LEAF
WEIGHT MANAGEMENT CLINIC
LIVE.EAT.ACTIVITY.FOREVER.

Acute vs Chronic Weight Management

CABPS May 6th 2022

Judy Shiau, MD, FRCPC, Dipl. of ABOM
Associate Professor, University of Ottawa
Bariatric Medicine Fellowship Program Director
Division of Endocrinology and Metabolism
Medical Director LEAF Weight Management Clinic

CanMEDS Roles Covered: Shiau - “Canadian Obesity Weekend 2022”

X	**Medical Expert** (as *Medical Experts*, physicians integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional values in their provision of high-quality and safe patient-centered care. *Medical Expert* is the central physician Role in the CanMEDS Framework and defines the physician’s clinical scope of practice.)
X	**Communicator** (as Communicators, physicians form relationships with patients and their families that facilitate the gathering and sharing of essential information for effective health care.)
X	**Collaborator** (as *Collaborators*, physicians work effectively with other health care professionals to provide safe, high-quality, patient-centred care.)
X	**Leader** (as *Leaders*, physicians engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.)
X	**Health Advocate** (as *Health Advocates*, physicians contribute their expertise and influence as they work with communities or patient populations to improve health. They work with those they serve to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to effect change.)
X	**Scholar** (as *Scholars*, physicians demonstrate a lifelong commitment to excellence in practice through continuous learning and by teaching others, evaluating evidence, and contributing to scholarship.)
X	**Professional** (as *Professionals,* physicians are committed to the health and well-being of individual patients and society through ethical practice, high personal standards of behaviour, accountability to the profession and society, physician-led regulation, and maintenance of personal health.)

Name: Shiau - “Canadian Obesity Weekend – May 2022”

Financial Disclosures

(over past 24 months)

	Speaker	Advisory	Research	Consultant
AbbVie	√			
Bausch	√	√		
Novonordisk	√	√		
Nestle Health			√	√

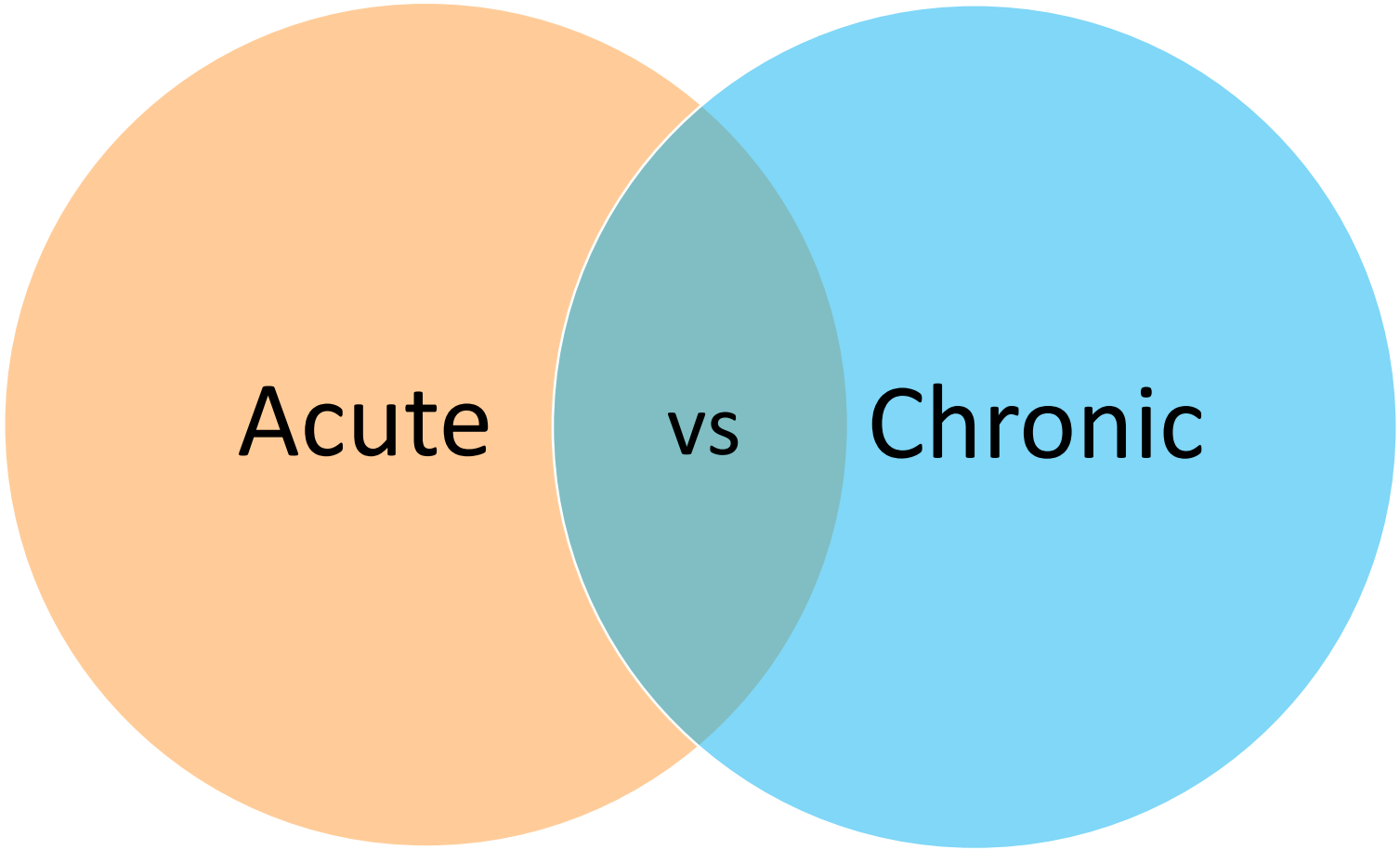
Special Thanks

- Dr. Brandon Suen and Dr. Najwan Alsulaimi

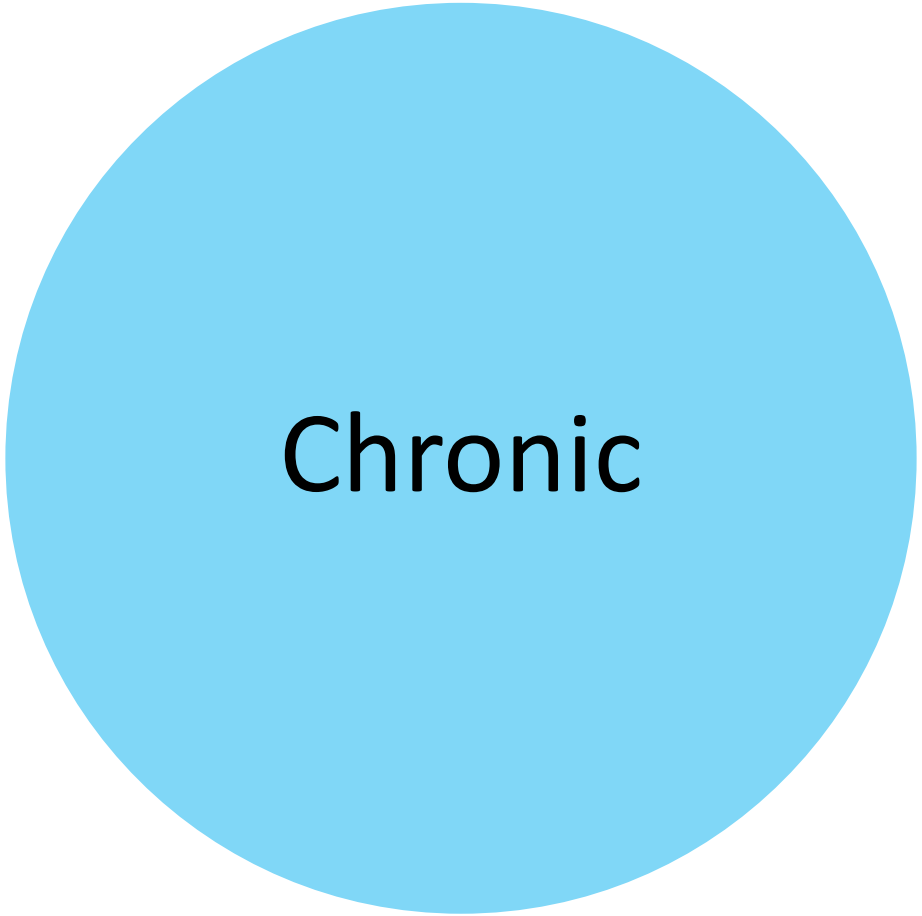
Objectives

1. Define what is acute weight loss and when it is appropriate
2. Recognize how acute weight loss differs from chronic weight management
3. Review a protocol for acute weight loss

Weight Management



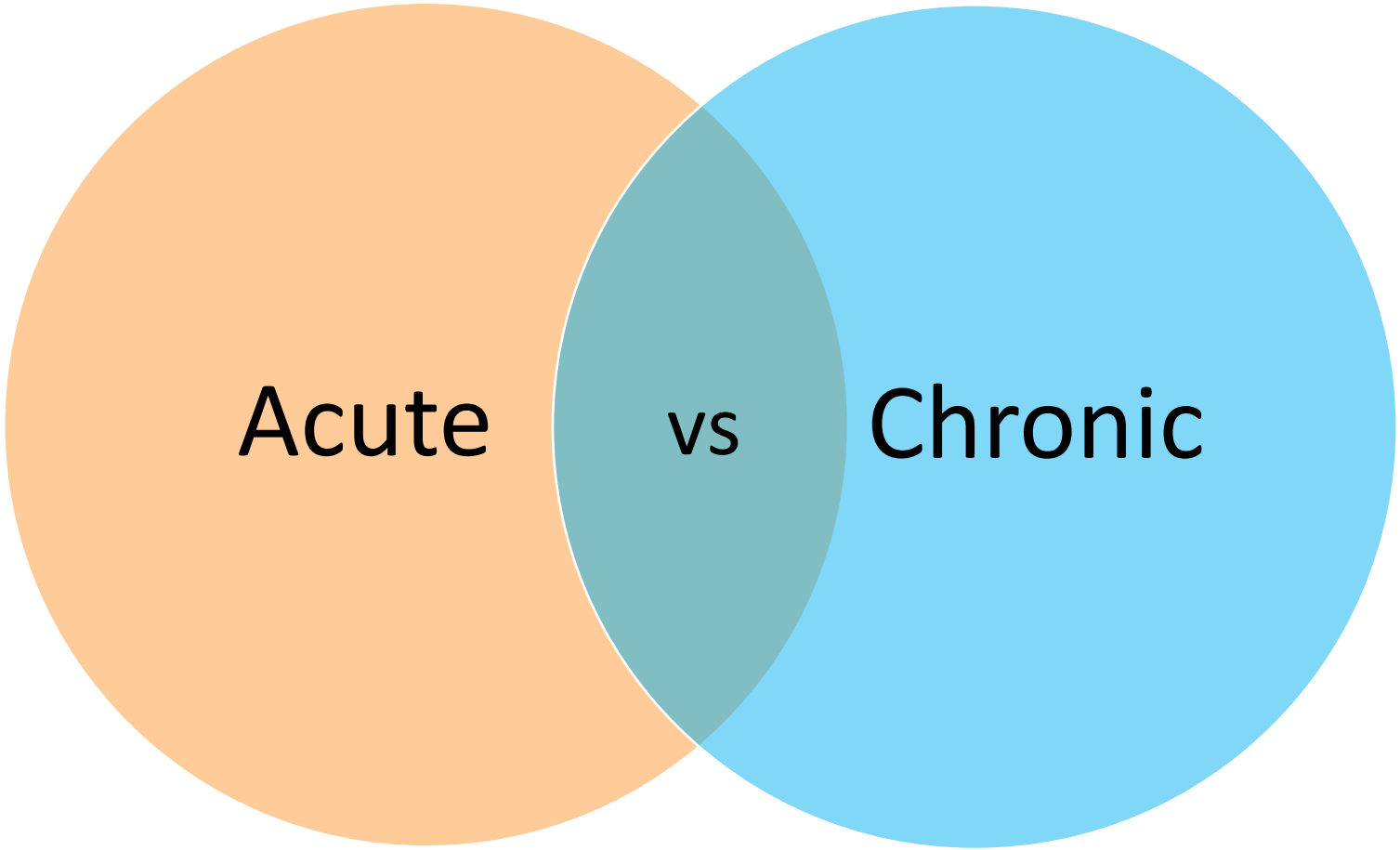
Weight Management



Chronic Weight Management

- Typically implies over a long period of time, essentially life long
- Not just loss but maintenance
- Not just about the scale

