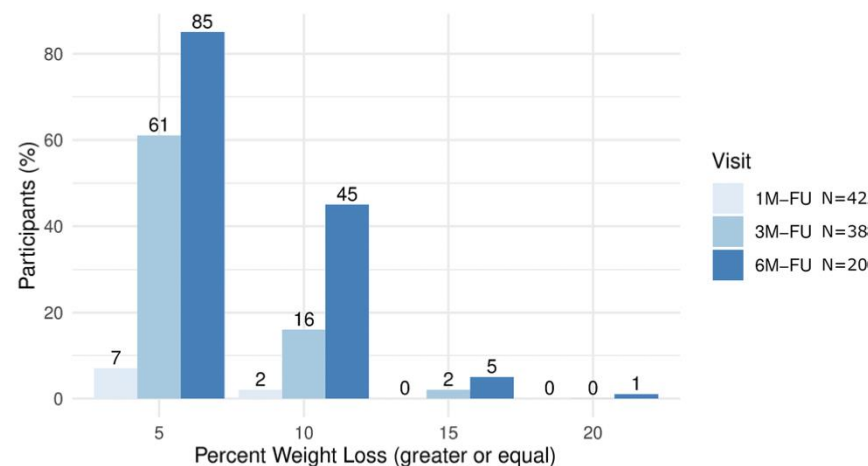
The Potential of Semaglutide Once-Weekly in Patients Without Type 2 Diabetes with Weight Regain or Insufficient Weight Loss After Bariatric Surgery—a Retrospective Analysis

Received: 24 April 2022 / Revised: 10 July 2022 / Accepted: 14 July 2022

Anne Lautenbach¹  · Marie Wernecke¹ · Tobias B. Huber¹ · Fabian Stoll¹ · Jonas Wagner² · Sebastian M. Meyhöfer^{3,4} · Svenja Meyhöfer^{3,4,5} · Jens Aberle¹



RYGB ($N = 15$)
SG ($N = 29$)
Total ($N = 44$)



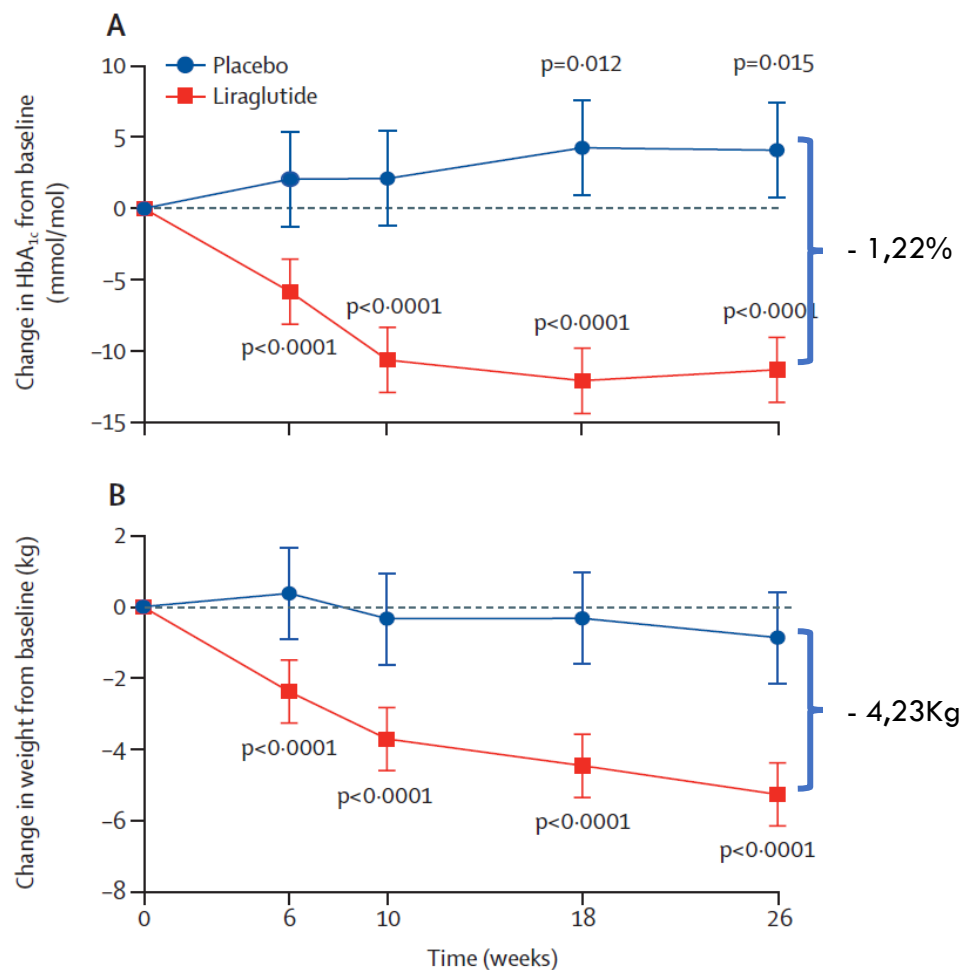
Adjunctive liraglutide treatment in patients with persistent or recurrent type 2 diabetes after metabolic surgery (GRAVITAS): a randomised, double-blind, placebo-controlled trial

