COVID-19 Community of Practice for Ontario Family Physicians

**June 7, 2024**

**Dr. Daniel Warshafsky**
**Dr. Neil Naik**

# *Infectious Disease and Management of Obesity*

Family & Community Medicine
UNIVERSITY OF TORONTO

Ontario College of Family Physicians

# Infectious Disease and Management of Obesity

Moderator:

- Dr. Ali Damji, Mississauga, ON

Panelists:

- Dr. Daniel Warshafsky, Toronto, ON
- Dr. Neil Naik, Waterloo, ON

Host:

- Dr. Mekalai Kumanan, Cambridge, ON

The COVID-19 Community of Practice for Ontario Family Physicians is a one-credit-per-hour Group Learning program that has been certified for up to a total of 32 credits.

# Land Acknowledgement

We acknowledge that the lands on which we are hosting this meeting include the traditional territories of many nations.

The OCFP and DFCM recognizes that the many injustices experienced by the Indigenous Peoples of what we now call Canada continue to affect their health and well-being. The OCFP and DFCM respects that Indigenous people have rich cultural and traditional practices that have been known to improve health outcomes.

I invite all of us to reflect on the territories you are calling in from as we commit ourselves to gaining knowledge; forging a new, culturally safe relationship; and contributing to reconciliation.

# Huron Natural Reserve

# *Changing the way we work*

***A community of practice for family physicians during COVID-19***

At the conclusion of this series participants will be able to:

- Identify the current best practices for delivery of primary care within the context of COVID-19 and how to incorporate into practice.
- Describe point-of-care resources and tools available to guide decision making and plan of care.
- Connect with a community of family physicians to identify practical solutions for their primary care practice under current conditions.

## Disclosure of Financial Support

This CPD program has received in-kind support from the Ontario College of Family Physicians and the Department of Family and Community Medicine, University of Toronto in the form of logistical and promotional support.

**Potential for conflict(s) of interest:**
N/A

## Mitigating Potential Bias

- The Scientific Planning Committee has full control over the choice of topics/speakers.
- Content has been developed according to the standards and expectations of the Mainpro+ certification program.
- The program content was reviewed by a three-member national/scientific planning committee.

*Planning Committee*: Dr. Mekalai Kumanan (OCFP), Dr. Ali Damji (DFCM), Dr. Eleanor Colledge (DFCM), Dr. Harry O'Halloran, Julia Galbraith (OCFP), Pavethra Yogeswaran (OCFP), Marisa Schwartz (DFCM), Erin Plenert (DFCM)

Previous webinars & related resources:

https://www.dfcm.utoronto.ca/covid-19-community-practice/past-sessions

## Dr. Daniel Warshafsky – Panelist

Associate Chief Medical Officer of Health at the Office of the Chief Medical Officer of Health

## Dr. Neil Naik – Panelist

Assistant Clinical Professor, University of Waterloo; Family Physician, Waterloo, Ontario

## Dr. Mekalai Kumanan – Host

**Twitter: @MKumananMD**

President, Ontario College of Family Physicians

Family Physician, Two Rivers Family Health Team

# Speaker Disclosure

- Faculty Name: **Dr. Neil Naik**
- Relationships with financial sponsors:
  - **Grants/Research Support:** N/A
  - **Speakers Bureau/Honoraria:** Ontario College of Family Physicians, Baysil Inc, Amgen, Pfizer, Abbott, Novo Nordisk, AstraZeneca, Boehringer-Ingelheim, Canada Health Infoway, eHealth Centre for Excellence, McMaster University, OHIP, Kenota Health, Kitchener-Waterloo Academy of Medicine, Cancer Care in the Waterloo Wellington Region, Lush Woodcraft, The Canadian Collaborative Research Network ("CCRN"), Bayer, Chillwall AI, University of Waterloo, Topology Health, Khure Health, Ontario Health
  - **Advisory boards:** Amgen, Pfizer, Aralez, Abbott, Abbvie, AstraZeneca, Boehringer-Ingelheim, Eli Lilly, COVIS, eHealth Centre for Excellence, KW4 Primary Care Council, Canada-Africa Community Health Alliance, Waterloo Integrated Renal Program Council, Online Appointment Booking Provincial Advisory Committee, Lupin Pharmaceutical, Waterloo-Wellington Therapeutic Endoscopy Committee, Ontario Medical Laboratory Network for Connected Care, Ontario Primary Care Council
  - **Others:** Cloud Dx, Alphabet, Apple, Qualcomm, Johnson & Johnson, Aetna Insurance, RGAX Insurance, LSK Technologies, HealthTii Inc, Communitech, KW4 Ontario Health Team, Grand River Hospital Foundation, Orion Biotechnology, Glucoin, Sunlife Insurance, SanctuaryAI, AIoT, Bird&be, Tactico, FluidAI, FirstHx, Grand River Hospital Foundation, Canada Africa Community Health Alliance (CACHA), Intellijoint

# Speaker Disclosure

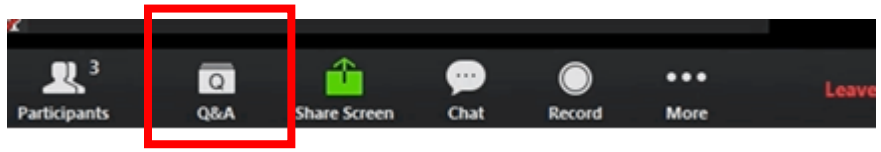
- Faculty Name: **Dr. Mekalai Kumanan**
- Relationships with financial sponsors:
  - Grants/Research Support: N/A
  - Speakers Bureau/Honoraria: Ontario College of Family Physicians
  - Others: N/A

- Faculty Name: **Dr. Daniel Warshafsky**
- Relationships with financial sponsors:
  - Grants/Research Support: N/A
  - Speakers Bureau/Honoraria: N/A
  - Others: N/A

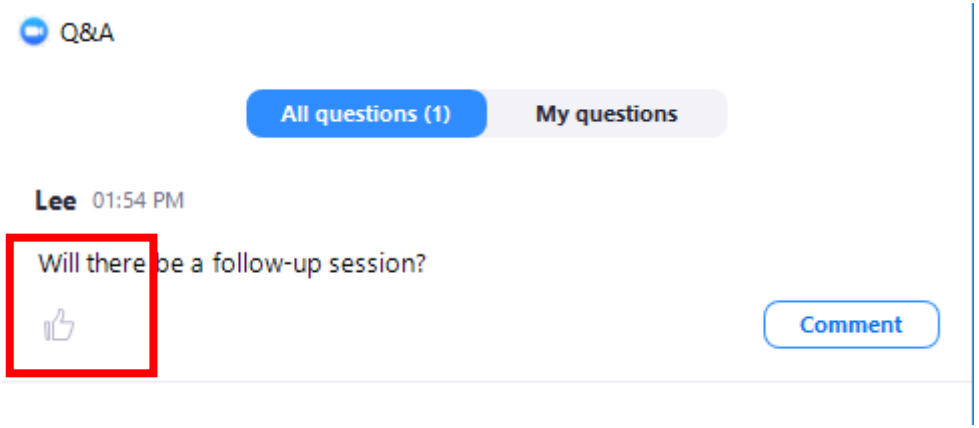
- Faculty Name: **Dr. Ali Damji**
- Relationships with financial sponsors:
  - Grants/Research Support: N/A
  - Speakers Bureau/Honoraria: Ontario College of Family Physicians
  - Others: N/A

# How to Participate

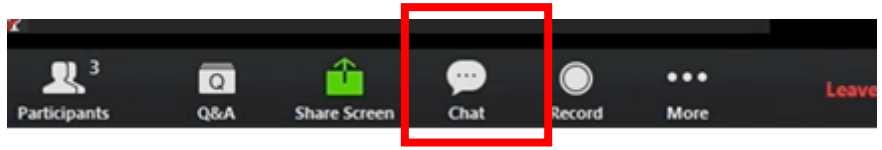
- All questions should be asked using the Q&A function at the bottom of your screen.




- Press the thumbs up button to upvote another guest's questions. Upvote a question if you want to ask a similar question or want to see a guest's question go to the top and catch the panels attention.




- Please use the chat box for networking purposes only.



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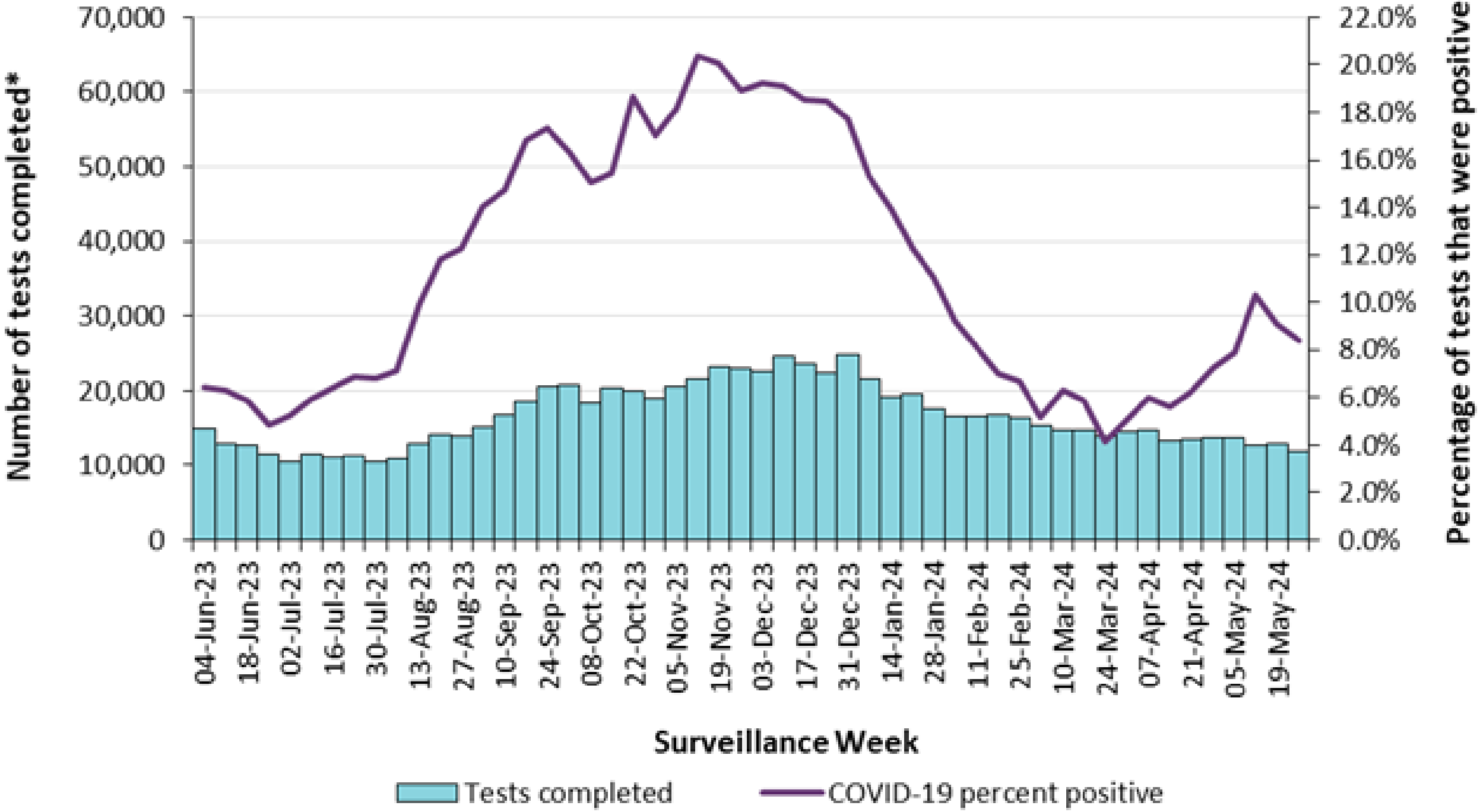
Associate Chief Medical Officer of Health at the Office of the Chief Medical Officer of Health

## Dr. Neil Naik – Panelist

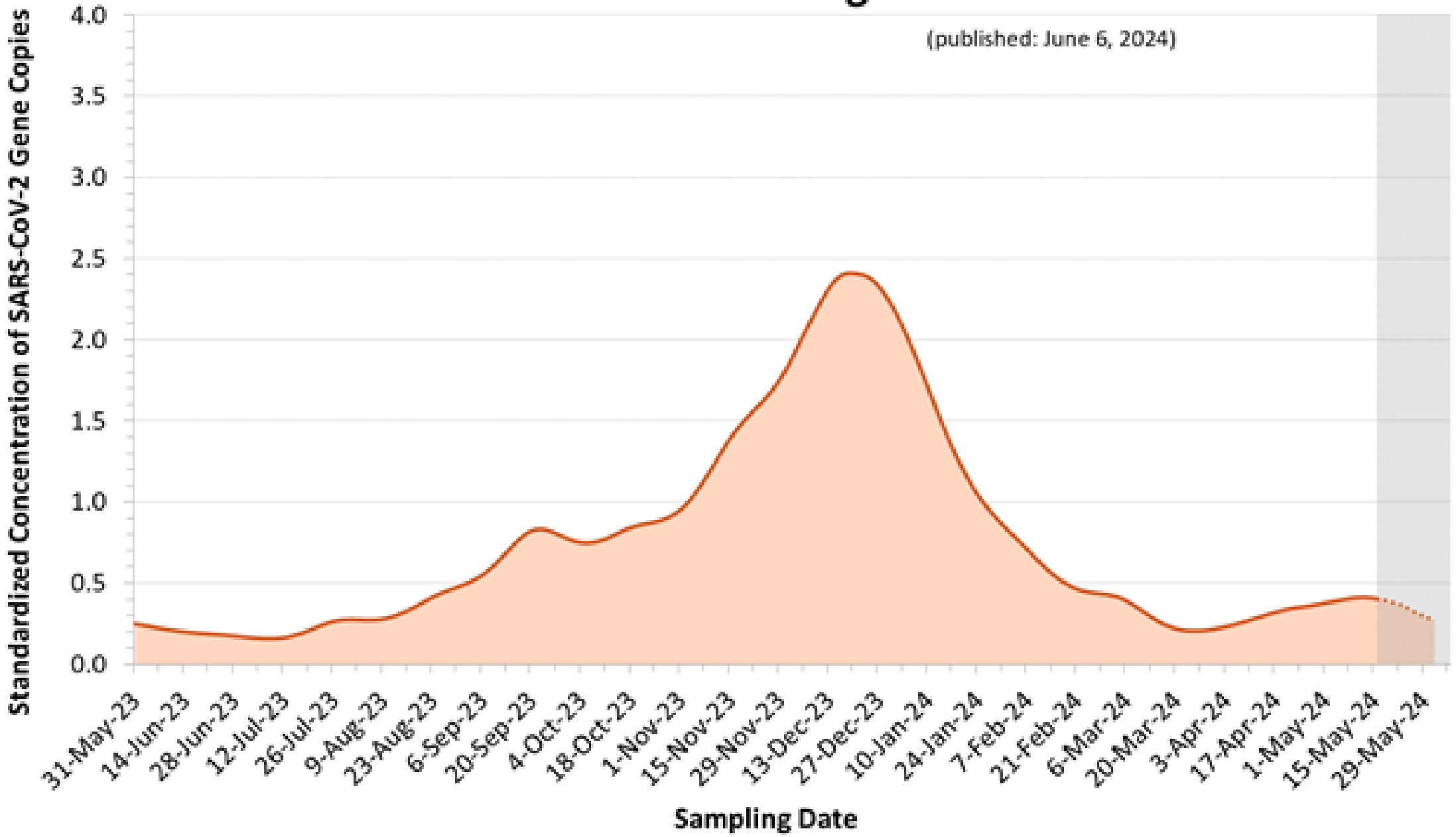
Assistant Clinical Professor, University of Waterloo; Family Physician, Waterloo, Ontario

# COVID

Ontario


Number of tests completed*
70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
22.0%
20.0%
18.0%
16.0%
14.0%
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
Percentage of tests that were positive
04-Jun-23
18-Jun-23
02-Jul-23
16-Jul-23
30-Jul-23
13-Aug-23
27-Aug-23
10-Sep-23
24-Sep-23
08-Oct-23
22-Oct-23
05-Nov-23
19-Nov-23
03-Dec-23
17-Dec-23
31-Dec-23
14-Jan-24
28-Jan-24
11-Feb-24
25-Feb-24
10-Mar-24
24-Mar-24
07-Apr-24
21-Apr-24
05-May-24
19-May-24
Surveillance Week
Tests completed
COVID-19 percent positive

# COVID-19 Wastewater Signal - Ontario



# COVID-19 Spring Vaccination Campaign

- In alignment with NACI, individuals who are at increased risk of severe illness from COVID-19 may receive an additional dose of an XBB COVID-19 vaccine in Spring 2024. The Ontario Spring COVID-19 vaccine campaign will run from **April to June 2024**.
- The Ministry of Health is recommending that the following individuals receive an additional dose this spring:
    - Adults 65 years of age and older
    - Adult residents of long-term care homes and other congregate living settings for seniors
    - Individuals 6 months of age and older who are moderately to severely immunocompromised (due to an underlying condition or treatment)
    - Individuals 55 years and older who identify as First Nations, Inuit, or Metis and their non-Indigenous household members who are 55 years and older

## Long-Term Care (LTC) Home Residents

Total LTC residents vaccinated with spring dose

**20,002**

% all LTC residents with spring dose

**26.8%**

Change from previous report:

**+3,318** residents

**+4.5** % points

LTC residents who received a Fall 2023/24 dose (From September 12, 2023 to March 31, 2024):

**45,290 (61.6%)**

% LTC residents with a dose in the last 6 months

**33.8%**

## Retirement Home (RH) Residents

Total RH residents vaccinated with spring dose

**8,389**

% all RH residents with spring dose

**14.2%**

Change from previous report:

**+2,137** residents

**+3.7** % points

RH residents who received a Fall 2023/24 (From September 12, 2023 to March 31, 2024):

**37,563 (63.4%)**

% RH residents with a dose in the last 6 months

**19.4%**

# Updated OH Guidance: Mild to Moderate COVID-19

- **Risk Factors Associated with More Severe COVID-19 Outcomes Where Antiviral Therapy is RECOMMENDED**
  - Age (65 years and older, regardless of vaccine status, with no other risk factors)
  - Immunocompromised status (18 and older, regardless of vaccine status or prior COVID-19 infections)
- **Risk Factors Associated with More Severe COVID-19 Outcomes Where Antiviral Therapy MAY BE CONSIDERED**
  - Vaccination status (have never received a COVID-19 vaccine)
  - Certain medical conditions

*Treatment decisions should be individualized based on the prescriber's assessment of patient risk because not all medical or social vulnerabilities carry the same risk. Refer to Ontario Health guidance and resources at:* https://www.ontariohealth.ca/providing-health-care/clinical-resources-education/covid-19/treatment

# Coverage and Access for Paxlovid® in Community

- Effective May 17, 2024, Paxlovid® is listed Ontario Drug Benefit (ODB) Formulary with Limited Use (LU) criteria **for ODB-eligible adults (18 years+) with a positive COVID-19 test (PCR or RAT) and symptoms within the past 5 days who are**:
  - 65 years and older, regardless of risk factors or number of vaccine doses [673]
  - Immunocompromised, regardless of age or number of vaccine doses [674]
  - Have 1 or more risk factors (e.g. medical conditions) for severe COVID-19 [675]

  *REMINDER: Prescribers must indicate the appropriate LU code on the prescription.*

- **For non-ODB Program recipients (e.g., individuals with private insurance or who pay out of pocket), Paxlovid® will not be publicly funded and usual and customary process will apply**, once the remaining provincial supply of Paxlovid® expires at end of May.

- If a patient cannot afford the cost of a medication out-of-pocket, they may be eligible for the Trillium Drug Program (TDP). Where applicable, TDP can provide reimbursement retroactive to the enrollment date and process urgent applications.

# Access to Testing

**Rapid antigen tests (RATs)**

- Health care providers can continue to order free rapid antigen tests (RATs) to provide to patients.  Please order via PPE Supply Portal (must be registered for the Provincial Antigen Screening program – easy online application).
- RATs may also be available through participating pharmacies and public health units.

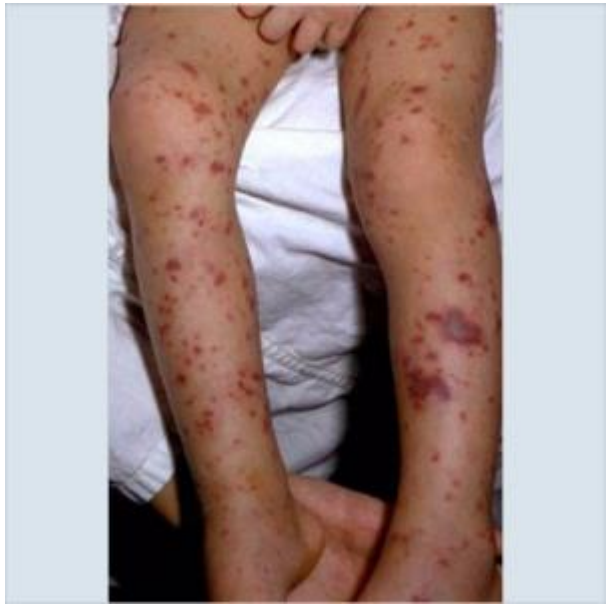
**PCR tests**

- Authorized providers may order publicly-funded PCR testing for eligible patients using the Public Health Ontario COVID-19 and Respiratory Virus Test Requisition form For help filling out the form use these instructions.
- Some pharmacies also continue to provide PCR testing (not available in all regions), see https://www.ontario.ca/covidtestinglocations for participating locations.

