Obesity Update 2021

Diagnosis & Assessment of Obesity

Royal Alexandra HOSPITAL FOUNDATION
CASES
Centre for Advancement of Surgical Education & Simulation

Faculty/Presenter Disclosure

- **Dr. Clinton Logan, MD CCFP**

- **Relationships with commercial interests:**
  - **Speakers Bureau/Honoraria: Novo Nordisk**

Disclosure of Commercial Support

- **Potential for conflict(s) of interest:**
  - **I have not received any payments or goods/services from a pharmaceutical company for preparing this presentation.**

Objectives

Following this session, participants will be able to:

- assess the impact of both physician and patient-weight bias on the doctor-patient therapeutic relationship
- apply classical chronic disease management approaches to obesity with ongoing monitoring as a standard component of the patient's treatment plan
- diagnose obesity based on Body Mass Index (BMI) and recognise the limitations of BMI
- stratify obesity-related functional health status/risk using the nationally-adopted Edmonton Obesity Staging System (EOSS)
- explain the impact of 5-15% weight loss on obesity-related co-morbidities
- rank and align available treatment strategies-with weight loss expectations

Question 1

Which statement below would be an appropriate way to start a conversation about weight?

1) ”You’ve gained a lot of weight lately, I’d like to talk to you about that.”
2) “You’re starting to get obese, you should do something about that.”
3) “Your blood pressure wouldn’t be so high if you weren’t so heavy, you know.”
4) “Would you mind if we discussed your weight?”

Weight Bias

Refers to:

- **Attitudes/actions towards people with obesity that negatively affect clinical interactions**
- **Stigmatizing patients because of their obesity**
- **Applying stereotypes to a person because of their obesity which translate into prejudices, unfair treatment and discrimination**

- **Weight bias and stigmatizing usually occurs when people believe that excess weight is controllable and due to a lack of personal responsibility**
- **In a survey of physicians, obesity was associated with poor hygiene, noncompliance, hostility, and dishonesty**
- **Over one-third of surveyed family physicians described patients with obesity as "lazy"**
- **It has been documented that stigma against patients with obesity can lead to avoidance of preventive care. Some physicians will avoid or delay pelvic exams due to the patient's weight.**

Puhl, R. and Brownell, K.D. (2001), Bias, Discrimination, and Obesity. Obesity Research, 9: 788-805. doi:10.1038/oby.2001.108

Mitigating Weight Bias

- **Acknowledge it exists**
- **Not all obese patients want to talk about weight loss; do not assume this is open for discussion**
- **Create a weight-friendly environment**
  (e.g., chairs, gowns, scales and cuffs)
- **When discussing obesity emphasize its complex pathophysiology involving genetics, physiology and environment**
- **WATCH YOUR LANGUAGE!**

Mitigating Weight Bias

ASK for permission to discuss weight and explore readiness

ASSESS obesity related risks and 'root causes' of obesity

ADVISE on health risks and treatment options

AGREE on health outcomes and behavioural goals

ASSIST in accessing appropriate resources and providers

- **Respects autonomy in a non-judgmental way**
- **Recognises obesity as a chronic condition**

The 5 As of obesity management. Canadian Obesity Network 2011. Accessed November 25, 2014 at http://www.obesitynetwork.ca/5As.

Question 2

Obesity is only a lifestyle issue and not a chronic disease.

1) True

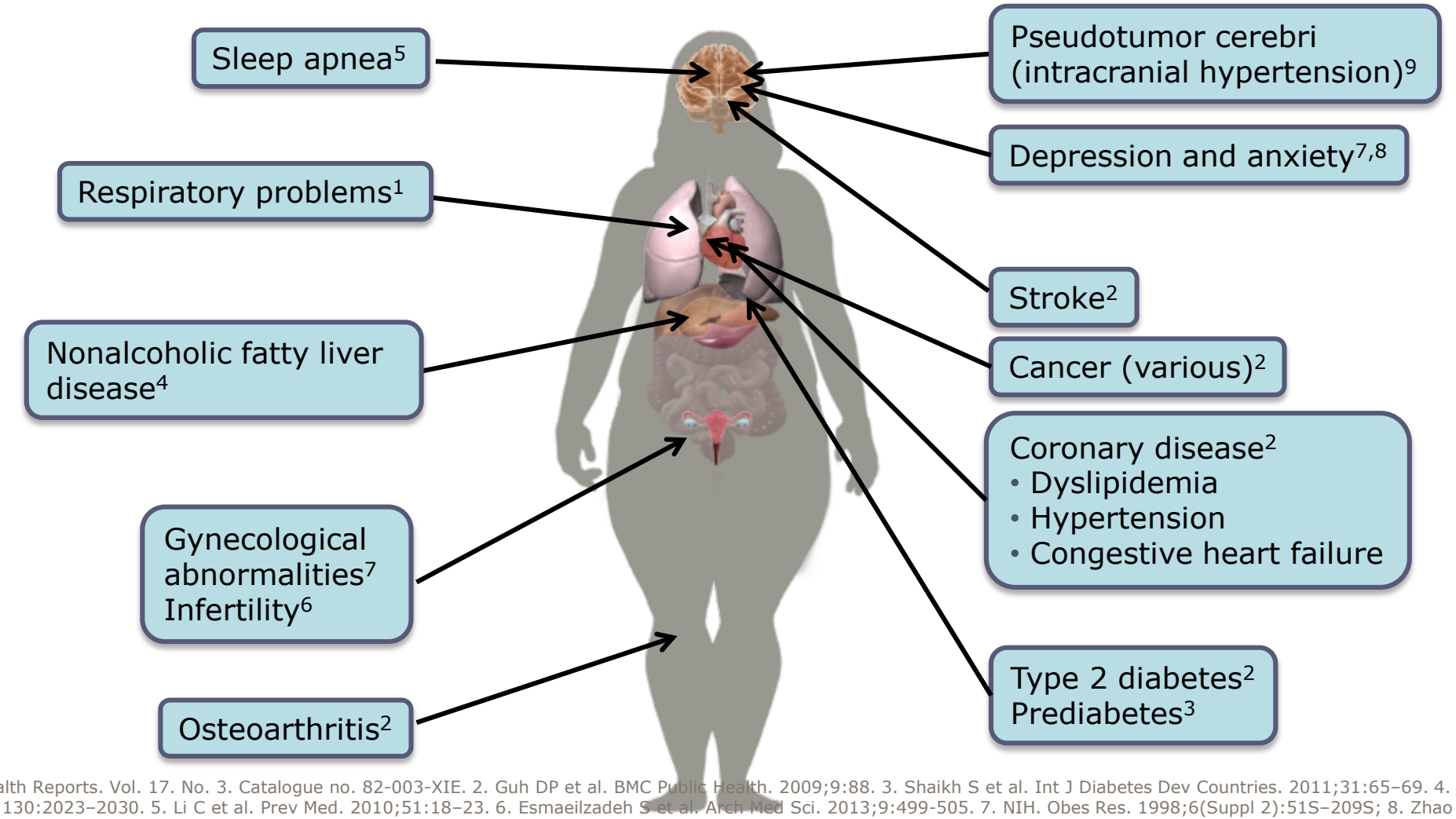
2) False

What is a "chronic disease"?

