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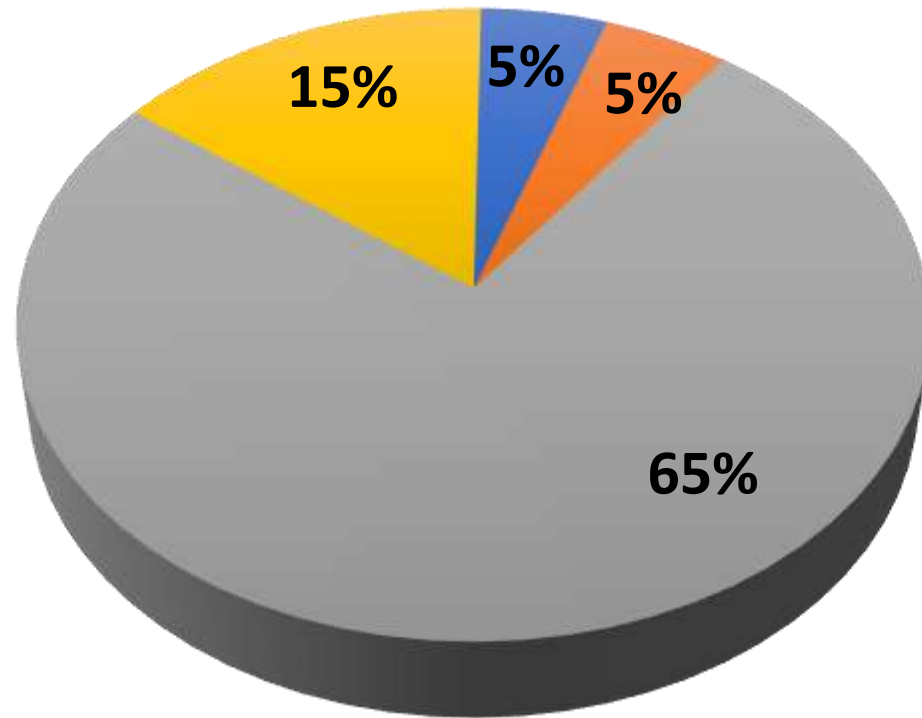
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How do we define Weight Recurrence or Suboptimal Weight Loss?

CONFLICT OF INTEREST DISCLOSURE

- Member Scientific Advisory Board Morphic Medical (GI Dynamics)
- Grants Johnson & Johnson Endosurgical
- Grants Bariatric Solutions

