HEART HOUSE ROUNDTABLES

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Risk to Resilience: Addressing Weight Management in Cardiovascular Care.

Obesity Diagnosis and Implications

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Disclosures

- *Advisor/consultant*: Altimmune, Amgen, Biohaven, Calibrate, Carmot, CINRx, Currax, Epitomee, Gila, Ifa Celtic, Lilly, Nestle, Novo Nordisk, Scientific Intake, Structure Therapeutics, Wondr Health, Xeno Bioscience, Zealand

- *Speaker's Bureau:* Novo Nordisk, Lilly

- *Stock Options:* Epitomee, Calibrate, Roman, Scientific Intake, Xeno

- *Research:* SELECT Steering Committee (Novo Nordisk)

- *DSMB: IQVIA* setmelanotide (2); Lilly(1)

How Do You Define Obesity?

- *BMI*: On population basis, BMI correlates with body fat

and cut points correlate with many comorbidities and with mortality.

For Europids: Overweight BMI >25 kg/m^2 Obese BMI >30 kg/m^2 Waist circumference 35 in for women and 40 in for men Jensen MD, et al. Guidelines (2013) *Obesity.* 2014;22(S2):S1-S410.	For Asians: Overweight BMI >23 kg/m^2 Obese BMI >25 kg/m^2 Waist circumference 31.5 in for women and 35 in for men WHO/IASO/IOTF, 2000. (http://www.idi.org.au/obesity_report.htm)

- The 2014 Guidelines confirmed the validity of these cut points
- BMI is used for ICD 10 and ICD 11 codes
- BMI is used for pharmacotherapy indications and surgery indications
- The clinical diagnosis rests on BMI as a screening tool, with anthropometrics and health risk indicators for confirmation of excess, dysfunctional body fat.

Clinicians use BMI as a screening tool, and the diagnosis of obesity should always be a clinical diagnosis, based on excess abnormal body fat that impairs health.
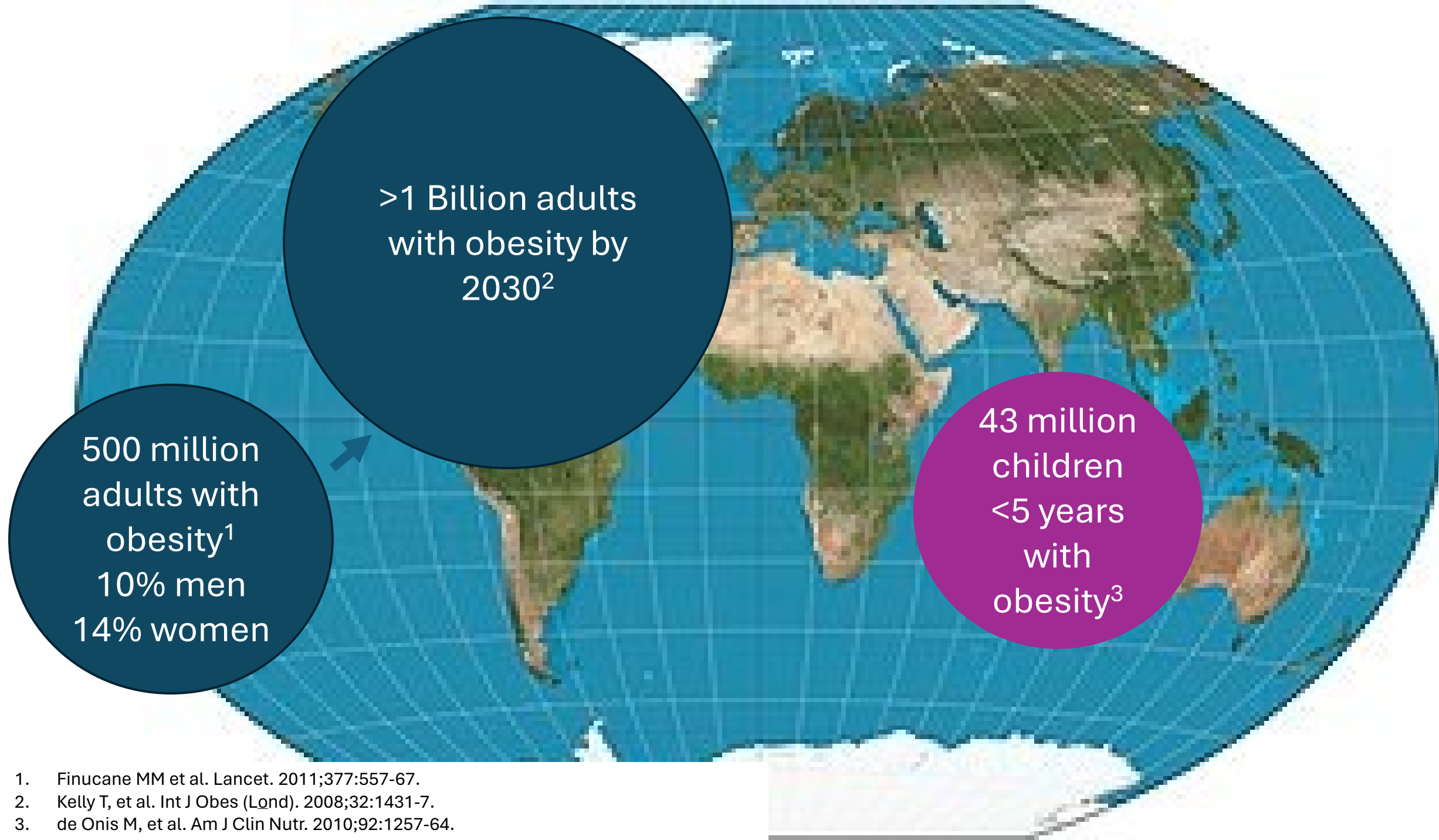
Latest US Obesity Prevalence