Alexander Dimitri Miras, Belén Pérez-Pevida*, Madhawi Aldhwayan, Anna Kamocka, Emma Rose McGlone, Werd Al-Najim, Harvinder Chahal, Rachel L Batterham, Barbara McGowan, Omar Khan, Veronica Greener, Ahmed R Ahmed, Aviva Petrie, Samantha Scholtz, Stephen R Bloom, Tricia M Tan*

- **80 pts RYGB or SG with persistent or recurrent T2D**
- **Liraglutide (n=53) or placebo (n=27)**
- **At least 1 year after surgery**
- **Follow-up: 24 weeks**

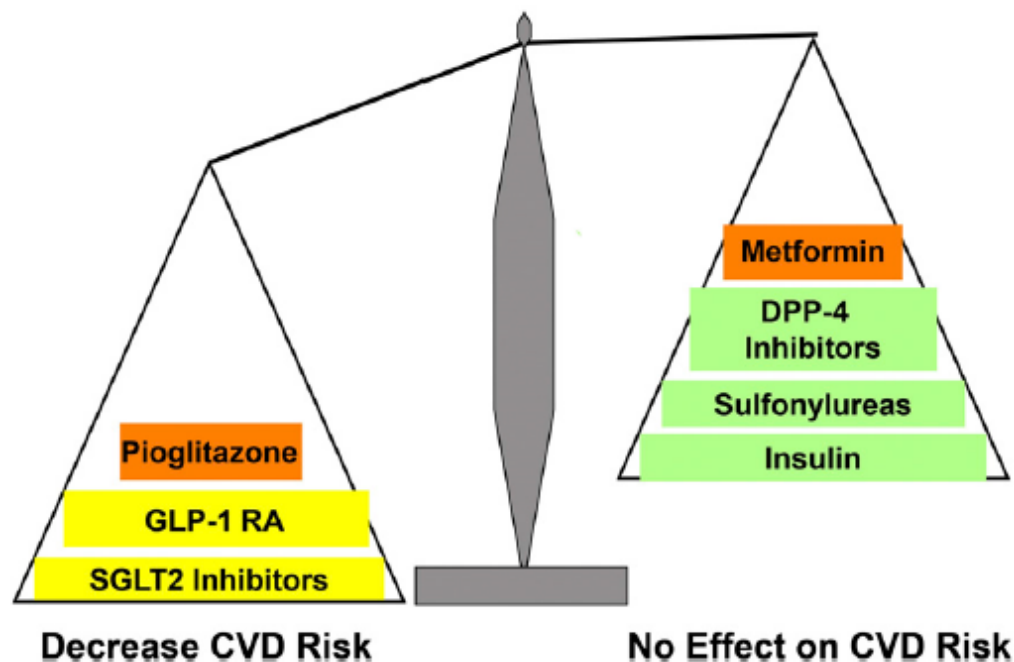
Adjunctive liraglutide treatment in patients with persistent or recurrent type 2 diabetes after metabolic surgery (GRAVITAS): a randomised, double-blind, placebo-controlled trial

Alexander Dimitri Miras*, Belén Pérez-Pevida*, Madhawi Aldhwayan, Anna Kamocka, Emma Rose McGlone, Werd Al-Najim, Harvinder Chahal, Rachel L Batterham, Barbara McGowan, Omar Khan, Veronica Greener, Ahmed R Ahmed, Aviva Petrie, Samantha Scholtz, Stephen R Bloom, Tricia M Tan



