

# XXVIII IFSO World Congress

9-12 September 2025 | Santiago, Chile



**Revision surgery after sleeve gastrectomy: Where to go?**

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**Weight Loss and Metabolic Surgery Center, Yotsuya Medical Cube, Japan**

# IFSO 2025 Santiago

Combined Therapies, The Dawn of a New Era

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# Disclosure

Lecturer:

- Johnson and Johnson, Medtronic, Sunny Health,  
Terumo

Research support:

- Medtronic, Sunny Health, Nikkiso



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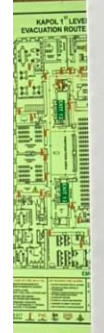


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## *Optimizing Outcomes After Sleeve Gastrectomy: Interventions and Strategies*

An IFSO  
Consensus Conference





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**An IFSO Global Consensus Statement on  
Optimizing outcomes after sleeve gastrectomy: Interventions and strategies**  
on behalf of the experts IFSO global consensus on  
optimizing outcomes after sleeve gastrectomy: Interventions and strategies

Ricardo V. Cohen MD PhD, Mohammad Kermansaravi, MD, Muffazal Lakdawala MS, FRCS,  
Chetan Parmar MD, Yosuke Seki MD, PhD, Paulina Salminen, MD, PhD, Gerhard Prager, MD,  
PhD

**Just accepted in BJS !!!**



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## 3 main topics in this consensus/systematic review

- Module 1: De novo or Persistent GERD
- Module 2: Suboptimal Initial Clinical Response or Recurrent Weight Gain
- Module 3: Suboptimal Remission or Recurrence of Metabolic Syndrome



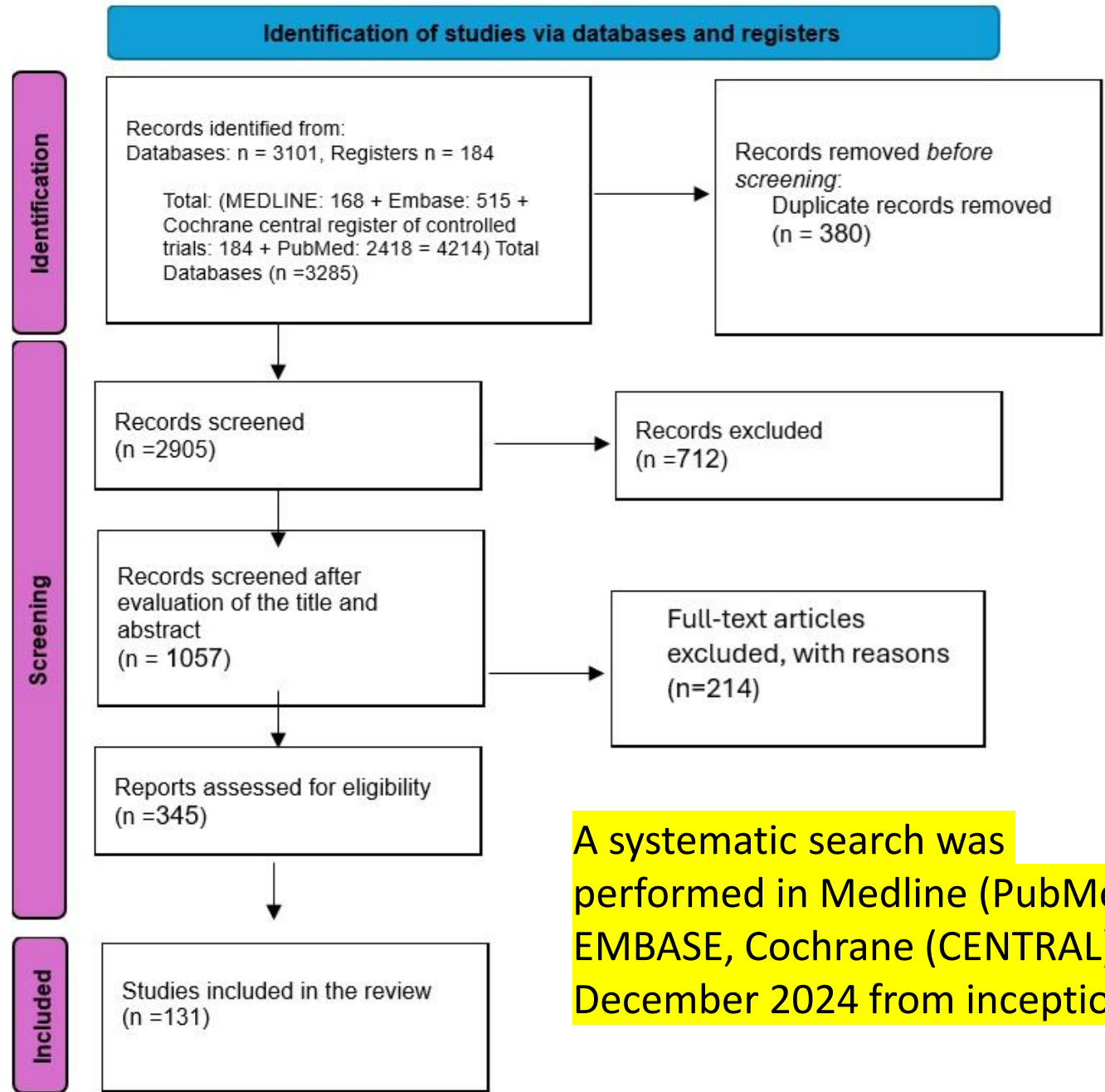
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The IFSO assembled a multidisciplinary panel of 42 international experts in MBS, gastroenterology, internal medicine, endocrinology, and nutrition to develop evidence-based recommendations.