# Meningococcal Disease

# Clinical Illness

- Clinical illness associated with invasive meningococcal disease (IMD) usually manifests as meningitis, meningococcemia or both
- The case fatality ratio (CFR) is between 8% and 15%, with the CFR of meningococcemia as high as 40%.
- Symptoms include:
  - sudden development of fever
  - drowsiness
  - irritability or agitation
  - intense headache
  - nausea
  - vomiting
  - stiff neck and
  - Photophobia



- Most commonly, invasive disease results in meningitis and/or septicemia, in addition to a characteristic non-blanching petechial or purpuric rash.

# Contact Management

- Chemoprophylaxis should be offered to all persons having close contact with an IMD case during the infectious period (seven days before onset of symptoms in the case to 24 hours after initiation of effective treatment) regardless of their immunization status:
    - Household contact of a case;
    - Children and staff in contact with the case in child care settings;
    - Persons who have direct nose or mouth contamination with the case's oral/nasal secretions such as through kissing on the mouth, shared cigarettes, toothbrushes, eating utensils, drinking bottles;
    - Health care workers (HCWs) who have had intensive unprotected contact (without wearing a mask) with an infected person such as in intubation, mouth-to-mouth resuscitation, or closely examining the oropharynx;
    - Persons who share sleeping arrangements with the case; and
    - Airline passengers sitting immediately on either side of the case, but not across the aisle, when the total time spent aboard the aircraft was at least hours.

**Table 1: Recommended chemoprophylaxis for Invasive Meningococcal Disease[10]**

| **Drug** | **Age of Infants, Children, and Adults** | **Dosage** (Dose, route, frequency) | **Considerations** |
|---|---|---|---|
| Rifampin | < 1 month<br>≥ 1 month<br>Adults | 5mg/kg, oral, q12h x 2 days<br>10mg/kg (maximum 600mg), oral, q12h x 2 days<br>600mg, oral, q12h x 2 days | • Can interfere with efficacy of medications including oral contraceptives, anticonvulsants and anticoagulants<br>• Can stain contact lenses<br>• Not recommended for pregnant women |
| Ceftriaxone | < 15 years<br>≥ 15 years | 125mg, IM, single dose<br>250mg, IM, single dose | • Safe for pregnancy |
| Ciprofloxacin | Adults | 500mg, oral, single dose | • Not used in communities where fluoroquinolone-resistant strains of *N. meningitidis* have been detected<br>• Not recommended for pregnant women |

# Hajj 2024

- Umrah is an Islamic pilgrimage to Mecca, Kingdom of Saudi Arabia, that can be performed any time in the year; the Hajj is an annual Islamic pilgrimage this year taking place **June 14–19, 2024**.
- Since April 2024, 12 cases of meningococcal disease linked to Saudi Arabia travel for Umrah have been reported to national public health agencies in the United States (5 cases), France (4 cases), and the United Kingdom (3 cases).
- Make sure you are vaccinated with a **quadrivalent (ACYW) meningococcal vaccine** before travelling, as required by Saudi Arabia.

# Meningococcal Schedule in Ontario

**Age 1**

Men-C-C (Menjugate, NeisVac-CTM)

**Grade 7**

Men-ACYW (Menactra®, Menveo™, Nimenrix®)

**High risk**

2 months to 17 years - Men-B (Bexsero)

9 months+ Men-ACYW

- Acquired complement deficiencies (e.g., receiving eculizumab)
- Asplenia (functional or anatomic)
- Cochlear implant recipients (pre/post implant)
- Complement, properdin, factor D or primary antibody deficiencies
- HIV

# MPOX



Ontario

# Mpox Vaccine Guidance

- NACI (May 24, 2024) - **Interim guidance on the use of Imvamune® in the context of a routine immunization program**
- Ministry guidance changes – upcoming:
  - **Co-administration**: Imvamune® can be given concurrently (i.e., same day) or at any time before or after other live or non-live vaccines.
  - **Booster doses**: not recommended for individuals who have completed the 2-dose series of Imvamune®, expect for lab workers who have continued occupational exposure.
  - **High-risk criteria:** provincial guidance revision to align with NACI
  - **Healthcare workers:** Imvamune® is not routinely recommended for healthcare workers, including those serving populations at high risk of mpox, with the exception of post-exposure vaccination
  - **Pediatric populations:** Off-label use in pediatric populations is recommended for those meeting the criteria for post-exposure vaccination and may be offered at their clinician's discretion.

# Vaccination Reminder

- Please continue to vaccinate high-risk individuals with a 2-dose series of Imvamune®.

- Ensure those who have received one dose receive their second dose for optimal protection.

# How you’re making a difference

How can we effectively treat and support our patients

# Global prevalence of obesity

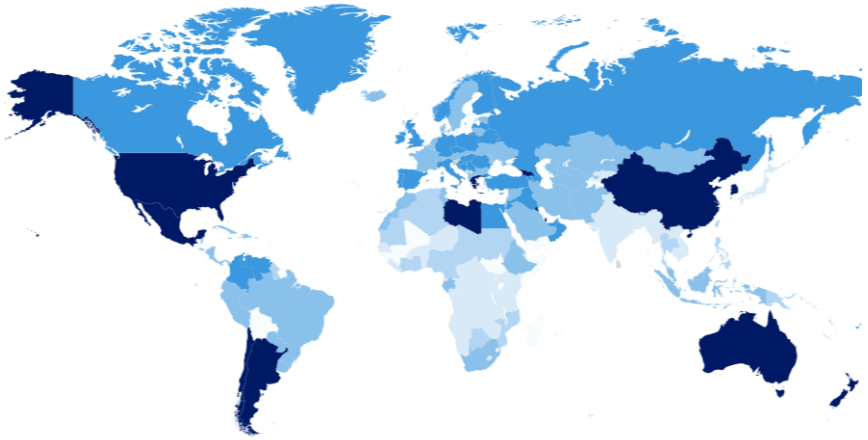
Among adults

**764**

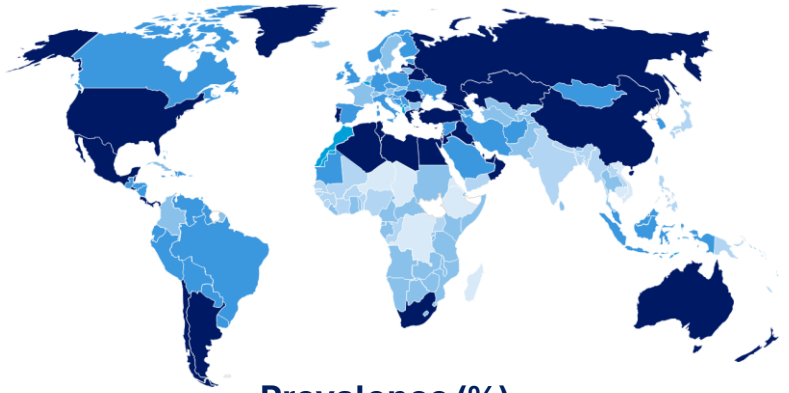
**million people**

live with obesity[1]

**Men[2]**



**Women[3]**



**Prevalence (%)**


1. World Obesity Federation: World Obesity Atlas, 2022. Available from: https://s3-eu-west-1.amazonaws.com/wof-files/World_Obesity_Atlas_2022.pdf. Accessed October 2022; 2. World Obesity Federation: Men living with obesity. Newest available data. Available from: https://data.worldobesity.org/maps/?area=trends&group=M&year=2020. Accessed October 2022; 3. World Obesity Federation: Women living with obesity. Newest available data. Available from: https://data.worldobesity.org/maps/?area=trends&group=F&year=2020. Accessed October 2022.

# Obesity is recognized as a disease and a health issue

"Obesity is a chronic, relapsing, progressive disease process ….need for immediate action for prevention and control of this global epidemic"

World Obesity Federation[1]

"Obesity is a progressive chronic disease, similar to diabetes or high blood pressure, …"

Obesity Canada[3]

"A progressive disease, impacting severely on individuals and society alike,… obesity is the gateway to many other disease areas…"

European Association for the Study of Obesity[4]

"Obesity and overweight as a chronic medical condition (de facto disease state) and urgent public health problem…"

American Medical Association[2]

"It (obesity) is not a lifestyle choice caused by individual greed but a disease caused by health inequalities, genetic influences and social factors.."

Royal College of Physicians UK[5]

"The Treat and Reduce Obesity Act would allow a variety of qualified practitioners, including registered dietitian nutritionists, to more effectively treat this disease, which impacts more than one-third of our nation."

Academy of nutrition and dietetics[6]

"Obesity is a chronic relapsing disease, which in turn acts as a gateway to a range of other non-communicable diseases, such as diabetes, cardiovascular diseases and cancer."[3]

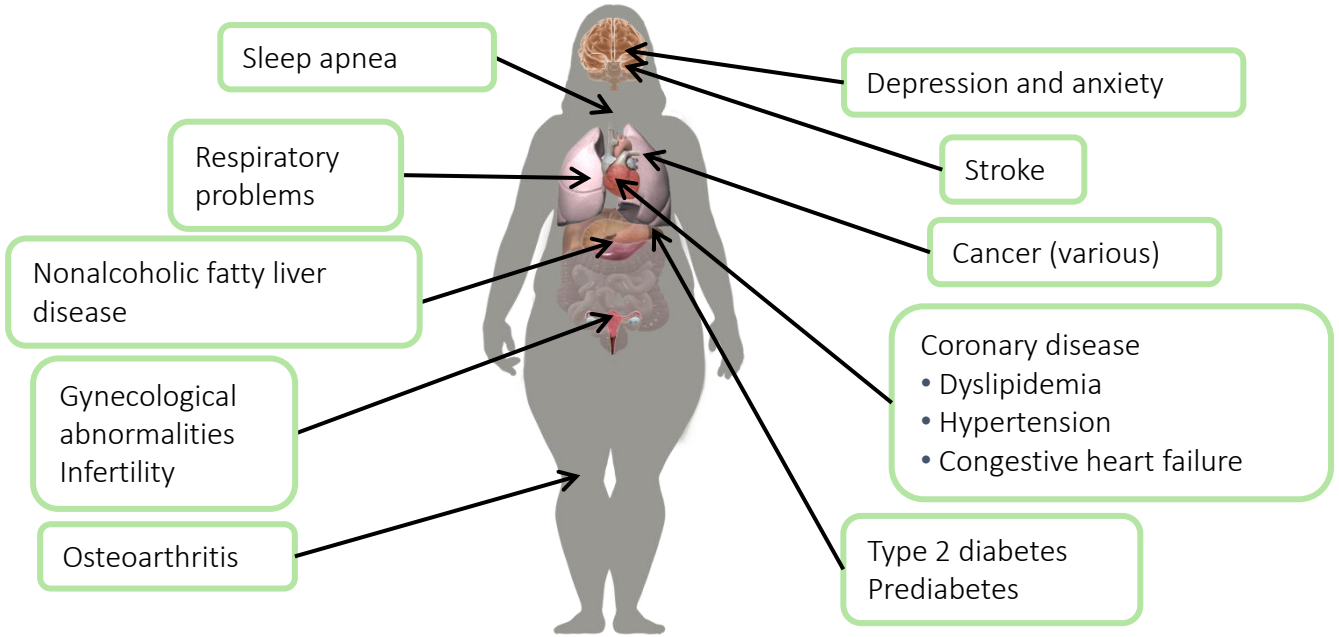
European Commission[7]

"A pathological state (obesity disease) in which a person suffers health problems caused by or related to obesity thus making weight loss clinically desirable …"

Asia Oceania Association for the Study of Obesity[8]

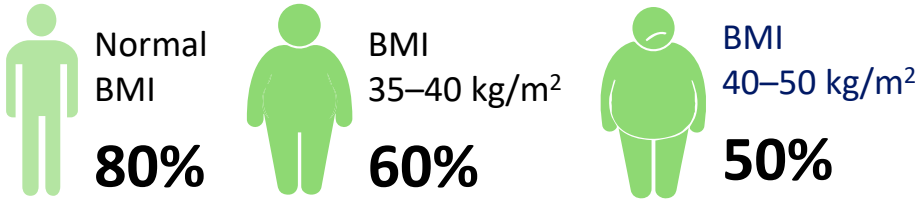
*1. Bray et al. Obes Rev 2017;18:715–23; 2. AMA resolutions. June 2012. Available at https://www.ama-assn.org/sites/ama-assn.org/files/corp/media-browser/public/hod/a12-resolutions_0.pdf. Accessed October 2022; 3. Obesity Canada. Available at https://obesitycanada.ca/guidelines/. Accessed October 2022; 4. EASO: 2015 Milan Declaration: A Call to Action on Obesity. Available at https://easo.org/2015-milan-declaration-a-call-to-action-on-obesity/. Accessed October 2022; 5. Royal College of Physicians. Anon. BMJ 2019;364:l45; 6. Raynor et al. J Acad Nutr Diet 2016;116:129–47; 7. European Commission. Obesity prevention. Available from https://knowledge4policy.ec.europa.eu/health-promotion-knowledge-gateway/obesity_en. Accessed October 2022; 8. AOASO position statement, Nagoya Declaration 2015.*

# Obesity is associated with multiple comorbid conditions and increased mortality




Once complications develop, their care becomes much more challenging.

## Life expectancy decreases as BMI increases




chance of reaching age 70

*Data are based on male subjects; n=541,452.*
*BMI, body mass index; CVD, cardiovascular disease; NAFLD, non-alcoholic fatty liver disease; T2D, type 2 diabetes.*
*Statistics Canada Health Reports. Vol. 17. No. 3. Catalogue no. 82-003-XIE. Guh DP et al. BMC Public Health. 2009;9:88. Shaikh S et al. Int J Diabetes Dev Countries. 2011;31:65–69. Church TS et al. Gastroenterol..2006;130:2023–2030. Li C et al. Prev Med. 2010;51:18–23. Esmaeilzadeh S et al. Arch Med Sci. 2013;9:499-505. NIH. Obes Res. 1998;6(Suppl 2):51S–209S; Zhao G et al. Int J Obes (Lond). 2009;33(2):257-66; Lau DCW, Wharton S. Canadian Adult Obesity Clinical Practice Guidelines: The Science of Obesity. Available from: https://obesitycanada.ca/guidelines/science. Accessed November 2020. Prospective Studies Collaboration. Lancet 2009;373:1083–1096.*

# Excess weight promotes cardiovascular disease via multiple mechanisms

**BMI**

- Blood pressure
- Blood glucose
- Insulin resistance
- Blood lipids
- Inflammation*

## Atherosclerosis

- Adhesion molecule expression
- Foam cell formation
- Smooth muscle proliferation
- Fatty material and cholesterol deposited in arterial lumen, forming **plaques** which can narrow the lumen and hinder blood flow

## Thrombosis

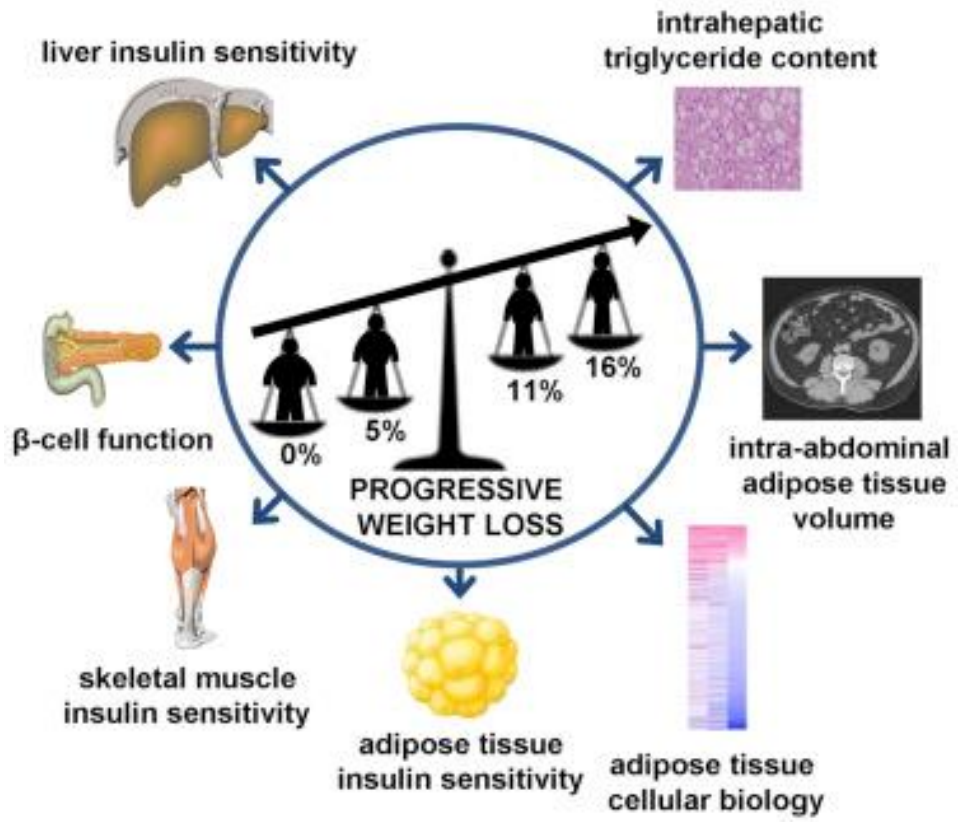
Blood vessels become less pliable and plaques can eventually **rupture**

Can lead to

**MI, stroke or PAD**

*Increased CRP, IL-6, TNFα, and free fatty acids.
BMI, body mass index; CRP, C-reactive protein; CV, cardiovascular; IL-6, interleukin-6; MI, myocardial infarction; PAD, peripheral arterial disease; TNFα, tumour necrosis factor alpha.
Burke et al. Arch Intern Med 2008;168:928–35; Ayer et al. Eur Heart J 2015;36:1371–6; Ross R. Am Heart J 1999;138(5 Pt 2):S419–20; WHO Global atlas on cardiovascular disease prevention and control. 2011. Available at: http://www.who.int/cardiovascular_diseases/publications/atlas_cvd/en/. Accessed November 2020.