CURRENT CASE MIX



- RYGB
- SG
- BALLOON
- ENDOSCOPIC SLEEVE

Weight Doctors Netherlands
Can Tho University of Medicine and Pharmacy

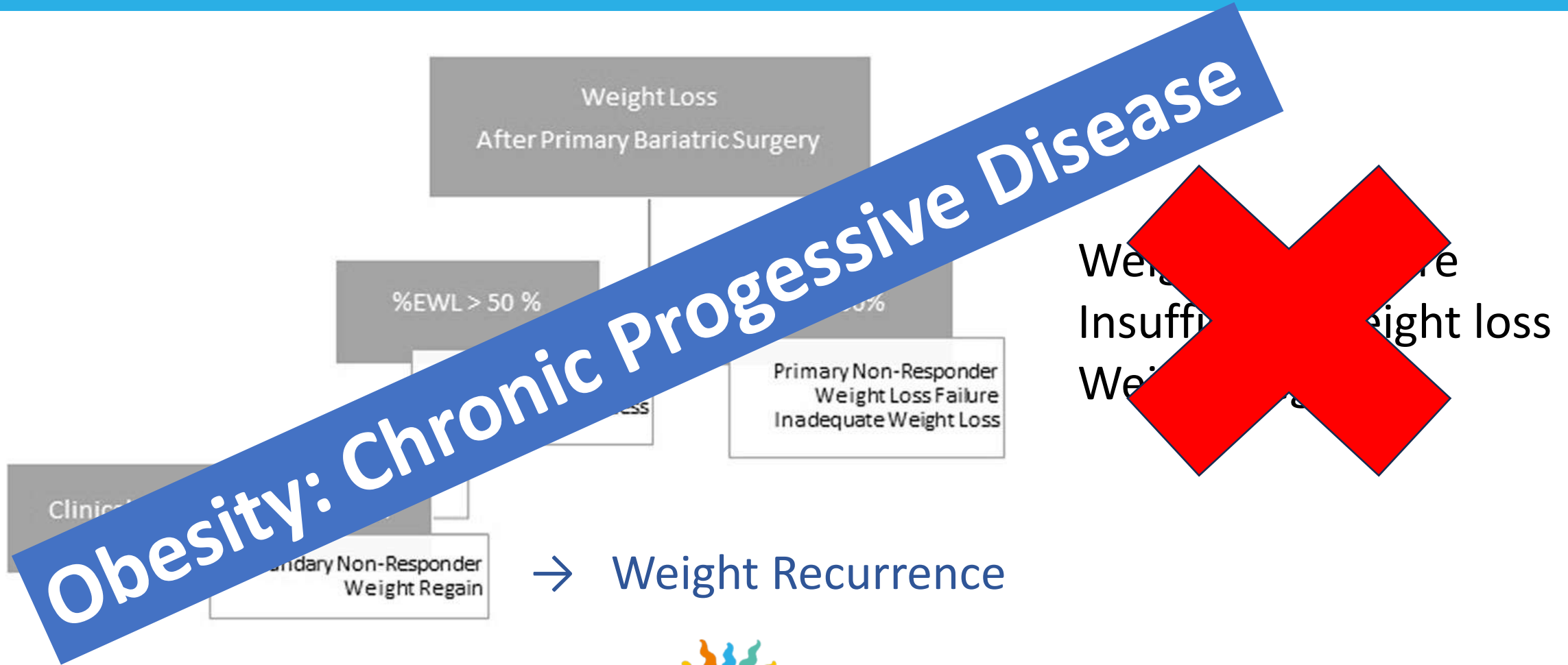
Overview

- Terminology
- Standard of Reporting weight loss
- Definition of Successful Weight Loss / Metabolic Bariatric Surgery
- How to define Weight Recurrence / Secondary Non responder



Success of Treatment

Terminology



Lack of Standard Definitions of Primary and Secondary (Non)responders After Primary Gastric Bypass and Gastric Sleeve: a Systematic Review



Bonouvrie et al. Obesity Surgery (2019) 29:691–697

Primary Surgery

Definition of Success

Table 1 Criteria of "success" and "failure" [11, 12, 13, 14]

Outcome measure	Reinhold	Lechner and Elliot	Christou et al.	Biron et al.	
	%excess weight	%EWL	BMI cutoff	Superobese BMI cutoff	Morbid obese BMI cutoff
Excellent	< 25%	≥ 80%	<30 kg/m ²	–	–
Good	26–50%	50–80%	30–35 kg/m ²	< 40 kg/m ²	<35 kg/m ²
Fair	51–75%	–	–	–	–
Poor	76–100%	< 50%	–	–	–
Failure	> 100%	< 25%	>35 kg/m ²	–	–

Lack of Standard Definitions of Primary and Secondary (Non)responders After Primary Gastric Bypass and Gastric Sleeve: a Systematic Review

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Obesity Surgery (2019) 29:691–697

Primary Surgery

Definition of Success

IFSO-World Gastroenterology Organisation
guideline

success

- >50%EWL
- BMI <35
- >10%TWL

- No reference to co-morbidities / QoL

Bariatric Analysis and Reporting
Outcome System (BAROS)

H. E. Oria, M. Morehead
1998

- %EWL
- Co-morbidities
- QoL

Primary Surgery

UNIFORM RECORDING OF WEIGHT LOSS

Reporting Weight Loss 2021: Position Statement of the Dutch Society for Metabolic and Bariatric Surgery (DSMBS), van de Laar et al Obesity Surgery (2021) 31:4607–4611