- **A chronic disease is defined as something that[1]:**
  - **Decreases life expectancy**
  - **Impairs normal functioning of the body**
  - **Can be caused by genetic factors**

1. CMA Press Release (October 2015). Available at: https://www.cma.ca/En/Pages/cma-recognizes-obesity-as-a-disease.aspx

Obesity is a chronic disease that is associated with multiple comorbid conditions



1. Statistics Canada Health Reports. Vol. 17. No. 3. Catalogue no. 82-003-XIE. 2. Guh DP et al. BMC Public Health. 2009;9:88. 3. Shaikh S et al. Int J Diabetes Dev Countries. 2011;31:65–69. 4. Church TS et al. Gastroenterol. 2006;130:2023–2030. 5. Li C et al. Prev Med. 2010;51:18–23. 6. Esmaeilzadeh S et al. Arch Med Sci. 2013;9:499-505. 7. NIH. Obes Res. 1998;6(Suppl 2):51S–209S; 8. Zhao G et al. *Int J Obes (Lond).* 2009;33(2):257-66. 9. Daniel AB et al. *Am J Opthalmol* 2007;143:635-41.

As BMI increases, both life expectancy and number of healthy life-years decrease

*Compared to a **woman** aged 20–39 with a normal BMI:*

Predicted lifespan:
- ↓ **by 5.6 YEARS** with class 1 obesity
- ↓ **by 6.1 YEARS** with class 2–3 obesity

Number of healthy years:
- ↓ **by 14.6 YEARS** with class 1 obesity
- ↓ **by 19.1 YEARS** with class 2–3 obesity

*Compared to a **man** aged 20–39 with a normal BMI:*

Predicted lifespan:
- ↓ **by 5.9 YEARS** with class 1 obesity
- ↓ **by 8.4 YEARS** with class 2–3 obesity

Number of healthy years:
- ↓ **by 11.8 YEARS** with class 1 obesity
- ↓ **by 18.8 YEARS** with class 2–3 obesity

Normal BMI: <25 kg/m^2; Class I Obesity: BMI of 30 to 34.9 kg/m^2; Class II Obesity: BMI of 35.0 to 39.9 kg/m^2 ; Class III Obesity: BMI of ≥40 kg/m^2.

1. Grover SA et al. Years of life lost and healthy life-years lost from diabetes and cardiovascular disease in overweight and obese people: a modelling study. *The Lancet Diabetes & Endocrinology*. Published online December 5, 2014.

Canadian Medical Association

"Obesity is a **chronic** disease requiring enhanced research, treatment and prevention efforts."

World Health Organization

"Obesity is a **chronic** disease, prevalent in both developed and developing countries, and affecting children as well as adults."

Obesity Canada

"Obesity is a **chronic** and often **progressive** condition not unlike diabetes or hypertension."

Question 3

How many Albertans have overweight or obesity?

1) 1 out of 10
2) 3 out of 10
3) 5 out of 10
4) 7 out of 10 ✓

Statistics

- **Worldwide, obesity rates have more than doubled in the past 40 years[1]**
- **In Canada, over 1 in 4 adults are defined as obese[2]**
- **In Canada, 1 in 10 children are defined as obese[3]**
- **In Alberta, 6 in 10 people have overweight or obesity[4]**
  - **4 in 10 have overweight, 2 in 10 have obesity**
  - **More males than females have obesity**

1. WHO. 2015. Obesity and overweight fact sheet. Available at: http://www.who.int/mediacentre/factsheets/fs311/en/.
2. Canadian Obesity Network. 2015. Obesity in Canada. Available at: http://www.obesitynetwork.ca/obesity-in-Canada CON.
3. Public Health Agency of Canada. 2011. Obesity in Canada. A joint report from the Public Health Agency of Canada and the Canadian Institute for Health Information. Available at: http://www.phac-aspc.gc.ca/hp-ps/hl-mvs/oic-oac/assets/pdf/oic-oac-eng.pdf.
4. Health Quality Council of Alberta's 2015 Satisfaction and Experience with Health Care Services Survey

Question 4

What are the best measures to assess obesity and associated risk?

1) BMI
2) Edmonton Obesity Staging System
3) Waist measurement
4) Assessing obesity-related symptoms
5) Lab measures (fasting glucose, A1c, ALT, lipids)
6) All of the above ✓

Body Mass Index (BMI)

- **BMI – weight (kg)/height (m^2)**
- **Developed by Adolphe Quetelet, 1800's,**
  - **mathematician, astronomer, painter and sculptor**
- **Originally referred to as the "Quetelet Index"**
- **Renamed BMI in 1970's**
- **Since has been used as a measurement of obesity and used to study relationship between body mass and disease**

1. Nephrol Dial Transplant. 2008 Jan;23(1):47-51. Epub 2007 Sep 22. Adolphe Quetelet (1796-1874)--the average man and indices of obesity.
2. Commentary: Origins and evolution of body mass index (BMI): continuing saga Henry Blackburn David Jacobs, Jr *International Journal of Epidemiology*, Volume 43, Issue 3, June 2014, Pages 665-669, https://doi.org/10.1093/ije/dyu061 https://doi.org/10.1038/ijo.2009.2

Considerations Regarding BMI

- **Useful as a screening tool and for population studies**
- **Does not consider body composition:**
  - **Does not account for muscle mass**
  - **Underestimates the body fat in persons who have lost muscle mass**
  - **Two people with the same BMI can have a two-fold difference in total body fat**
- **Does not distinguish between men and women**
- **Does not reflect differences between ethnic groups such as Pacific Islander populations, Aboriginal peoples, South Asian, Chinese and Japanese population groups**
- **Does not reflect the presence or extent of comorbidities, and does not reflect health status**
- **Changes in BMI category are not necessary to achieve improvement in overall health in well-being**
  - **A 5-10% reduction in weight is associated with a major improvement in health, but doesn't necessarily lead to a different BMI category**
- **Should NOT be used as the sole measure of obesity, or as a basis for weight loss goals for all patients**

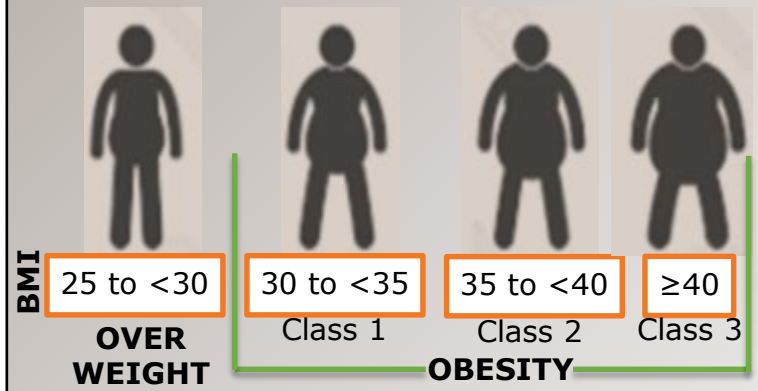
North American Association for the Study of Obesity, Heart N, Institute B, (US) NIH, Initiative NOE. *The Practical Guide: Identification, Evaluation, and Treatment of Overweight and Obesity in Adults*. National Institutes of Health, National Heart, Lung, and Blood Institute, NHLBI Obesity Education Initiative, North American Association for the Study of Obesity; 2000.