# There is more happening then just simply appetite suppression



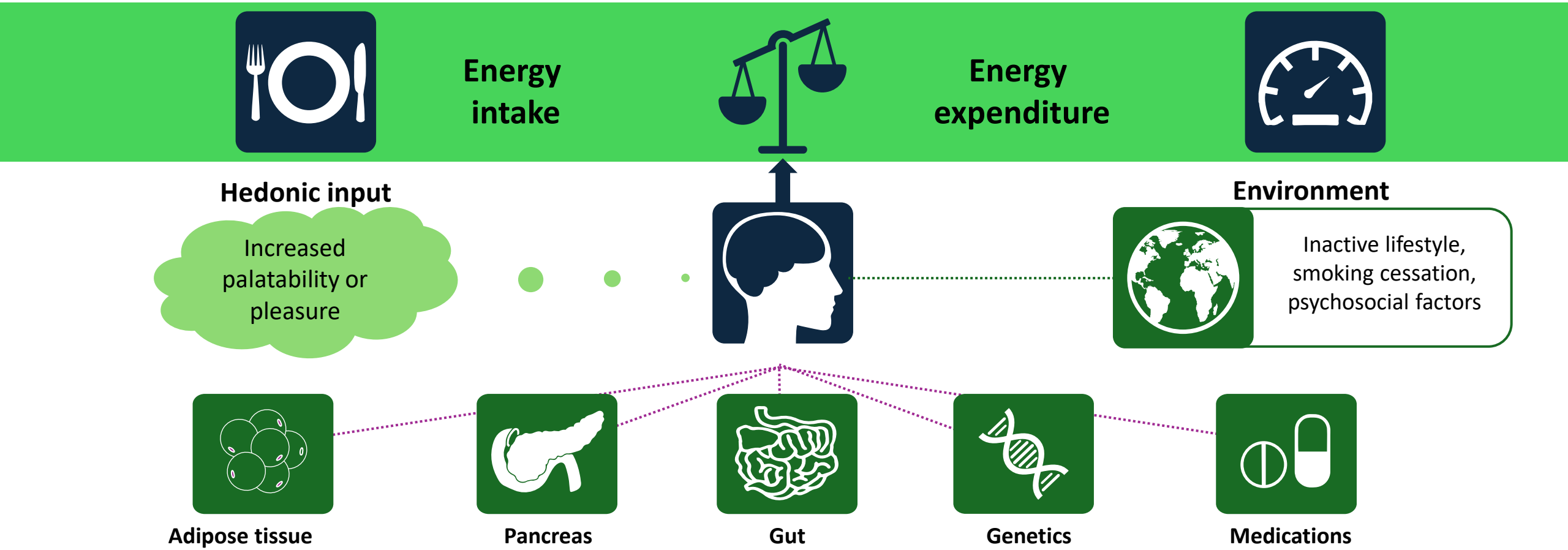

Magkos F, Fraterrigo G, Yoshino J, Luecking C, Kirbach K, Kelly SC, de Las Fuentes L, He S, Okunade AL, Patterson BW, Klein S. Effects of Moderate and Subsequent Progressive Weight Loss on Metabolic Function and Adipose Tissue Biology in Humans with Obesity. Cell Metab. 2016 Apr 12;23(4):591-601. doi: 10.1016/j.cmet.2016.02.005. Epub 2016 Feb 22. PMID: 26916363; PMCID: PMC4833627.[a]

# What happens in your cells?

| | 5% Weight loss | 11% Weight loss | 16% Weight Loss |
|---|---|---|---|
| Intrahepatic triglyceride content | + | ++ | +++ |
| Intra-abdominal adipose tissue | + | ++ | +++ |
| Adipose tissue insulin sensitivity | + | ++ | ++ |
| Liver Insulin Sensitivity | + | + | + |
| Muscle insulin sensitivity | + | ++ | +++ |
| Beta cell function | + | ++ | +++ |
| Adipose tissue biology* | | + | ++ |
| Inflammatory markers | | + | ++ |

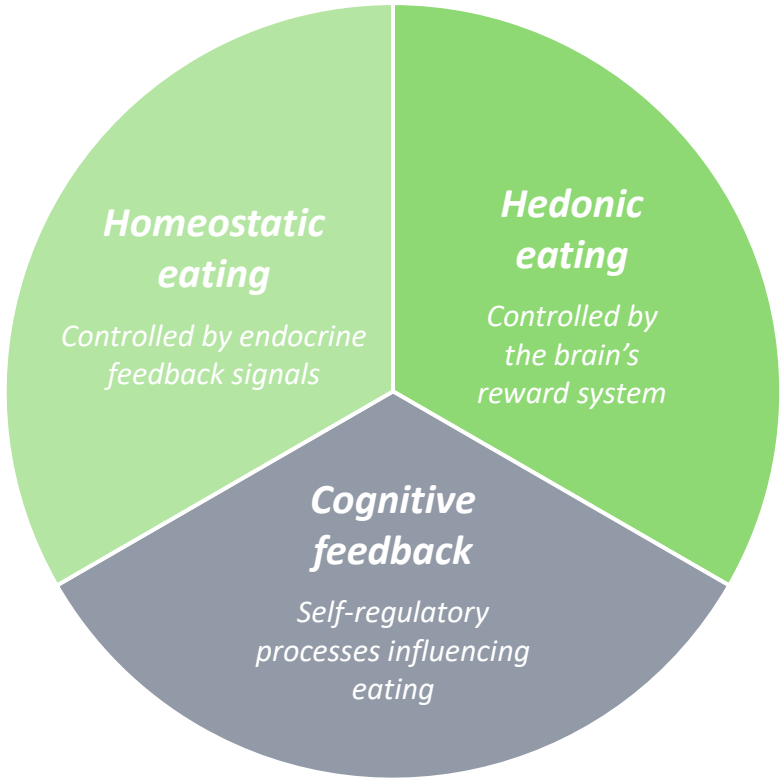
Magkos F, Fraterrigo G, Yoshino J, Luecking C, Kirbach K, Kelly SC, de Las Fuentes L, He S, Okunade AL, Patterson BW, Klein S. Effects of Moderate and Subsequent Progressive Weight Loss on Metabolic Function and Adipose Tissue Biology in Humans with Obesity. Cell Metab. 2016 Apr 12;23(4):591-601. doi: 10.1016/j.cmet.2016.02.005. Epub 2016 Feb 22. PMID: 26916363; PMCID: PMC4833627.[a]

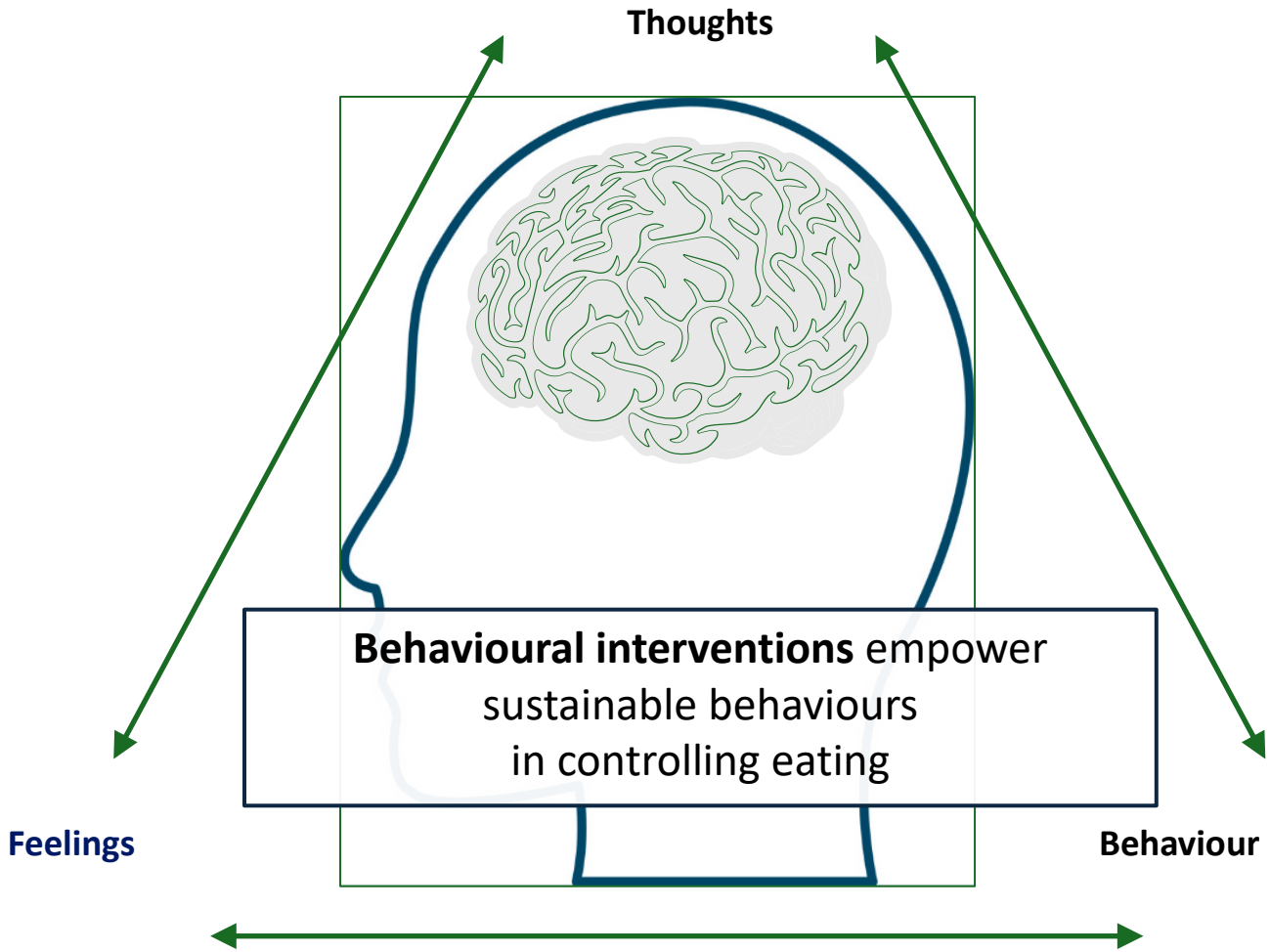
# Energy balance is regulated by the brain through various sources of input




González H. Managing Patients with Obesity. DOI 10.1007/978-3-319-12331-8, © Springer International Publishing Switzerland 2016; Gadde KM et al. J Am Coll Cardiol 2018;71:69–84; Heymsfield SB and Wadden TA. N Engl J Med 2017;376:254–66.

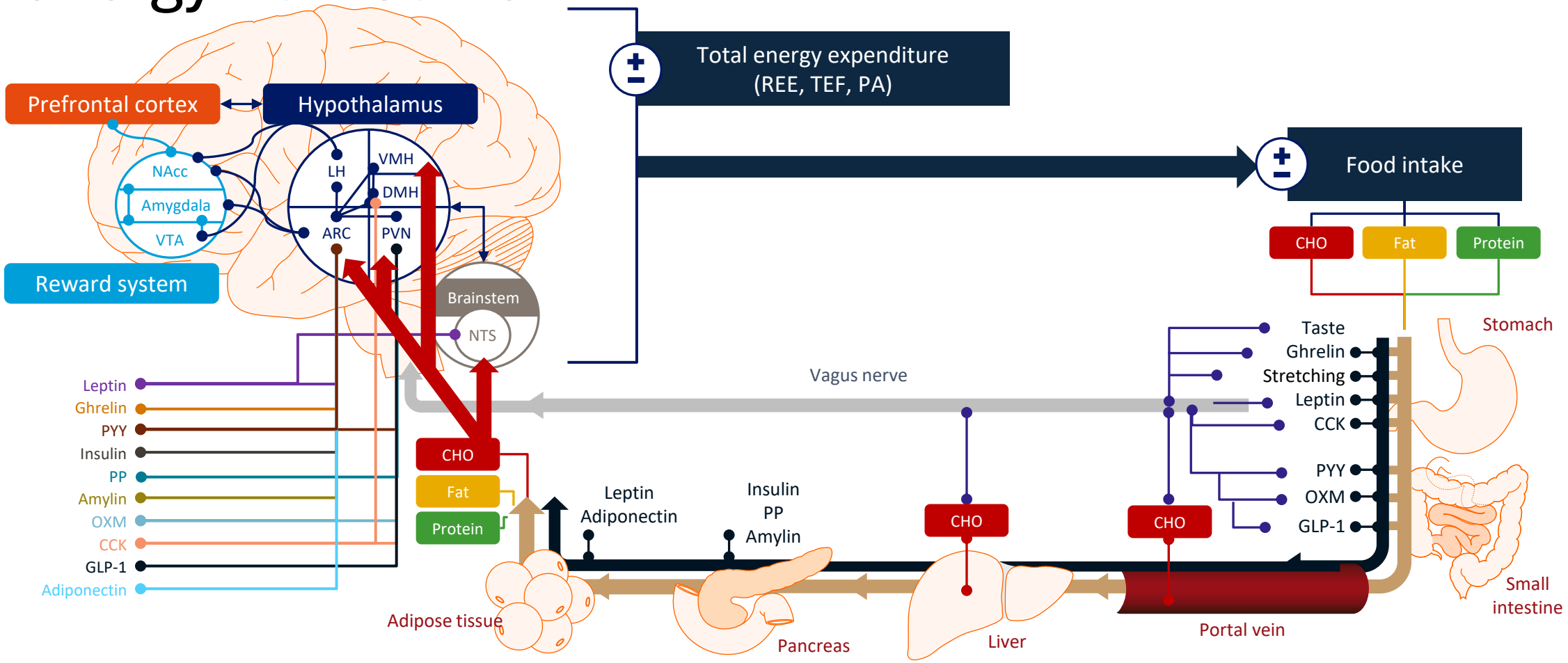
# The role of the brain in controlling appetite



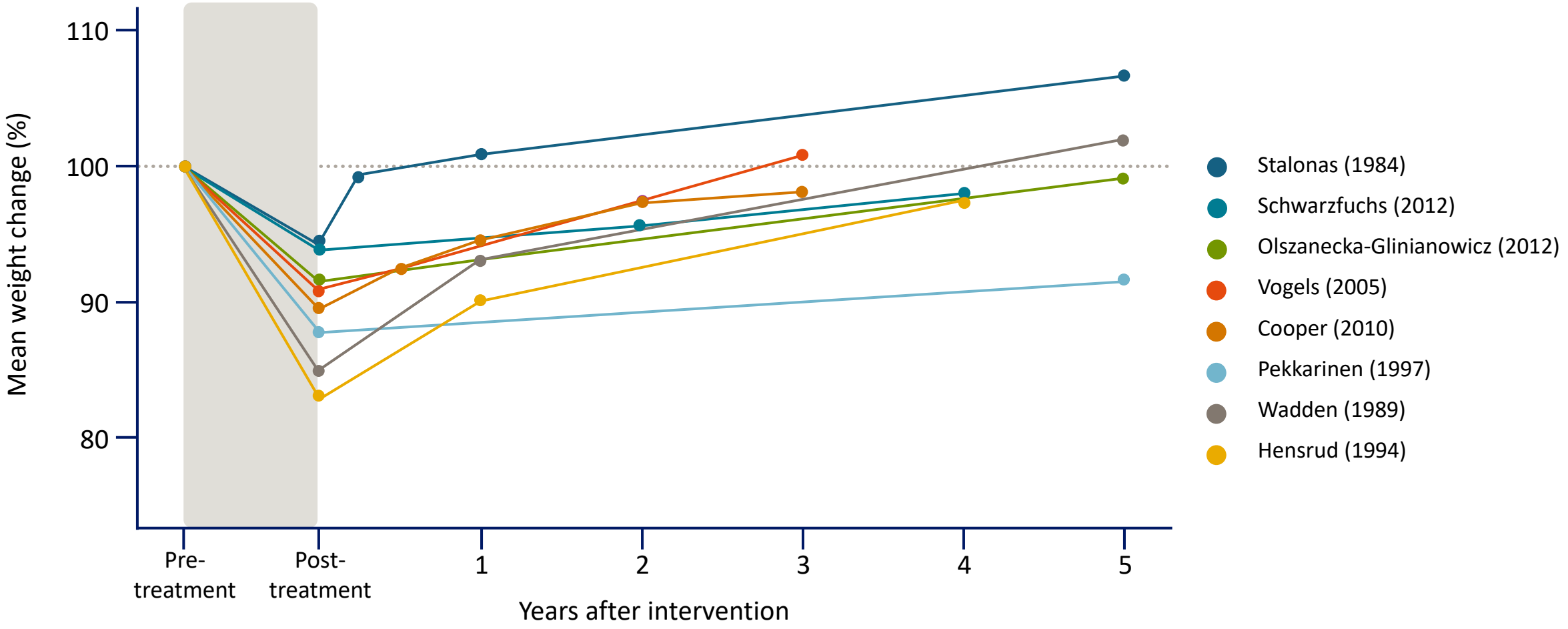

1. Vallis M. Clin Obes 2019;9:e12299; 2. Hall K et al. Am J Public Health 2014;104:1169-75.

# The neuro-hormonal actors involved in energy homeostasis




*ARC, arcuate nucleus; CCK, cholecystokinin; CHO, carbohydrates; DMH, dorsomedial hypothalamic nucleus; GLP-1, glucagon-like peptide 1; LH, lateral hypothalamus; NAcc, nucleus accumbens; NTS, nucleus tractus solitarius; OXM, oxyntomodulin; PA, physical activity; PP, pancreatic polypeptide; PVN, paraventricular nucleus; PYY, peptide YY; REE, resting energy expenditure; TEF, thermic effect of food; VMH, ventromedial hypothalamus; VTA, ventral tegmental area.*
*Theilade S et al. Diabetes Obes Metab 2021;Suppl 1:17–35.*

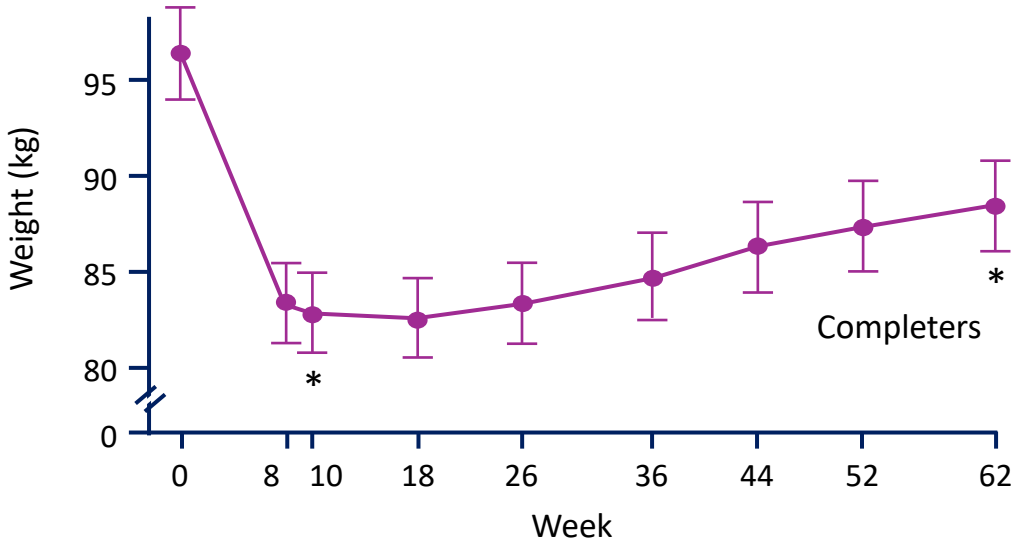
# Maintenance of weight loss is challenging

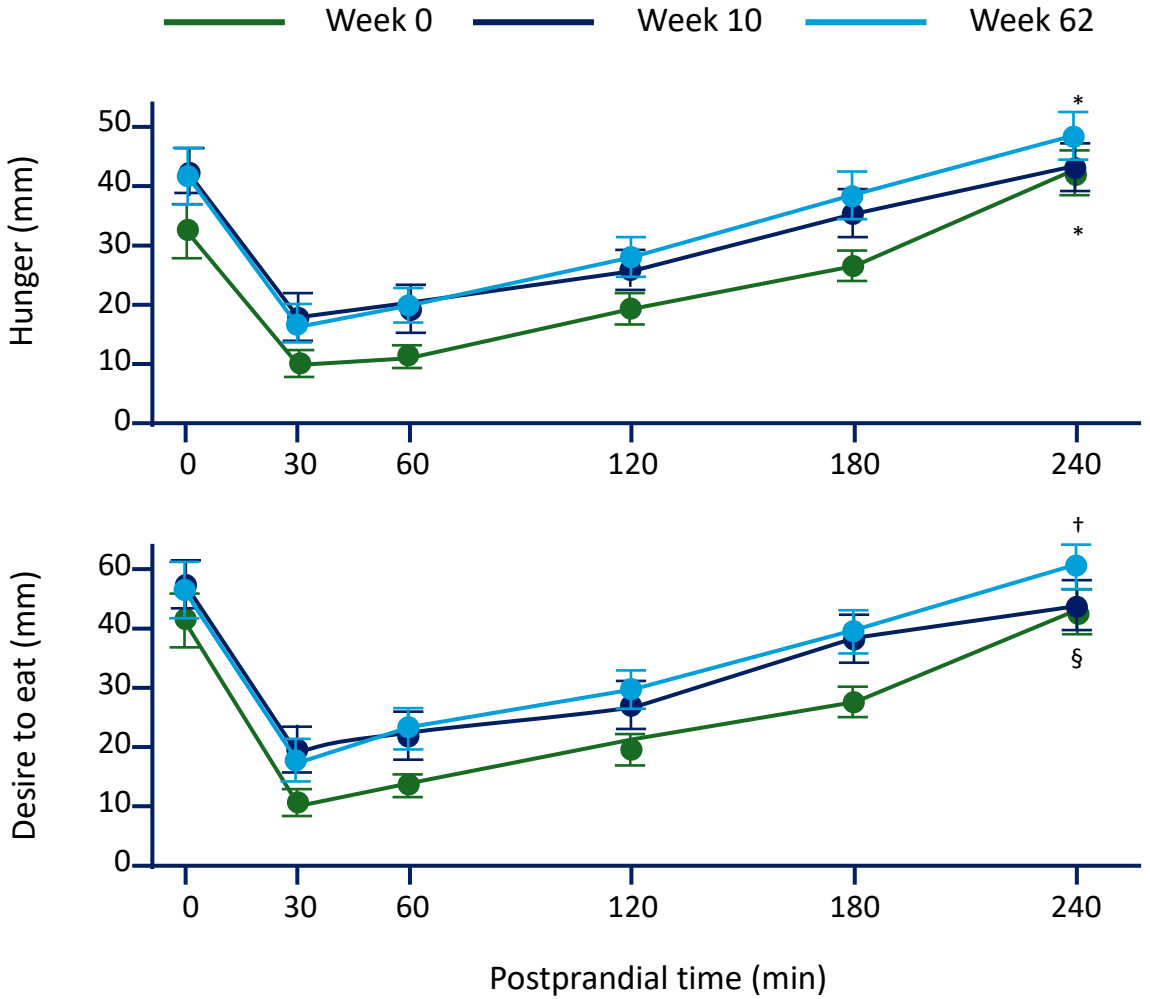



*Nordmo et al. Obes Rev 2020;21:e12949.*

# Hunger increases in response to weight loss

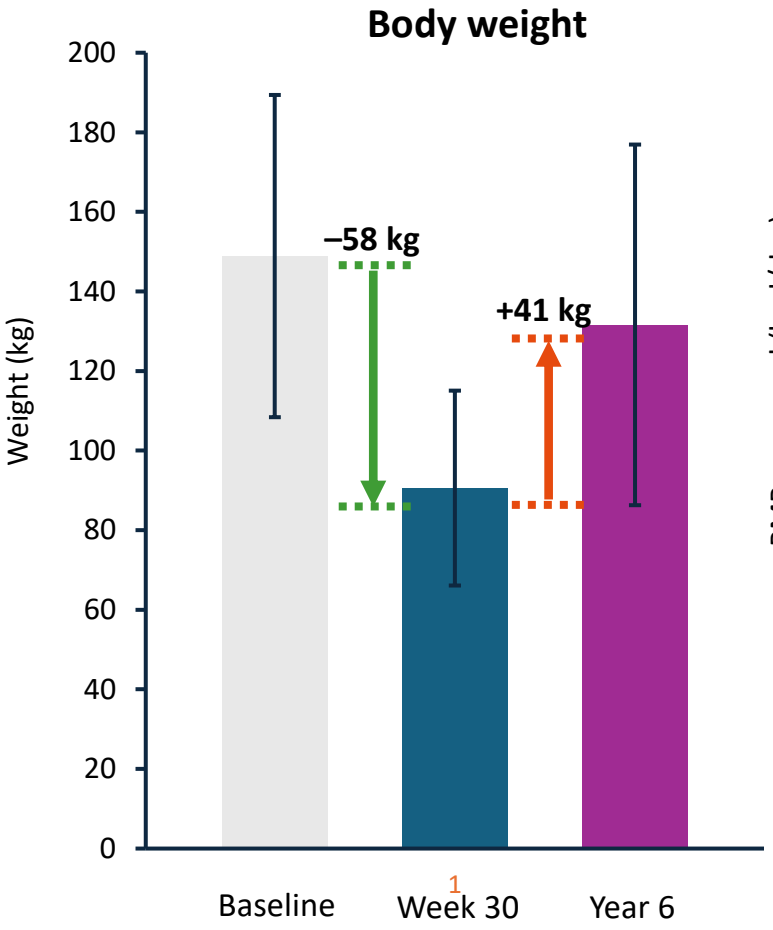
- 50 individuals with overweight/obesity lost weight on a 10-week very low energy diet
- Appetite was measured using VAS scores at 0, 10 and 62 weeks