Utilizing a Delphi process, the team identified areas of expert consensus after systematically reviewing the existing literature and outlined key areas requiring further research.

# Main characteristics of the included studies in the systematic review – PRISMA chart



A systematic search was performed in Medline (PubMed), EMBASE, Cochrane (CENTRAL), to December 2024 from inception.



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# Grading of the consensus

- Grade A+ statements that received 100% consensus support
- Grade A 90–99.9% consensus support
- Grade B 80–89.9%
- Grade C 70–79.9%
- Grade D 66–69.9%
- Statements that received less than 66% support were considered to have failed consensus

# Consensus Results – Module 1: De novo or Persistent GERD after Sleeve Gastrectomy



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- **Refluxogenic nature of SG**
  - Altered gastroesophageal junction anatomy contributes to GERD (Grade A+, 100%).
- **Diagnostic evaluation**
  - Imaging, endoscopy, and esophageal physiology studies strongly endorsed for refractory GERD (Grade A, 97%).
- **Medical therapy**
  - Proton pump inhibitors (PPIs) as first-line treatment, broad consensus (Grade A+, 100%).



# Consensus Results – Module 1: De novo or Persistent GERD after Sleeve Gastrectomy



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- **Endoscopic interventions**
  - No consensus on role/effectiveness (no consensus, 44%).
- **Surgical management**
  - Conversion to **Roux-en-Y gastric bypass (RYGB)** recommended with objective GERD and failed medical therapy (Grade A+, 100%).
  - **Concomitant hiatal hernia repair** supported if present (Grade A, 95%).
  - **Conversion to OAGB** acknowledged as high risk for bile reflux, requires caution (Grade A+, 100%).

# Consensus Results – Module 2: Suboptimal Initial Clinical Response (SoCR) or Recurrent Weight Gain (RWG) after SG



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- RWG & SoCR are expected after MBS (Grade A, 97%)
- SG has higher RWG risk than RYGB in long-term (Grade A, 97%)
- Need for standardized definitions & predictors (Grade A+, 100%)
- OMMs (esp. liraglutide) as first-line before revision (Grade A+, 100%)
- Heterogeneous response to OMMs post-op (Grade A, 90%)
- Need for long-term efficacy & optimal protocols (Grade A+, 100%)



# rRYGB for SoCR or RWG

	A	B	C	D	E	F	G	H	I	J	K
1	Article no.	Publication year	Authors	Study type	Reasons for revision	Treatment	N = no. of patients	F/U period after revision	Weight loss outcome at		
2	1	2022	Hany	RCT	RWG	RYGB	80	2 yrs	%EBMIL 84.8		

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**Thirty-two study** entries reported outcomes of conversion from SG to RYGB. Follow-up endpoints were harmonized to 12, 24, 36, and 60 months.

-At 12 months (N = 1,169), the weighted mean %TWL was 23.8% (range 16.1–24.3) and %EWL 46.2% (range 32.7–61.2).

-At 24 months (N = 840), outcomes remained stable, with weighted mean %TWL 24.5% (range 16.0–36.4) and %EWL 45.4% (range 30.8–64.0).

-At 36 months (N = 129), %TWL was 23.9% (range 7.5–45.0) and %EWL 50.1% (range 16.4–66.9).

-At 60 months, limited data (N = 30) reported %EWL 23.3%.