Assessing obesity and weight-related risks

1 Obesity, by definition:

Measure **height**
Measure **weight**
Calculate **BMI**

BMI = kg/m²



2 Abdominal adiposity:

Measure
waist circumference*
*If BMI is >25 and ≤35 kg/m²

European, Sub-Saharan African, Eastern Mediterranean and Middle Eastern (Arab)

♂ **94 cm** | ♀ **80 cm**

South Asian, Chinese, Japanese, South and Central American

♂ **90 cm** | ♀ **80 cm**

3 Other weight-related health risks and comorbidities:

Assess
obesity-related health risks

Diabetes: **FPG, A1C**
Hypertension: **Blood pressure (BP)**
Dyslipidemia: **Lipid profile**
NAFLD: **ALT**

Other weight-related comorbidities

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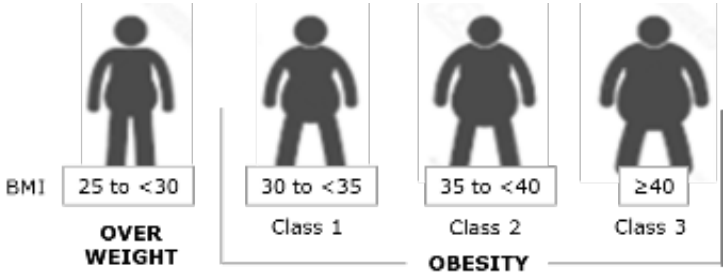
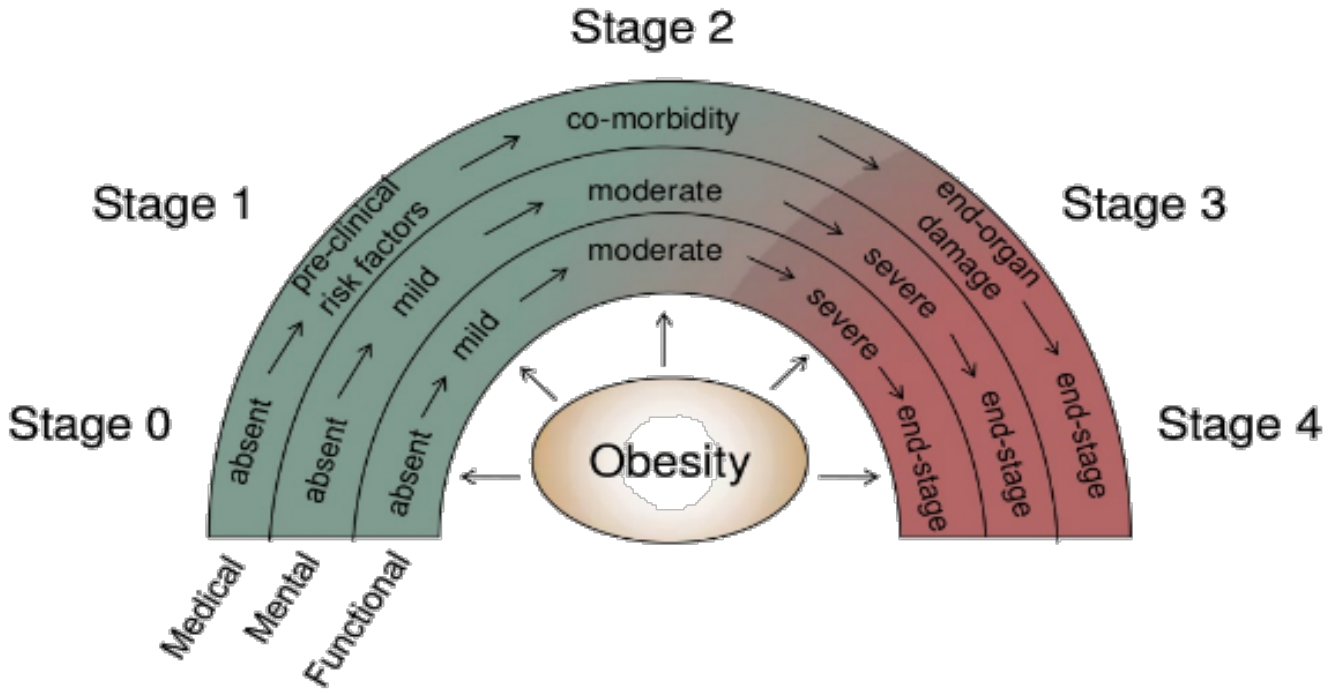
Obesity is more than numbers on a scale

Obesity, by definition:	Measure **height** Measure **weight** Calculate **BMI** **BMI = kg/m²**		• BMI **does not consider** muscle or fat distribution (not for children, elderly, highly muscular adults and others)
Abdominal adiposity:	Measure **waist circumference*** * If BMI is >25 and ≤35 kg/m²	♂ **≥ 102 cm** ♀ **≥ 88 cm** European, Sub-Saharan African, Eastern Mediterranean and Middle Eastern (Arab) ♂ **94 cm** | ♀ **80 cm** South Asian, Chinese, Japanese, South and Central American ♂ **90 cm** | ♀ **80 cm**	• Waist circumference reflects **visceral adiposity** in adults • Associated with **increased risk** of CVD and other chronic diseases
Other weight-related health risks and comorbidities:	Assess **obesity-related health risks**	Diabetes: **FPG, A1C** Hypertension: **Blood pressure (BP)** Dyslipidemia: **Lipid profile** NAFLD: **ALT** *Other weight-related comorbidities*	• Obesity also strongly associated with **psychiatric comorbidities**, especially depression

ALT, alanine aminotransferase; BMI, body mass index; FPG, fasting plasma glucose; CVD, cardiovascular disease; NAFLD, non-alcoholic fatty liver disease.
Adapted from Jensen MD et al. J Am Coll Cardiol. 2014;63:2985-3023; Lau et al. CMAJ 2007;176(8 suppl):Online-1–117; DC Guidelines. Can J Diabetes. 2018;42(suppl 1):S1-325.