US Adults

2020

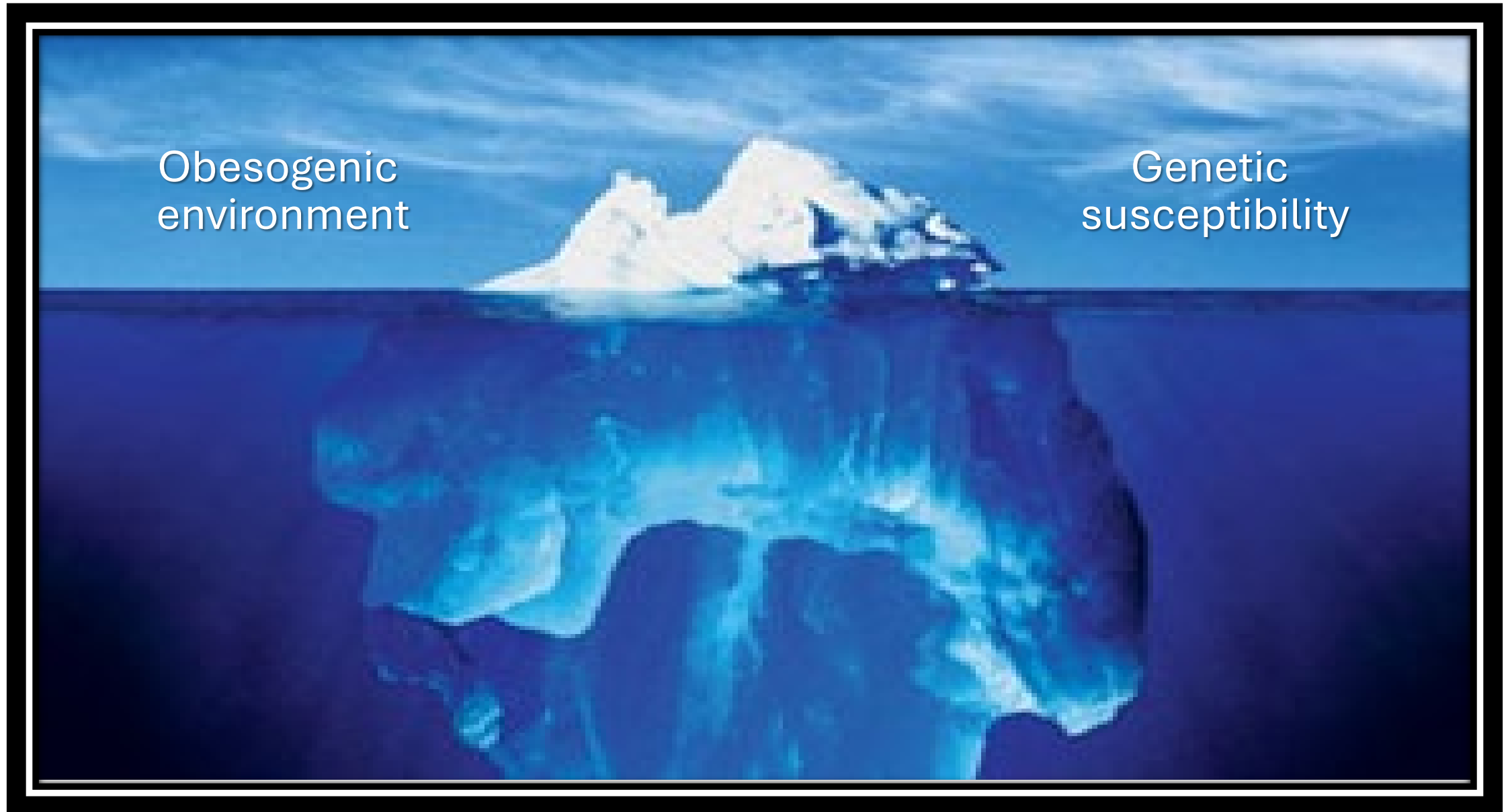42.4% obesity ($\geq$BMI 30 kg/m^2)