1.8 mg of liraglutide in operated pts, achieved same outcomes as non-surgical pts

Choice of medications



New Perspectives

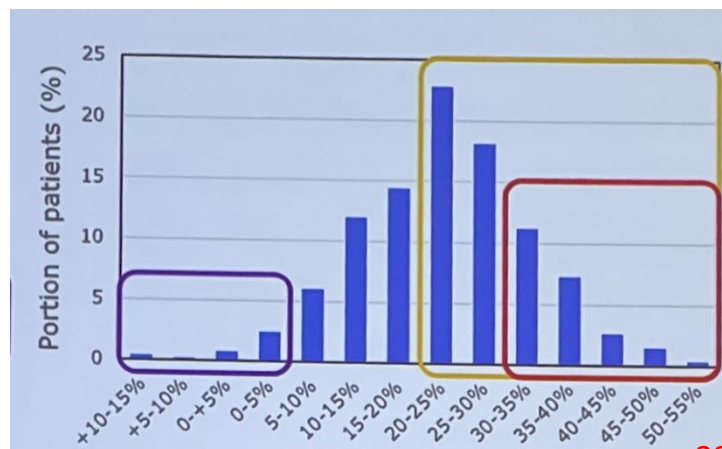
LOADING...



ORIGINAL ARTICLE

Tirzepatide Once Weekly for the Treatment of Obesity

Ania M. Jastreboff, M.D., Ph.D., Louis J. Aronne, M.D.,
Nadia N. Ahmad, M.D., M.P.H., Sean Wharton, M.D., Pharm.D.,
Lisa Connery, M.D., Breno Alves, M.D., Arihiro Kiyosue, M.D., Ph.D.,
Shuyu Zhang, M.S., Bing Liu, Ph.D., Mathijs C. Bunck, M.D., Ph.D.,
and Adam Stefanski, M.D., Ph.D., for the SURMOUNT-1 Investigators*