Weight Management



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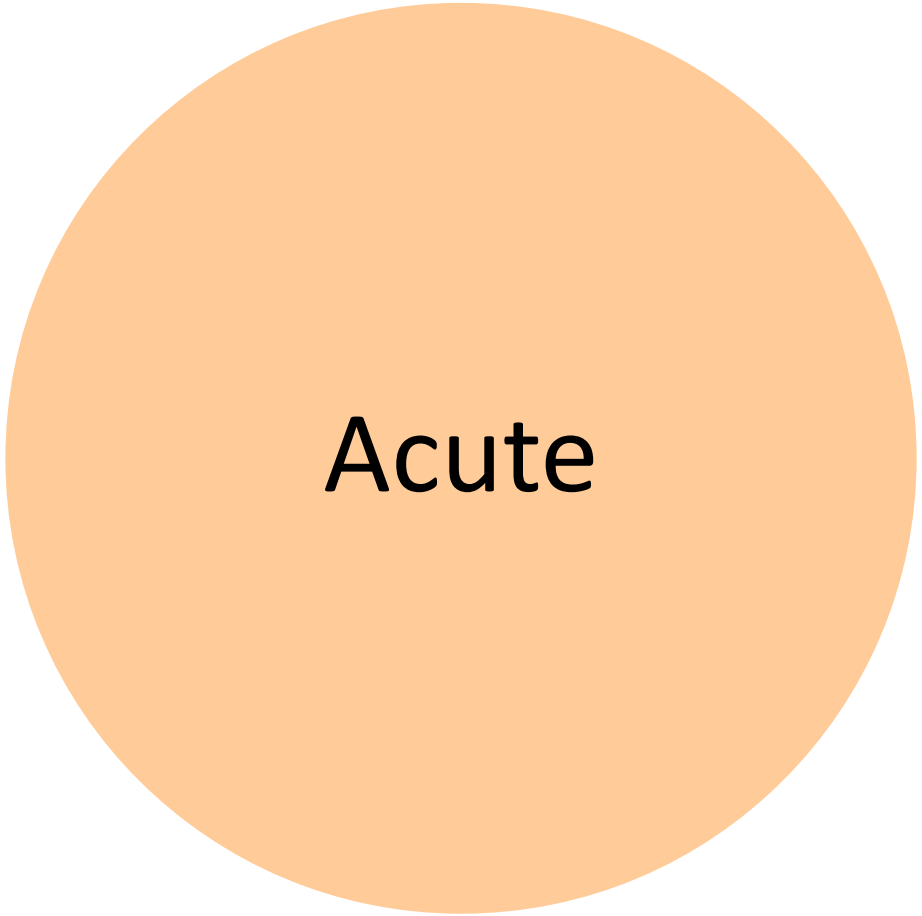


Acute Weight Management

- Rate of wt loss:
  - ≥ 1kg/week or 1-1.5% wt loss/week
- How to lose wt:
  - Full meal replacement
  - Antiobesity medications
  - Bariatric surgery

VLCD faster weight loss than FF diet

- Exercise program + randomization to 3 arms over 12 weeks
  - Healthy eating
  - Hypocaloric Diet (-500 cal/day)
  - Very low calorie diet (Optifast BID-TID)
- Baseline mean BMI 40
- Age > 65

Table 3. Anthropometry and Body Composition: Baseline and Changes at 12 Weeks Results Reported as Mean (95% confidence interval)

Measure	Ex/HE (N = 36)	Ex/Diet (N = 40)	Ex/VLCD (N = 41)	p
Baseline weight (kg)	107.1 (102.1, 112.8)	105.6 (101.5, 110.1)	104.4 (100.1, 108.8)	.711
% decrease	3.7 (2.5, 4.8)	5.1 (4, 6.2)	11.1 (9.7, 12.5)	<.001
	$p < .001$	$p < .001$	$p < .001$	
% decrease (ITT)	3.0 (1.9, 4)	4.6 (3.5, 5.7)	10 (8.4, 11.7)	<.001
	$p < .001$	$p < .001$	$p < .001$	

Haywood, C. J., Prendergast, L. A., Purcell, K., le Fevre, L., Lim, W. K., Galea, M., & Proietto, J. (2017). Very Low Calorie Diets for Weight Loss in Obese Older Adults-A Randomized Trial. *The Journals of Gerontology. Series A, Biological Sciences and Medical Sciences*, *73*(1), 59–65. https://doi.org/10.1093/gerona/glx012

FMR faster weight loss than PMR

- Rapid weight loss: 450-800 cal/day with Optifast full meal replacement x 12 weeks
  - target 15% weight loss, ~1.5 kg/week
- Gradual weight loss: 400-500 cal deficit with 1-2 Optifast x 36 weeks
  - Target 15% weight loss, ~0.5 kg/week
- Followed for 144 weeks with dietitian sessions

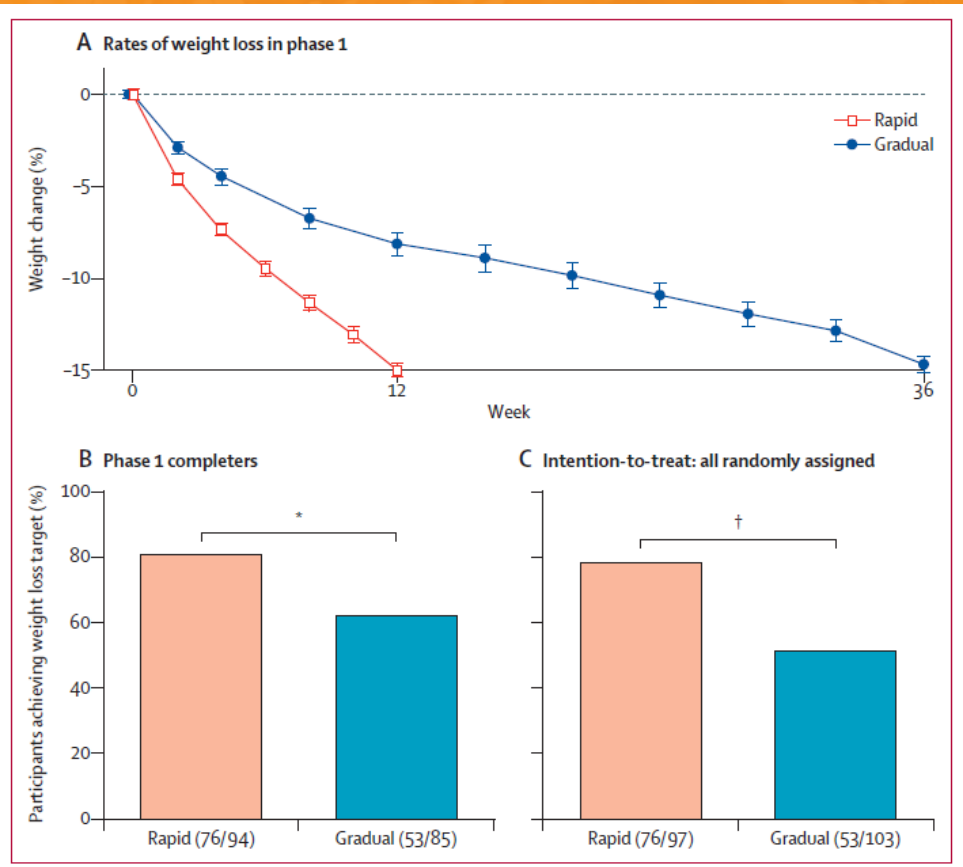
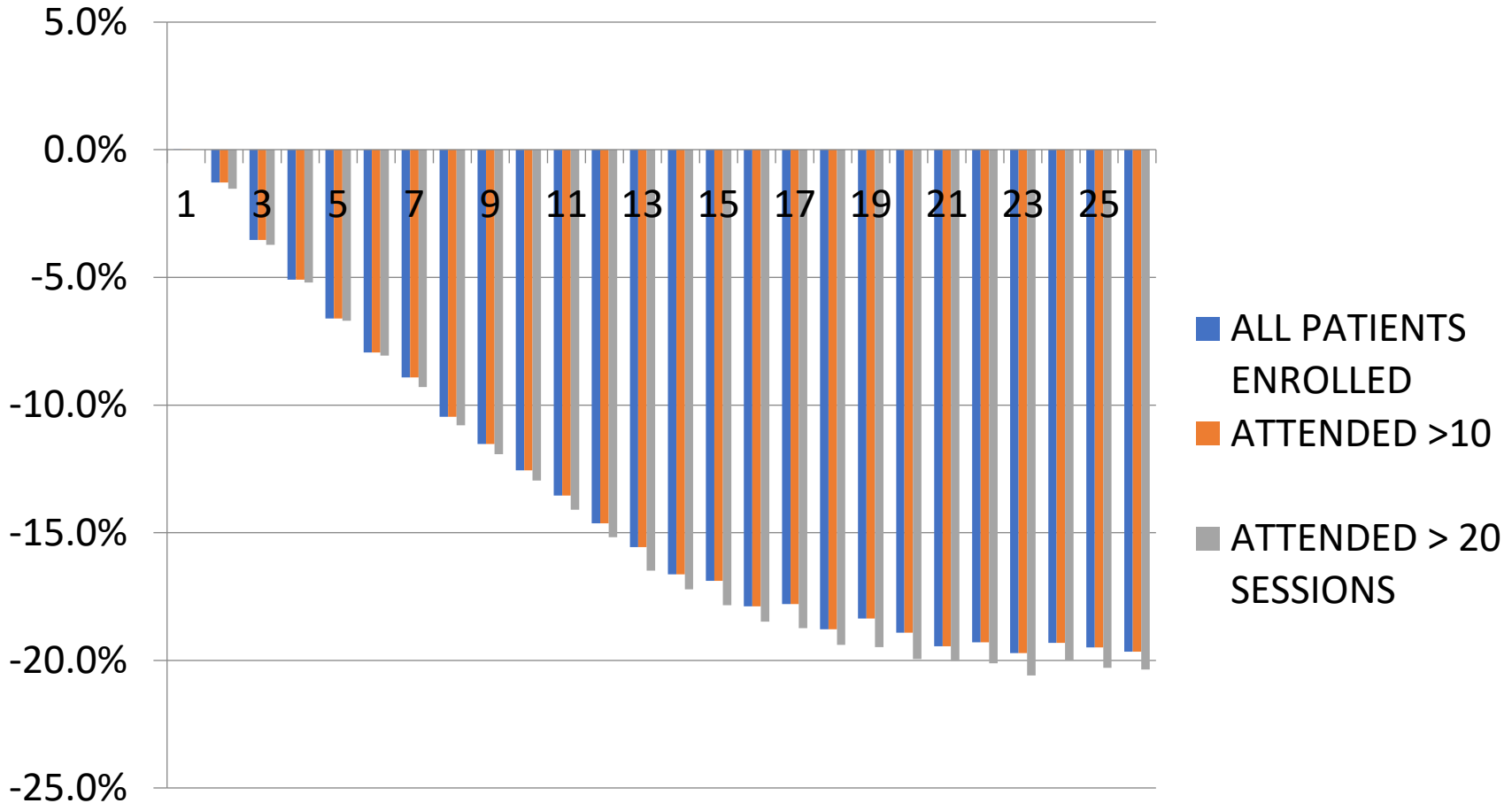