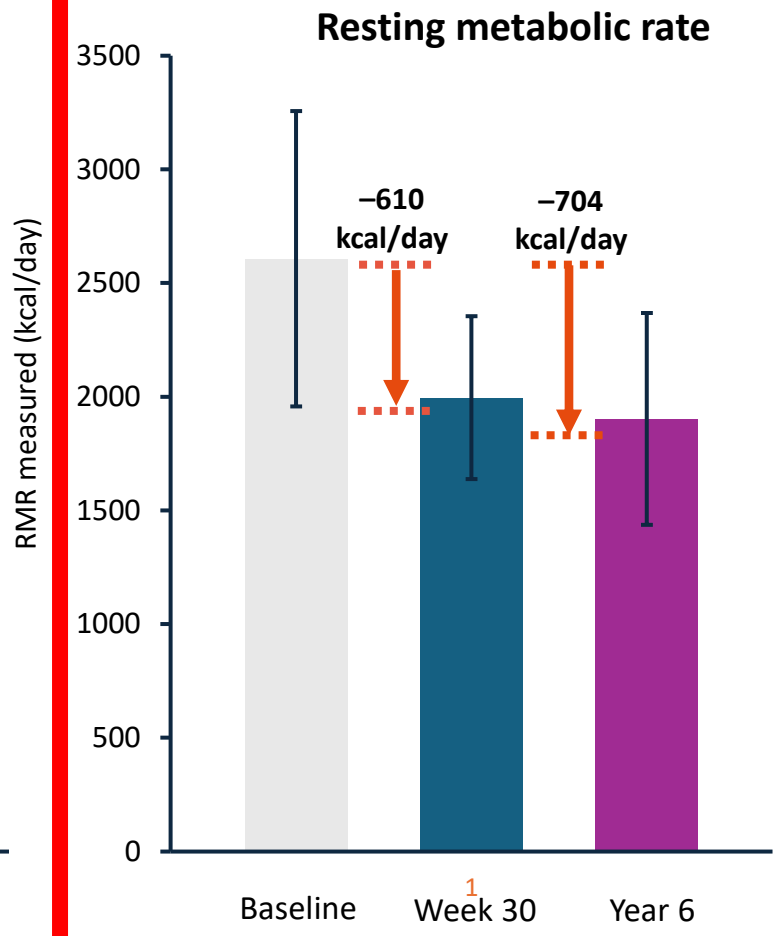


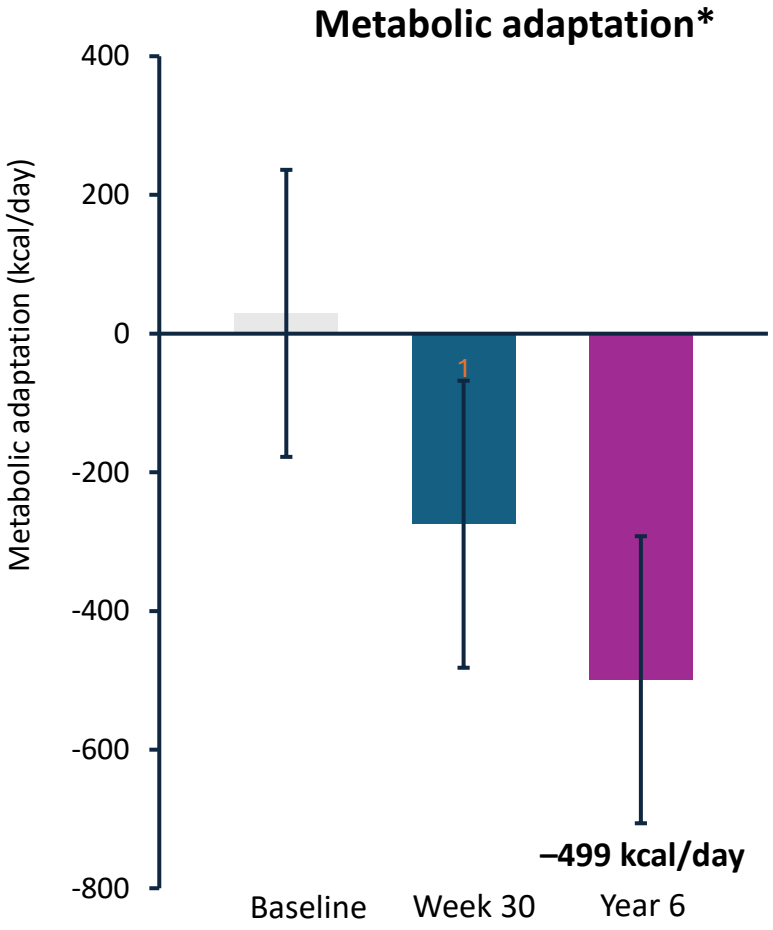




*p<0.001, §p=0.008, †p=0.09 vs mean at baseline (week 0).
ITT, intention to treat; VAS, visual analogue scale.
Sumithran P et al. N Engl J Med 2011;365:1597–604.

# Persistent metabolic adaption following weight loss

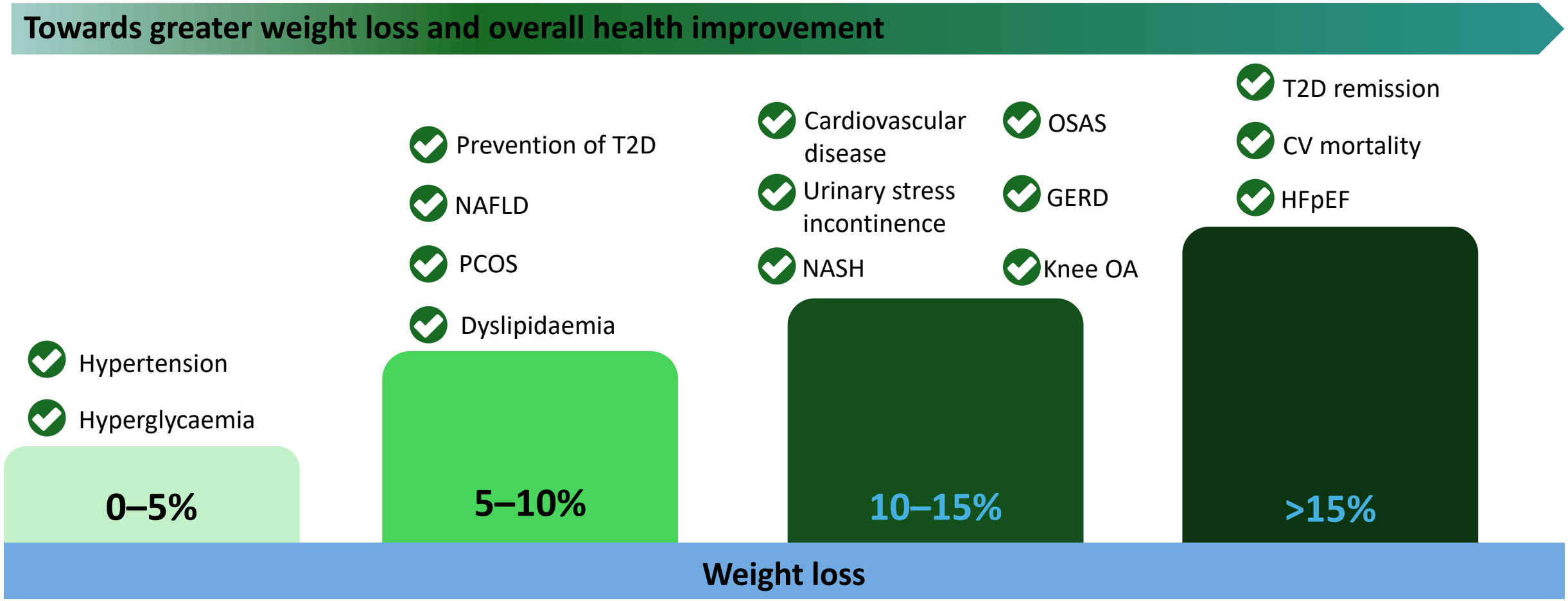



*Error bars represent standard deviation. Data are for 14/16 participants in the 30-week Biggest Loser weight-loss competition.*
**Defined as the residual resting metabolic rate after adjusting for changes in body composition and age.*
*RMR, resting metabolic rate.*
*Fothergill E et al. Obesity (Silver Spring) 2016;24:1612–19.*

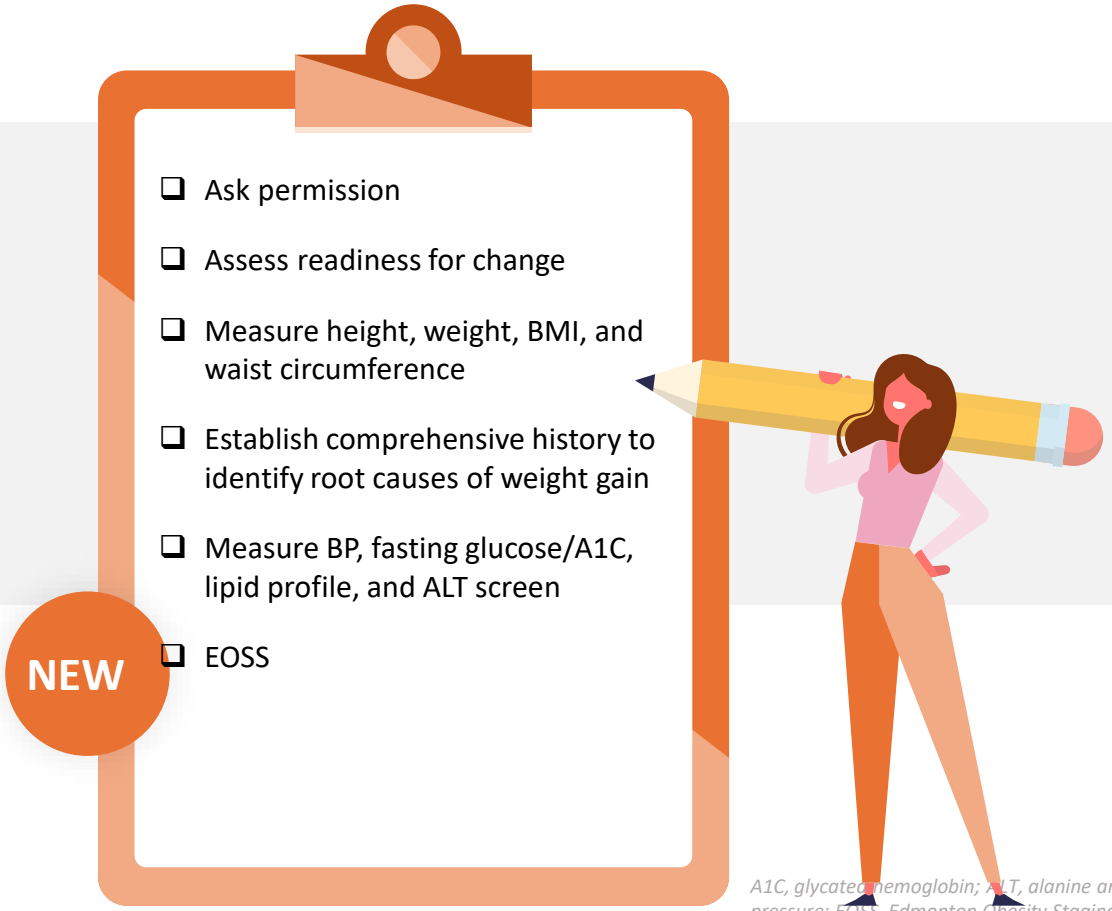
# Greater weight loss leads to improved health outcomes




*CV, cardiovascular; GERD, gastro-oesophageal reflux disease; HFpEF, heart failure with preserved ejection fraction; NAFLD, non-alcoholic fatty liver disease; NASH, non-alcoholic steatohepatitis; OA: osteoarthritis; OSAS, obstructive sleep apnoea syndrome; PCOS, polycystic ovary syndrome; TG, triglycerides.*

*1. Garvey WT et al. Endocr Pract 2016;22(Suppl. 3):1–203; Look AHEAD Research Group; 2. Lancet Diabetes Endocrinol 2016;4:913–21; 3. Lean ME et al. Lancet 2018;391:541–51; 4. Benraoune F and Litwin SE. Curr Opin Cardiol 2011;26:555–61; 5. Sundström J et al. Circulation 2017;135:1577–85.*

# Diagnosis of Obesity: Then vs. Now




## HCPs are encouraged to:

- Prioritize involving the patient in the decision-making process
- Focus on a holistic approach to health
- Use appropriate measurements that are focused on health behaviours in all patients
- Address the root causes of obesity

*A1C, glycated hemoglobin; ALT, alanine aminotransfe... pressure; EOSS, Edmonton Obesity Staging System; HCP, healthcare provider. Lau DCW, et al. 2007. "2006 Canadian clinical practice guidelines on the management and prevention of obesity in adults and children." CMAJ 176(8): 1-117; Obesity in adults: a clinical practice guideline. CMAJ 2020 August 4;192:E875-91. doi: 10.1503/cmaj.191707; Rueda-Clausen CF, et al. Canadian Adult Obesity Clinical Practice Guidelines: Assessment of People Living with Obesity. Available from: https://obesitycanada.ca/guidelines/assessment. Accessed August 10*

ASK

# Approaching the conversation about weight with your patients: **Explore readiness for change**[1-4]

This is essential to success, as initiating change when patients are not ready can result in frustration and impede future efforts.

| Stage | Patient mindset | Practitioner task |
|---|---|---|
| **Pre-contemplation (not ready)** | No intention of changing behaviour in the foreseeable future (within 6 months). | • Increase perception of the risks and problems with current behaviours<br>• Provide harm reduction strategies |
| **Contemplation (getting ready)** | Aware that a problem exists and is seriously thinking about starting to overcome it (within 6 months). | • Help identify reasons for change/risks of not changing<br>• Increase patient confidence in ability to change |
| **Preparation** | Intending to act in the next month. | • Clear goal-setting and development of realistic plan for change |
| **Action** | Modifies behaviour, experiences, or environment to overcome the problem. | |
| **Maintenance (sticking to it)** | Works to prevent relapse and consolidate the gains attained during action. | • Help identify and use strategies to prevent relapse |

1. Wharton S, et al. Obesity in adults: a clinical practice guideline. CMAJ. 2020;192(31):E875-E891. 2. Prochaska JO, et al. In search of how people change. Applications to addictive behaviors. *Am Psychol*. 1992;47(9):1102-1114.
3. Hall K, et al. Motivational interviewing techniques - facilitating behaviour change in the general practice setting. *Aust Fam Physician*. 2012;41(9):660-667. 4. Hawk M, et al. Harm reduction principles for healthcare settings. *Harm Reduct J*. 2017;14(1):70.

# Approaching the conversation about weight with your patients: **Create a weight-friendly practice**[1]

**Facilities:** Easily accessible, wide doors, large restrooms, floor-mounted toilets

**Waiting room:** Sturdy and armless chairs, appropriate reading material

**Exam room:** Appropriately sized gowns, scales over 350 lbs/160 kg, wide and sturdy exam tables, extra-large blood pressure cuffs, long-handled shoe horns, large stepping stools

1. Wharton S, et al. Obesity in adults: a clinical practice guideline. CMAJ. 2020;192(31):E875-E891.

# Obesity management is about improving health and well-being, not just managing weight[1]

Many patients see **significant improvements in health and well-being** even with modest reductions in weight

The patient's **"best" weight** may never be an "ideal" weight

- A "healthy range" BMI is **not a realistic goal** for many patients
- Help patients set weight targets based on the "best weight" they can sustain while still enjoying their life and reaping the benefits of improved health

1. Wharton S, et al. Obesity in adults: a clinical practice guideline. *CMAJ*. 2020;192(31):E875-E891.

# Treatment “success” can be defined in multiple ways[1]

- Better quality of life
- Prevention of further weight gain
- Modest weight loss (5%)
- Greater self-esteem
- Improved overall health (metabolic, mechanical, mental)
- Maintenance of the patient’s “best” weight
- Higher energy levels

1. Wharton S, et al. Obesity in adults: a clinical practice guideline. *CMAJ*. 2020;192(31):E875-E891.

# Recommended classification of BMI[1]

**BMI is not a tool for identifying adiposity-related complications.** Integration of both BMI and waist circumference into a clinical assessment may identify people at higher risk of obesity better than either alone (particularly at BMI of 25–35 kg/m$^2$).[1,2]

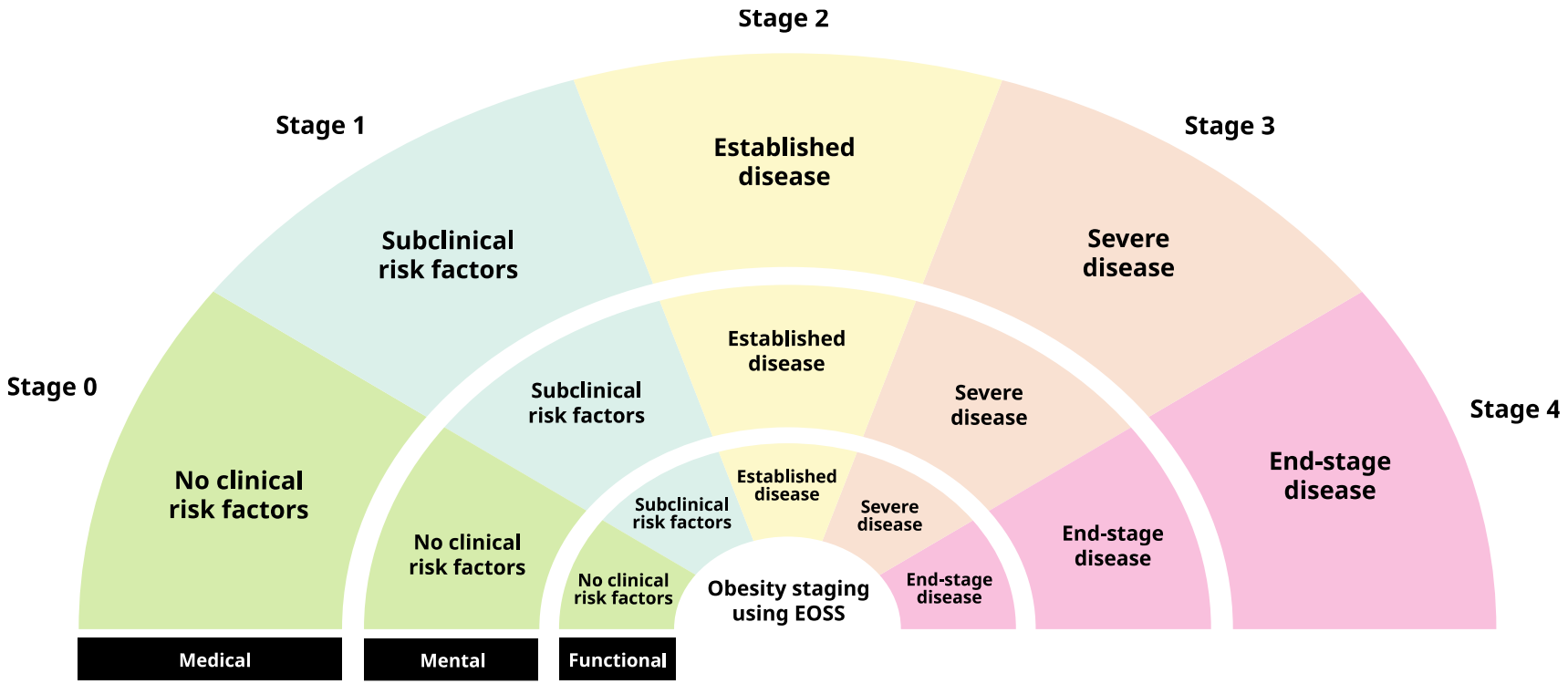
| Category | BMI (kg/m$^2$) |
|---|---|
| Caucasian, Europid, and North American ethnicity | |
| Underweight | < 18.5 |
| Healthy weight | 18.5–24.9 |
| Overweight | 25–29.9 |
| Obesity Class 1 | 30–34.9 |
| Obesity Class 2 | 35–39.9 |
| Obesity Class 3 | ≥ 40 |

| Category | BMI (kg/m$^2$) |
|---|---|
| South-, Southeast-, or East-Asian ethnicity | |
| Underweight | < 18.5 |
| Healthy weight | 18.5–22.9 |
| Overweight—At risk | 23–24.9 |
| Overweight—Moderate risk | 25–29.9 |
| Overweight—Severe risk | ≥ 30 |

1. Rueda-Clausen C, et al. Canadian Adult Obesity Clinical Practice Guidelines: Assessment of People Living with Obesity. 2020. Available at: https://obesitycanada.ca/guidelines/assessment. Retrieved February 28, 2023.
2. Obesity Canada. Canadian Adult Obesity Clinical Practice Guidelines: Clinical Recommendations Quick Guide. 2020. Available at: http://obesitycanada.ca/wp-content/uploads/2020/11/CPG-Quick-Guide-English.pdf. Retrieved February 28,

# Edmonton Obesity Staging System[1-3]

Rather than BMI, the Edmonton Obesity Staging System (EOSS) ranks the severity of obesity based on a clinical **assessment of weight-related health issues and quality of life** to better guide clinical decision-making.