9.2% severe obesity($\geq$BMI 40 kg/m^2)

US Children

2017-2020

19.7% obesity (>95 percentile)

Katzmarzyk. *Medical Clinics of North America* 2023;107:1025-1034.

Ogden et al. *NCHS Health E Stat* 2010.; Hales et al. *JAMA* 2018;319:1723-25; Stierman et al. *National Health Statistics Reports* 2021;158.

>1 Billion adults with obesity by 2030[2]

500 million adults with obesity[1]
10% men
14% women

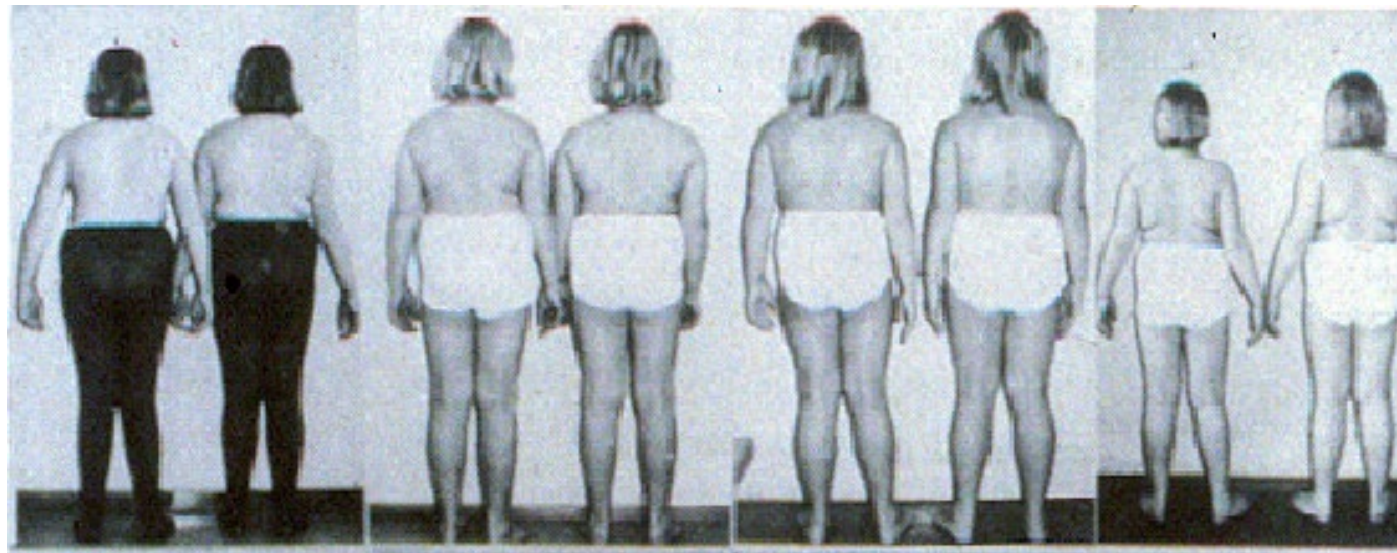43 million children <5 years with obesity[3]