Figure 2: **Rate of weight loss during phase 1 for successful participants (mean % change, 95% CI)**
Successful participants were those who achieved at least 12·5% weight loss from baseline to end of phase 1.
*p=0·009. †p=0·0001.

Purcell, K., Sumithran, P., Prendergast, L. A., Bouniu, C. J., Delbridge, E., & Proietto, J. (2014). The effect of rate of weight loss on long-term weight management: A randomised controlled trial. *The Lancet Diabetes and Endocrinology*, *2*(12), 954–962. https://doi.org/10.1016/S2213-8587(14)70200-1

Mean weight loss in first 26 WKS of the CORE program

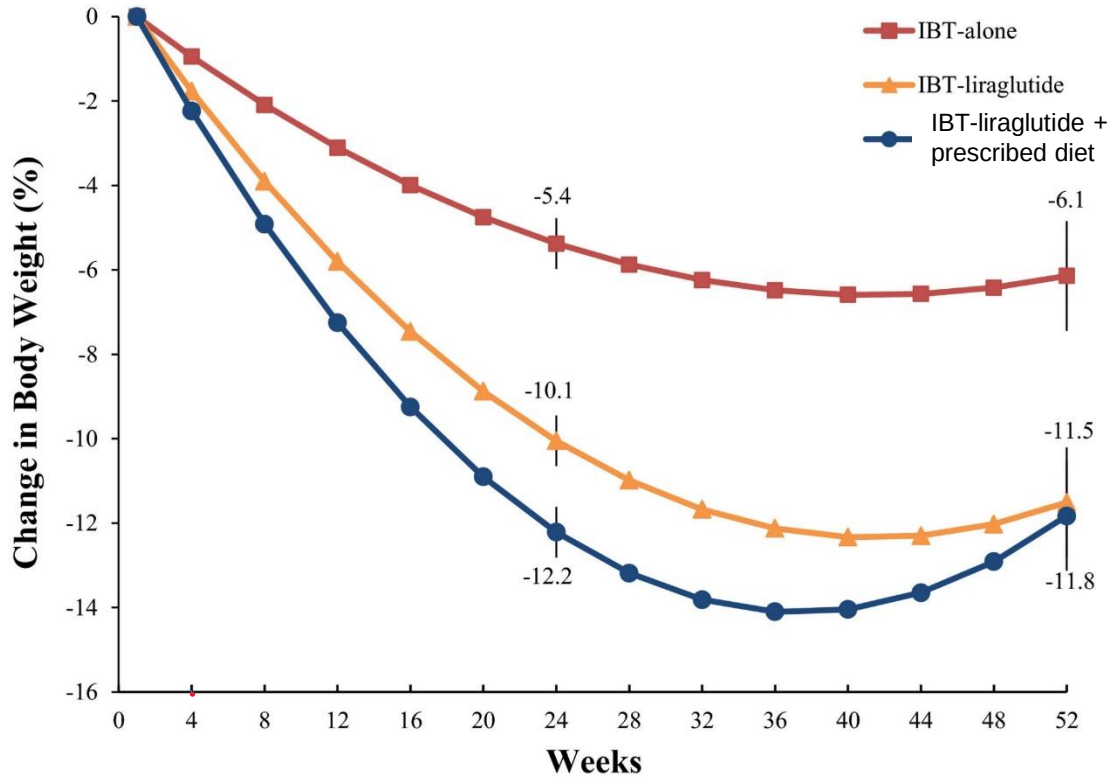


2804 Patients in the 26 week program – intention to treat analysis

Slide courtesy of Dr. Robert Dent

Additive Benefits of Lifestyle Change and Pharmacologic Intervention

Liraglutide Efficacy in Combination with Lifestyle Modification



- 150 participants
  - all received intensive behavioural therapy (IBT)
  - randomized 1:1:1 to:
    - no additional treatment (RED)
    - liraglutide 3.0 mg (YELLOW)
    - liraglutide + meal replacement diet (1000–1200 kcal/d) (BLUE)

Wadden et al., *Obesity*. 2019; 27:75-86.

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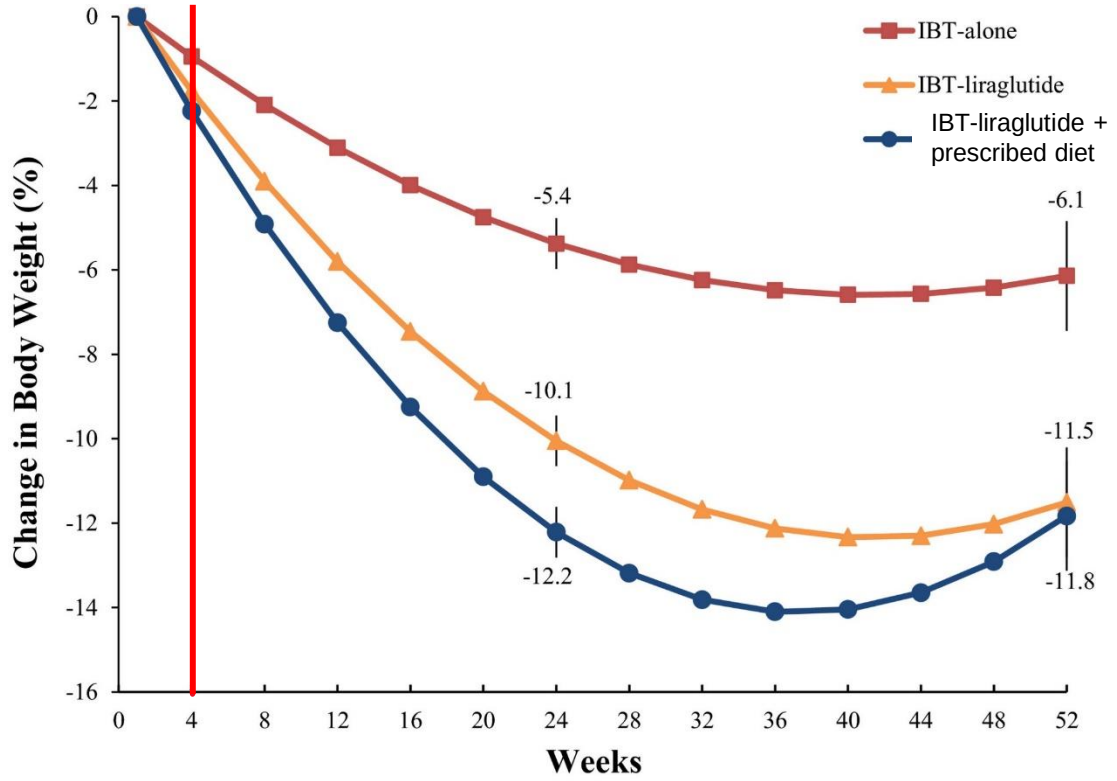

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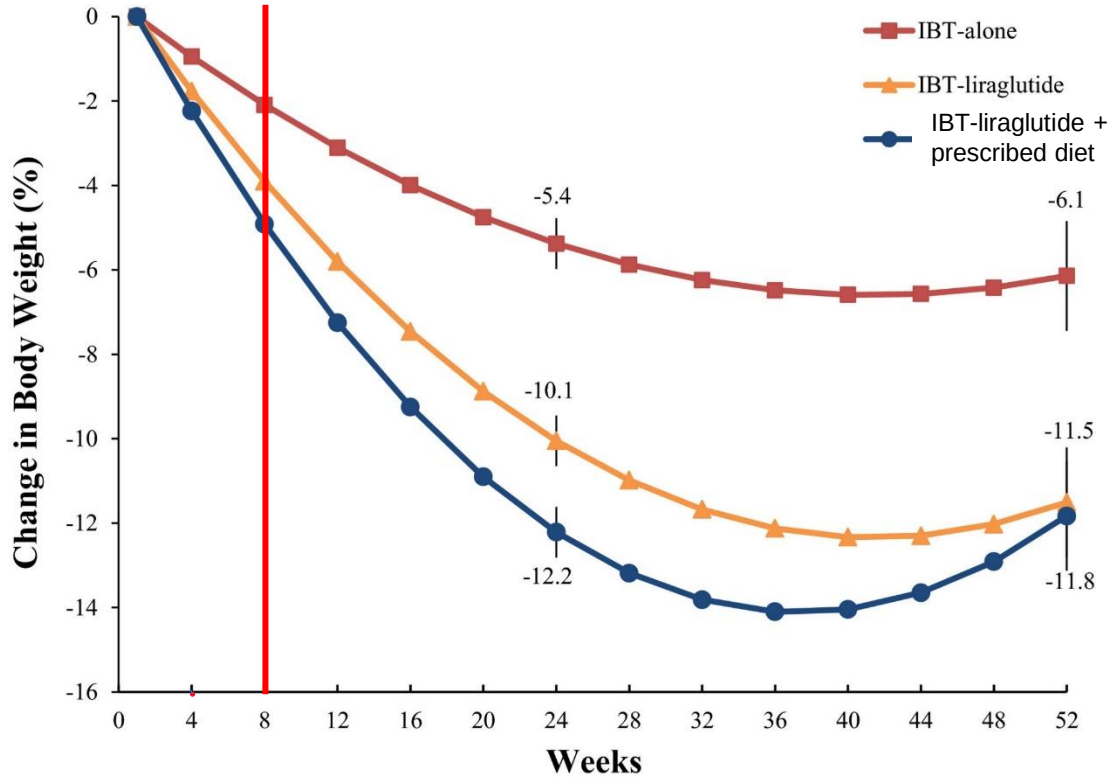