%EWL / %EBMIL -> unreliable, should not be used

Registration of Weight Loss → %TWL

- Reproducible
- General use in non surgical disciplines

Plea for evidence based dynamic weight loss percentile charts, like the 2019 Dutch Bariatric Chart



Definition of Primary Non-Responder

ASMBS POWER Task Force SOARD 2022 18:957-963 (Post Operative WEight Recurrence)

Saniea F. Majid et al. / Surgery for Obesity and Related Diseases 18 (2022) 957–963

Table 2

Summary of the published insufficient weight loss and associated definitions

Definitions published	Term being defined with reference
EWL <50% 18 mo postoperatively	IWL [11]
EWL <50% from preoperative weight	IWL [36]
<20% TWL over time	IWL [37]

EWL = excess weight loss; TWL = total weight loss; IWL = insufficient weight loss.



Primary Non-Responder

Overview used criteria for weight recurrence

Lack of Standard Definitions of Primary and Secondary (Non)responders After Primary Gastric Bypass and Gastric Sleeve: a Systematic Review. Bonouvrie et al. Obesity Surgery (2019) 29:691–697

Definition of secondary non-responder	Frequency of use
Descriptive statistics (any weight regain)	XVIII
An increase in body weight of more than 5 kg	II
An increase in body weight of more than 10 kg from the nadir	II
An increase of at least 10% of the lowest postoperative weight	III
Any regain of lost weight from nadir weight	I
≥ 5% weight change between 1 and 2 years after surgery	I
Percentage excessive weight regain > 15%.	I
EWL regain > 25% with respect to the minimal weight or when patient met de criteria for bariatric surgery again established by the IFSO	I
> 25% rebound in EWL	I
Any regain of lost weight after 2 years	I
Regained all their lost weight within 5% of baseline	I
> 15% regain of maximum total weight loss	I
> 20% regain of maximum total weight loss	I
> 25% regain of maximum total weight loss	I
Any regained weight after achievement of %EWL > 50%	II
Any weight regain after successful loss (defined as achievement of body mass index ≤ 35 kg/m ²)	I
Weight regain resulting in failure to maintain an %EWL ≥ 50% over time	I
Regained all their lost weight within 5% of baseline	I

Overview used criteria for weight recurrence

Saniea F. Majid et al. / Surgery for Obesity and Related Diseases 18 (2022) 957–963

Table 1
Summary of the published weight recurrence and associated definitions

Definitions published	Term being defined with references
>10 kg from nadir weight	WR [13,14]
>25% EWL from nadir weight	WR [14]
>5 BMI points from nadir weight	WR [23]
WR to a BMI of 35 kg/m ²	WR [14]
Any WR after remission of type 2 diabetes	WR [14]
Any WR	WR [14]
WR 5 yr postoperatively from the nadir weight, expressed as change in BMI or %TWL or change in excess BMI lost or % EWL	WR [14]
Two yr s/p RYGB, patients who regained >10% of their lowest postoperative weight	WR [16]
Two yr s/p SG, WR of 5 kg from nadir weight	WR [13]
EWL <50% after reaching EWL >50%	WR [11]
Lack of maintenance of TWL >20%	WR [26]
Percentage of weight regained over nadir weight in 30 days from nadir (mild = .5%; moderate = .5–1%; severe ≥1%)	WR [22]
Progressive weight regain that occurs after achievement of an initial successful weight loss defined as EWL >50%	WR [11]
BMI >35 kg/m ²	WR [14,23]
BMI >30 + EWL <50%	WR [29]
BMI >35 + EWL <50%	WR [30]
Increase of >15% total weight from nadir	WR [31]
36-mo WR: (36-mo weight – nadir weight)/nadir weight × 100%	WR [20]
48-mo WR: (48-mo weight – nadir weight)/nadir weight × 100%	
Current weight – lowest weight in postoperative time as a percent – age relative to the lowest weight	WR [32]
Significant WR = %WR ≥15%	
WR was evaluated relative to the amount of weight loss relative to nadir	WR [17]