Overall, **RYGB demonstrated consistent and durable weight-loss outcomes, averaging ~24% TWL and ~45–50% EWL up to 3 years, with sparse data beyond.**

33	69	2018	Shimon	Retrospective comp	SoCR, RWG	RYGB	18	1 yr	%TWL 18.76		
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# re-SG for SoCR or RWG

	A	B	C	D	E	F	G	H	I	J
1	Article no.	Publication year	Authors	Study type	Reasons for revision	Treatment	N = no. of patients	F/U period after revision	Weight loss outcome at endpoint	

**Fourteen study** entries addressed re-sleeve gastrectomy.

-At 12 months (N = 225), pooled data showed no consistent %TWL reporting, but the weighted mean %EWL was 58.1% (range 31.0–86.8).

-At 24 months (N = 208), the weighted mean %TWL was 43.2% (range 42.2–44.2), with %EWL 66.4% (range 58.5–86.0).

-At 60 months, limited evidence (N = 52) suggested maintained weight-loss effect, though only isolated data were available.

**Re-sleeve gastrectomy demonstrated meaningful short- to mid-term weight reduction, with notably high %EWL (>60%) reported at 2 years.**

15	63	2019	Antonopoulos	Retrospective comp	SoCR, RWG	re-sleeve	61	1 yr	%EWL 69.5
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# rOAGB for SoCR or RWG

	A	B	C	D	E	F	G	H	I	J	K
1	Article no.	Publication year	Authors	Study type	Reasons for revision	Treatment	N = no. of patients	F/U period after revision	Weight loss outcome at endpoint		IFSO gress 2025 ile
2	1	2022	Hany	RCT	RWG	OAGB	80	2 yrs	%EBMIL 89.3		
3	7	2022	Rheinwalt	Retrospective comp	SoCR, RWG, GERD	OAGB	55	2 yrs	%TWL 23		

**Twenty studies** reported OAGB outcomes as revision after SG.

- At 12 months (N = 212), the weighted mean %TWL was 31.7%, and %EWL 59.0% (range 55.0–79.0).
- At 24 months (N = 431), pooled %TWL was 23.9% (range 23.0–25.7), while only one study reported %EWL (83.7%).
- At 36 months (N = 113), %TWL increased to 44.2% (range 34.9–48.7).
- At 60 months (N = 314), the weighted mean %TWL was 26.1% (range 19.4–34.0), with %EWL 48.6% (range 41.0–54.7).

**OAGB provided substantial and sustained weight-loss benefits, particularly notable for high %TWL at 36 months.**

20	67	2023	Salama	Retrospective comp	RWG	OAGB	49	5 yrs	%TWL 19.4		
21	68	2020	Cruz	Retrospective comp	RWG	OAGB	42	3 yrs	%TWL 40.5		

# rDS/SADI for SoCR or RWG

	A	B	C	D	E	F	G	H	I	J
1	Article no.	Publication year	Authors	Study type	Reasons for revision	Treatment	N = no. of patients	F/U period after revision	Weight loss outcome at endpoint	

**Sixteen studies** reported outcomes for DS or SADI.

- At 6 months, DS achieved %EWL 57.6% (N = 15), while SADI showed %TWL 12.7% (N = 16).
- At 12 months, DS (N = 114) demonstrated %TWL 26.3% and %EWL 47.9%; SADI data were limited.
- At 24 months, DS (N = 90) reported %TWL 21.7%, %EWL 75.3%, while SADI (N = 109) yielded %TWL 15.7%, %EWL 64.1%.
- At 36 months, DS (N = 25) reported %EWL 72.0%, whereas SADI (N = 42) showed %TWL 44.5%.
- At 60 months, DS (N = 59) demonstrated %TWL 42.3%, and SADI (N = 199) %TWL 46.6%.

**Both DS and SADI provided robust and durable long-term weight loss. DS tended to achieve higher %EWL at 2 years, while SADI demonstrated comparable or greater %TWL at 5 years, suggesting nuanced differences in weight-loss profiles.**

15	66	2024	Chae	Retrospective comp.	SoCR, RWG	SADI	63	2 yrs	%TWL 15.73
16	67	2023	Salama	Retrospective comp.	RWG	SADI	42	5 yrs	%TWL 30.0
17	68	2020	Cruz	Retrospective comp.	RWG	SADI	42	3 yrs	%TWL 44.5