Edmonton Obesity Staging System



Sharma AM, Kushner RF. Int J Obes (Lond). 2009;33:289-95. ; Additional iinformation at: http://www.ottawahospital.on.ca/wps/wcm/connect/1c3afc004699b6c3a604fe0fc4dadf18/Edmonton-obesity-staging-system-staging-tool.pdf?MOD=AJPERES

STAGE 0

- **NO** sign of obesity-related risk factors
- **NO** physical symptoms
- **NO** psychological symptoms
- **NO** functional limitations

Case Example:
Physically active female with a BMI of 32 kg/m^2, no risk factors, no physical symptoms, no self-esteem issues, and no functional limitations.

Class I, Stage 0 Obesity

EOSS Score

WHO Obesity Classfication

STAGE 1

- Patient has obesity-related **SUBCLINICAL** risk factors
  (borderline hypertension, impaired fasting glucose, elevated liver enzymes, etc.)
  - OR -
- **MILD** physical symptoms - patient currently not requiring medical treatment for comorbidities
  (dyspnea on moderate exertion, occasional aches/pains, fatigue, etc.) *- OR -*
- **MILD** obesity-related psychological symptoms and/or mild impairment of well-being
  (quality of life not impacted)

Case Example:
38 year old female with a BMI of 59.2 kg/m^2, borderline hypertension, mild lower back pain, and knee pain. Patient does not require any medical intervention.

Class III, Stage 1 Obesity

WHO CLASSIFICATION OF WEIGHT STATUS (**BMI kg/m^2**)

Obese Class I ..... 30 - 34.9
Obese Class II ..... 35 - 39.9
Obese Class III ..... ≥40

Stage 0 / Stage 1 Obesity

Patient ***does not meet clinical criteria for admission*** at this time.
Please refer to primary care for further preventative treatment options.

STAGE 2

- Patient has **ESTABLISHED** obesity-related comorbidities requiring medical intervention
  (HTN, Type 2 Diabetes, sleep apnea, PCOS, osteoarthritis, reflux disease) *- OR -*
- **MODERATE** obesity-related psychological symptoms
  (depression, eating disorders, anxiety disorder) *- OR -*
- **MODERATE** functional limitations in daily activities
  (quality of life is beginning to be impacted)

Case Example:
32 year old male with a BMI of 36 kg/m^2 who has primary hypertension and obstructive sleep apnea.

Class II, Stage 2 Obesity

STAGE 3

- Patient has **significant** obesity-related end-organ damage (myocardial infarction, heart failure, diabetic complications, incapacitating osteoarthritis) *- OR -*
- **SIGNIFICANT** obesity-related psychological symptoms
  (major depression, suicide ideation) *- OR -*
- **SIGNIFICANT** functional limitations
  (eg: unable to work or complete routine activities, reduced mobility)
- **SIGNIFICANT** impairment of well-being
  (quality of life is significantly impacted)

Case Example:
49 year old female with a BMI of 67 kg/m^2 diagnosed with sleep apnea, CV disease, GERD, and suffered from stroke. Patient's mobility is significantly limited due to osteoarthritis and gout.

Class III, Stage 3 Obesity

STAGE 4

- **SEVERE** (potential end stage) from obesity-related comorbidities *- OR -*
- **SEVERELY** disabling psychological symptoms *- OR -*
- **SEVERE** functional limitations

Case Example:
45 year old female with a BMI of 54 kg/m^2 who is in a wheel chair because of disabling arthritis, severe hyperpnea, and anxiety disorder.

Class III, Stage 4 Obesity

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Sharma AM & Kushner RF, *Int J Obes* 2009

Question 5

What is the minimum amount of weight loss needed to result in health benefits?

1) 5-10%
2) 10-15%
3) 15-20%
4) 20-25%

Benefits of 5–10% weight loss

Reduction in risk of type 2 diabetes[1]	Reduction in CV risk factors[2]	Improvements in blood lipid profile[3]	Improvements in blood pressure[4]	Improvements in severity of obstructive sleep apnea[5,6]	Improvements in disability (pain & physical function) and health-related quality of life[7,8,9*]
n=3234; p<0.001	n=577; p=0.033	p≤0.001 (based on 70 studies)	n=5145 p<0.0001	n=264; p<0.001	

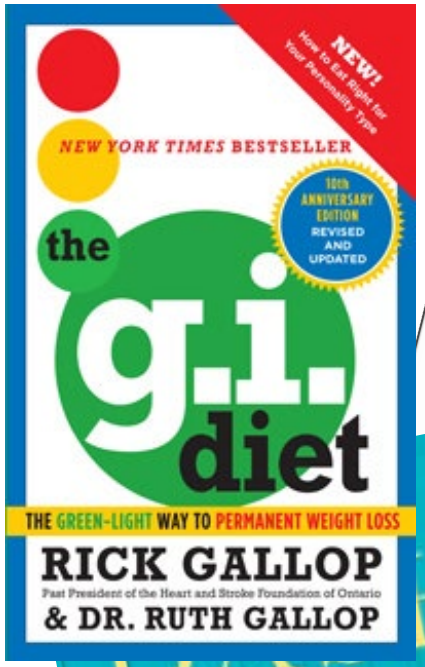
1 kg ↓ body weight

16% RRR in diabetes[10]
n=2766; p-value not available

RRR = relative risk diabetes. *Ref 7. meta-analysis of 53 studies: n=1337; p<0.01. Ref 8. n=199; p<0.0018. Ref 9. n=417; p=0.05

1. Knowler *et al*. *N Engl J Med* 2002;346:393–403; 2. Li *et al*. *Lancet Diabetes Endocrinol* 2014;2:474–80; 3. Datillo *et al*. *Am J Clin Nutr* 1992;56:320–8; 4. Wing *et al*. *Diabetes Care* 2011;34:1481–6; 5. Foster *et al*. *Arch Intern Med* 2009;169:1619–26; 6. Kuna *et al*. *Sleep* 2013;36:641–9; 7. Warkentin *et al*. *Obes Rev* 2014;15:169–82; 8. Wright *et al*. *J Health Psychol* 2013;18:574–86; 9. Christensen *et* al. *Ann Rheum* Dis. 2007;66:433-9; 10. Diabetes Prevention Program Research Group. Lancet. 2009;374:1677-86.