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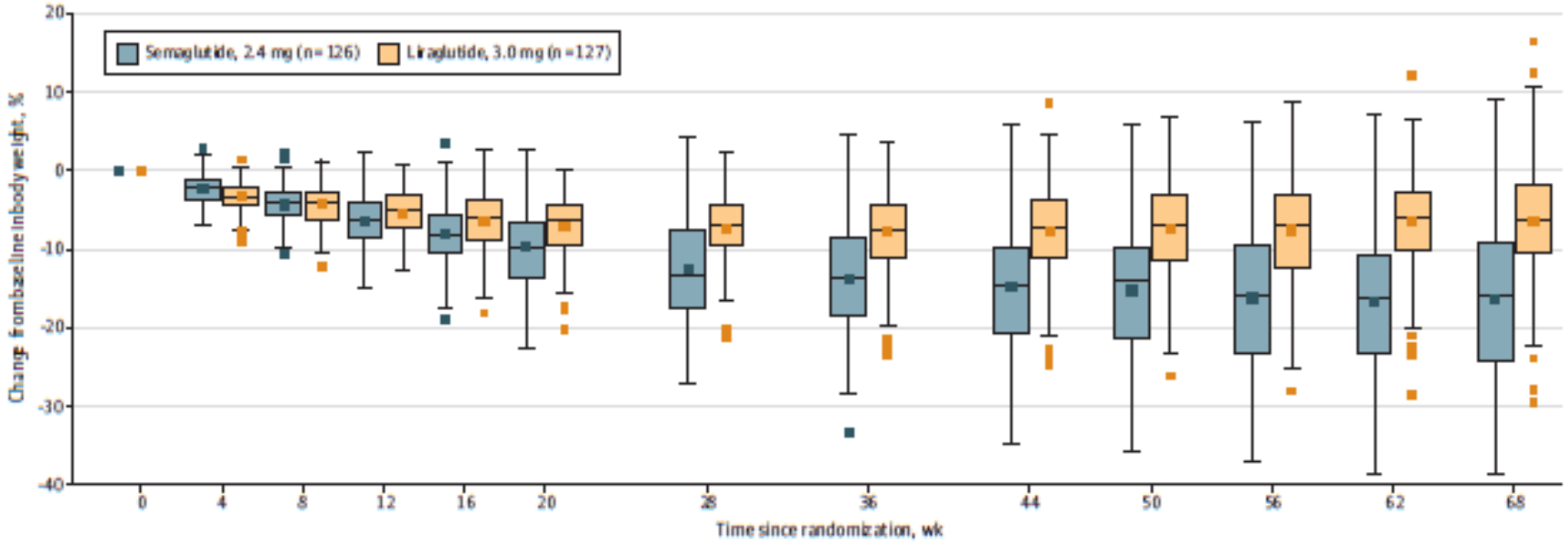
Acute AND Chronic

Weight Management

Figure 2. Percentage Change in Body Weight From Baseline to Week 68 (Observed In-Trial Data; Full Analysis Set)



No. of participants													
Semaglutide, 2.4 mg	126	125	122	124	117	102	76	105	114	107	107	92	117
Liraglutide, 3.0 mg	127	124	124	125	118	101	66	102	99	98	110	88	117

Data presented are observed (ie, as-measured) changes during the in-trial period (the time from randomization to last contact with trial site, irrespective of treatment discontinuation or rescue intervention) for the full analysis set. Data for the on-treatment period are presented in eFigure 5 in Supplement 3. The middle lines within each box represent the median observed changes from baseline; the symbols in the boxes represent the mean observed percentage change; the box tops and bottoms represent the interquartile range; the whiskers extend to the most extreme observed values with 1.5 times the IQR of the nearer quartile; and the symbols beyond these points represent the observed values outside that range. More negative values indicate greater reductions. Numbers shown below the graph are the number of participants with observed data at each time point. Participant numbers in the legend are for the full analysis set. Data are only presented for the active treatment groups.

Acute AND Chronic

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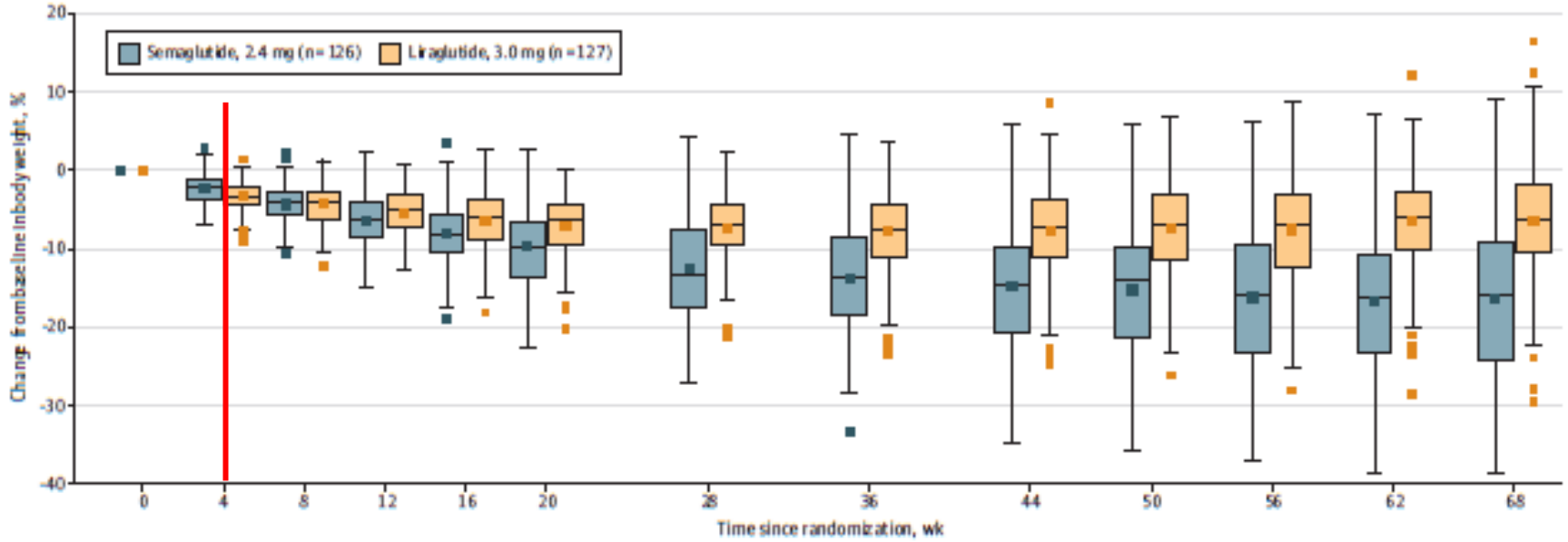

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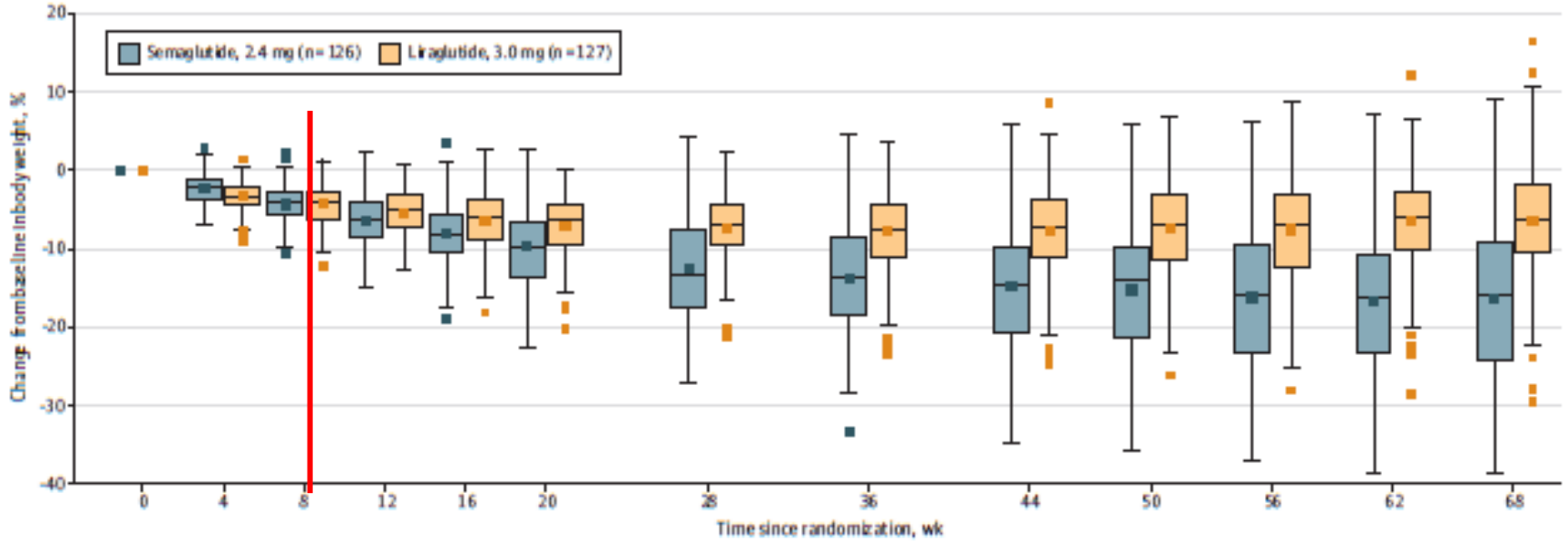