1. Finucane MM et al. Lancet. 2011;377:557-67.
2. Kelly T, et al. Int J Obes (Lond). 2008;32:1431-7.
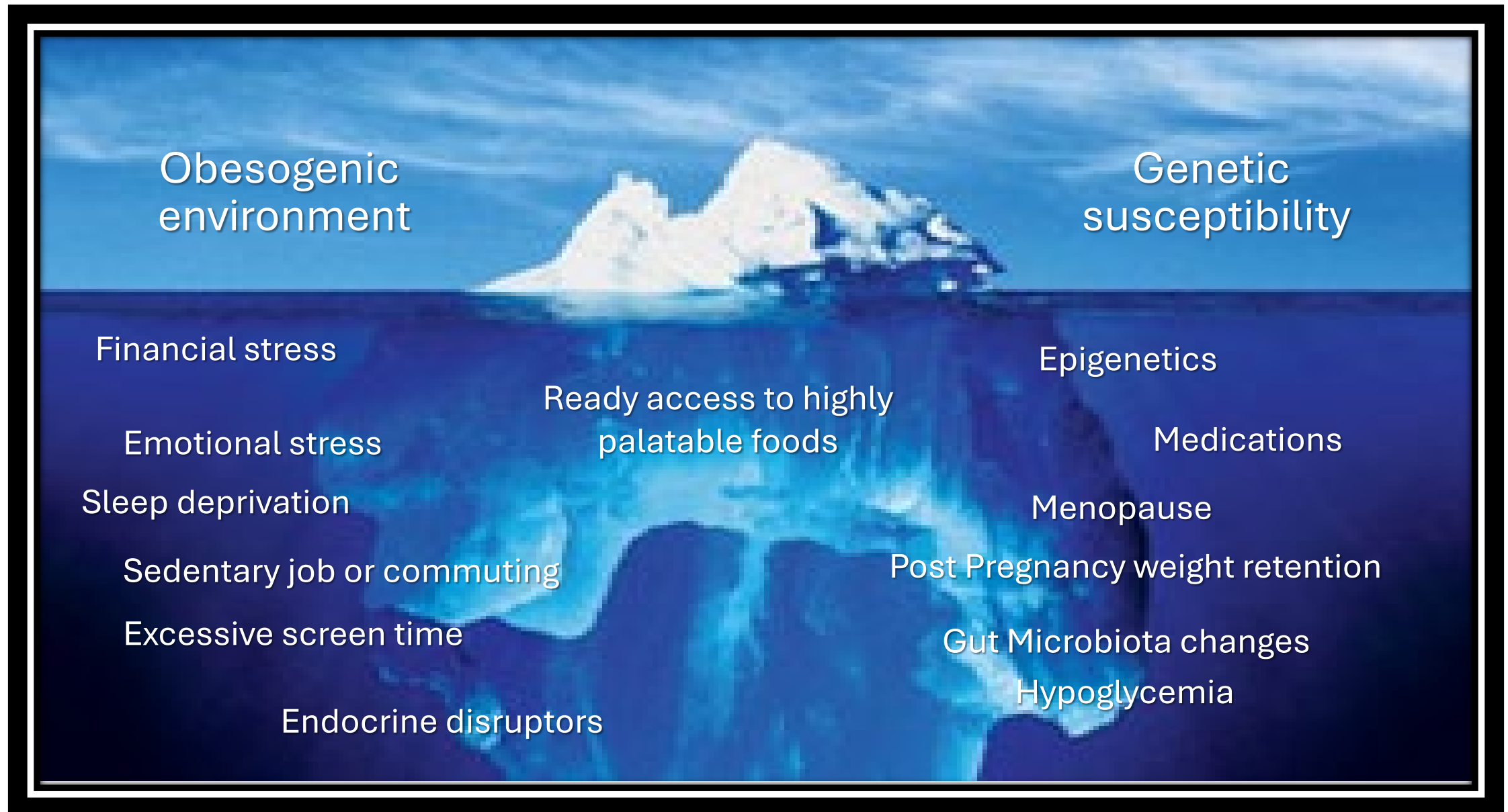3. de Onis M, et al. Am J Clin Nutr. 2010;92:1257-64.