start?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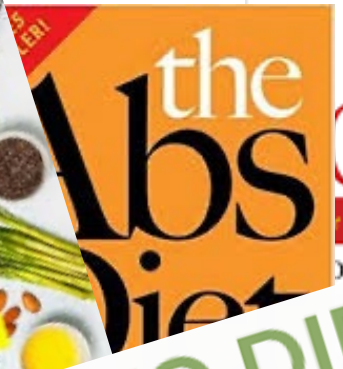
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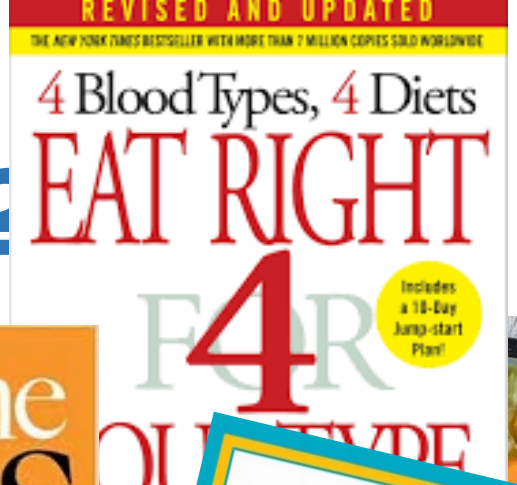
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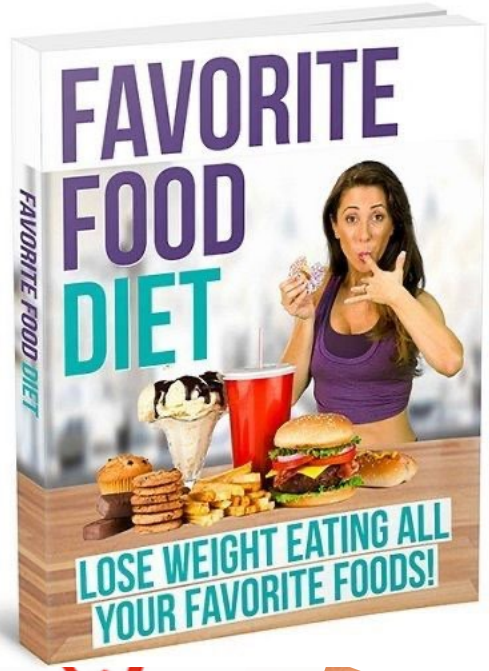
EAT RIGHT
4
Includes a 10-Day Jump-start Plan!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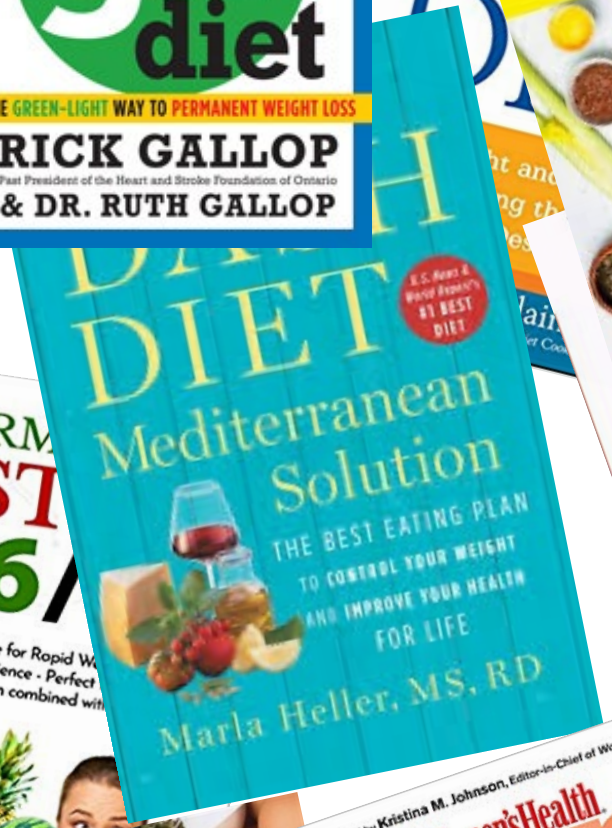
DIET
Mediterranean
Solution
THE BEST EATING PLAN
TO CONTROL YOUR WEIGHT
AND IMPROVE YOUR HEALTH
FOR LIFE
Marla Heller, MS, RD


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an - Very Fast when combined wit


Foreword by Kristina M. Johnson, Editor-in-Chief of Women's Health
Women's Health
PERFECT


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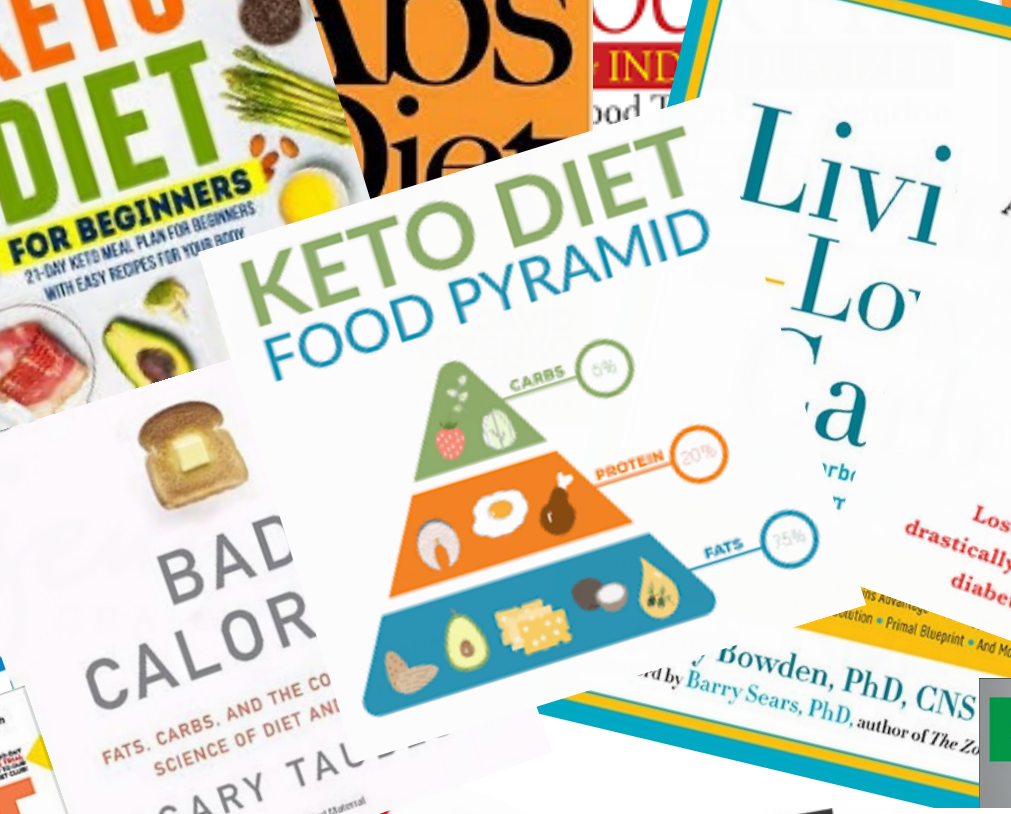
"I couldn't put it down."
—DR CHARLES F. STANLEY
NEW YORK TIMES AUTHOR
THE