*The Obesity Canada Clinical Practice Guidelines provide recommendations on how to effectively manage obesity according to the patient's EOSS stage.*

Adapted from Swaleh R, et al. 2021.[1]

1. Swaleh R, et al. Using the Edmonton Obesity Staging System in the real world: a feasibility study based on cross-sectional data. *CMAJ Open*. 2021;9(4):E1141-E1148.
2. Rueda-Clausen C, et al. Canadian Adult Obesity Clinical Practice Guidelines: Assessment of People Living with Obesity. 2020. Available at: https://obesitycanada.ca/guidelines/assessment. Retrieved March 2, 2023. 3.

# Laboratory and diagnostic tests to consider in the assessment of patients with obesity[1]

## Consider for most patients

- A1C, serum glucose
- Electrolytes, renal function (creatinine, eGFR)
- Total cholesterol, HDL- and LDL-cholesterol, triglycerides
- Alanine aminotransferase (ALT)
- Screening for obstructive sleep apnea (e.g., STOP-BANG questionnaire)
- Age-appropriate cancer screening

## Consider only if clinically indicated

- Complete (full) blood count
- Thyroid stimulating hormone/thyroid function tests
- Uric acid
- Assessment of iron (TIBC, % saturation, serum ferritin, serum iron)
- Vitamins B12 and D levels
- Urinalysis
- Urine for albuminuria

## Women with obesity and symptoms of PCOS

- LH, FSH, total testosterone, DHEAS, prolactin, and 17 hydroxyprogesterone levels

HDL, high-density lipoprotein; LDL, low-density lipoprotein; TIBC, total iron binding capacity; PCOS, polycystic ovary syndrome; LH, luteinizing hormone; FSH, follicle stimulating hormone; DHEAS, dehydroepiandrosterone.

1. Rueda-Clausen C, et al. Canadian Adult Obesity Clinical Practice Guidelines: Assessment of People Living with Obesity. 2020. Available at:

# Understanding the treatment options available[1]

MEDICAL NUTRITION THERAPY (MNT) + PHYSICAL ACTIVITY

The three pillars of obesity management that support MNT and physical activity

**PSYCHOLOGICAL INTERVENTION**

**Criteria:**
Any person undergoing obesity management

**PHARMACOLOGICAL THERAPY**

**Criteria:**
BMI ≥ 30 kg/m$^2$
**or**
≥ 27 kg/m$^2$ with obesity-related complications

**BARIATRIC SURGERY**

**Criteria:**
BMI ≥ 40 kg/m$^2$
**or**
≥ 35–40 kg/m$^2$ with an obesity-related complication
**or**
≥ 30 kg/m$^2$ with poorly controlled type 2 diabetes*

*Addressing any root causes of obesity/contributors to obesity is an essential component of obesity management (refer to the 4M framework).*

* Eligibility for bariatric surgery may vary by province.

1. Wharton S, et al. Obesity in adults: a clinical practice guideline. *CMAJ*. 2020;192(31):E875-E891.

Phenotype-guided antiobesity pharmacotherapy!!!

# Four obesity phenotypes

**Hungry brain**

Satiation – Knowing when the meal is over

**Hungry Gut**

Satiety – Ability to not eat in periods between meals

**Emotional Hunger**

Emotional/Reward – Regarding in response to negative/positive emotions

**Slow burn**

Energy Expenditure – Base metabolic rate + Overall activity level

# Differences in phenotypes vs those not categorized

- the hungry brain group consumed 62% more calories prior to reaching fullness;
- the emotional hunger group reported 2.8 times higher levels of anxiety;
- the hungry gut group emptied the stomach contents 31% faster; and
- the slow burn group had 12% lower predicted REE when compared with the other groups of obesity

Acosta, A., Camilleri, M., Abu Dayyeh, B., Calderon, G., Gonzalez, D., McRae, A., Rossini, W., Singh, S., Burton, D., & Clark, M. M. (2021). Selection of Antiobesity Medications Based on Phenotypes Enhances Weight Loss: A Pragmatic Trial in an Obesity Clinic. Obesity (Silver Spring, Md.), 29(4), 662–671. https://doi.org/10.1002/oby.23120

# How!

1. Abnormal satiation (“hungry brain”): phentermine-topiramate extended release at a dose of 7.5/46 mg daily or lorcaserin at 20 mg daily (patients were told to discontinue in February 2020 based on U.S. Food and Drug Administration [FDA] recall);

2. Abnormal hedonic eating (“emotional hunger”): oral naltrexone/bupropion sustained release at a dose of 16/180 mg twice daily;

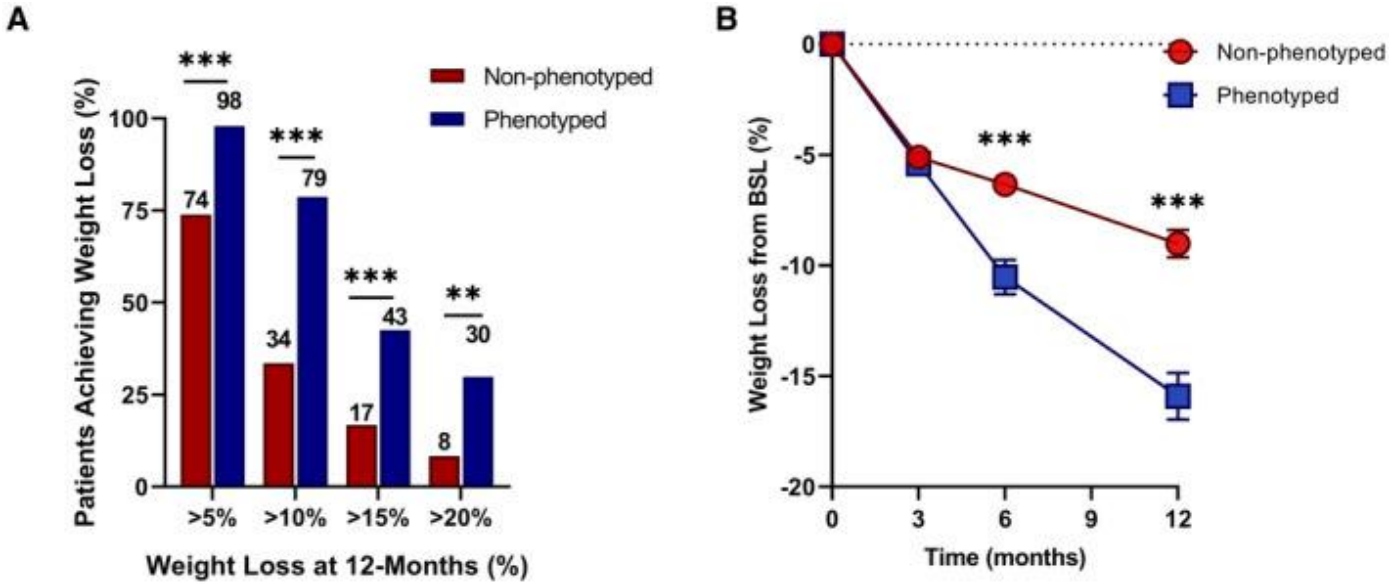
3. Abnormal satiety (“hungry gut”): liraglutide 3 mg subcutaneous daily; or

4. Low predicted energy expenditure (“slow burn”): phentermine 15 mg daily plus increased resistance training.

Acosta, A., Camilleri, M., Abu Dayyeh, B., Calderon, G., Gonzalez, D., McRae, A., Rossini, W., Singh, S., Burton, D., & Clark, M. M. (2021). Selection of Antiobesity Medications Based on Phenotypes Enhances Weight Loss: A Pragmatic Trial in an Obesity Clinic. Obesity (Silver Spring, Md.), 29(4), 662–671. https://doi.org/10.1002/oby.23120

# What…

- PG pharmacotherapy for obesity management improves weight loss outcomes. (A) Percentage of patients achieving levels of weight loss after 1 year of either non-PG (n = 228) or PG (n = 84) treatment. (B) The average percentage of total body weight loss from BSL in non-PG (red circles) and PG (blue squares) treatment at 3, 6, and 12 months. **P < 0.01, ***P < 0.001. BSL, baseline; PG, phenotype guided.




Acosta, A., Camilleri, M., Abu Dayyeh, B., Calderon, G., Gonzalez, D., McRae, A., Rossini, W., Singh, S., Burton, D., & Clark, M. M. (2021). Selection of Antiobesity Medications Based on Phenotypes Enhances Weight Loss: A Pragmatic Trial in an Obesity Clinic. Obesity (Silver Spring, Md.), 29(4), 662–671. https://doi.org/10.1002/oby.23120

# STEP programme at a glance

## Completed

| STEP 1 | STEP 2 | STEP 3 | STEP 4 | STEP 5 |
|---|---|---|---|---|
| Weight management | WM in T2D | WM with IBT | Sustained WM | Long-term WM |

| STEP 6 | STEP 7 | STEP 8 | STEP 10 | STEP TEENs |
|---|---|---|---|---|
| East Asian trial | China, Brazil, Korea, Hong Kong MRCT | H2H vs liraglutide | Reversal of pre-diabetes | WM in adolescents |

| SELECT | STEP HFpEF | STEP HFpEF DM | STEP 9 | STEP 11 |
|---|---|---|---|---|
| CVOT | Obesity and HFpEF | Obesity and HFpEF with T2D | Semaglutide in knee OA | Obesity in Korea/ Thailand |

## Ongoing

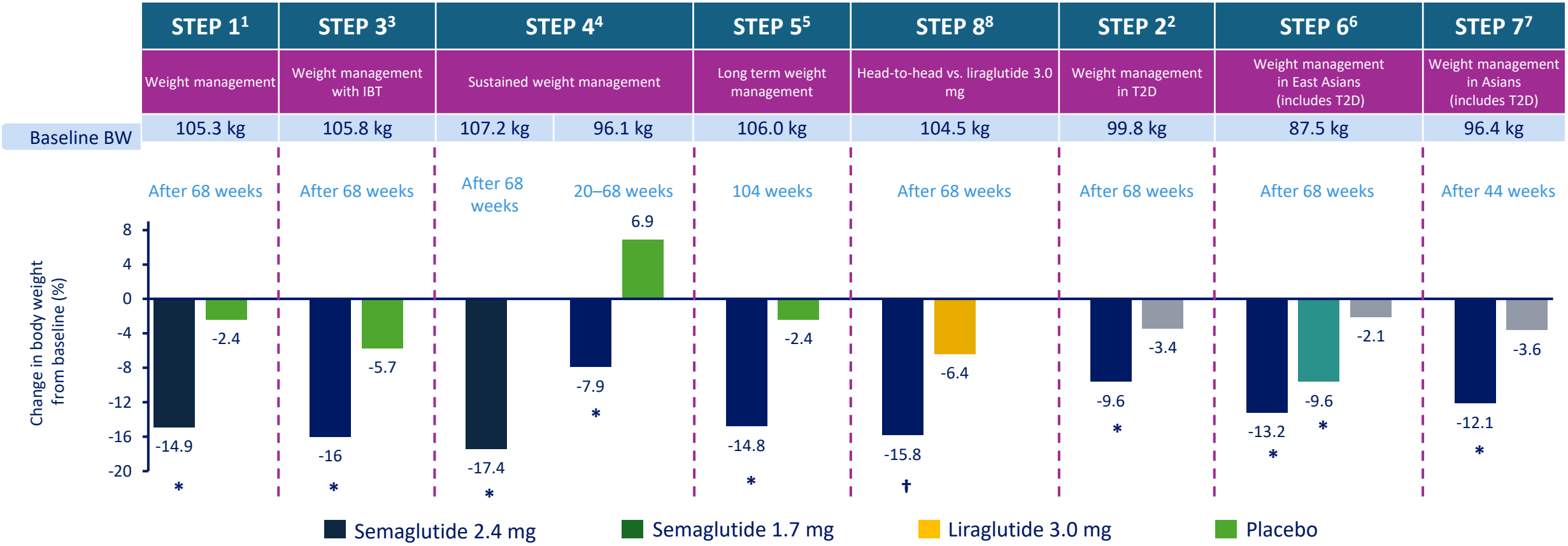
| STEP Young | STEP UP | STEP UP T2D |
|---|---|---|
| WM in children and adolescents | WM with 7.2 mg | WM with 7.2 mg in T2D |

| STEP 12 | POSEY |
|---|---|
| Obesity in Mainland China/Taiwan | US employer trial |

*STEP 7: China, Brazil, Korea, Hong Kong (left to right) multi-regional clinical trial.*
*CVOT, cardiovascular outcomes trial; HFpEF, heart failure with preserved ejection fraction; H2H, head-to-head; IBT, intensive behavioural therapy; MRCT, multi-regional clinical trial (including China and ≥1 additional East Asian country); OA, osteoarthritis; WM, weight management. Novo Nordisk A/S. Data on file; Clinicaltrials.gov. ClinicalTrials.gov (Accessed 20 Jan 2023)*

# Weight loss across STEP trials

## Semaglutide 2.4 mg once-weekly in participants with overweight or obesity



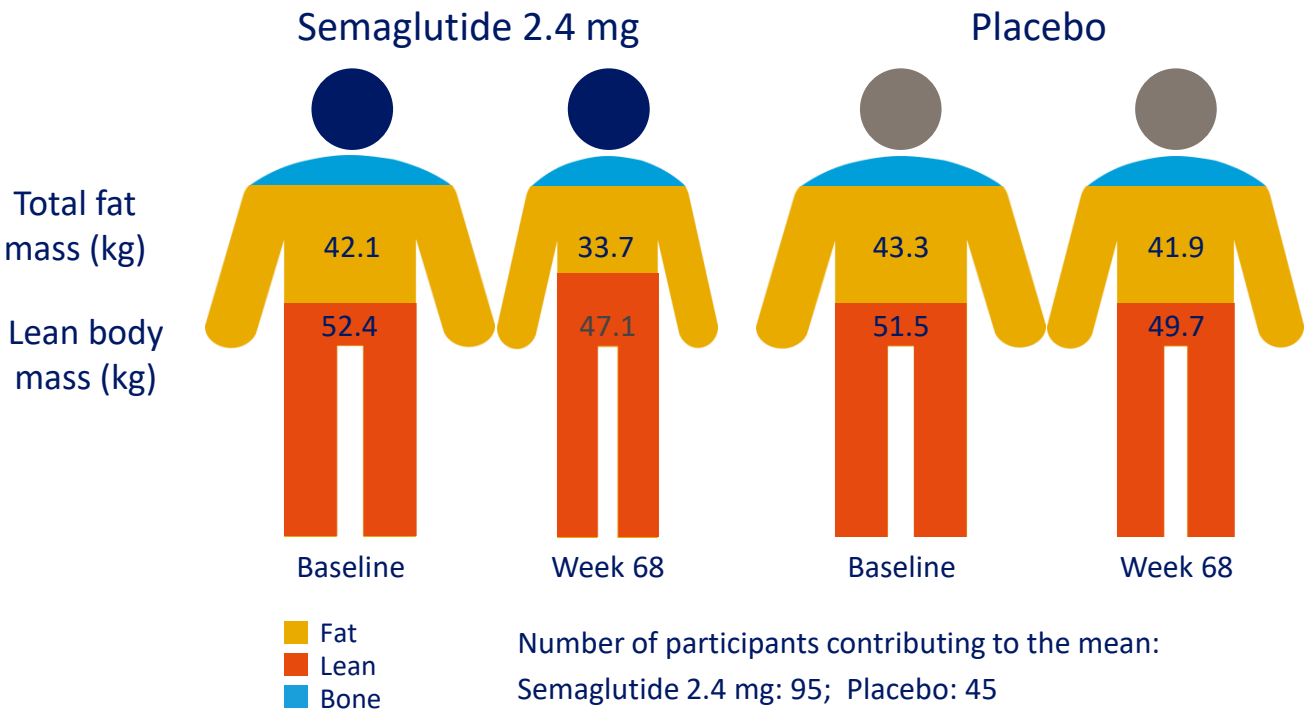

**In-trial:** Evaluates the treatment effect under the time from randomization to the last contact with a trial site, regardless of any discontinuation

**Statistically significant vs placebo.† Statistically significant vs. liraglutide 3.0 mg*
*BW, body weight; IBT, intensive behavioural therapy.*
*1. Wilding et al. N Engl J Med 2021; doi:10.1056/NEJMoa2032183; 2. Davies et al. Lancet, 2021; doi.org/10.1016/S0140-6736(21)00213-0; 3. Wadden et al. JAMA. doi:10.1001/jama.2021.1831; 4. Rubino et al. JAMA. 2021 Apr 13;325(14):1414-1425. doi: 10.1001/jama.2021.3224. 5. Garvey et al. Nat Med 28, 2083–2091 (2022); 6. Kadowaki et al. The Lancet Diabetes & Endocrinology 2022.; 7. Hansen MR, et al. Presented at the 30th European Congress on Obesity (ECO), 17–20 May 2023, Dublin, Ireland 8. Rubino et al. JAMA 2022; 327(2): 138-150*

# Change in body composition (DXA)

STEP 1

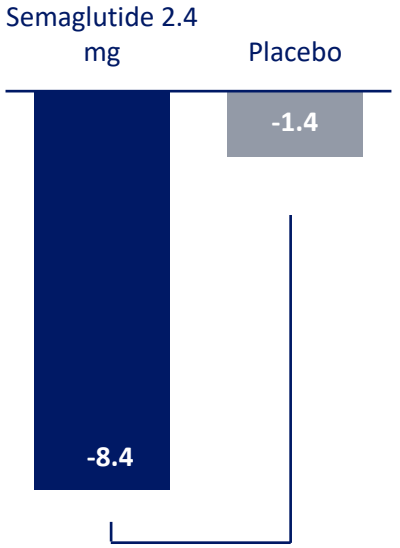
## In-trial§




Number of participants contributing to the mean:
Semaglutide 2.4 mg: 95; Placebo: 45

## Total fat mass (kg)#

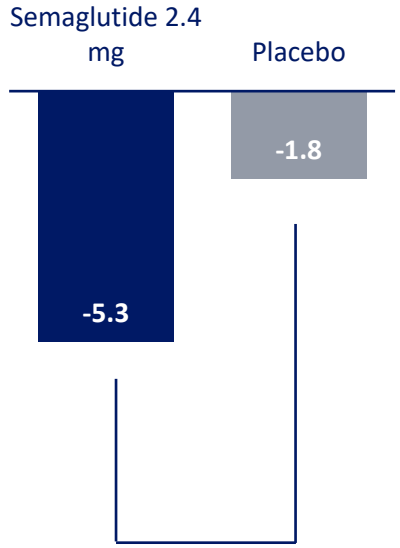
Mean baseline: 42.5 kg




**ETD: -7.0 kg**
95% CI: [-9.79;-4.19]

## Total Lean body mass (kg)#

Mean baseline: 52.1 kg




**ETD: -3.4 kg**
95% CI: [-4.74;-2.13]

*§ Observed data for the in-trial period; # Estimated data for the treatment policy estimand.*
*CI, confidence interval; DXA, dual energy x-ray absorptiometry; ETD, estimated treatment difference.*
*Wilding et al. N Engl J Med 2021;384:989-1002.*

Constant Health

- 15 week program
- 5 hours of one-on-one video access to registered dietitians
- work on knowledge translation and motivation through collaborative goal setting
- Goals around
- dietary modification
- increased physical activity
- improved health promoting behaviours (for instance the goal of not missing a dose of a prescribed medication) will be monitored by Constant Health's certified wellness coaches
- Embedded food diary and recipe search engine that can accommodate a patient's preferred diet – from low-fat to keto and anything and everything in between.