# Consensus Results – Module 2: Suboptimal Initial Clinical Response (SoCR) or Recurrent Weight Gain (RWG) after SG



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- Multidisciplinary evaluation incl. imaging & tailored follow-up (Grade A, 92–97%)
- SADI-S / BPD-DS: Effective but ↑ nutritional risks (Grade A+, 100%)
- RYGB: Preferred with GERD or anatomical complications (Grade A, 97%)
- Revisional ESG (R-ESG) + lifestyle: No consensus (Grade F, 55%)



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# Consensus Results – Module 3: Suboptimal Remission or Recurrence of Metabolic Syndrome after SG

- **Durability of metabolic benefits**
  - Benefits of SG on glycemic control and blood pressure decline over time (Grade A, 98%).
- **Mechanisms of recurrence**
  - Recurrence of T2D, HTN, and dyslipidemia due to both weight regain and weight-independent mechanisms (Grade A, 91%).
- **Timing of surgical intervention**
  - Early SG, especially in patients with less severe preoperative T2D, linked to higher and more durable remission rates (Grade A, 93%).
- **Future research priorities**
  - Need for long-term studies to identify predictors of metabolic relapse (Grade A, 92–96%).
  - Greater evaluation of SG's impact on MASLD, CKD, and dyslipidemia recommended.



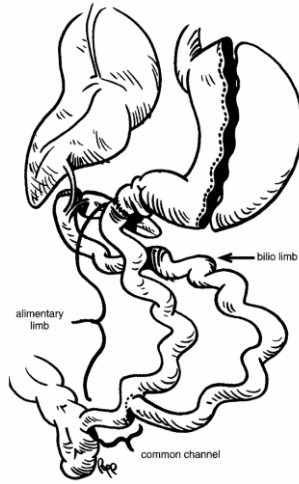
**With division of duodenum**

**Without division of duodenum**

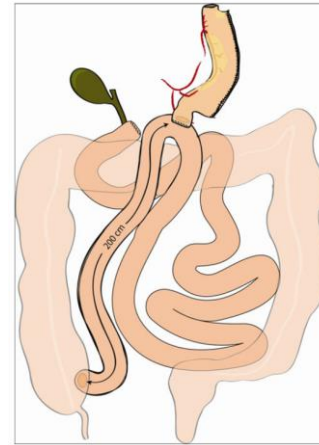
**Short** ~200cm  
common channel

Double anastomosis

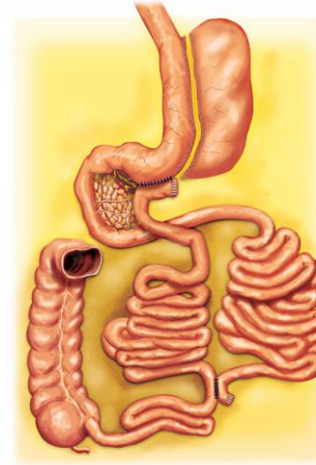
Single anastomosis



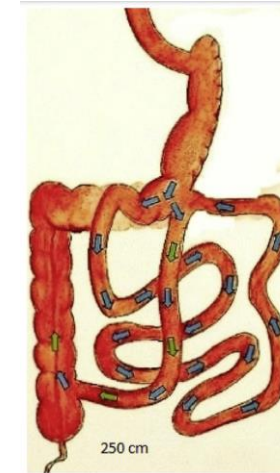
**BPD-DS**  
Biliopancreatic diversion  
with a duodenal switch  
(Hess 1998)



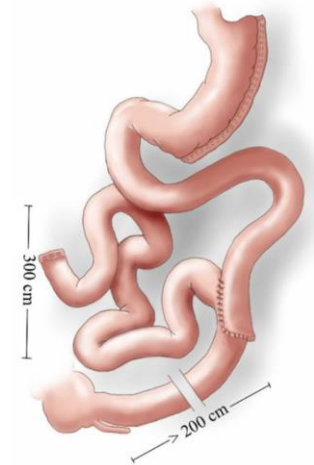
**SADI-S**  
Single anastomosis duodeno-ileal bypass  
with sleeve gastrectomy  
(Sanchez-Pernaute 2007)