New York Times Best Seller
THE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FOOD PYRAMID
CARBS 5%
PROTEIN 20%
FATS 35%

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A 21-Day Lifestyle Plan
Lose weight, feel great and
drastically reduce your risk of Type-2
diabetes and heart disease
INSTANT #1
NEW YORK TIMES
BESTSELLER
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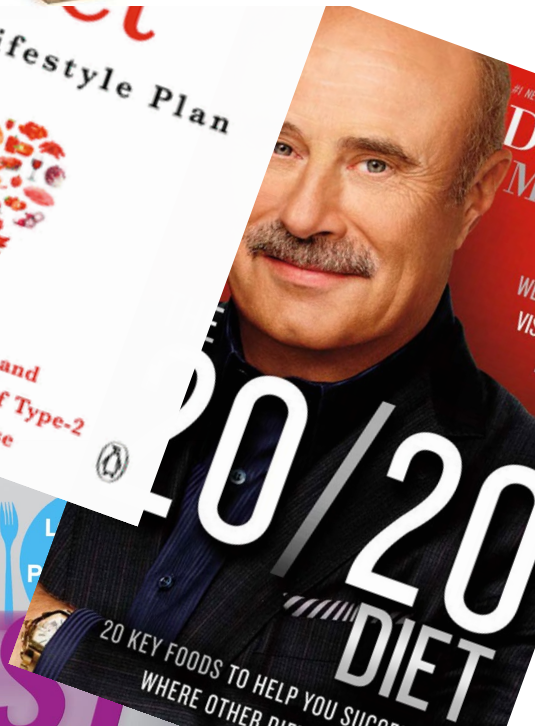
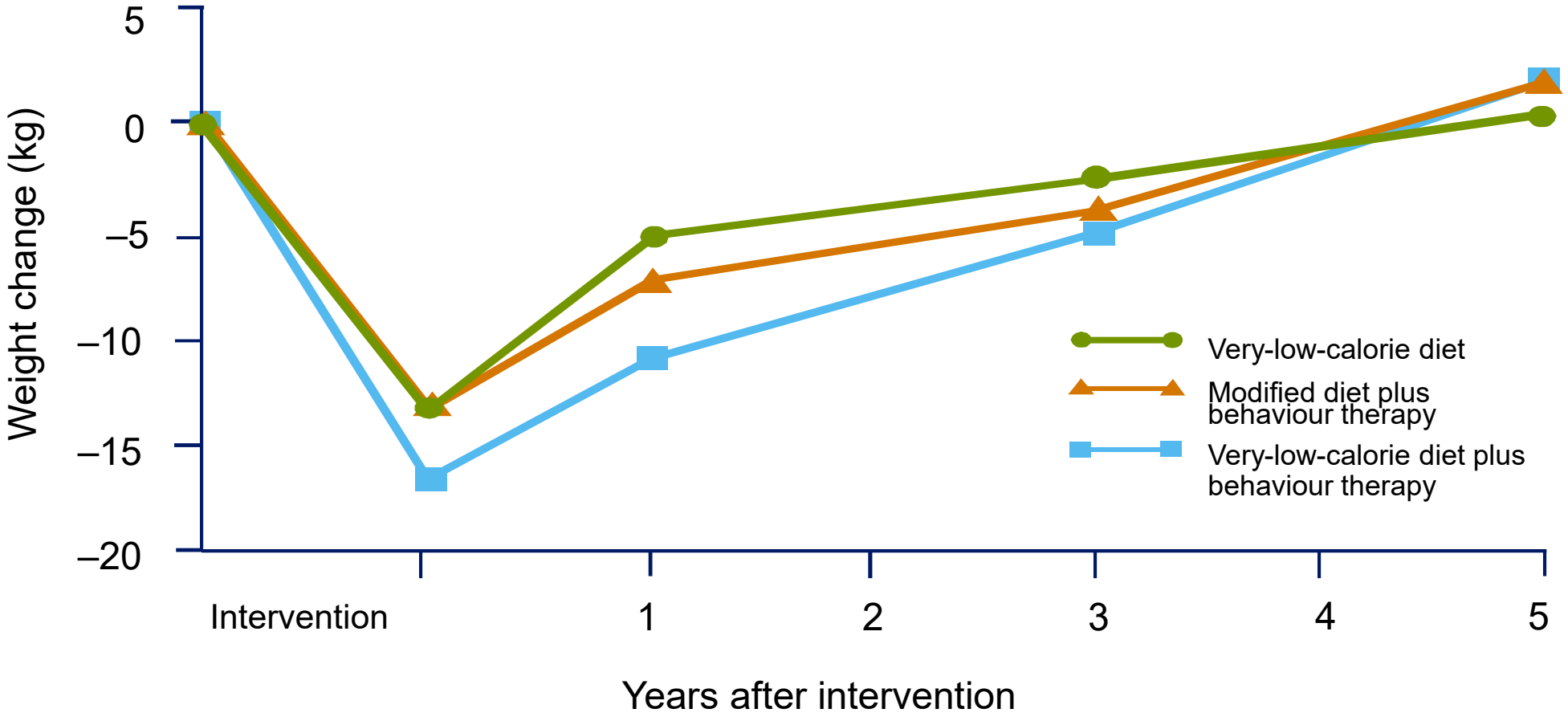

20/20
DIET
20 KEY FOODS TO HELP YOU SUCC
WHERE OTHER

Question 6

Which statement is true?

1) Weight loss is usually permanent
2) Weight regain is always due to laziness
3) Most patients regain lost weight within a year
4) Low carbohydrate diets are best for weight loss

Weight regain is the natural history[1]



Wadden TA et al. *Ann Intern Med* 1993; 119:688–93.