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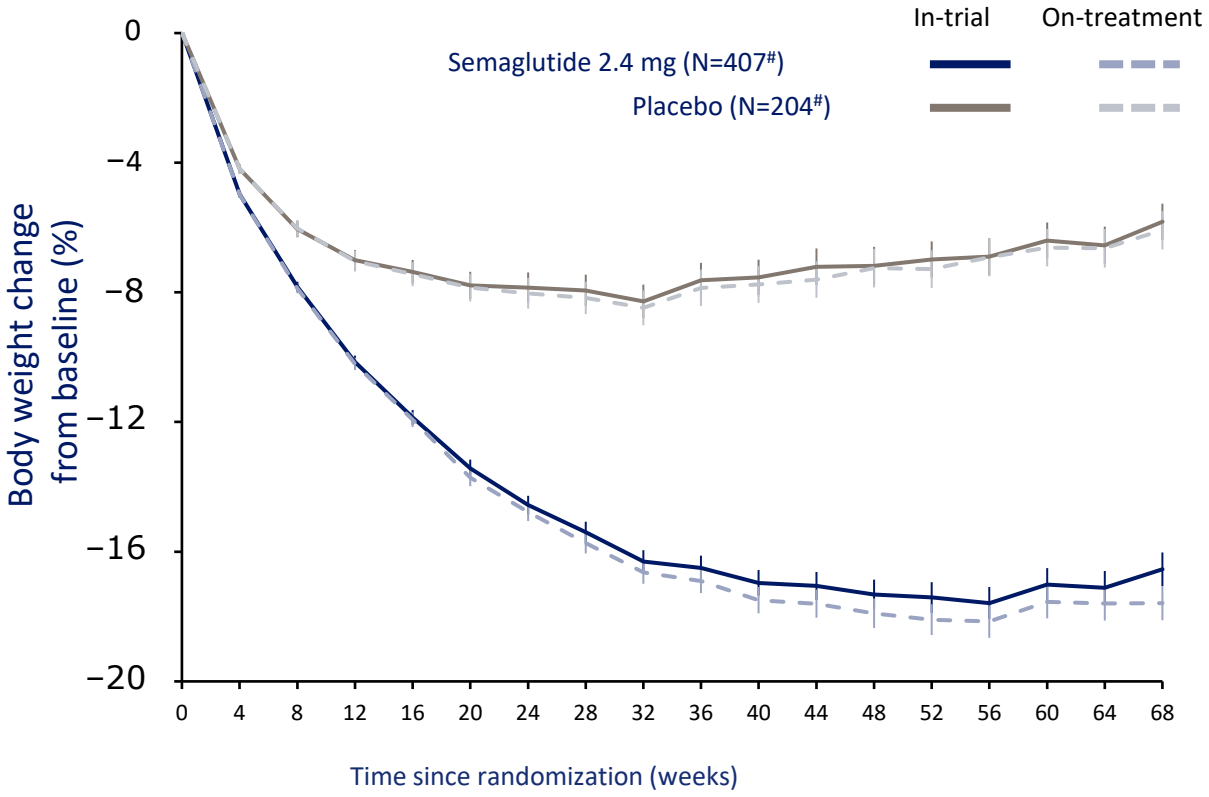
Rubino et al. JAMA. 2022;327(2):138-150

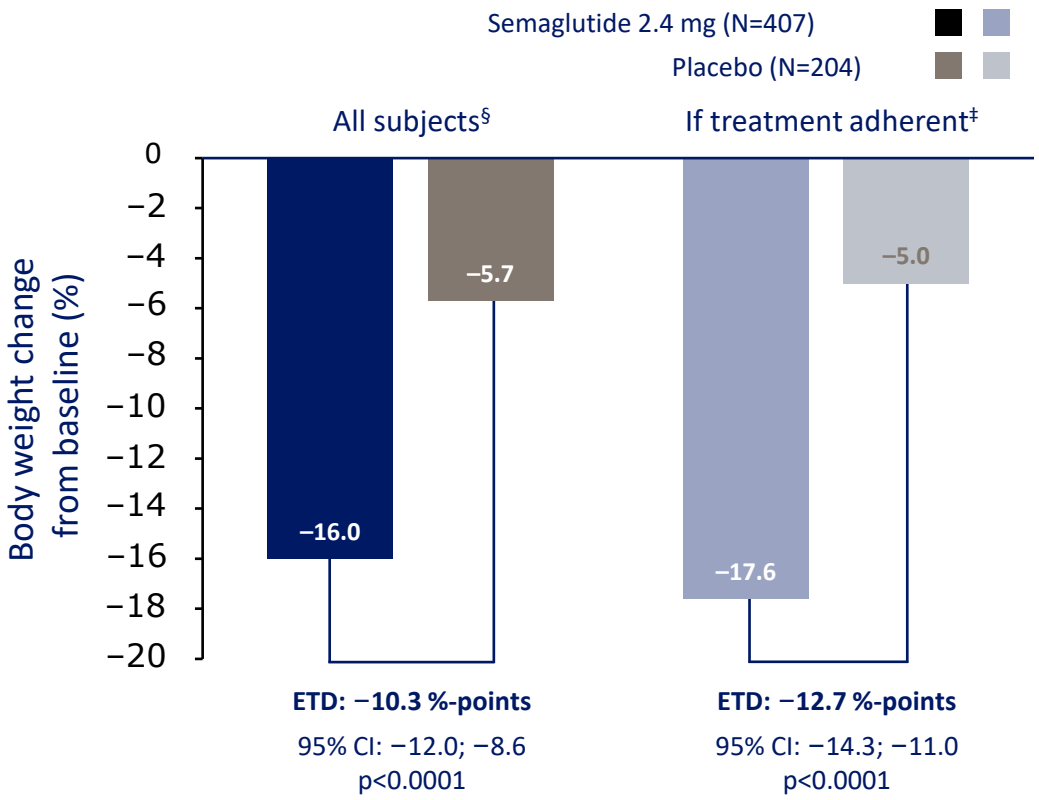
STEP 3: Body weight change

Observed body weight change over time

(Mean at baseline: 105.8 kg)



Estimated body weight change from baseline to week 68 (primary endpoint)



Error bars are +/- standard error of the mean.
#Number of participants at week 0.
§Treatment policy estimand (regardless of treatment adherence).
‡Trial product estimand.
CI, confidence interval; ETD, estimated treatment difference.

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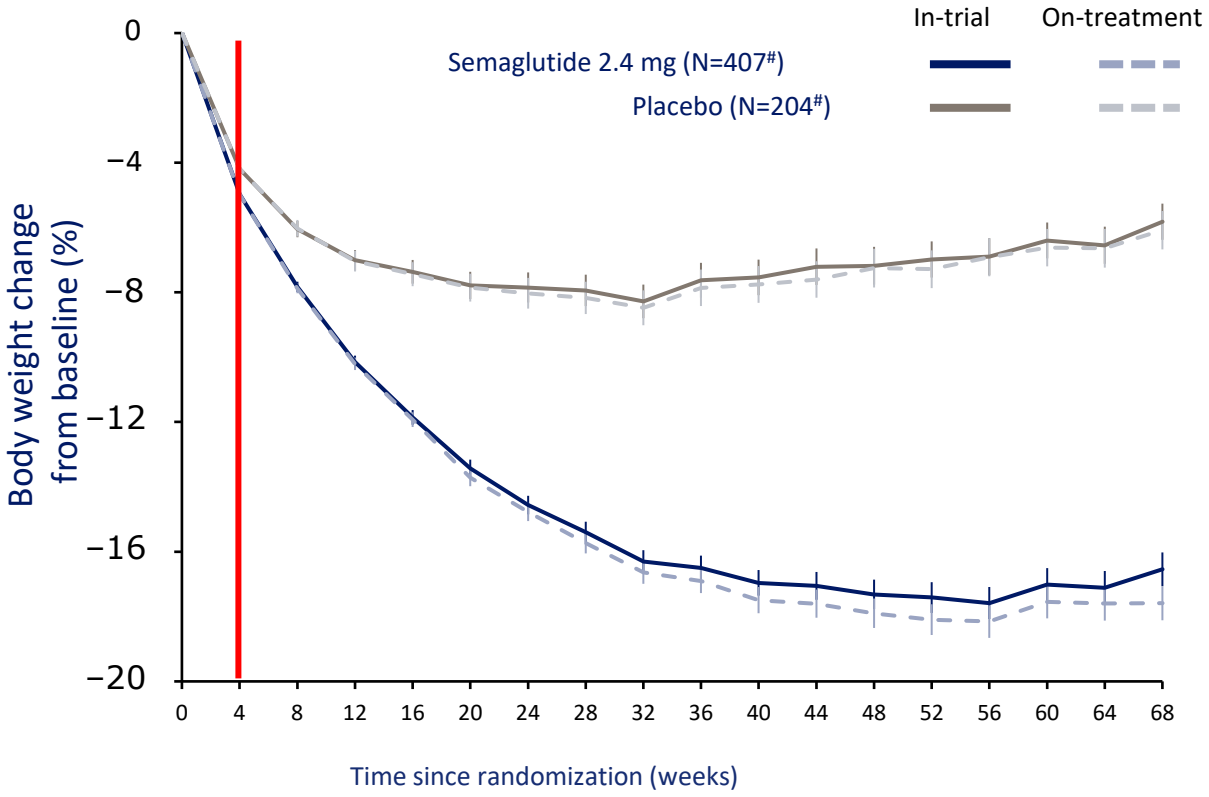

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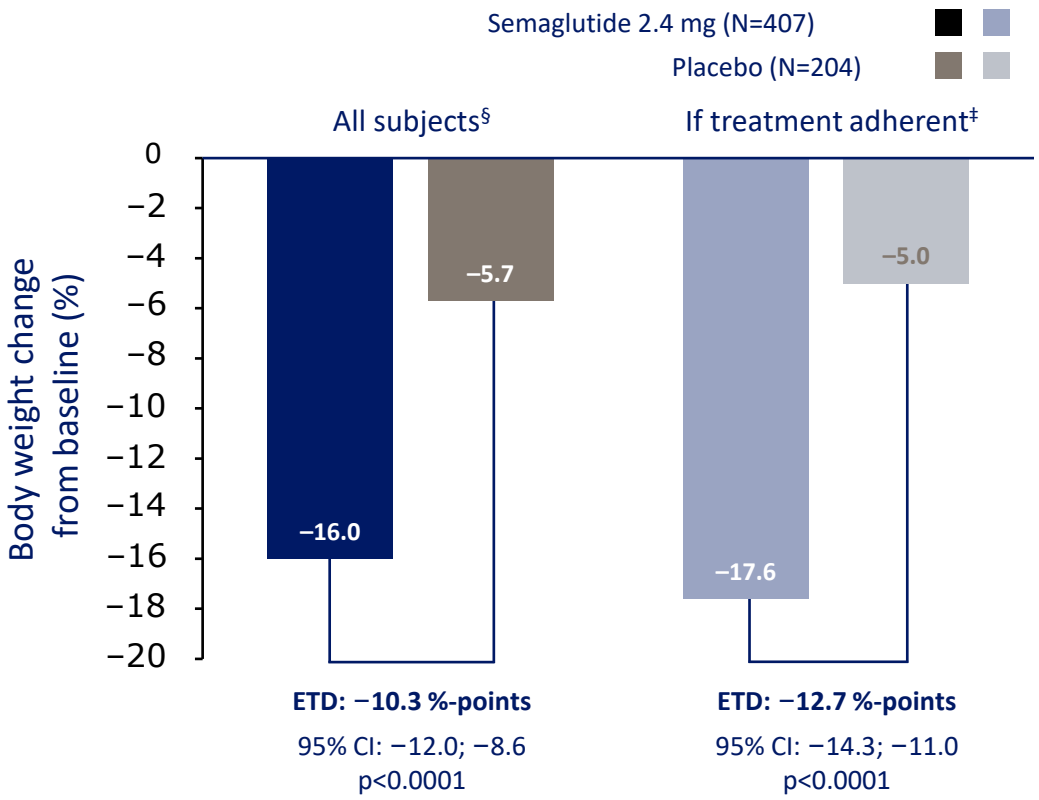