WR/weight loss and WR/nadir at each subsequent weight measurement relative to the elapsed time since nadir	WR [17]
Primary nonresponse (1NR): inability to achieve adequate weight loss after surgery	Primary nonresponder [33] Secondary nonresponder [33]
Secondary nonresponse (2NR): excessive WR after initial adequate weight loss after surgery	
Progressive weight regain that occurs after achievement of an initial successful weight loss defined as EWL >50%	WR [11]
WR calculated from the minimum recorded weight	WR [11,14,35]
Percent WR = (5-yr recorded weight – minimum recorded weight × 100)/(preoperative weight – minimum recorded weight)	
>10% of the lowest postoperative weight	WR [16]
>15% of maximal EWL	WR [34]
>20% of weight loss after achieving goal weight loss	WR [7]
Goal weight loss defined as 15% TWL after SG, 25% TWL after RYGB	
Adequate weight loss (AWL) = achieved goal weight loss without the WR	
Nonresponders never achieve goal weight loss	
2 yr s/p RYGB with successful weight loss defined as ≥50% EWL in 1–2 yr postoperatively	WR [15]
WR defined >15% of the 1-yr postoperative weight	
S/p RYGB, all patients must have achieved nadir weight in the following time periods: 1–2 yr, 2–3 yr, 3–4 yr, 4–5 yr, 5–6 yr, and >6 yr postoperatively. WR is evaluated relative to weight loss	WR [17]
>10 kg weight gain from lowest postoperative weight	WR [13]

SG = sleeve gastrectomy; RYGB = Roux-en-Y gastric bypass; EWL = excess weight loss; TWL = total weight loss; IWL = insufficient weight loss; WR = weight regain/recurrence; s/p = status post; NR = nonresponders; AWL = adequate weight loss.