Treatment Options and Their Effect

SURGERY* 21-35%

†

PHARMACOTHERAPY 5-15%

LIFESTYLE MODIFICATION 1-5%

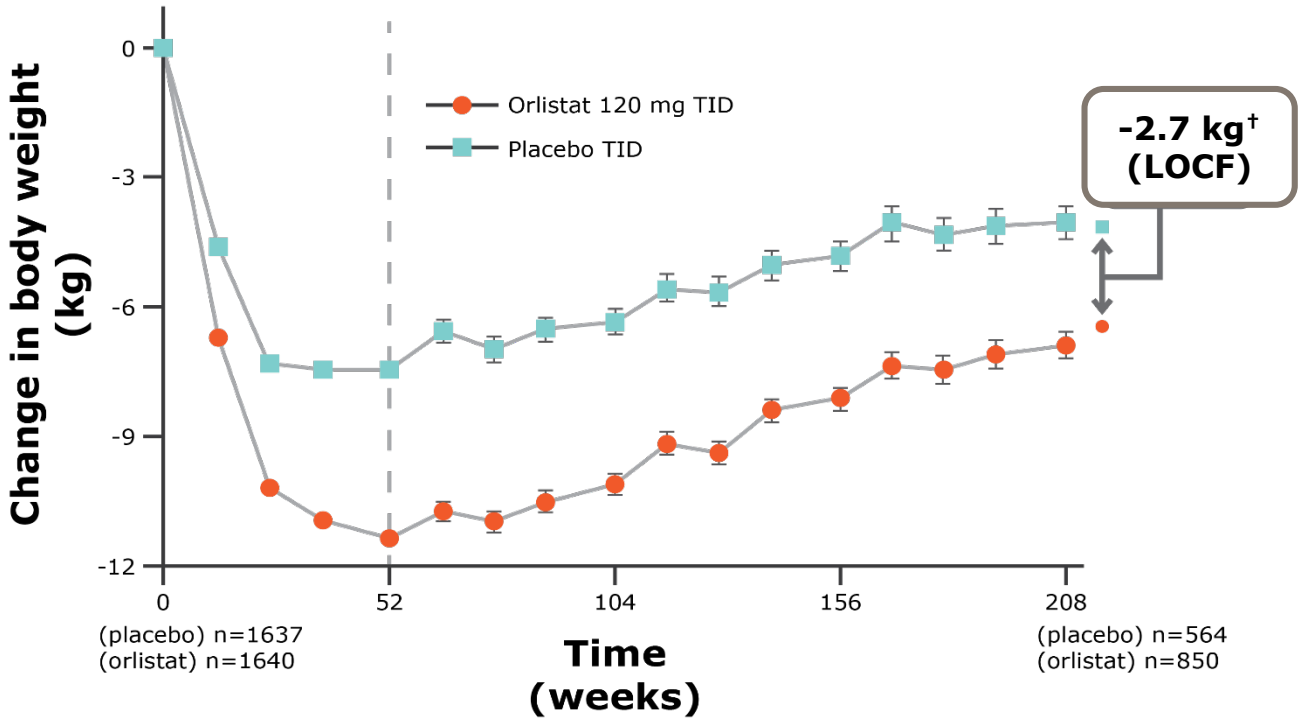
Behavioural Strategies: National Weight Control Registry

- Registry of > 10,000 individuals
- Lost an average of 30 kg and kept it off for 5.5 years
  - Weight losses have ranged from 30 to 300 lbs
- 98% modified their food intake
- 94% increased their physical activity (mostly walking)
- Most continue maintaining a low calorie, low fat diet and doing high level of activity
  - 78% eat breakfast every day
  - 75% weigh themselves at least once a week
  - 62% watch less than 10 hours of TV per week
  - 90% exercise, on average, about 1 hour per day

http://www.nwcr.ws/Research/default.htm

Weight reductions with medications: Orlistat XENDOS trial

ORLISTAT 120 mg TID[1,2]



YEAR 1	YEAR 4
110.4-110.6 kg	110.4-110.6 kg
-11.4 kg	**-6.9 kg**
vs. 7.5 kg* (completers)	vs. -4.1 kg* (completers)
≥5% weight loss **73%** vs. 45%*	**≥5% weight loss** **44.8%** vs. 28.0%*
>10% weight loss **41%** vs. 21%*	**>10% weight loss** **21%** vs. 10%*

*$p<0.001$; †$p<0.001$ by LOCF analysis (last observation carried forward)

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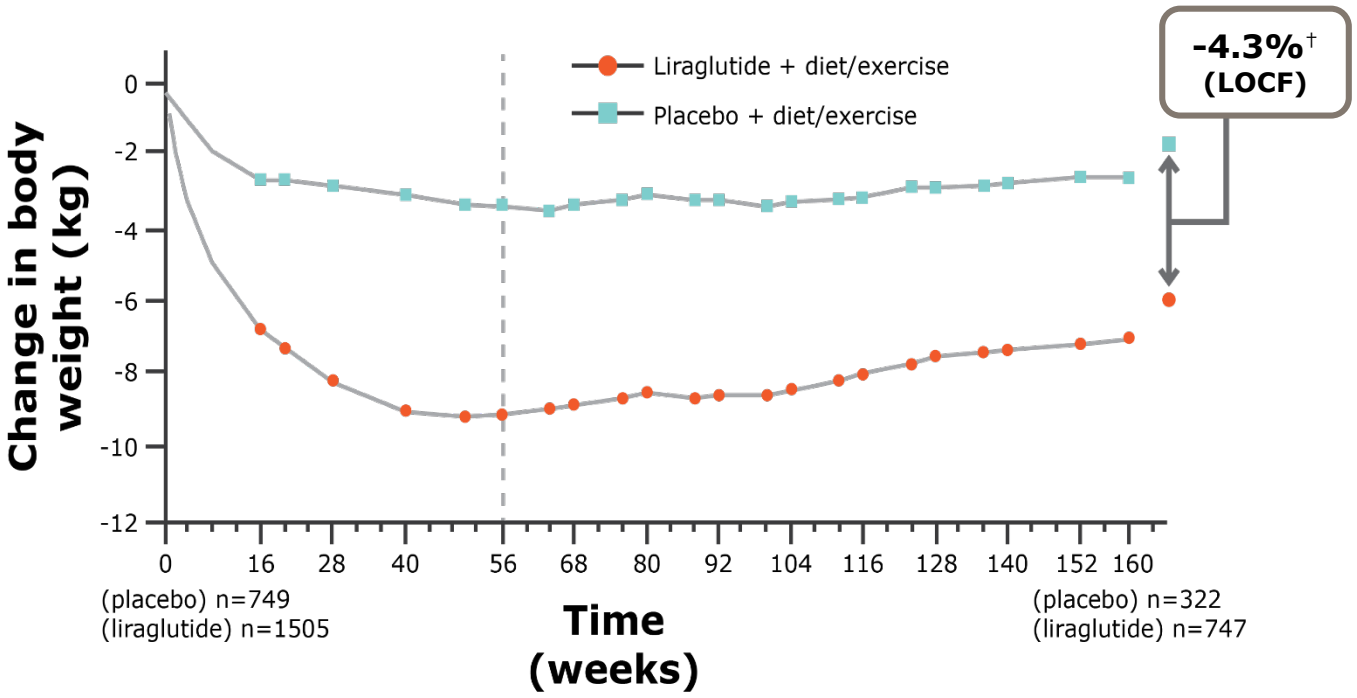
Weight reductions with pharmacotherapy: Liraglutide SCALE™ Obesity and Prediabetes trial