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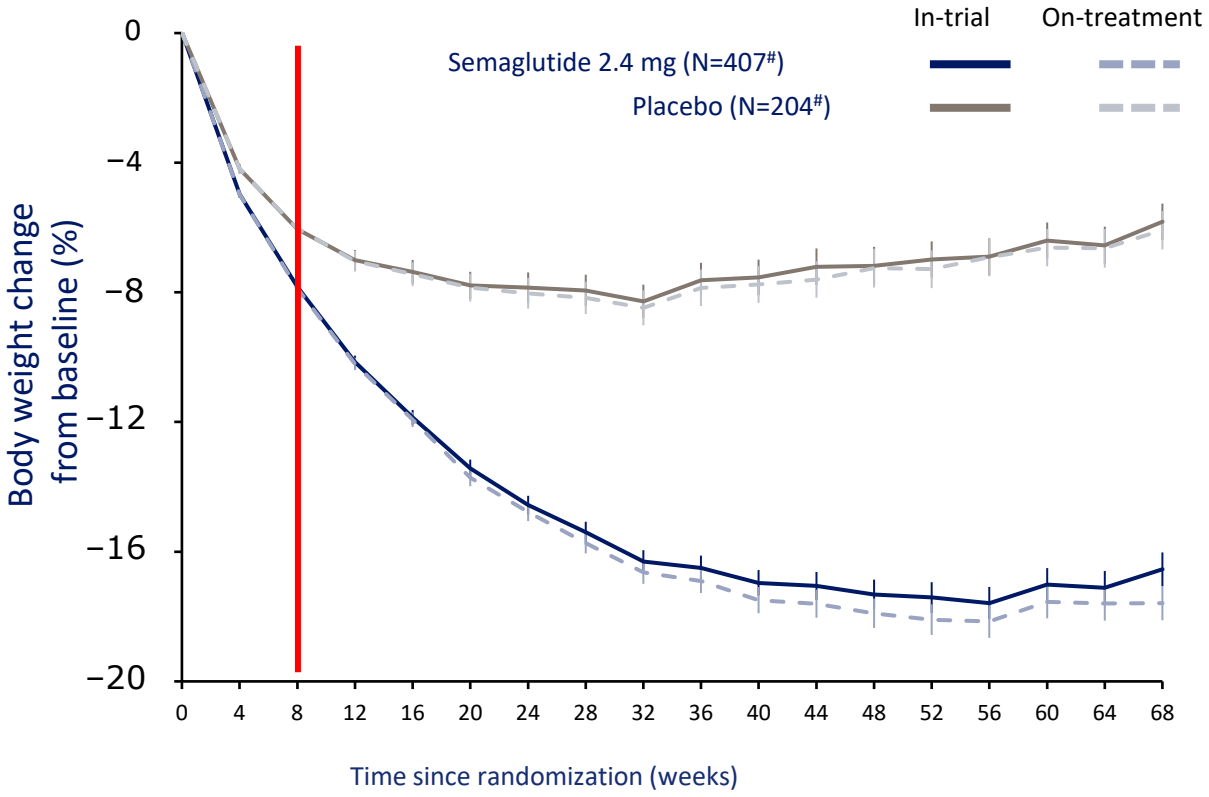

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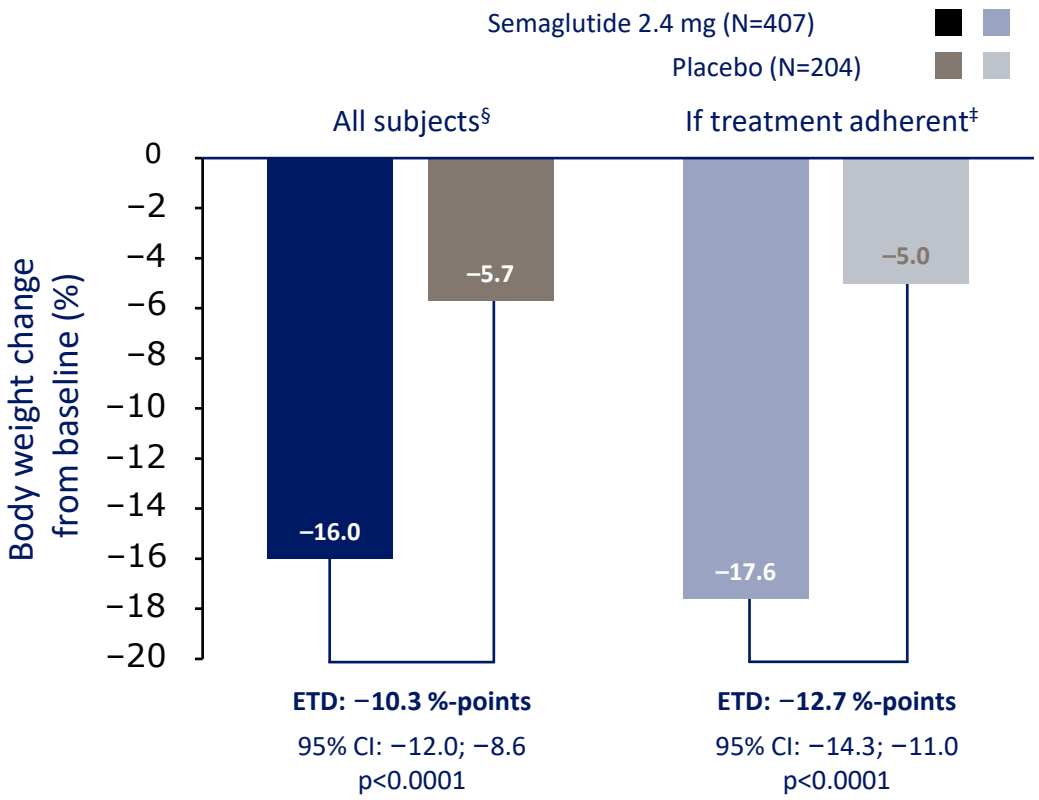

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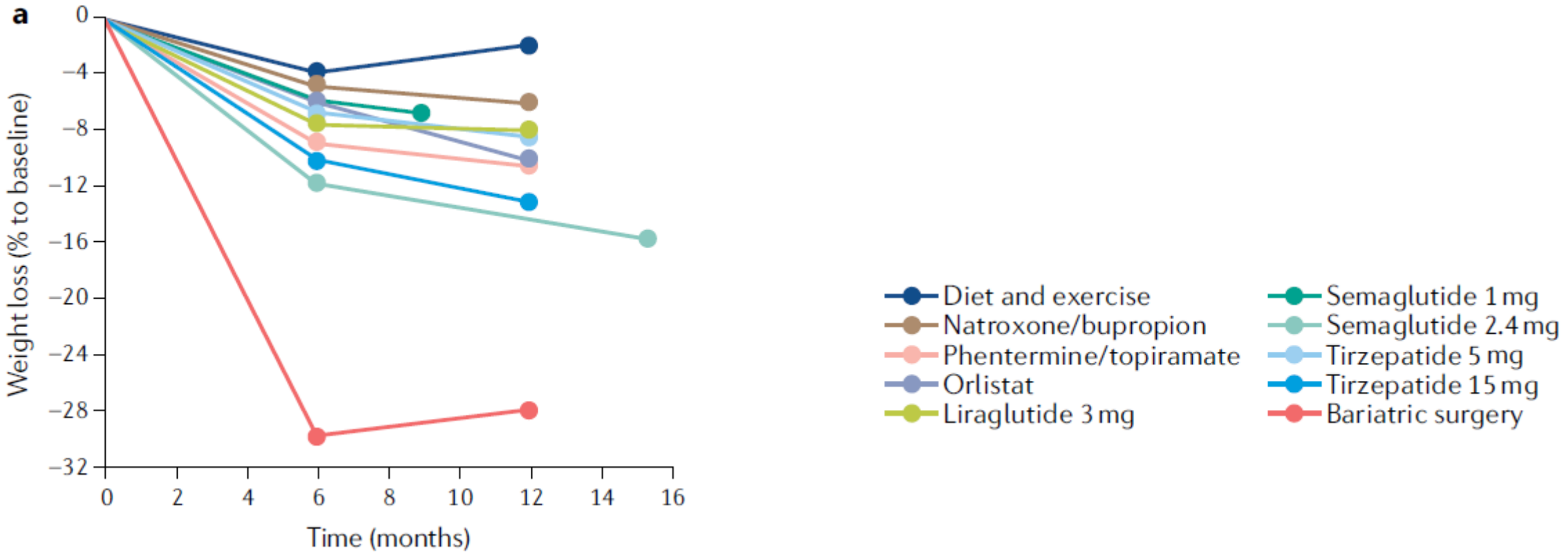
Acute Weight Management



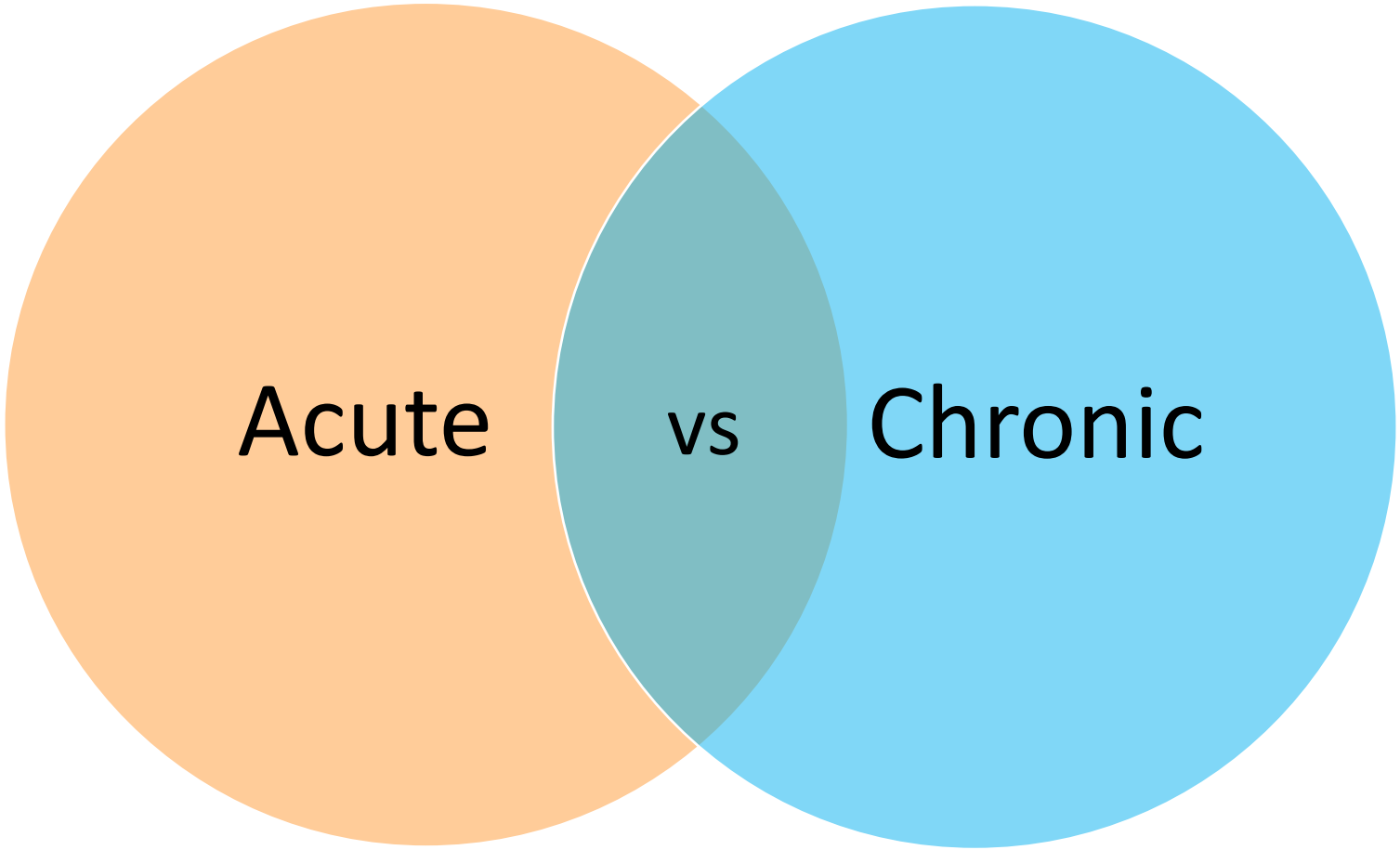
- Müller, T.D., Blüher, M., Tschöp, M.H. *et al.* Anti-obesity drug discovery: advances and challenges. *Nat Rev Drug Discov* (2021). https://doi.org/10.1038/s41573-021-00337-8