**https://www.constanthealth.ca/doctor**

# Other Resources

- Canada's Food Guide
  - Food guide snapshot – Other languages - Canada.ca
  - Make healthy meals with Canada’s food guide plate - Canada's Food Guide – tips, snack video
- Home - Unlock Food – Dietitian –
  - developed site with general and specific healthy eating and nutrition topics, meal planning, ideas for protein, fibre sources, snacking, seniors, children etc; how to find a dietitian.
- Diabetes Menu Plan for Prevention and Management - Unlock Food -
  - sample mealplan for diabetes (M,F) and to help with portion control/balance for all patients
- information.
- Diabetes Canada | Clinical Practice Guidelines - Patient Resources –
  - note the various tools in different languages to support those where English is not their first language.
- Diabetes (diabetestoolbox.ca)
  - credible site for lifestyle management of diabetes/weight.
- Bust the Bias videos - Obesity Canada
  - short videos to help bust the bias of obesity
- Blog | My Weight What To Know –
  - great tips, videos to support healthy living, good nutrition, commentary about obesity as a chronic disease and how dieting doesn’t work. My Weight Action Plan | My Weight What To Know – personalized action plan
- Nutritional Documents – Macklin Method | Patient –
  - nutrition tools to help implement the concepts of treating obesity as a chronic disease (metabolism, setting up a food diary to determine when, why and how we eat, portions and healthy meal planning, snack ideas, calorie content of common foods)
- Obesity CARE Service (obesity-care.ca) –
  - videos to help reduce the bias around weight (what is obesity?) and to learn about the factors impacting the appetite system.

# Primary Strategy to preserve lean mass during weight loss

**Target an appropriate energy deficit**

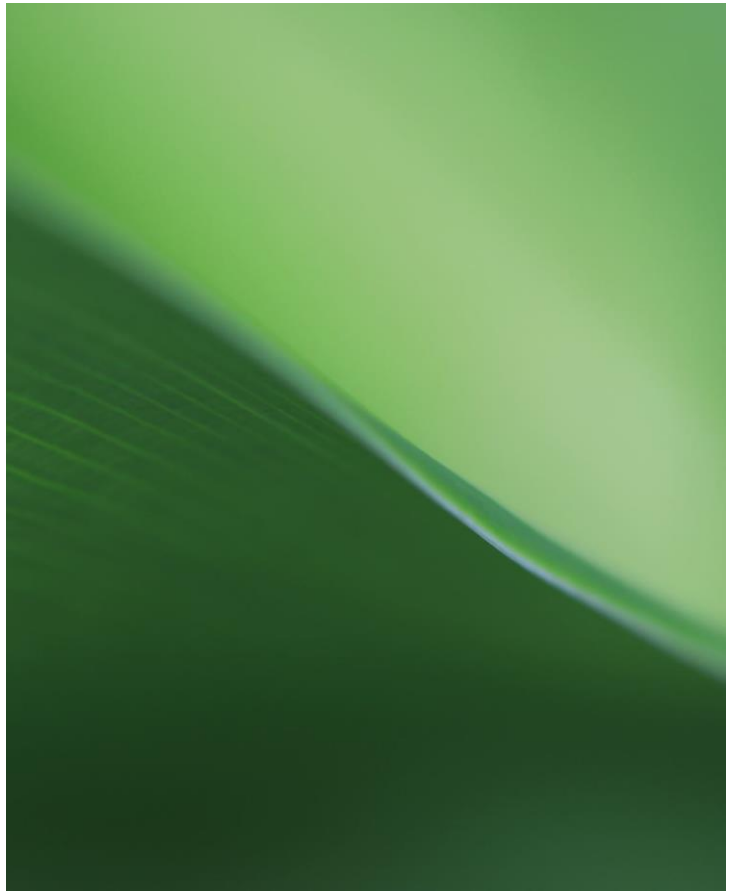
- Individualized, however targeting 1-2 lb weight loss per week is likely ideal

**Promote adequate protein intake**

- Can be from a combination of foods/ supplements

**Resistance training**

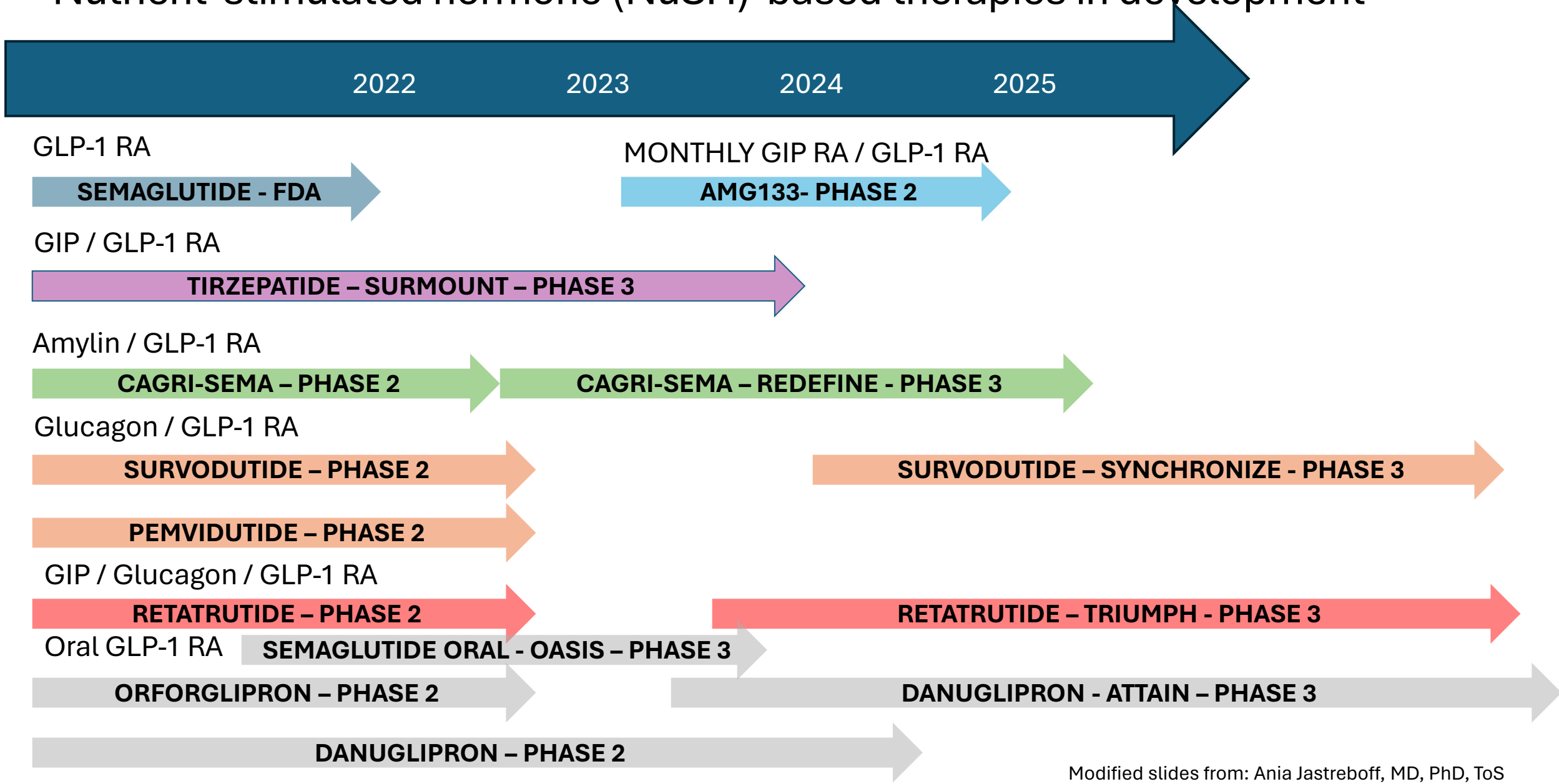
- Weight lifting, resistance bands, body weight exercises, etc



# Recommendations vary

- Target ~1.0 g protein/kg/day
  - Studies have shown 1.2-1.5 g / kg preserverd more lead mass than 0.8g/kg in healthy middle-age and older adults
  - CKD 3 patients
    - KDIGO guidelines suggest 0.5g/kg, but no more than 1.3g/kg.  Favours plant based over animal sources
  - Post-bariatric surgery patients
    - At least 60g/day post op or 1.1g/kg/day

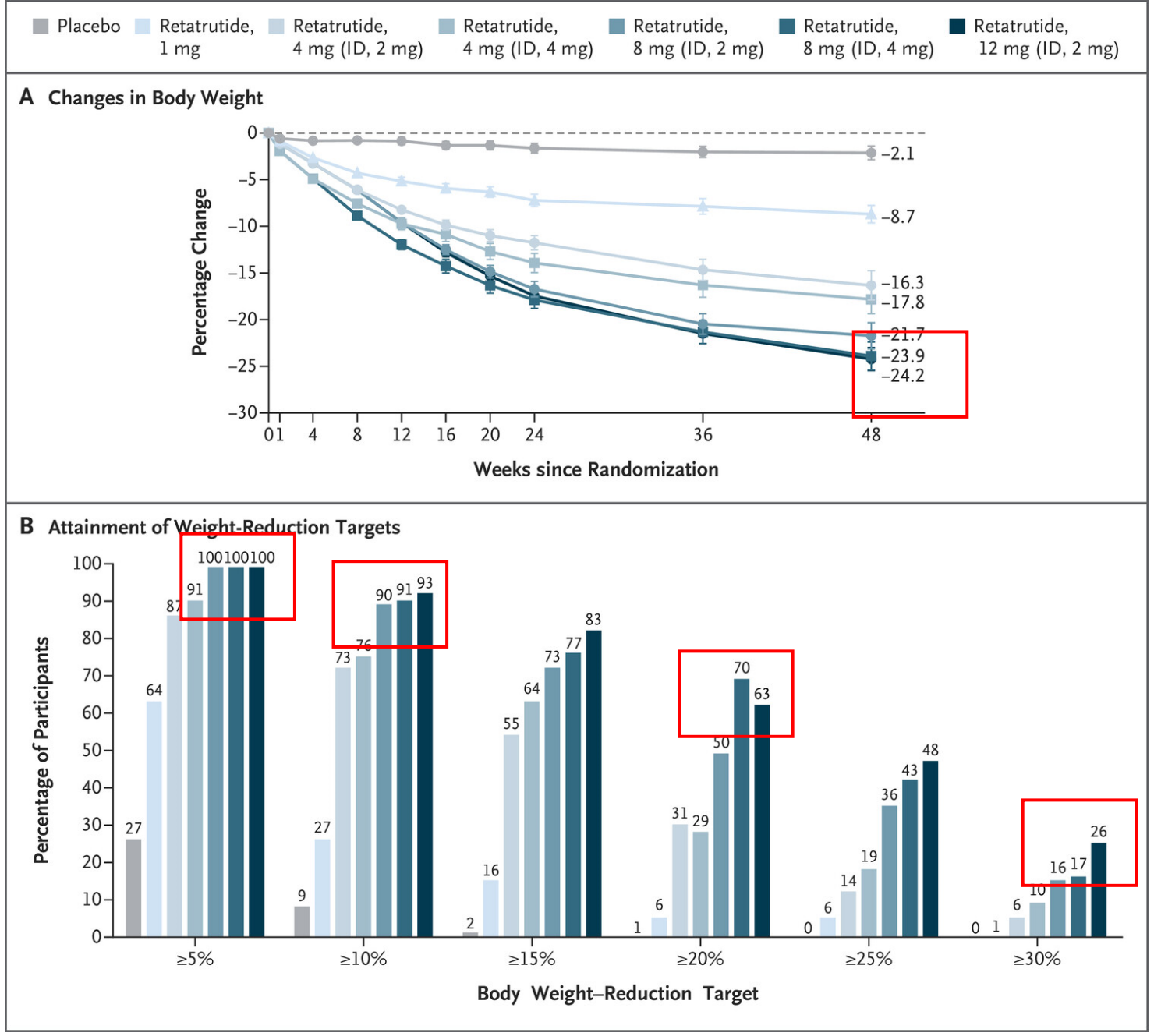
# Nutrient-stimulated hormone (NuSH)-based therapies in development




Modified slides from: Ania Jastreboff, MD, PhD, ToS Conference, Dallas, 2023

# Retatrutide….

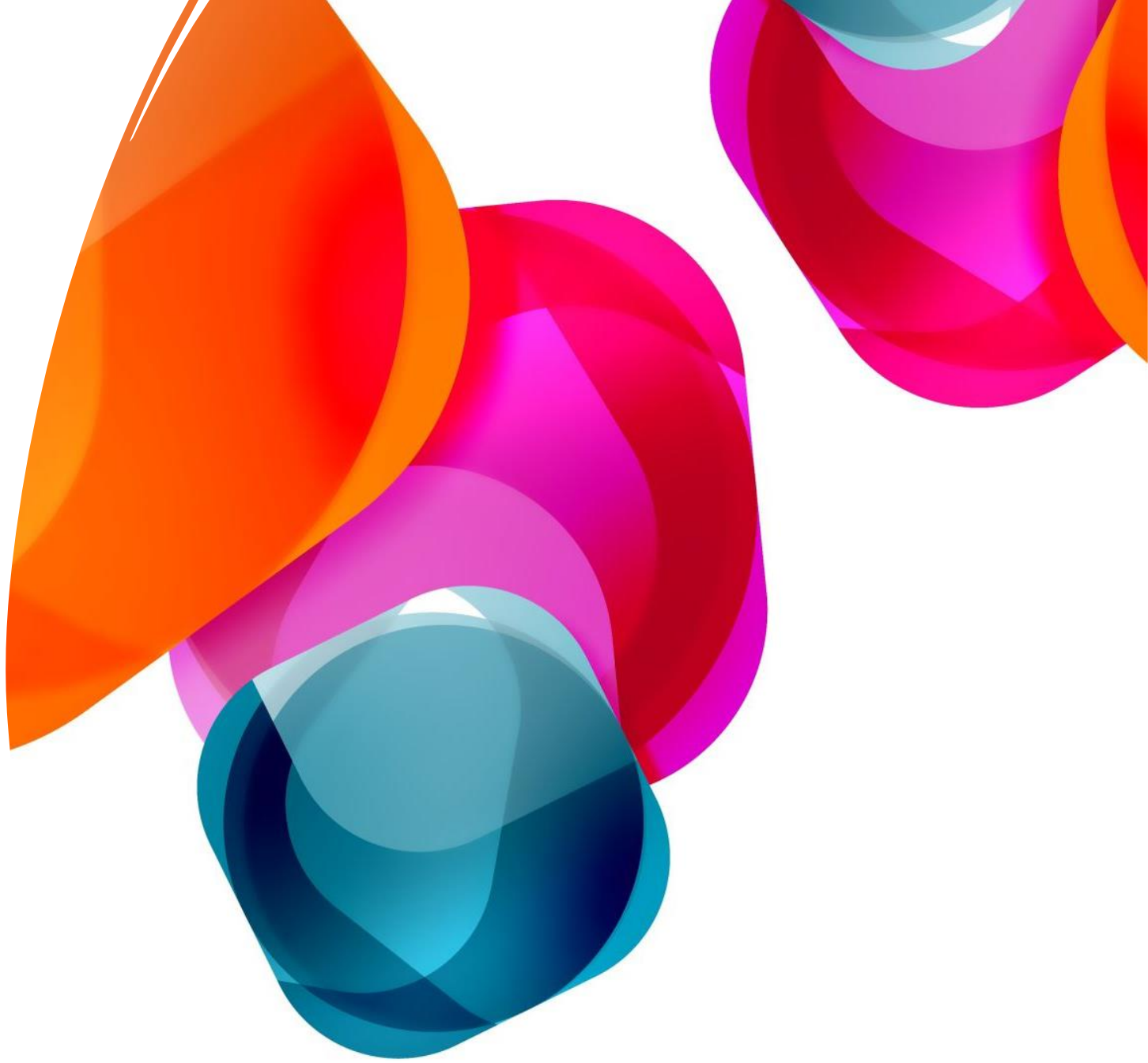
GIP/GLP-1/Glucagon
Receptor Agonist



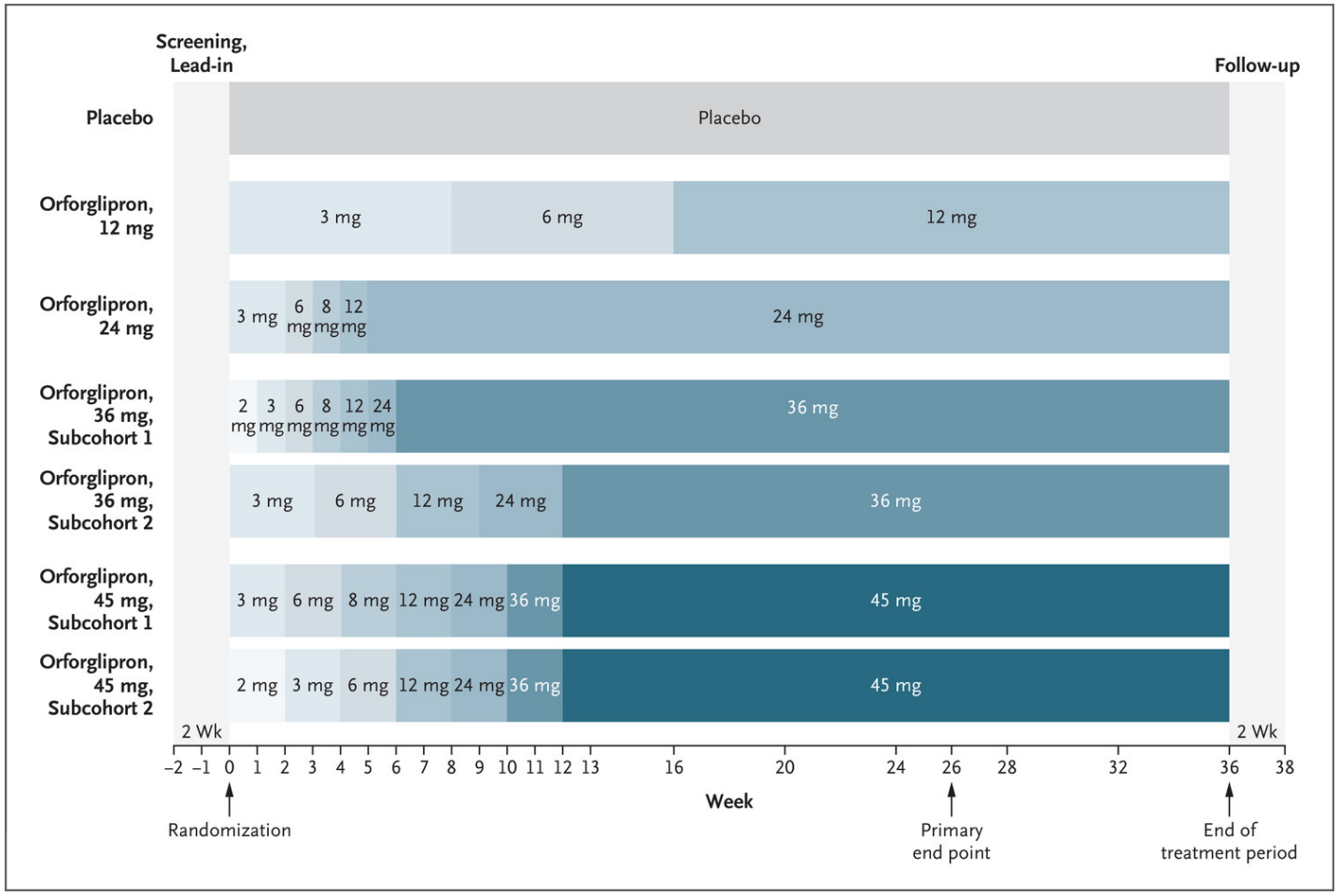

Jastreboff, A. M., Kaplan, L. M., Frías, J. P., Wu, Q., Du, Y., Gurbuz, S., Coskun, T., Haupt, A., Milicevic, Z., & Hartman, M. L. (2023). Triple–Hormone-Receptor Agonist Retatrutide for Obesity — A Phase 2 Trial. In New England Journal of Medicine (Vol. 389, Issue 6, pp. 514–526). Massachusetts Medical Society. https://doi.org/10.1056/nejmoa2301972