**SG-TB**  
Sleeve gastrectomy  
with transit bipartition  
(Santro 2006)

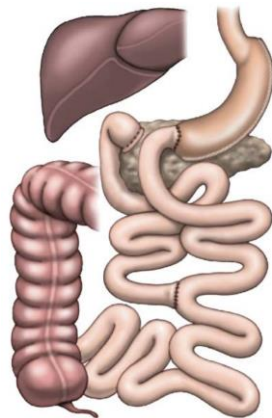


**SASI**  
single anastomosis sleeve ileal bypass  
(Mahdy 2016)

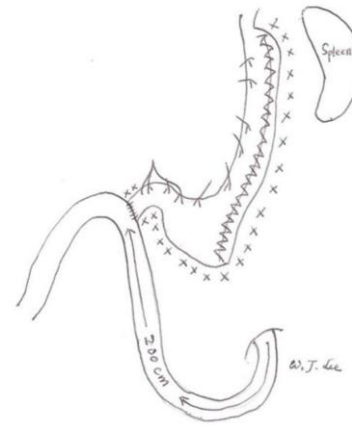


**SG-JB**  
sleeve gastrectomy  
with jejunal bypass  
(Alamo 2006)

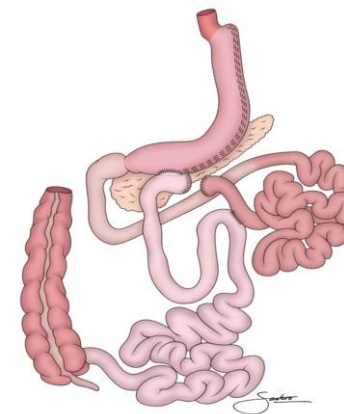
**Long** > 400cm  
common channel



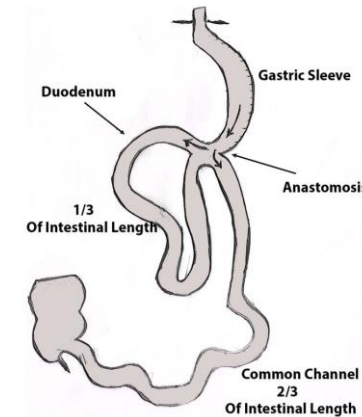
**SG-DJB**  
Sleeve gastrectomy  
with duodenojejunal bypass  
(Kasama 2009)



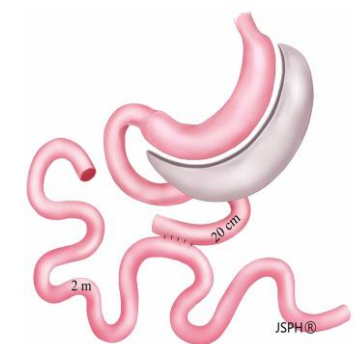
**SADJB-SG**  
Single-anastomosis duodenal-jejunal bypass  
with sleeve gastrectomy  
(Lee WJ 2014)



**SG-TB**  
Sleeve gastrectomy  
with transit bipartition  
(Azevedo, Santro 2018)



**SAS-J**  
Single anastomosis sleeve jejunal bypass  
(Sewefy 2021)



**SG-JJB**  
sleeve gastrectomy  
plus jejunojejunal bypass  
(Lin 2019)

	A	B	C	D	E	F	G	H	I	J
1	Article no.	Publication year	Authors	Reasons for revision	Treatment	N = no. of patients	F/U period after revision	Weight loss outcome at endpoint		
50	42	2020	Debs	SoCR, RWG	OAGB	77	5 yrs	%TWL 26		
51	43	2021	Pizza	SoCR, RWG	OAGB	59	34.32 mo (mean F/U)	%TWL 48.72		
52	44	2019	Poghosyan	SoCR, RWG	OAGB	72	5 yrs	%TWL 34		
53	45	2018	Biertho	SoCR, RWG	DS	59	59.9 mo (mean F/U)	%TWL 42.3 at 3 yrs		
54	46	2009	Iannelli	SoCR, RWG, persistence	DS	15	6 mo	%EWL 57.6, %EBMIL 51.7		
55	47	2021	Liagre	SoCR, RWG, GERD	SADI	106	4 yrs	%TWL 37.6 at 2 yrs, 44.1 at 4 yrs		
56	48	2020	Sanchez-Pernaute	SoCR, RWG, persistence	SADI	51	5 yrs	%TWL 79 at 1 yr, 41 at 5 yrs		
57	50	2022	Qudan	SoCR, RWG	SADI	16	4.5 mo (median F/U)	%TWL 12.7		
58	51	2021	Reiser	SoCR, RWG	TB (transit bipartition)	100	1 yr	%TWL 36.3, %EWL 74.7		
59	52	2020	de Moura	RWG	ESG	34	1 yr	%TWL 18.3%, %EWL 69.9		
60	53	2023	Jamal	SoCR, RWG	OMM (liraglutide)	57	3 mo (median F/U)	%TWL 6.2%		
61	54	2024	Jamal	RWG	OMM (semaglutide, tirzepatide)	115	6 mo	%TWL 10.3 in sema, 15.5 in tirzepatide		
62										

**Thank you for listening!**  
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