Table 1 Characteristics of studies evaluating the effects of losing the same amount of body weight at different rates

Study	Weight loss rate arms	Participant number, sex, age and BMI[a]	Methods, duration and magnitude of weight loss
Ashtary-Larky et al. [16]	Slow: 0.4 kg/week	18 (5 M[b] + 13F[c]), 37 years, 34.2 kg/m^2	Dietary energy deficit 500–750 kcal/day, WL[d] 6.2% (5.5 kg) after 15 weeks
	Fast: 1.0 kg/week	18 (5 M + 13F), 34 years, 32.0 kg/m^2	Dietary energy deficit 1000–1500 kcal/day, WL 6.0% (5.1 kg) after 5 weeks
Ashtary-Larky et al. [17]	Slow: 0.4 kg/week	34 (sex not reported), 35 years, 33.6 kg/m^2	Dietary energy deficit 500–750 kcal/day, WL 6.1% (5.3 kg) after 15 weeks
	Fast: 1.0 kg/week	34 (sex not reported), 35 years, 32.5 kg/m^2	Dietary energy deficit 1000–1500 kcal/day, WL 5.9% (5.0 kg) after 5 weeks
Bradley et al. [18]	Slow: 1.1 kg/week	10 (1 M + 9F), 47 years, 46.5 kg/m^2	LAGB[j], WL 19.3% (24.6 kg) after 22 weeks
	Fast: 1.7 kg/week	10 (2 M + 8F), 43 years, 45.6 kg/m^2	RYGB[p], WL 20.1% (26.5 kg) after 16 weeks
Coutinho et al. [19]	Slow: 1.2 kg/week	16 (6 M + 10F), 36 years, 33.5 kg/m^2	LCD[q] (1200–1500 kcal/day), WL 9% (9.3 kg) after 8 weeks; 10% (10.3 kg) after + 1 month
	Fast: 2.2 kg/week	17 (3 M + 14F), 42 years, 33.4 kg/m^2	VLCD[s] (550–660 kcal/day), WL 9% (8.9 kg) after 4 weeks; 10% (9.4 kg) after + 1 month
Garthe et al. [20]*	Slow: 0.5 kg/week	13 (6 M + 7F), 24 years, 24.1 kg/m^2	Dietary energy deficit 469 kcal/day, WL 5.6% (4.2 kg) after 8.5 weeks
	Fast: 0.8 kg/week	11 (5 M + 6F), 21 years, 25.2 kg/m^2	Dietary energy deficit 791 kcal/day, WL 5.5% (4.2 kg) after 5.3 weeks
Hintze et al. [21]	Slow: 0.2 kg/week	14 (all F), 30 years, 32.1 kg/m^2	Dietary energy deficit 500 kcal/day, WL 4.5% (3.9 kg) after 20 weeks
	Fast: 0.5 kg/week	16 (all F), 33 years, 34.0 kg/m^2	Dietary energy deficit 1000 kcal/day, WL 6.2% (5.5 kg) after 10 weeks
Purcell et al. [22]	Slow: 0.4 kg/week	51 (12 M + 39F), 50 years, 35.5 kg/m^2	Dietary energy deficit 500 kcal/day, WL 15.0% (14.3 kg) after 36 weeks 4.4% (4.3 kg) after + 144 weeks (n = 43)
	Fast: 1.2 kg/week	76 (20 M + 56F), 50 years, 35.2 kg/m^2	VLCD (450–850 kcal/day), WL 15.0% (14.6 kg) after 12 weeks; 4.2% (4.1 kg) after + 144 weeks (n = 61)
Senechal et al. [23]	Slow: 0.4 kg/week	5 (all F), 62 years, BMI not reported (body fat 47%)	Hypocaloric diet (no details provided), WL 7.8% (6.3 kg) after 15 weeks
	Fast: 1.2 kg/week	5 (all F), 57 years, BMI not reported (body fat 49%)	Hypocaloric diet (no details provided), WL 6.2% (6.0 kg) after 5 weeks
Shah et al. [24•]	Slow: 1.2 kg/week	12 (sex not reported), age not reported, 43.4 kg/m^2	LAGB, WL 9.6% (11.2 kg) after 9 weeks
	Fast: 2.9 kg/week	22 (sex not reported), age not reported, 44.7 kg/m^2	RYGB, WL 10.0% (12.0 kg) after 4.2 weeks
Siervo et al. [25]	Slow: 2.3 kg/week	6 (all M), 44 years, 33.7 kg/m^2	LCD (1240 kcal/day), WL 6.8% (7.2 kg) after 3 weeks; 12.0% (12.6 kg) after 6 weeks
	Fast: 3.2 kg/week	6 (all M), 46 years, 34.9 kg/m^2	VLCD (600 kcal/day), WL 4.8% (5.2 kg) after 1.5 weeks; 8.6% (9.2 kg) after 3 weeks
Vink et al. [26]	Slow: 0.7 kg/week	29 (14 M + 15F), 52 years, 31.3 kg/m^2	LCD (1250 kcal/day), WL 8.9% (8.2 kg) after 12 weeks; 9.1% (8.4 kg) after + 1 month; 4.5% (4.2 kg) after + 9 months (n = 28)
	Fast: 1.8 kg/week	28 (13 M + 15F), 51 years, 31.0 kg/m^2	VLCD (500 kcal/day), WL 9.7% (9.0 kg) after 5 weeks; 10.0% (9.3 kg) after + 1 month; 5.2% (4.8 kg) after + 9 months (n = 27)

Fogarasi, A., Gonzalez, K., Dalamaga, M., & Magkos, F. (2022). The Impact of the Rate of Weight Loss on Body Composition and Metabolism. In *Current Obesity Reports*. Springer. https://doi.org/10.1007/s13679-022-00470-4

Weight Management



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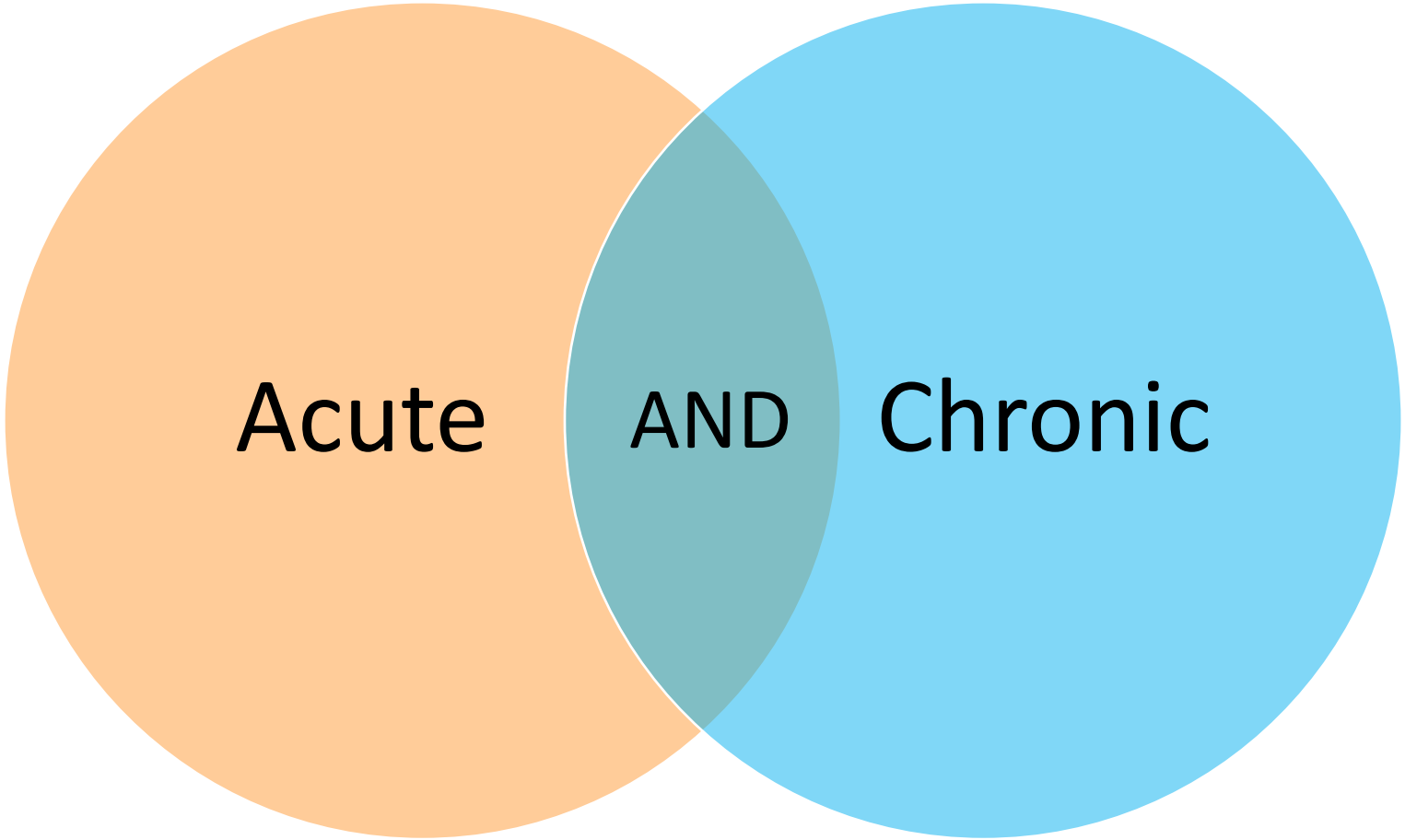
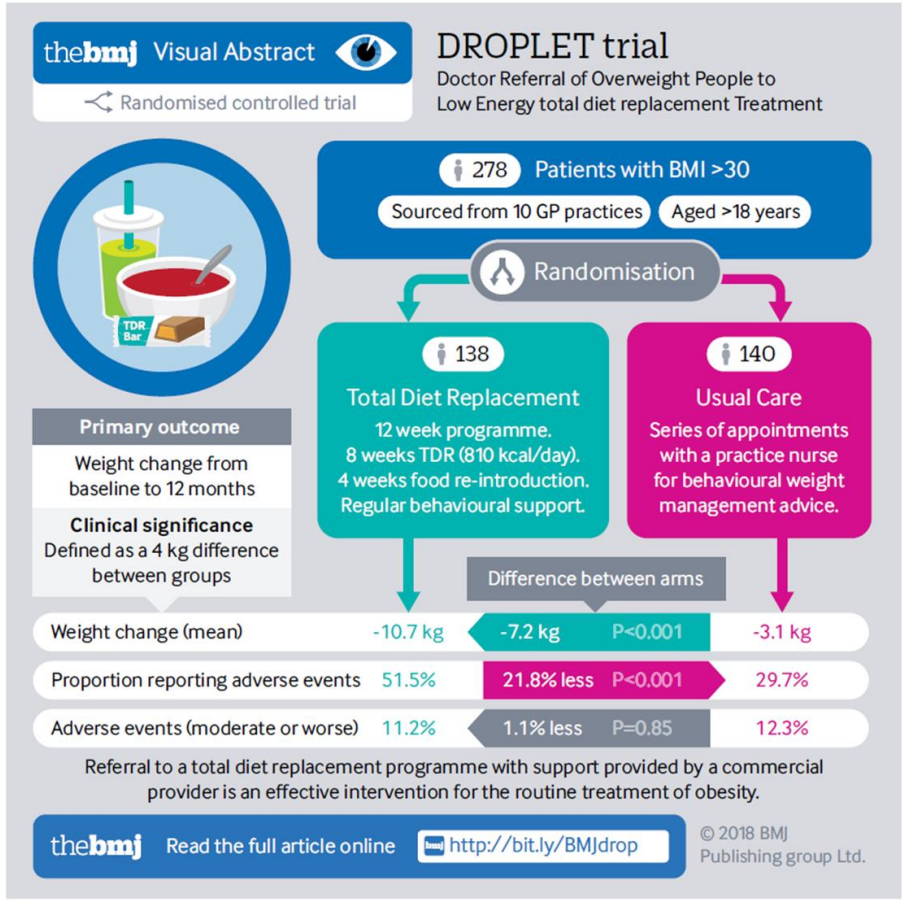