# Orforglipron

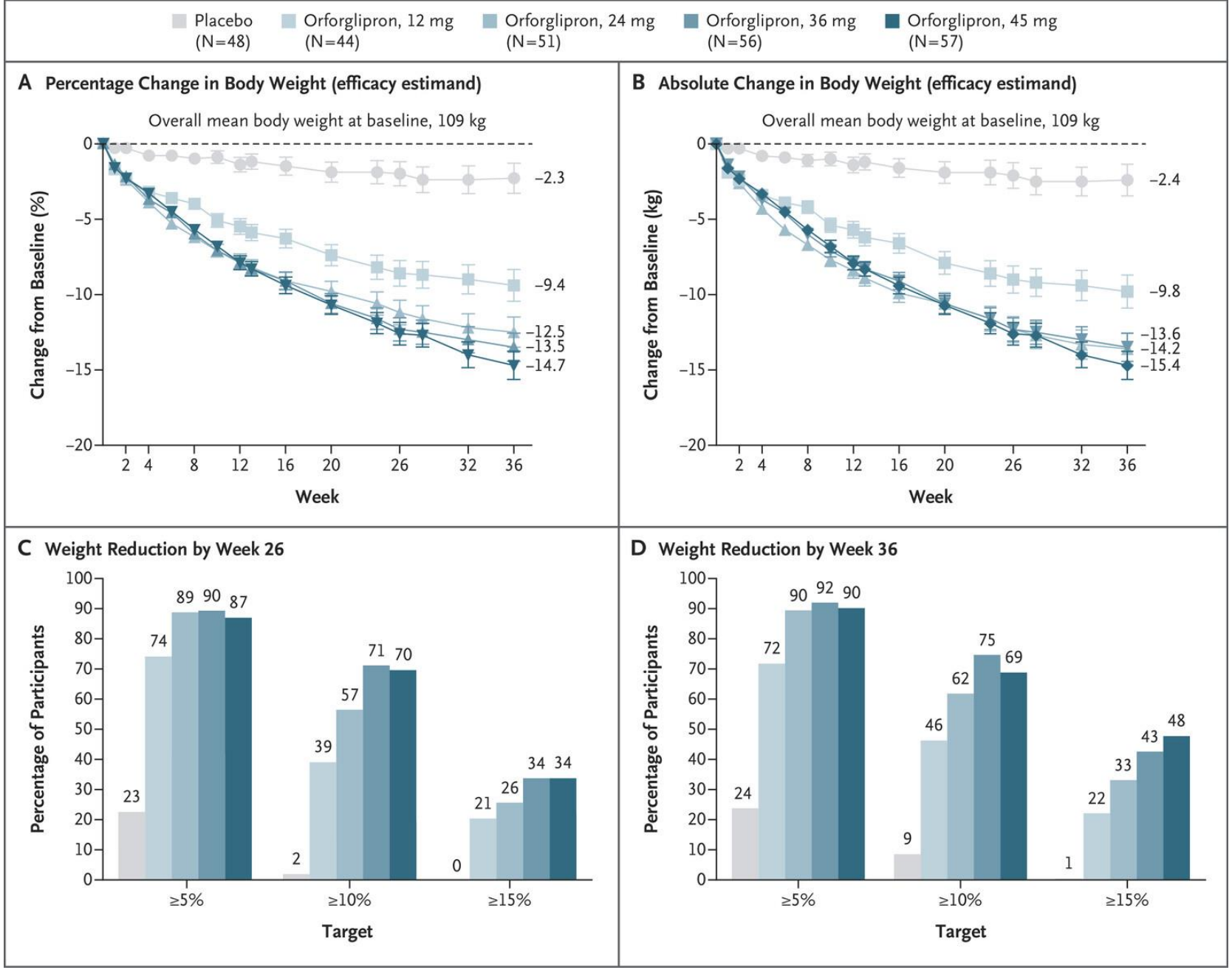
Non-peptide GLP-1 RA



# Design of the trial



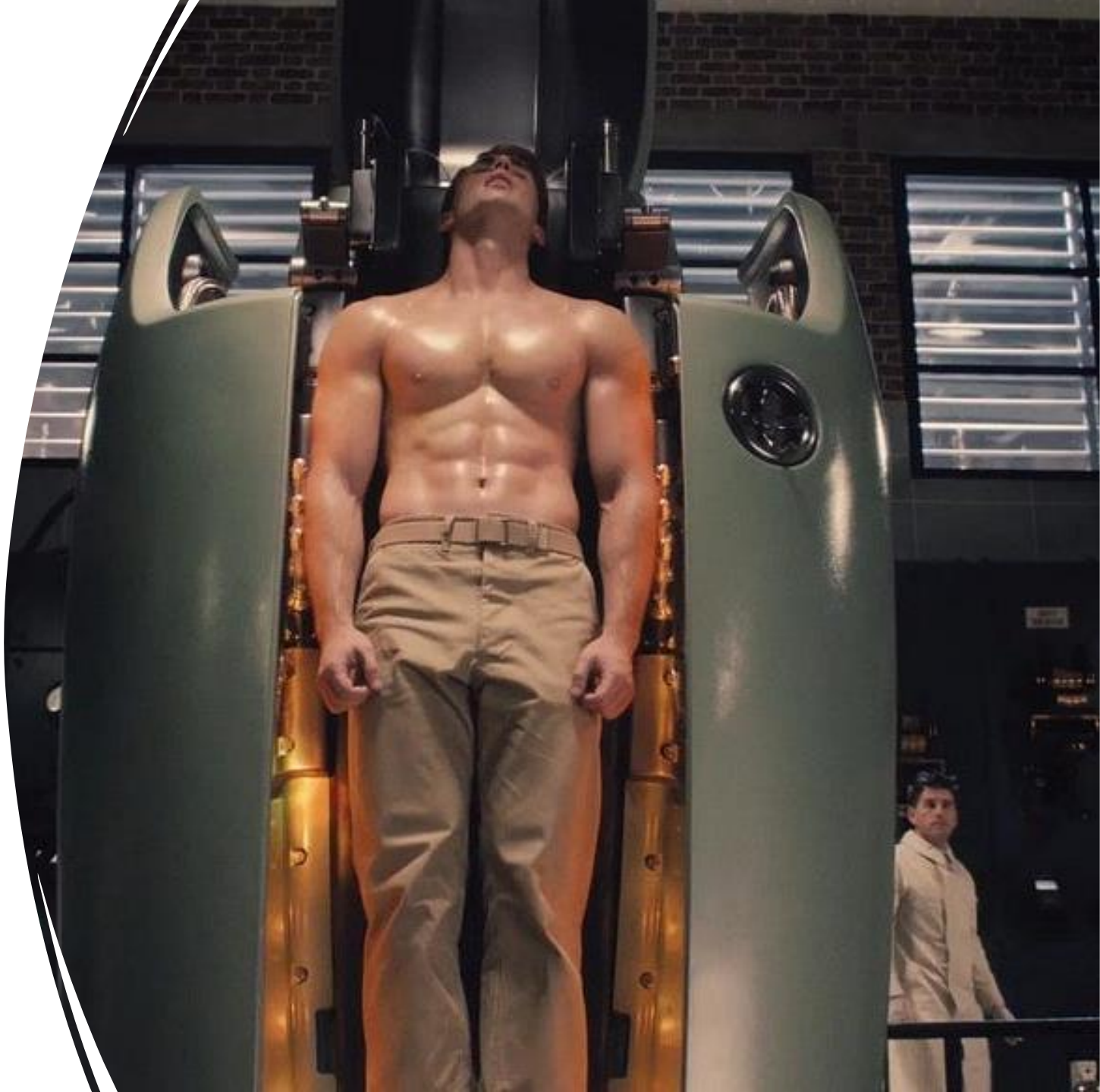

Wharton, S., Blevins, T., Connery, L., Rosenstock, J., Raha, S., Liu, R., Ma, X., Mather, K. J., Haupt, A., Robins, D., Pratt, E., Kazda, C., & Konig, M. (2023). Daily Oral GLP-1 Receptor Agonist Orforglipron for Adults with Obesity. In New England Journal of Medicine (Vol. 389, Issue 10, pp. 877–888). Massachusetts Medical Society. https://doi.org/10.1056/nejmoa2302392




Wharton, S., Blevins, T., Connery, L., Rosenstock, J., Raha, S., Liu, R., Ma, X., Mather, K. J., Haupt, A., Robins, D., Pratt, E., Kazda, C., & Konig, M. (2023). Daily Oral GLP-1 Receptor Agonist Orforglipron for Adults with Obesity. In New England Journal of Medicine (Vol. 389, Issue 10, pp. 877–888). Massachusetts Medical Society. https://doi.org/10.1056/nejmoa2302392

# Bimgrumab

an antibody that blocks activin type II receptors and stimulates skeletal muscle growth...

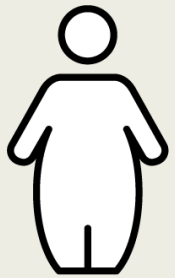


JAMA Network | Open

# RCT: Effect of Bimagrumab vs Placebo on Body Fat Mass Among Adults With Type 2 Diabetes and Obesity

## POPULATION

**40 Men, 35 Women**

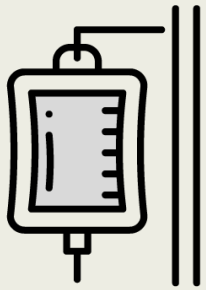


Adults with BMI of 28-40, type 2 diabetes, glycated hemoglobin levels of 6.5%-10.0%, and stable body weight of 65-140 kg

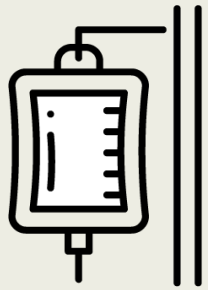
**Mean (SD) 60.4 (7.7) y**

## INTERVENTION

**58** Individuals randomized and analyzed



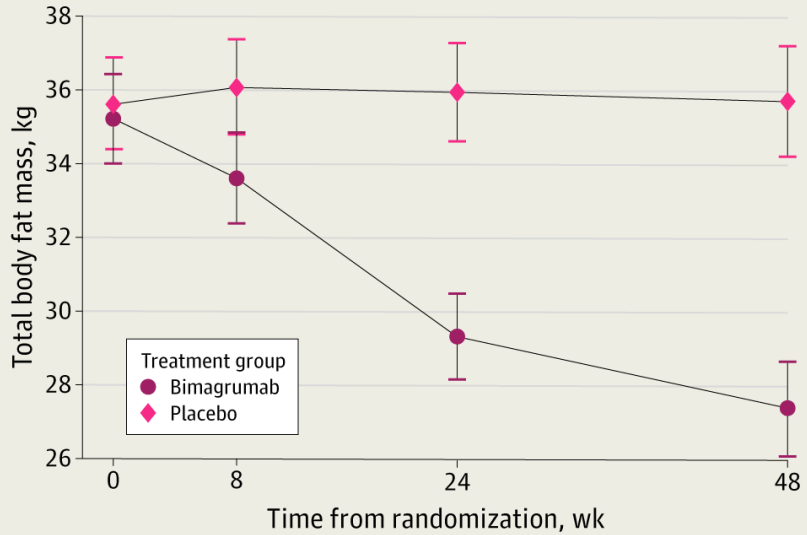
**27 Bimagrumab**
Bimagrumab 10 mg/kg, up to a maximum of 1200 mg, in 5% dextrose solution, IV infusion over 30 minutes, every 4 wk for 48 weeks (12 doses)



**31 Placebo**
5% dextrose solution, IV infusion over 30 minutes, every 4 weeks for 48 wk (12 doses)

## FINDINGS

Total body fat mass decreased by 21% in patients receiving bimagrumab vs 0.5% in those treated with placebo (7.31 kg difference)




### Total body fat mass decrease at 48 wk

**Bimagrumab group:** 21% (-7.49 kg, 80% CI, -8.33 to -6.64 kg)

**Placebo group:** 0.5% (-0.18 kg, 80% CI, -0.99 to 0.63 kg)

**Difference:** -7.31 kg (80% CI, -8.48 to -6.14 kg; P <0.001)

## SETTINGS / LOCATIONS

**9 sites, 8 in the US and 1 in Wales, UK**

## PRIMARY OUTCOME

Primary end point was least squares mean change from baseline in total body fat mass in kg at 48 wk

Heymsfield SB, Coleman LA, Miller R, et al. Effect of bimagrumab vs placebo on body fat mass among adults with type 2 diabetes and obesity: a phase 2 randomized clinical trial. *JAMA Netw Open*. 2021;4(1):e2033457. doi:10.1001/jamanetworkopen.2020.33457

Table 2. Major End Points

| End Point | Change (80% CI) [Participants, No.][a] Bimagrumab[b] | Placebo[b] | Difference[b] | *P* value |
|---|---|---|---|---|
| Primary | | | | |
| FM, kg | −7.49 (−8.33 to −6.64) [26] | −0.18 (−0.99 to 0.63) [29] | −7.31 (−8.48 to −6.14) | <.001 |
| Secondary | | | | |
| Lean mass, kg | 1.70 (1.14 to 2.26) [26] | −0.44 (−0.97 to 0.09) [29] | 2.14 (1.36 to 2.93) | <.001 |
| Body weight, kg | −5.90 (−7.08 to −4.71) [26] | −0.79 (−1.92 to 0.33) [30] | −5.10 (−6.74 to −3.47) | <.001 |
| BMI | −2.19 (−2.60 to −1.78) [26] | −0.28 (−0.67 to 0.11) [30] | −1.91 (−2.48 to −1.34) | <.001 |
| Waist circumference, cm | −9.00 (−10.3 to −7.68) [26] | 0.45 (−0.79 to 1.69) [30] | −9.46 (−11.3 to −7.64) | <.001 |
| Waist-to-hip ratio | −0.05 (−0.06 to −0.04) [26] | 0.01 (0.00 to 0.02) [30] | −0.06 (−0.08 to −0.04) | <.001 |
| $HbA_{1c}$, % | −0.76 (−1.05 to −0.48) [26] | 0.04 (−0.23 to 0.31) [30] | −0.80 (−1.20 to −0.41) | .005 |
| HOMA2, week 36 | −0.09 (−0.44 to 0.25) [25] | 0.57 (0.24 to 0.90) [27] | −0.66 (−1.14 to −0.18) | .08 |
| QUICKI, week 36 | 0.01 (0.01 to 0.01) [26] | 0.00 (0.00 to 0.00) [30] | 0.01 (0.00 to 0.01) | .03 |
| Matsuda Index | 3.15 (2.39 to 3.91) [26] | 1.78 (1.05 to 2.51) [28] | 1.37 (0.31 to 2.43) | .10 |
| **Exploratory** | | | | |
| Hepatic fat fraction, % | | | | |
| Week 24 | −4.60 (−6.07 to −3.12) [18] | 0.23 (−1.61 to 2.08) [11] | −4.83 (−7.20 to −2.46) | .006 |
| Week 48 | −7.00 (−8.58 to −5.43) [5] | −2.33 (−4.16 to −0.51) [5] | −4.67 (−7.09 to −2.25) | .01 |
| Abdominal SAT, L | | | | |
| Week 24 | −0.97 (−1.37 to −0.56) [18] | −0.14 (−0.65 to 0.37) [11] | −0.83 (−1.48 to −0.18) | .05 |
| Week 48 | −1.71 (−2.40 to −1.03) [5] | −0.52 (−1.30 to 0.26) [4] | −1.19 (−2.23 to −0.15) | .07 |
| Abdominal VAT, L | | | | |
| Week 24 | −1.49 (−1.69 to −1.29) [18] | 0.22 (−0.03 to 0.48) [11] | −1.71 (−2.04 to −1.39) | <.001 |
| Week 48 | −1.52 (−2.42 to −0.62) [5] | −0.01 (−1.05 to 1.03) [4] | −1.51 (−2.87 to −0.14) | .08 |

Abbreviations: BMI, body mass index (calculated as weight in kilograms divided by height in meters squared); FM, body fat mass; $HbA_{1c}$, glycated hemoglobin; HOMA2, homeostasis model assessment; QUICKI, quantitative insulin sensitivity check index (calculated as 1/[log{fasting insulin, μU/mL}] + log{fasting glucose, mg/dL}); SAT, subcutaneous adipose tissue; VAT, visceral adipose tissue.

SI conversion factor: To convert $HbA_{1c}$ to proportion of total hemoglobin, multiply by 0.01.

[a] Change from baseline to week 48, unless otherwise noted, in the end point.

[b] This model has change from baseline FM in kilograms as the dependent variable and treatment group, time, and a time × treatment group interaction as fixed effects. Baseline FM and baseline BMI values were included in the model as covariates. Time was modeled as a categorical variable. An unstructured within-participant covariance was used.

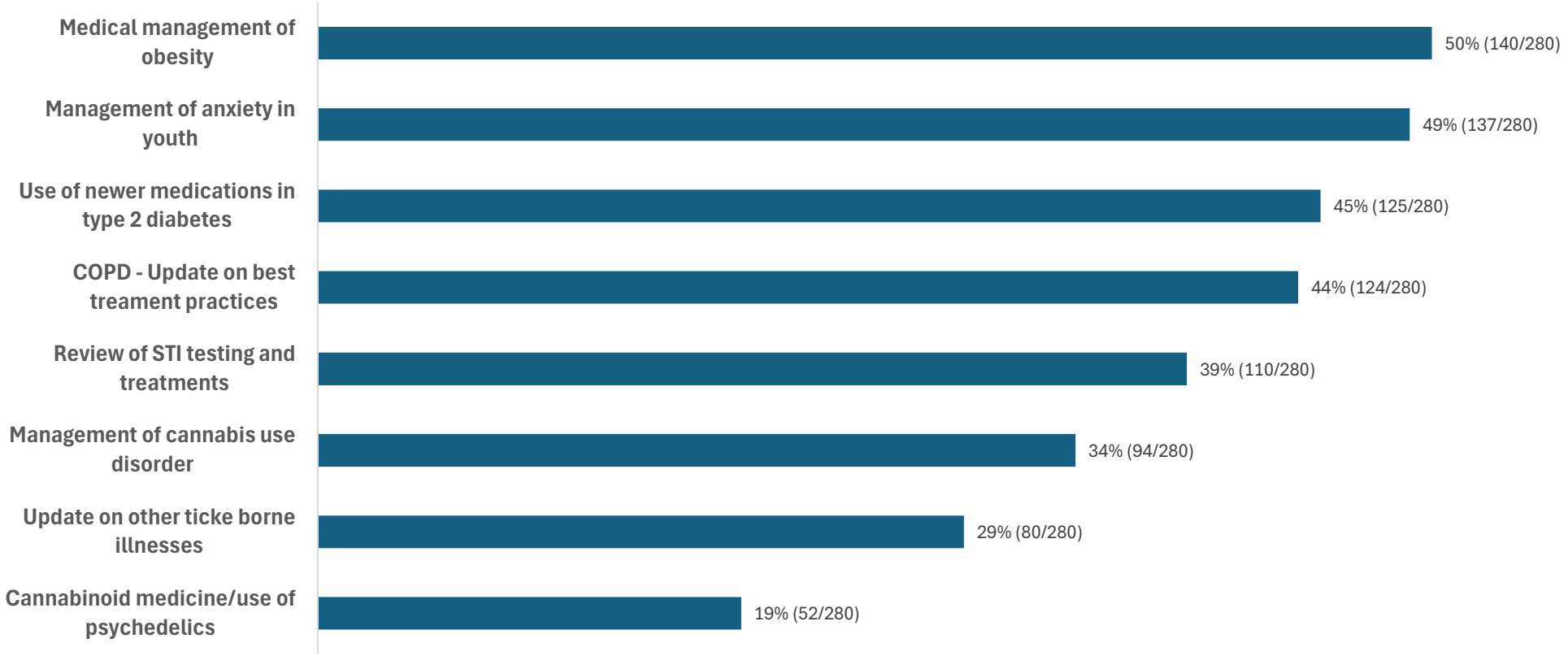
Heymsfield SB, Coleman LA, Miller R, et al. Effect of Bimagrumab vs Placebo on Body Fat Mass Among Adults With Type 2 Diabetes and Obesity: A Phase 2 Randomized Clinical Trial. JAMA Netw Open. 2021;4(1):e2033457. doi:10.1001/jamanetworkopen.2020.33457