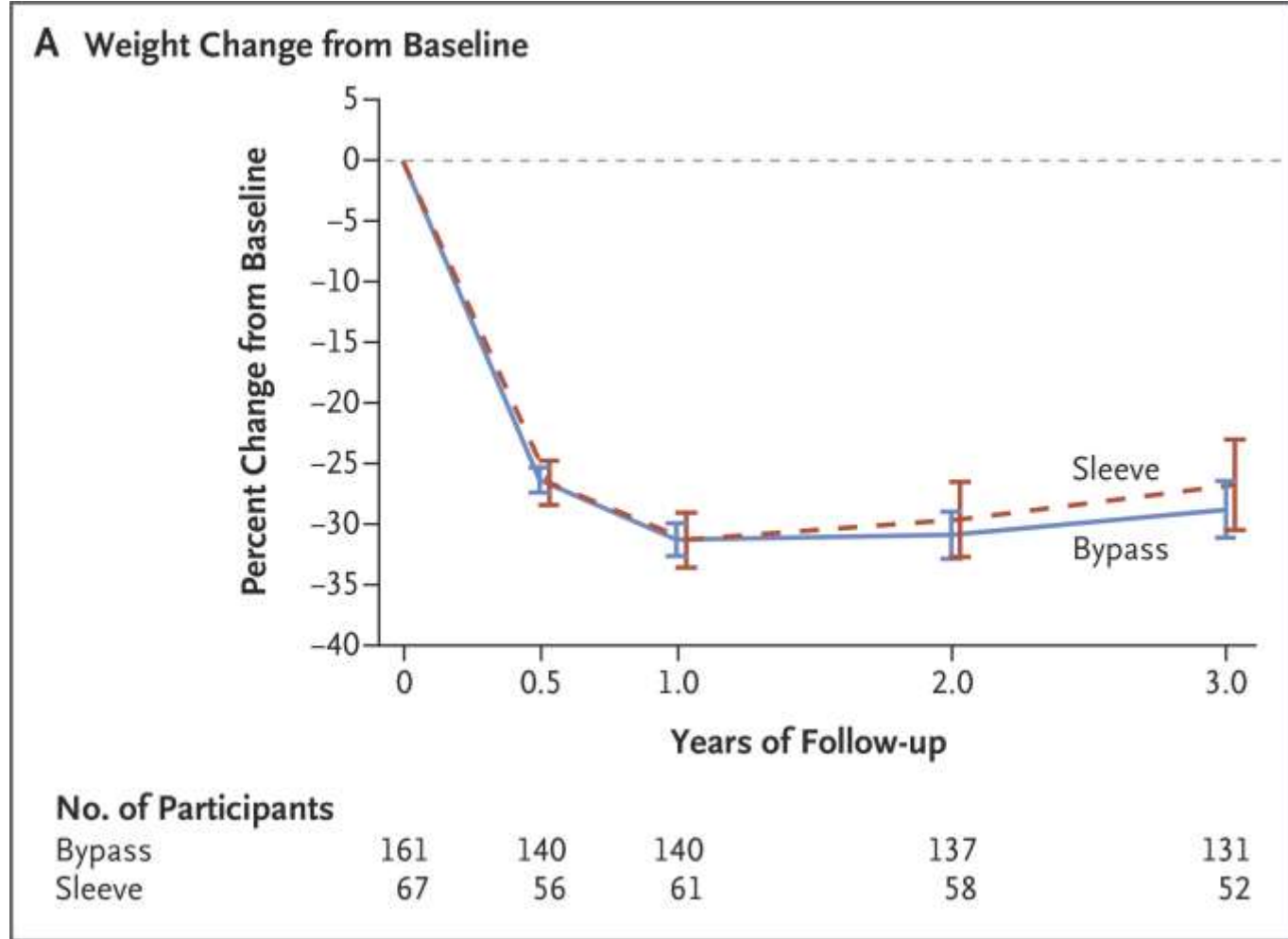


When is weight recurrence significant

Common weight loss curve after MBS