LIRAGLUTIDE 3 mg once daily
Patients with prediabetes[2]



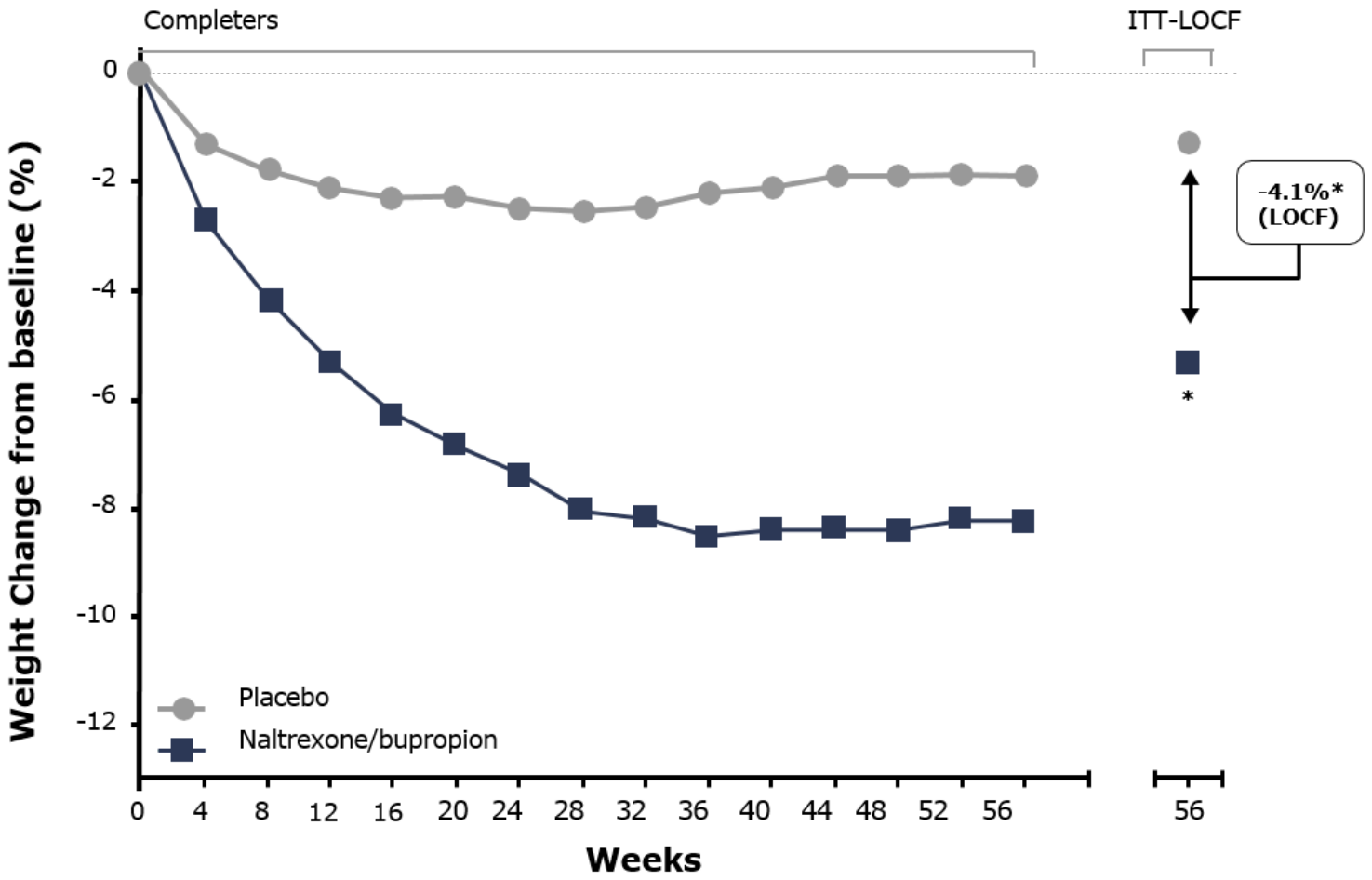
YEAR 1[1] Patients with and without prediabetes (N=3731)‡	YEAR 3[2] Patients with prediabetes (N=2254)
106.2 kg	107.5-107.9 kg
-9.2 %	-7.1 %
vs. 3.5%* (completers)	vs. -2.7%§ (completers)
≥5% weight loss 63.2% vs. 27.1%*	**≥5% weight loss** 49.6% vs. 23.7%#
>10% weight loss 33.1% vs. 10.6%*	**>10% weight loss** 24.8% vs. 9.9%#

*p<0.001; †p<0.0001 by LOCF analysis (last observation carried forward); ‡Weight loss was similar regardless of prediabetes status.[1]
#p<0.0001; §p-value not available.

1. Pi-Sunyer *et al. NEJM* 2015;373(1):11-22; 2. le Roux et al. *Lancet* 2017. doi: 10.1016/S0140-6736(17)30069-7. [Epub ahead of print]

Naltrexone/bupropion: Clinical results after 1 year

1 YEAR
N=538 99.7 kg
-8.1% vs. -1.8%* (completers) [-5.4% vs. -1.3% (ITT)]
≥5% weight loss **62%** vs. 23%* [42% vs. 17%* (ITT)]
>10% weight loss **34%** vs. 11%* [21% vs. 7%* (ITT)]
Waist circumference **-6.2 cm** vs. -2.5 cm* (primary analysis population)



* $p<0.0001$ by LOCF analysis (last observation carried forward); ITT, intent-to-treat.

Contrave® (naltrexone/bupropion), Product Monograph, Valeant Canada, February 2018.; Greenway FL, et al. *The Lancet.* 2010;376(9741):595-605.

What does patient "success" look like?

Setting realistic expectations and goals…

…with the goal of achieving the patient's **"best weight"**

Focus on health, not only on the scale or the mirror

Be SMART (specific, measurable, agreed upon, realistic, timely) when setting short- and long-term goals

Help patients understand their values: the real reasons why they want to manage their weight

"Best weight" is achieved when living the healthiest lifestyle one can truly enjoy

Weight loss and **weight maintenance** can be challenging, **however,** patients are **more likely to maintain their weight loss and new lifestyle** if they enjoy it

The 5As of obesity management. Canadian Obesity Network 2011. Accessed November 10, 2015 at http://www.obesitynetwork.ca/5As; Lau et al. CMAJ 2007;176(8 suppl):Online-1–117; Forman EM and Butryn ML. Effective Weight Loss: An Acceptance-Based Behavioural Approach, Clinician Guide: Oxford University Press; 2016; Freedhoff Y and Sharma AM. Best weight: A Practical Guide to Office-Based Obesity Management. Published by the CON-RCO. 2010

QUESTIONS?

THANK YOU

Royal Alexandra HOSPITAL FOUNDATION

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