# Activin receptor inhibitors

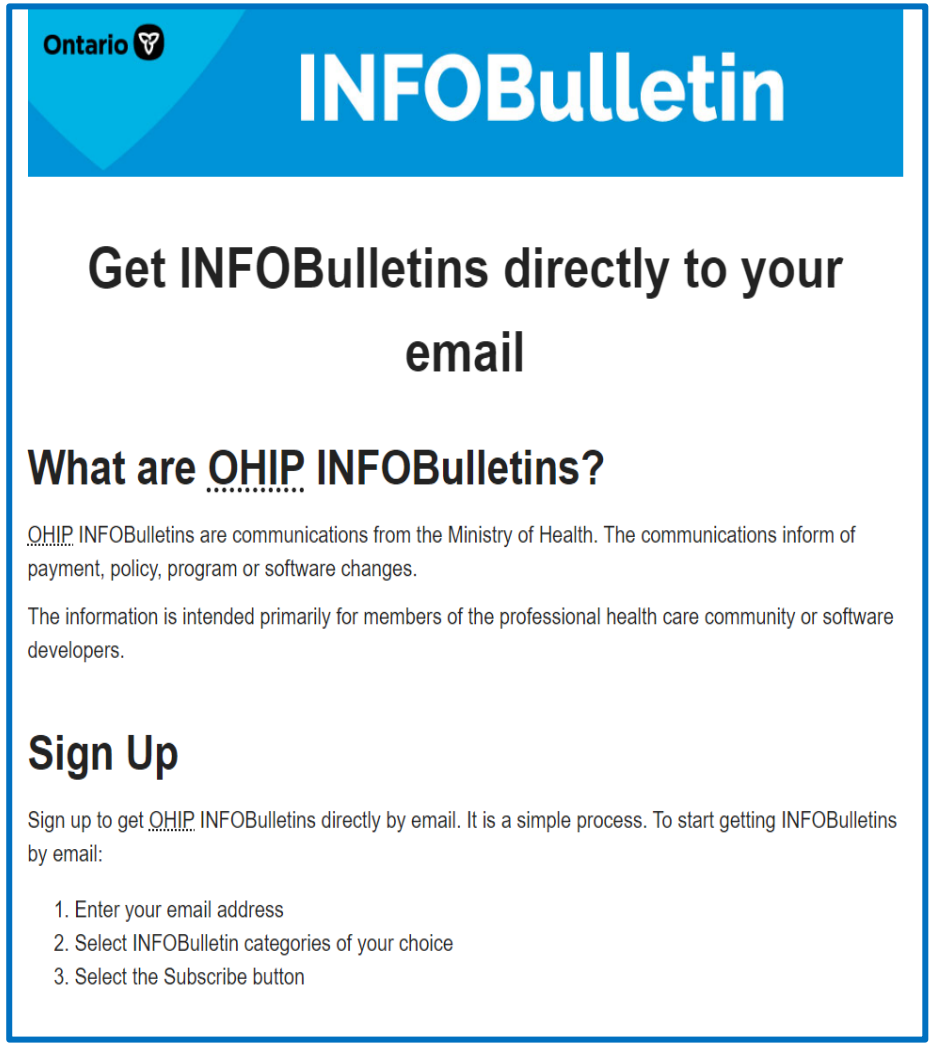
| | |
|---|---|
| Bimagrumab | • Monoclonal antibody that binds activin type II receptor (ACTRII)<br>• Phase 2 study in individuals with T2D<br>• BELIEVE study (Phase 2b): bimagrumab + semaglutide |
| Taldefgrobep | • Fusion protein that binds active myostatin, inhibits signaling through ACTRII<br>• Developed for Duchenne Muscular Dystrophy<br>• Completed pre-IND engagement with FDA for the indication of obesity<br>• Phase 2 obesity study with taldefgrobep is planned to start in 2024 |
| SRK-439 | • Myostatin inhibitor<br>• Initial focus on obesity<br>• Proof of concept study apitegromab + GLP-1 RA (phase 2 2024)<br>• Developed for Spinal Muscular Atrophy |

# Future Topics Poll Results

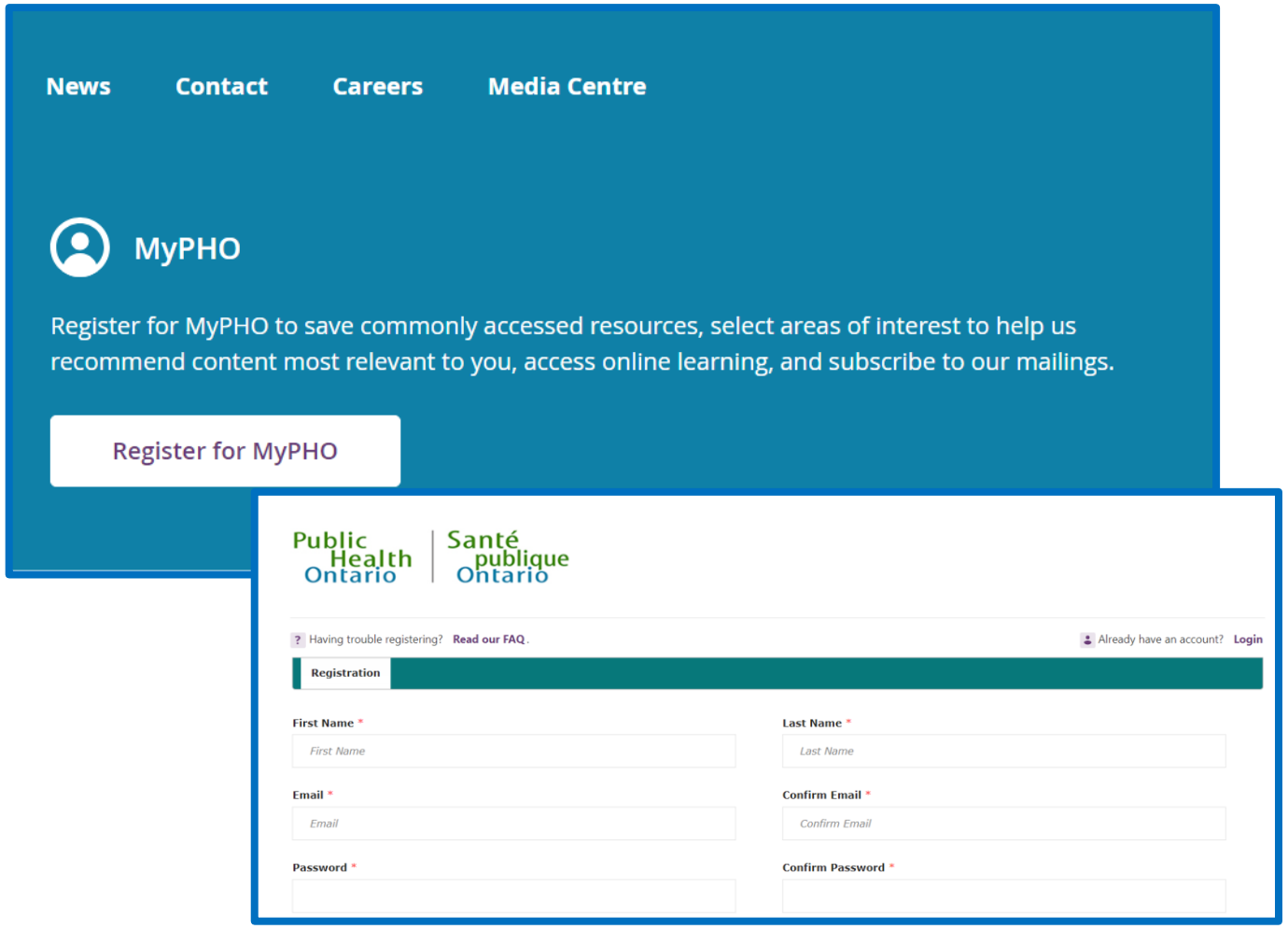
## May 17 2024 CoP



# Register for Health Alerts – OHIP & PHO




**OHIP INFOBulletin Registration**
https://mailchi.mp/ontario/infobulletin-en

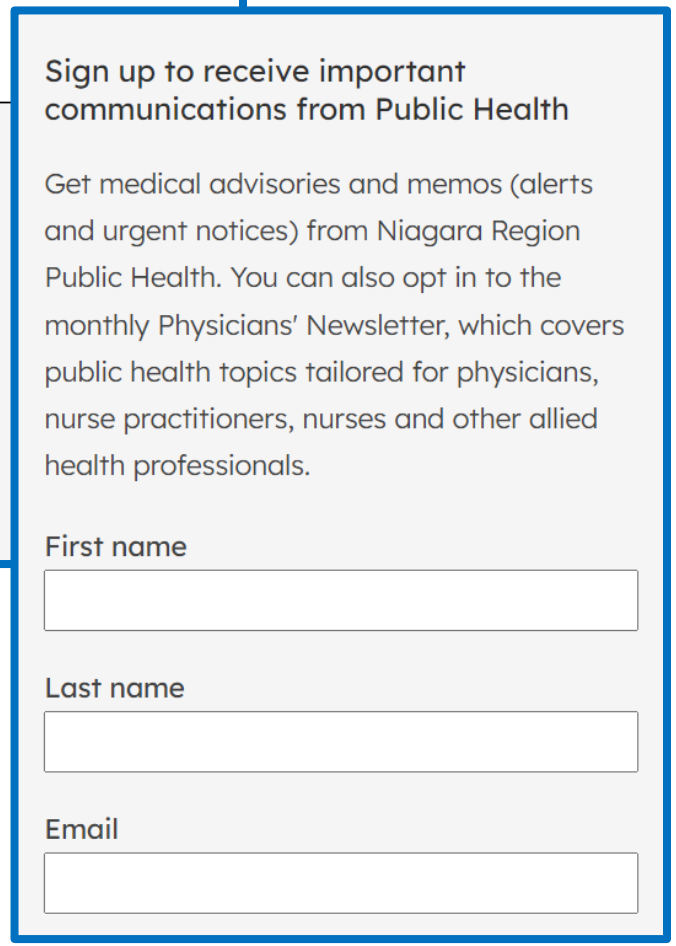



**MyPHO Registraion**
https://account.publichealthontario.ca/signup.aspx

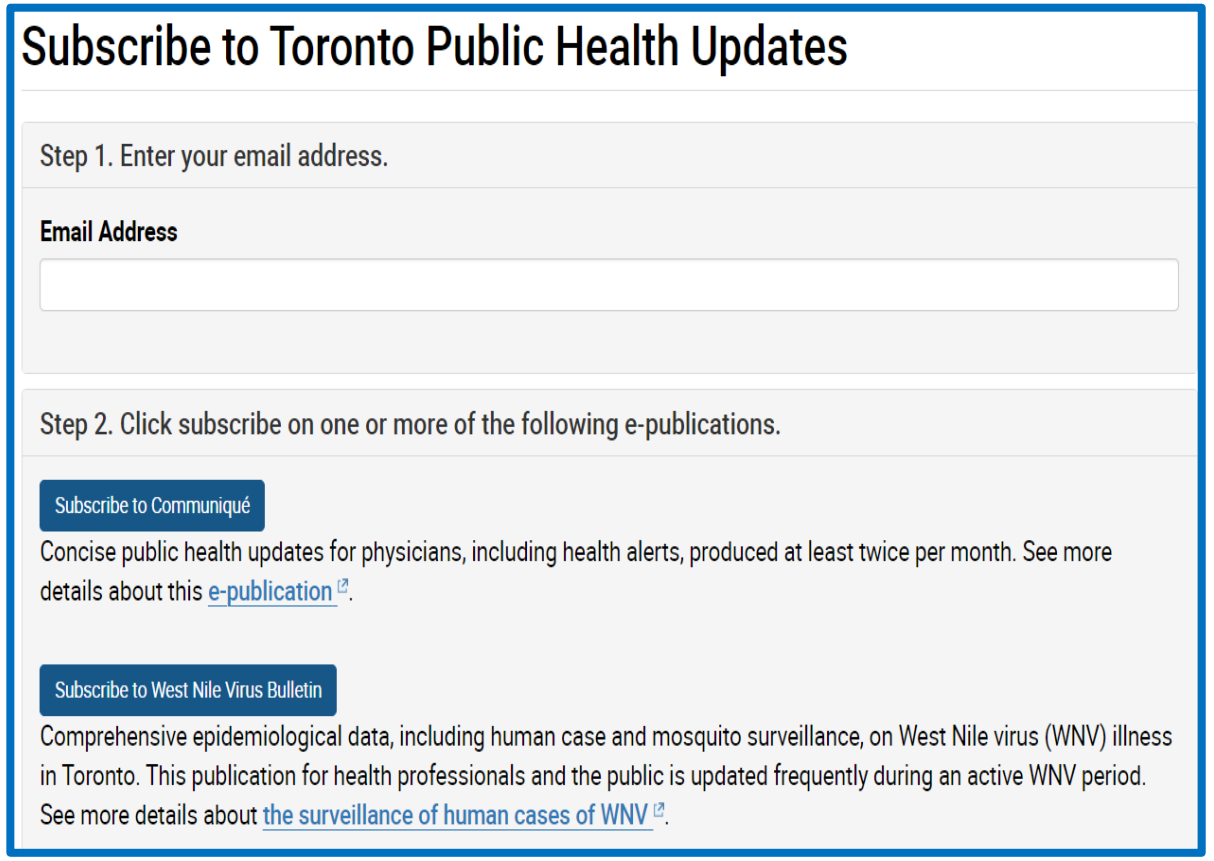
**PHO News**
https://www.publichealthontario.ca/en/About/News

# Register for Health Alerts – Your Region


**Simcoe Muskoka Public Health Updates**
https://www.simcoemuskokahealth.org/JFY/HPPortal/ResourcesTools/RAVE-Collection-of-Contact-Information




**Niagara Region Public Health Updates**
https://www.niagararegion.ca/health/professionals/medical-advisories.aspx




**Toronto Public Health Updates**
https://www.toronto.ca/community-people/health-wellness-care/information-for-healthcare-professionals/archived-newsletters-for-health-professionals/subscribe-to-tph-updates/

# OCFP supports for Mental Health, Addictions and Chronic Pain

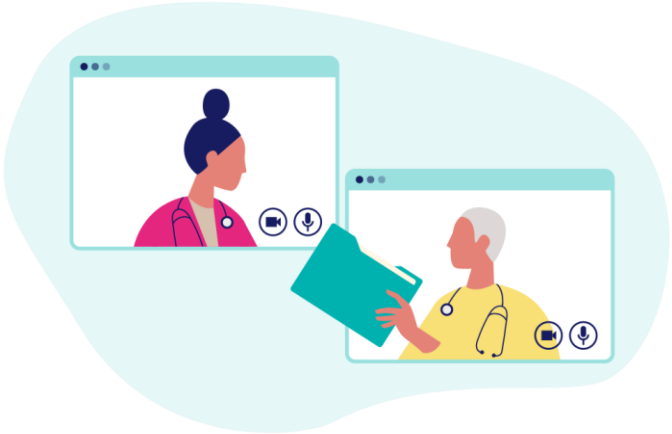
Mental health, addictions and chronic pain are challenging conditions. Find information to support the care you give patients – in a way that also considers your wellbeing.

## Community of Practice

Join upcoming sessions:

Gender affirming care (June 26)

Preventing burnout (July 24)



## Peer Connect Mentorship

Receive tailored support to skillfully respond to mental health issues, address substance use disorders, and chronic pain challenges in your practice.

Join

# CanTreatCOVID

Canadian Adaptive Platform Trial of Treatments for COVID in Community Settings

## Who can participate?

- Adults who **tested positive for COVID** with symptoms starting within the last 5 days and
- aged 18-49 years with one or more chronic condition(s) **OR** aged 50+ years regardless of health status

Compensation: Healthcare providers - $40 for referring potentially eligible participants
Patients - up to $120 while in the study

## Why participate?

- Close monitoring
- Personalized care
- Contribution to medical research
- Participate online or by phone call

1-888-888-3308 CanTreatCOVID.org info@CanTreatCOVID.org

CanTreatCOVID is led by Dr. Andrew Pinto and supported by CIHR IRSC Canadian Institutes of Health Research Instituts de recherche en santé du Canada Santé Canada Health Canada Public Health Agency of Canada Agence de la santé publique du Canada

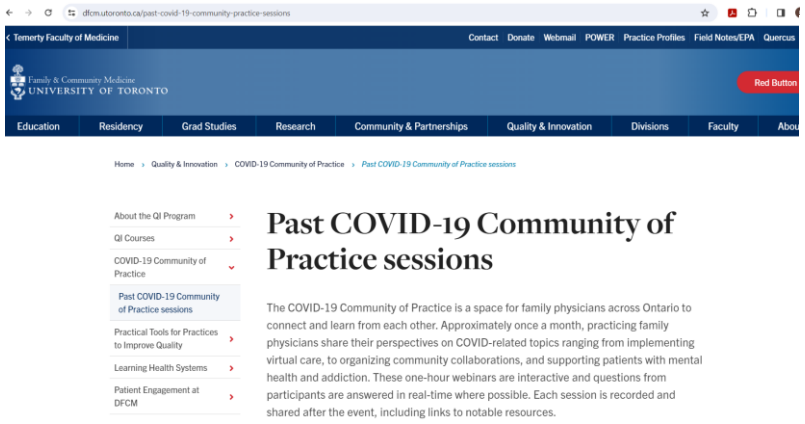
# RECENT SESSIONS

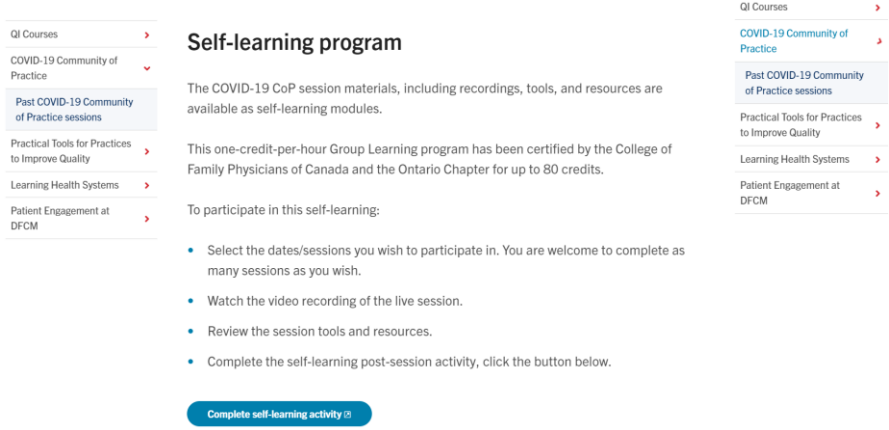
| | | |
|---|---|---|
| **February 23** | **COVID-19 and Measles Updates, and Supporting Primary Care** | Dr. Megan Devlin<br>Dr. Elizabeth Muggah |
| March 22 | **Infectious Disease Updates and Management of Menopause** | Dr. Zain Chagla<br>Dr. Susan Goldstein<br>Dr. Daniel Warshafsky |
| April 5 | **Infectious Disease and Updates to Osteoporosis Canada Guidelines** | Dr. Gerald Evans<br>Dr. Sid Feldman |
| April 26 | **Infectious Disease Updates and Approaching ADHD** | Dr. Allison McGeer<br>Dr. Joan Flood, |
| May 17 | **Infectious Disease and Practical Tips for Practice Management & AI** | Dr. Daniel Pepe<br>Dr. Alon Vaisman<br>Dr. Ali Damji |

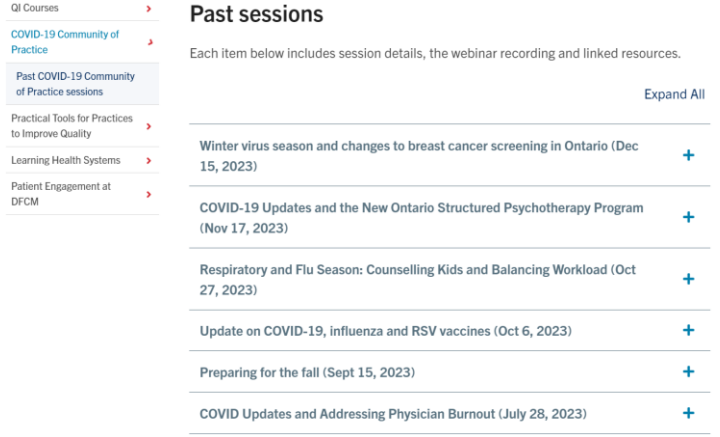
**Previous webinars & related resources:**
**https://www.dfcm.utoronto.ca/covid-19-community-practice/past-sessions**

# Accessing Previous Sessions and Self Learning

**Previous webinars & related resources**
**https://www.dfcm.utoronto.ca/covid-19-community-practice/past-sessions**



# Questions?

Webinar recording and curated Q&A will be posted soon
https://www.dfcm.utoronto.ca/covid-19-community-practice/past-sessions

Our next Community of Practice: June 21, 2024

*Contact us: ocfpcme@ocfp.on.ca*

*Visit*: https://www.ontariofamilyphysicians.ca/tools-resources/covid-19-resources

The COVID-19 Community of Practice for Ontario Family Physicians is a one-credit-per-hour Group Learning program that has been certified for up to a total of 32 credits..

**Post session survey will be emailed to you. Mainpro+ credits will be entered for you with the information you provided during registration.**

Family & Community Medicine
UNIVERSITY OF TORONTO

Ontario College of Family Physicians
*Leaders for a healthy Ontario*