“Natural course”
some weight recurrence after 1-1 ½
year

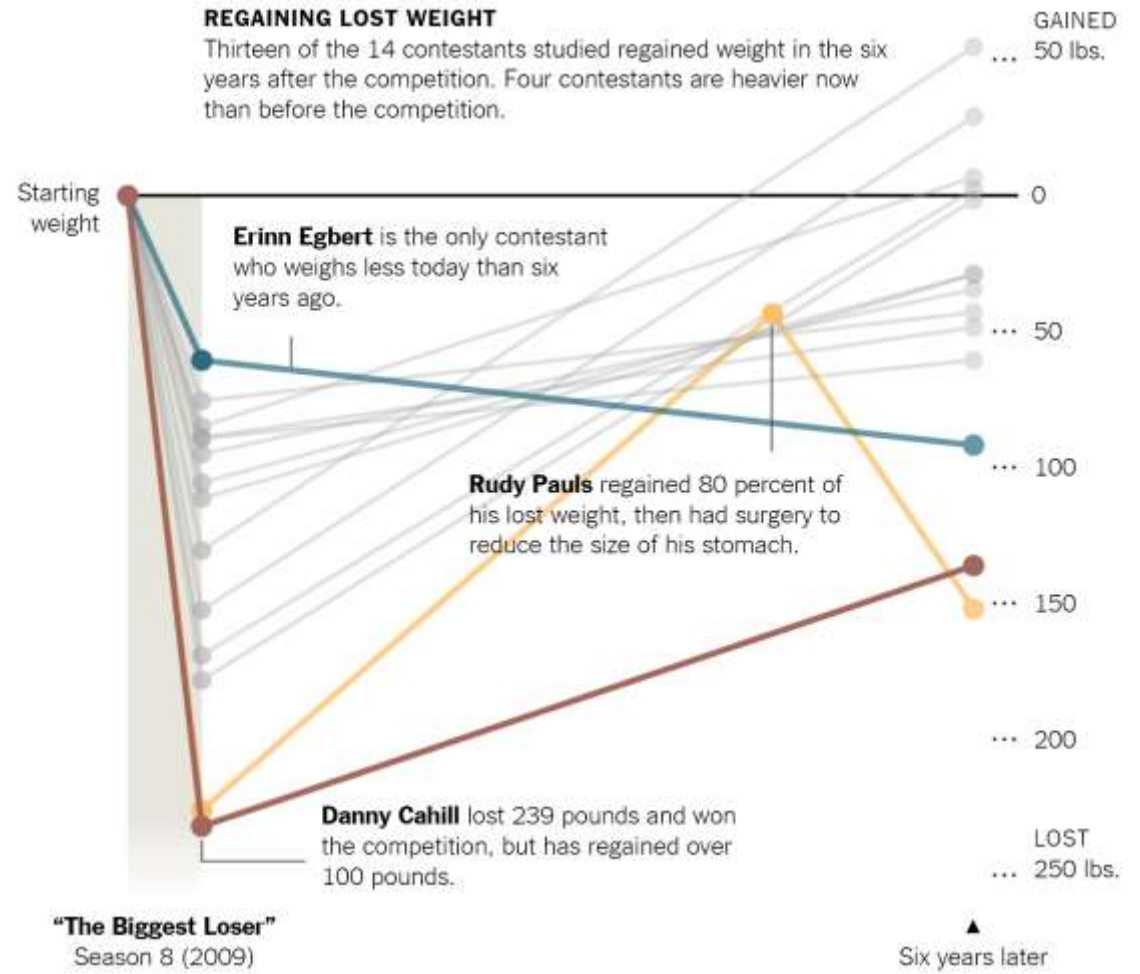