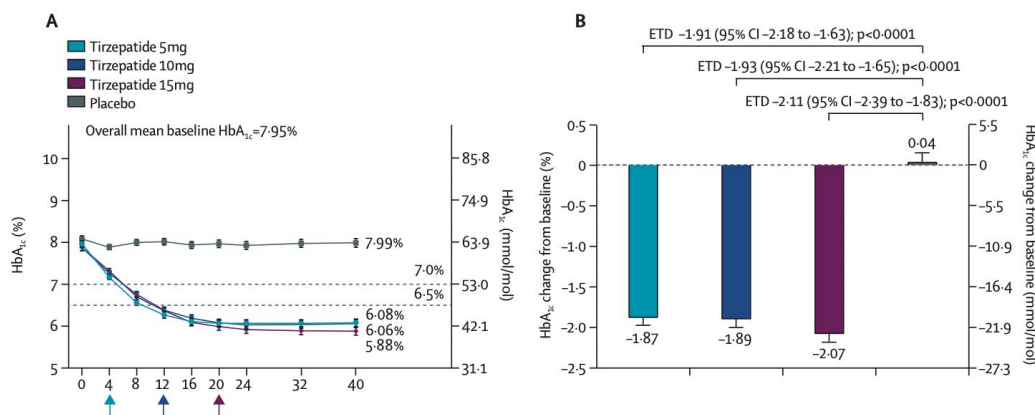
3,5%
lost < 5% TBWL

64% lost
>20% TBWL

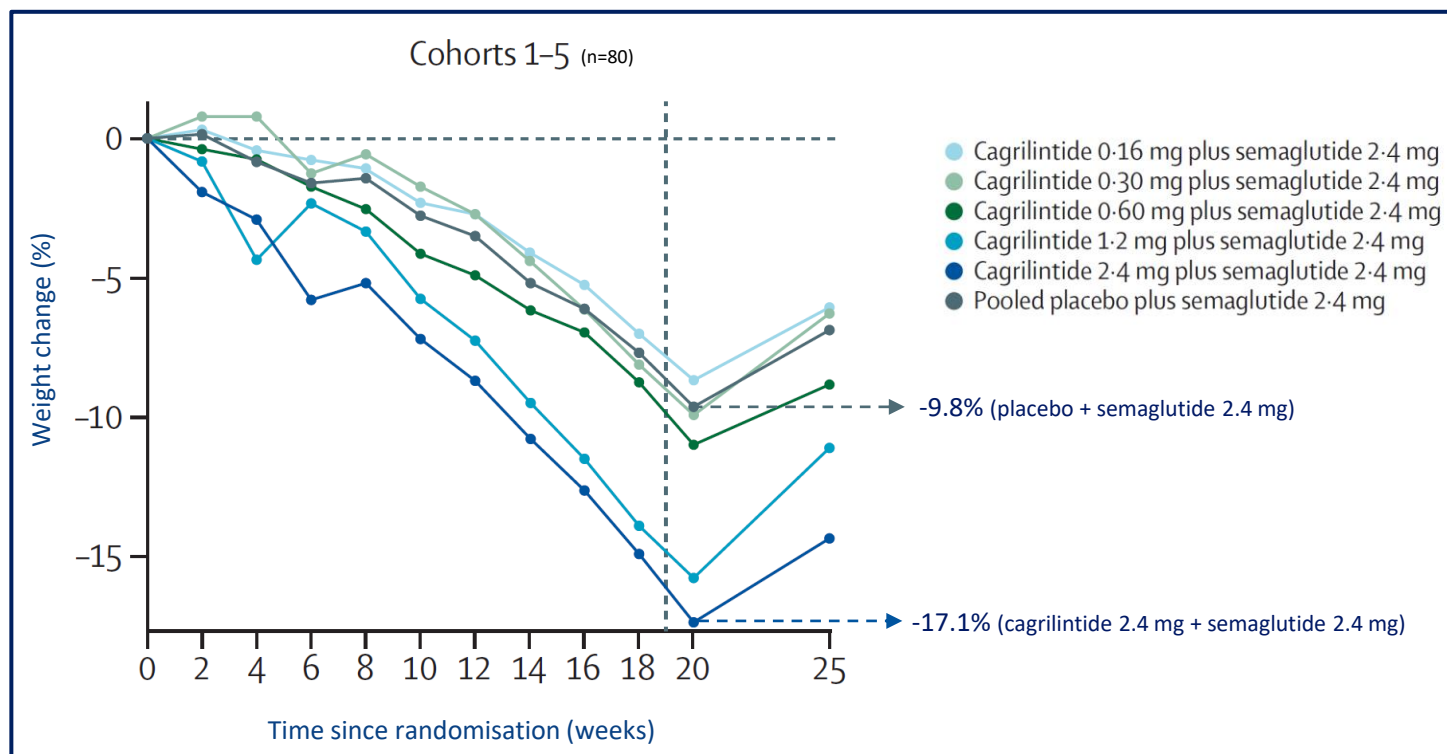
23% lost >
30% TBWL

Efficacy and safety of a novel dual GIP and GLP-1 receptor agonist tirzepatide in patients with type 2 diabetes (SURPASS-1): a double-blind, randomised, phase 3 trial

Julio Rosenstock, Carol Wysham, Juan P Frias, Shizuka Kaneko, Clare J Lee, Laura Fernández Landá, Huzhang Mao, Xuewei Cui, Chrisanthi A Karanikas, Vivian T Thieu



Semaglutide 2.4 mg +cagrilintide



Overall treatment strategy

Typical algorithm

(progress through algorithm as clinically required)

Combination therapies


Bariatric/metabolic
surgery

Add medications

Professionally-directed lifestyle change

Self-directed lifestyle change

BMJ Open Medication following bariatric surgery for type 2 diabetes mellitus (BY-PLUS) study: rationale and design of a randomised controlled study

Alexis Sudlow ¹, Alexander Dimitri Miras,^{2,3} Ricardo Vitor Cohen ^{4,5}, Hassan Kahal,⁶ Jill Townley,⁷ Helen Heneghan,⁸ Carel Le Roux,⁹ Dimitri J Pournaras¹

An aerial photograph of a dense urban landscape, likely in a major city like São Paulo. The image shows a mix of modern high-rise buildings and older, lower-rise structures. In the foreground, there are several large, modern buildings with glass facades and green roofs. The background is filled with a dense cluster of skyscrapers and other urban buildings. The overall scene is a vibrant, high-angle view of a city's skyline.

THANK YOU

ricardo.cohen@haoc.com.br