What Is the Etiology of Obesity?

Obesogenic environment

Genetic susceptibility

Genetic Contribution to Body Habitus

Borjeson M. *Acta Paediatr Scand*. 1976;65(3):279-287.

What Is the Etiology of Obesity?

Obesogenic environment

Genetic susceptibility

Financial stress

Epigenetics

Ready access to highly palatable foods

Emotional stress

Medications

Sleep deprivation

Menopause

Sedentary job or commuting

Post Pregnancy weight retention

Excessive screen time

Gut Microbiota changes

Hypoglycemia

Endocrine disruptors
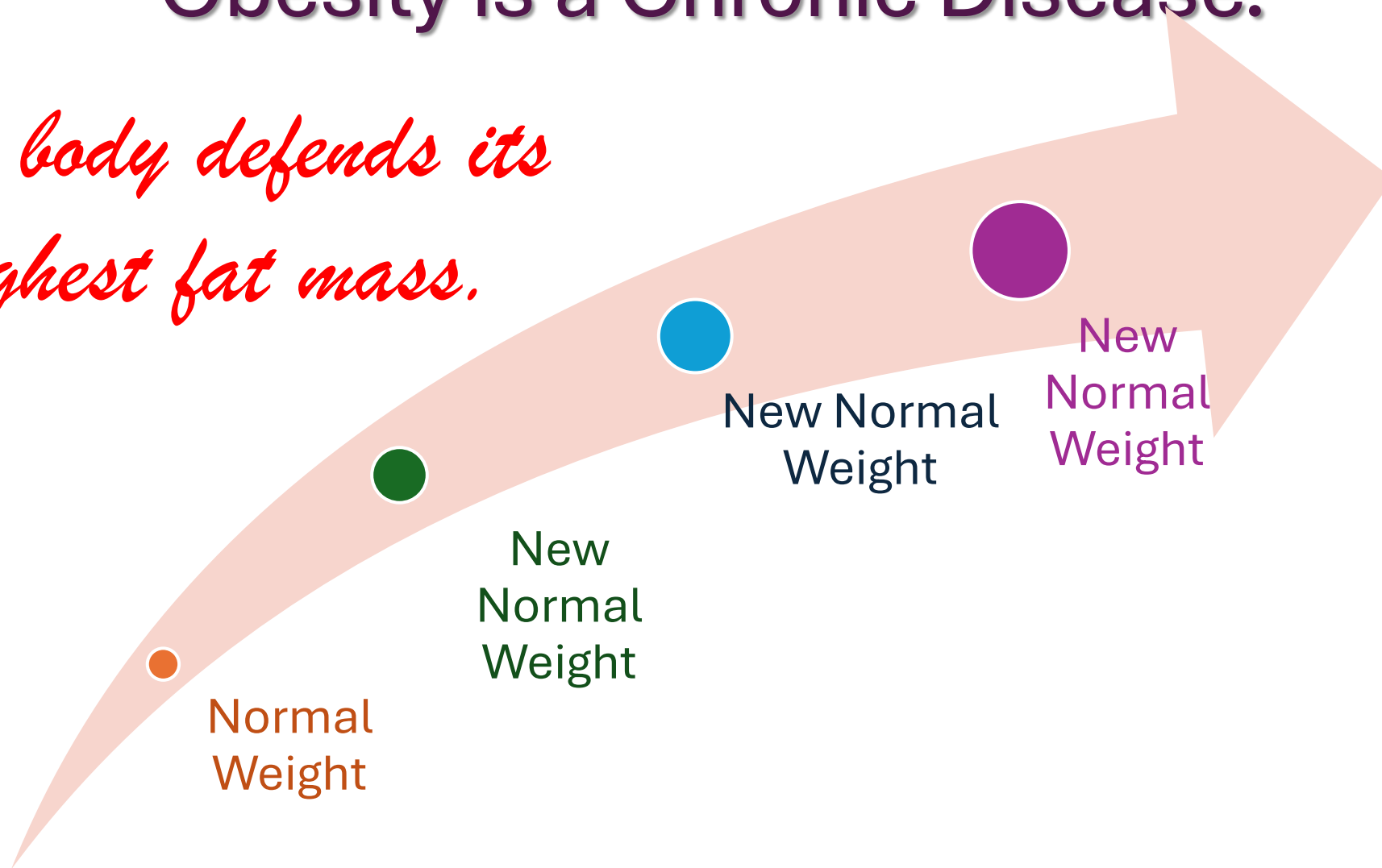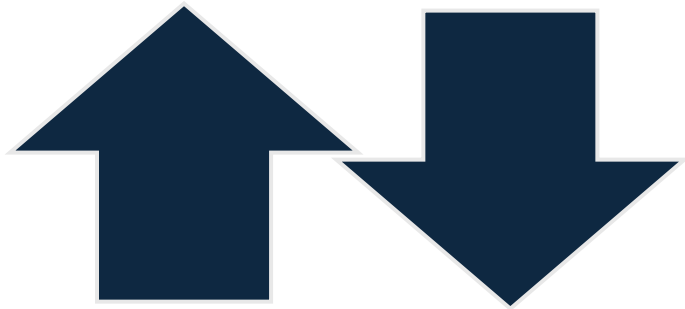
The Body Weight Settling Point is the Reason Obesity is a Chronic Disease.