Increasing amount of food intake with
stable weight



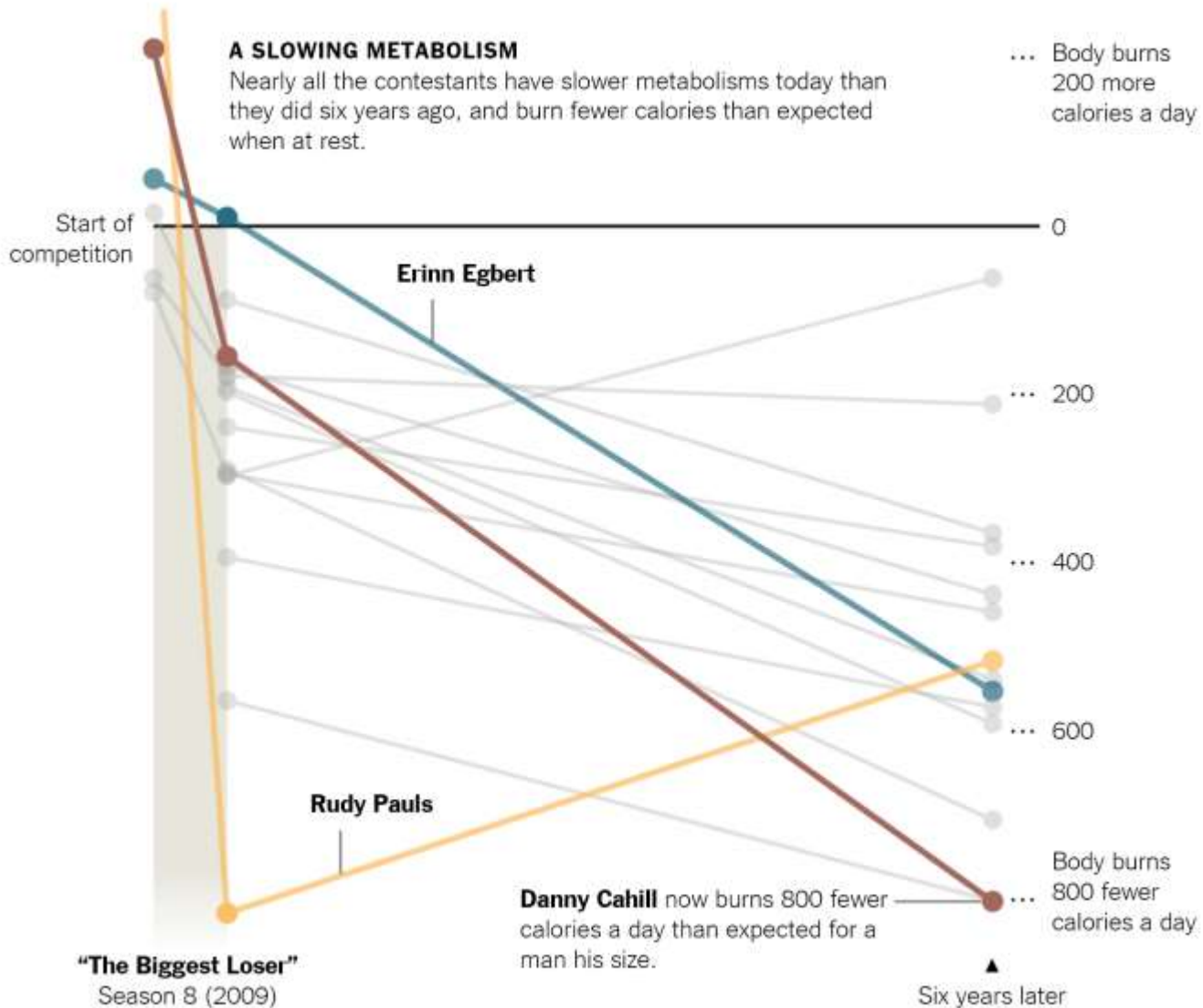
Problem of Weight recurrence:

No existing standardized definition

- When is it significant
- Patients perception of success
- Re-imburement of revision / conversion procedures
- When to intervene
- Recurrence of Obesity related co-morbidities
- Gained Weight much more difficult to lose



G. Kolata, New York Times May 2, 2016

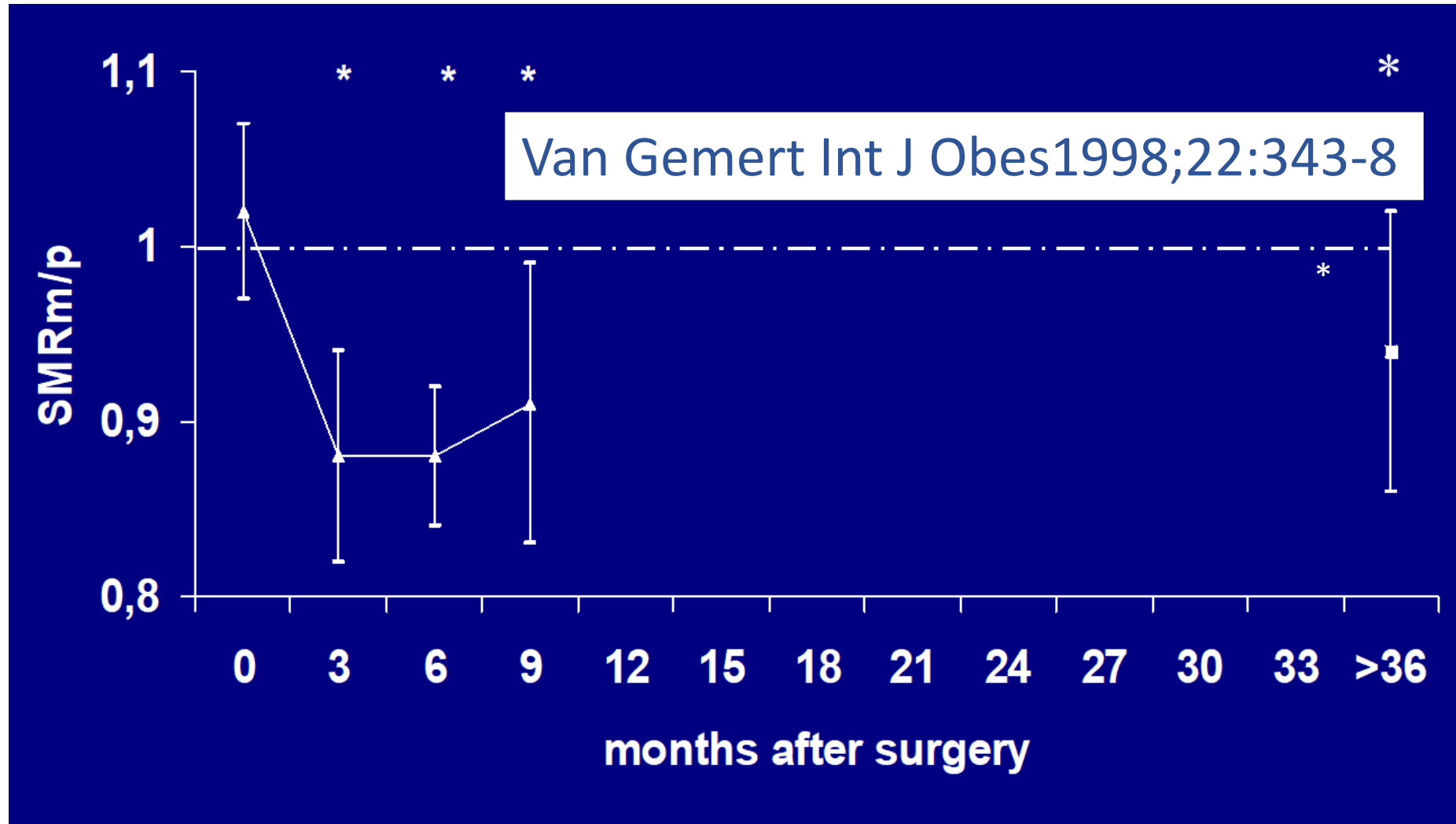


Significant decrease in energy expenditure after weight loss

In case of weight recurrence

EARLY intervention is IMPORTANT

Sleeping Metabolic Rate measured/predicted



Weight Recurrence / Secondary Non-Responder

A SIMPLE Performance Assessment of Bariatric Procedures and Post-operative Weight Regain

de Vries et al Journal of Gastrointestinal Surgery (2022) 26:542–549

The SIMPLE acronym (Survival analysis of Interpolated weight trajectories in a Markov chain, assessing Predictors, Longitudinal TWL% and individual procedure success and relapse Events) provides a framework to assess the performance of bariatric procedures in everyday practice, identifying a procedures' overall performance both in terms of longitudinal total weight loss % and individual events of weight regain.

Primary Responder >20%TWL Secondary Non-Responder >15%TW increase from Nadir



Approach to the Patient: Management of the Post–Bariatric Surgery Patient With Weight Regain; Nawfal W. Istfan et al; The Journal of Clinical Endocrinology & Metabolism, 2021, Vol. 106, No. 1, 251–263

Weight Recurrence algorithm

Weight Increase	% nadir weight per 30 days
Mild	0.2% to <0.5%,
Moderate	0.5% to 1.0%,
Rapid	> 1.0%

CONCLUSION

- Use %TWL!!
- Current best Parameter Primary Non-Responder <20 %TWL
 - Need for more overall score including QoL and Co-Morbidities
- Weight Recurrence / Secondary Non-Responder
 - Early detection
 - Algorithm Apovian (speed of weight recurrence)
 - Provisional parameter
 - >5 %TW increase above Nadir Weight at any moment
 - <20%TWL at any time after reaching Nadir
 - -> Need for standardization