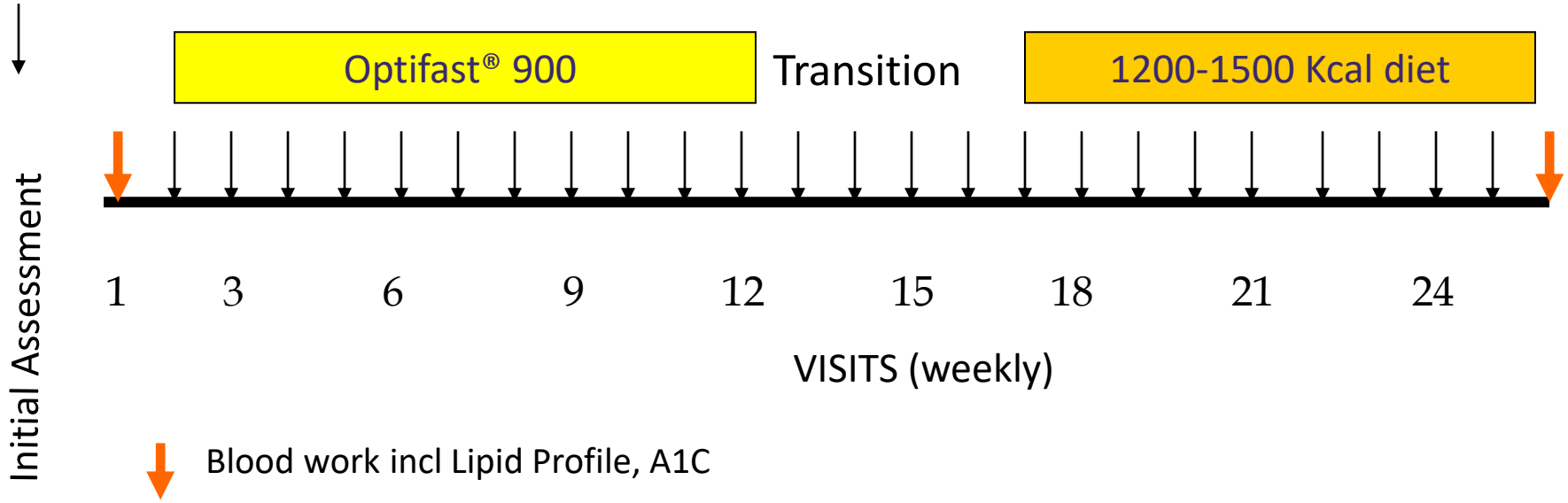
Acute AND Chronic Weight Management



Astbury et al. BMJ 2018;362:k3760 http://dx.doi.org/10.1136/bmj.k3760

Optifast®900 Full Meal Replacement Program

1.5 Hour Workshops
Optifast Lifestyle Education Series weekly for 26 weeks
then monthly for 6 months



Slide courtesy of Dr. Robert Dent

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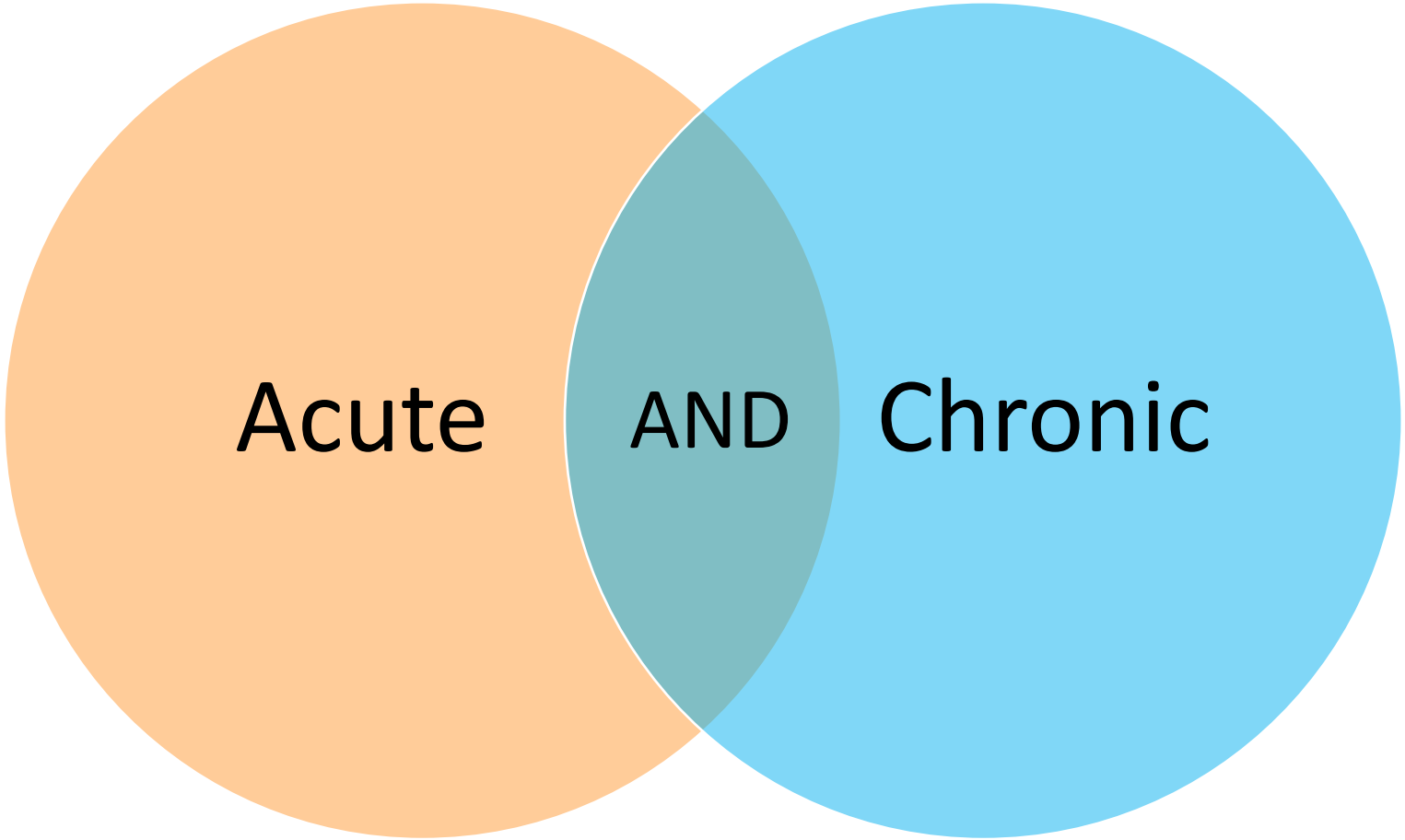


Weight Management

Acute

Weight Management

Acute

- Considered for ACUTE Weight Loss
- Cancer
- Symptomatic and BMI limits surgical access or has risk of complications
  - Hernia
  - Cholecystectomy

- Considered more Chronic Weight Loss
- Transplant
- Fertility
- Orthopedic surgery

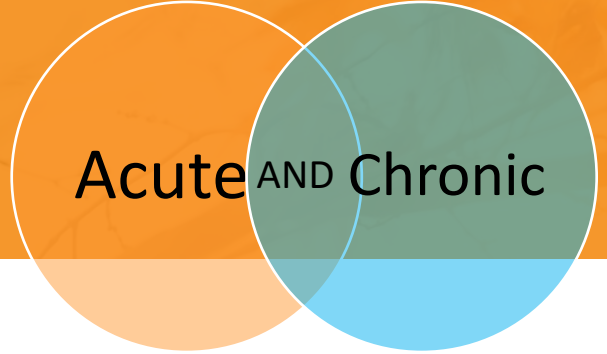
Acute

Weight Management

- How urgent is the wt loss needed?
- What is the starting BMI?
- What about the patient's perspective?
- How much weight to lose?
- How to lose the weight?

ACORNS Protocol

- **AC**ute **O**verweight **R**eduction in **N**on-bariatric **S**urgery Protocol
- Criteria:
  - There is an estimated surgical date
  - Patient commits to a full meal replacement protocol
  - Weekly FU with MD
  - +/- medications
  - FU 1 month post surgery



Acute Weight Loss in an Ideal World

- Meal replacement strategy +/- AOM
- Has a program
  - But timing is difficult
  - Perspective of patient
- Cost effective
- Patient comes back for chronic weight management

Weight Management