The body defends its highest fat mass.

Normal Weight

New Normal Weight

New Normal Weight

New Normal Weight

Biologic and Physiologic Adaptations to the Weight Reduced State

- Alterations in appetite regulation[1]
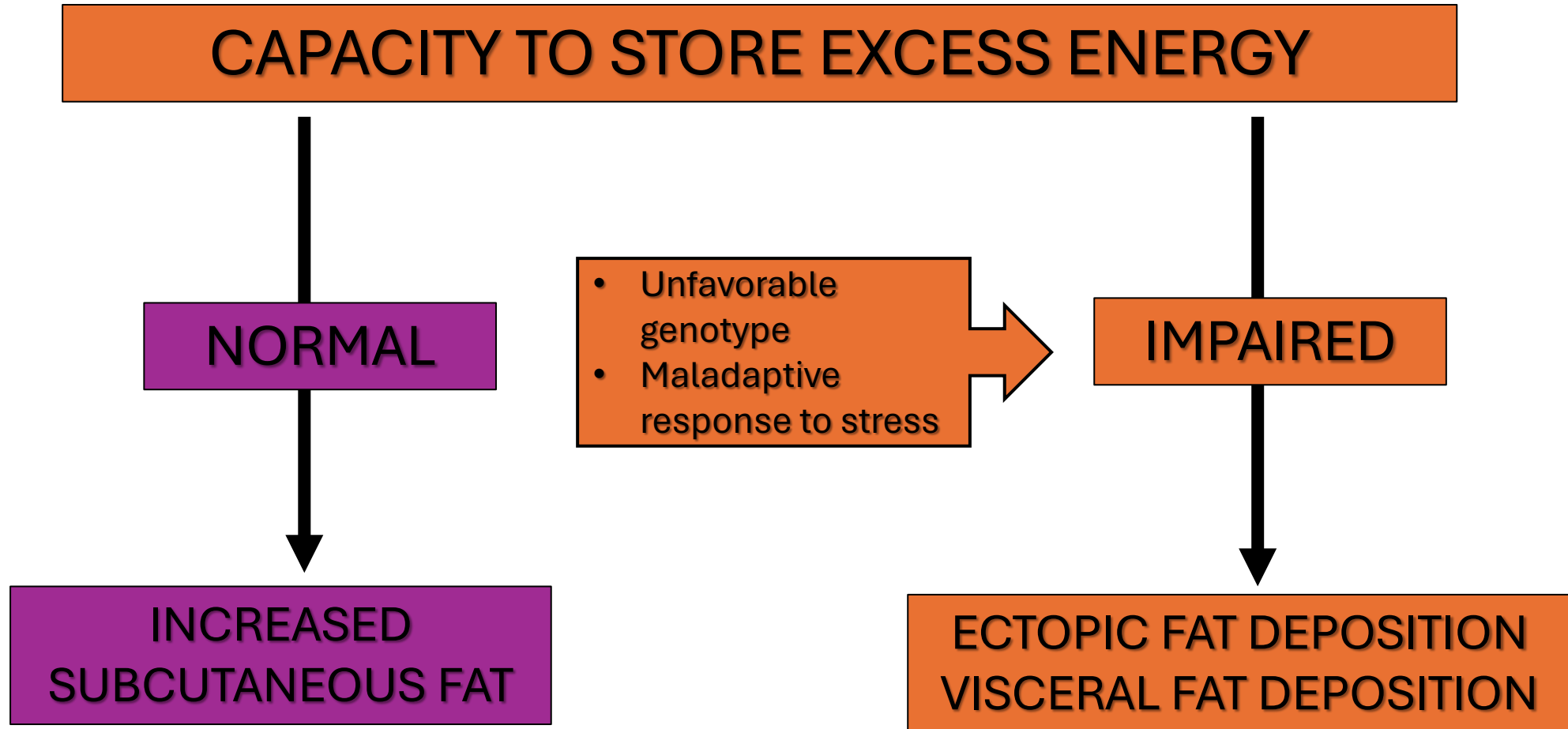 - ↑ Ghrelin (hunger hormone) and ↓ GLP-1, GIP, CCK, PYY, insulin, and amylin (satiety hormones)

- Alterations in energy expenditure[2,3]
  - ↓ Resting energy expenditure
  - ↑ Muscle efficiency
  - Related to ↓ leptin levels

1. Sumithran P et al. *N Engl J Med*. 2011;365:1597-1604. 2. Johannsen DL et al. *J Clin Endocrinol Metab*. 2012;97:2489-2496.
3. Ravussin E et al. *Obesity*. 2016;24:1607-1608.

Pathogenesis of Obesity-Related Morbidity

CAPACITY TO STORE EXCESS ENERGY

NORMAL

- Unfavorable genotype
- Maladaptive response to stress

IMPAIRED

INCREASED SUBCUTANEOUS FAT

ECTOPIC FAT DEPOSITION VISCERAL FAT DEPOSITION

Ibrahim MM. Subcutaneous and visceral adipose tissue: structural and functional differences. Obesity Reviews. 2010 Jan;11(1):11-8.

The first step: how we view our patients and their weight …

- She carries genes that promote gain and her biology resists loss.
- I can't tell her health status by her body size alone.
- If she is healthy now, over her life course, she may develop complications.
- Losing weight requires skills, and its my job to coach skill-building.
- She may need medications to help her achieve and sustain weight loss.

- Stress, mood, medications, life events promote gain.
- Social determinants drive her risk.
- I should ask her if it's a good time to talk about her health and weight.
- She must participate in the decision to undertake weight loss.
- If she succeeds at weight loss, weight regain is expected due to metabolic adaptations.

Thank you!
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