

OBESITY:

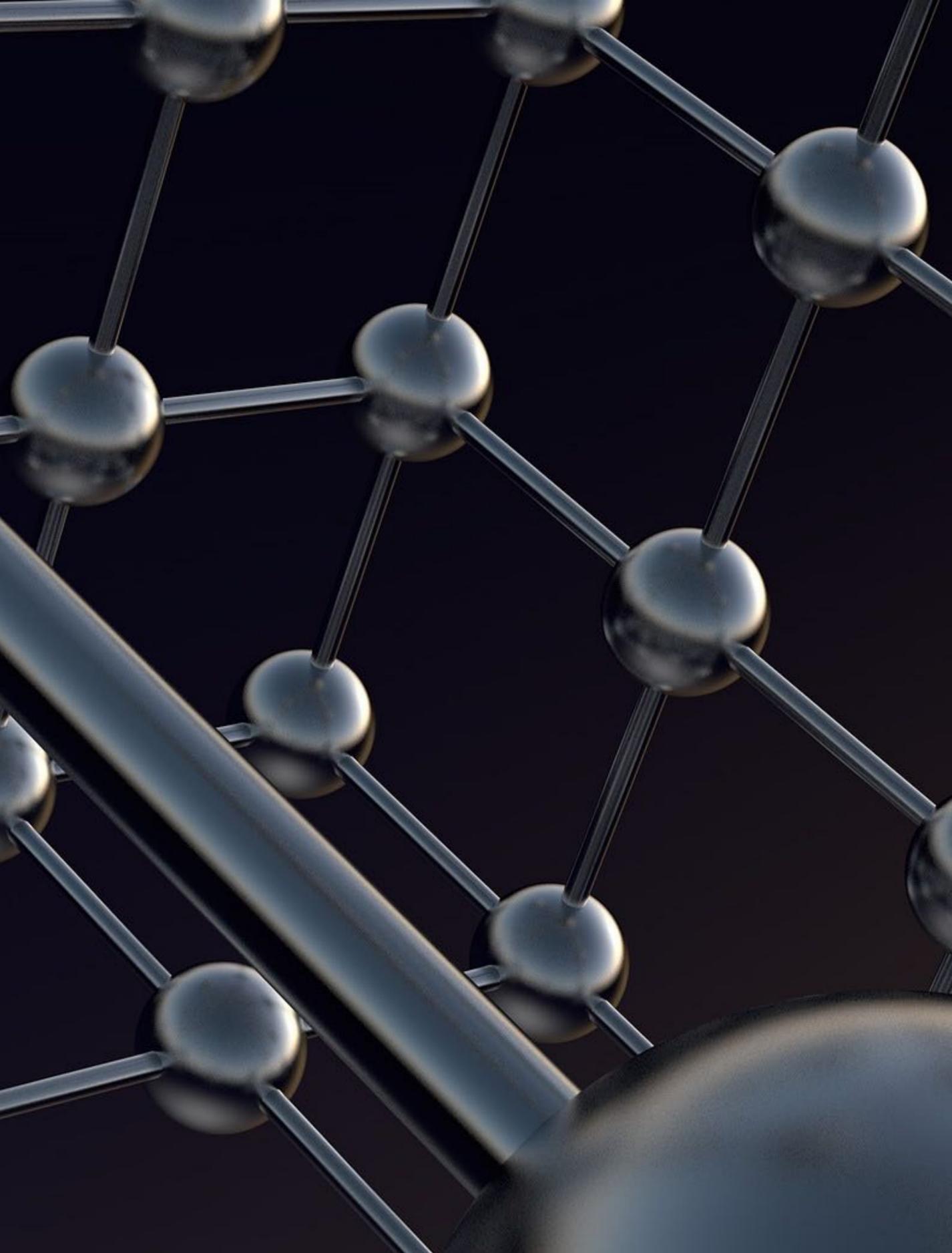
A Lifestyle Medicine Approach

Jan Paolo Dipasupil, MD

DISCLOSURE

nothing to disclose





OUTLINE

- Obesity definition, implications, indicators, and causes
- Lifestyle interventions - nutrition, physical activity and behavior
- Medications - promote weight gain

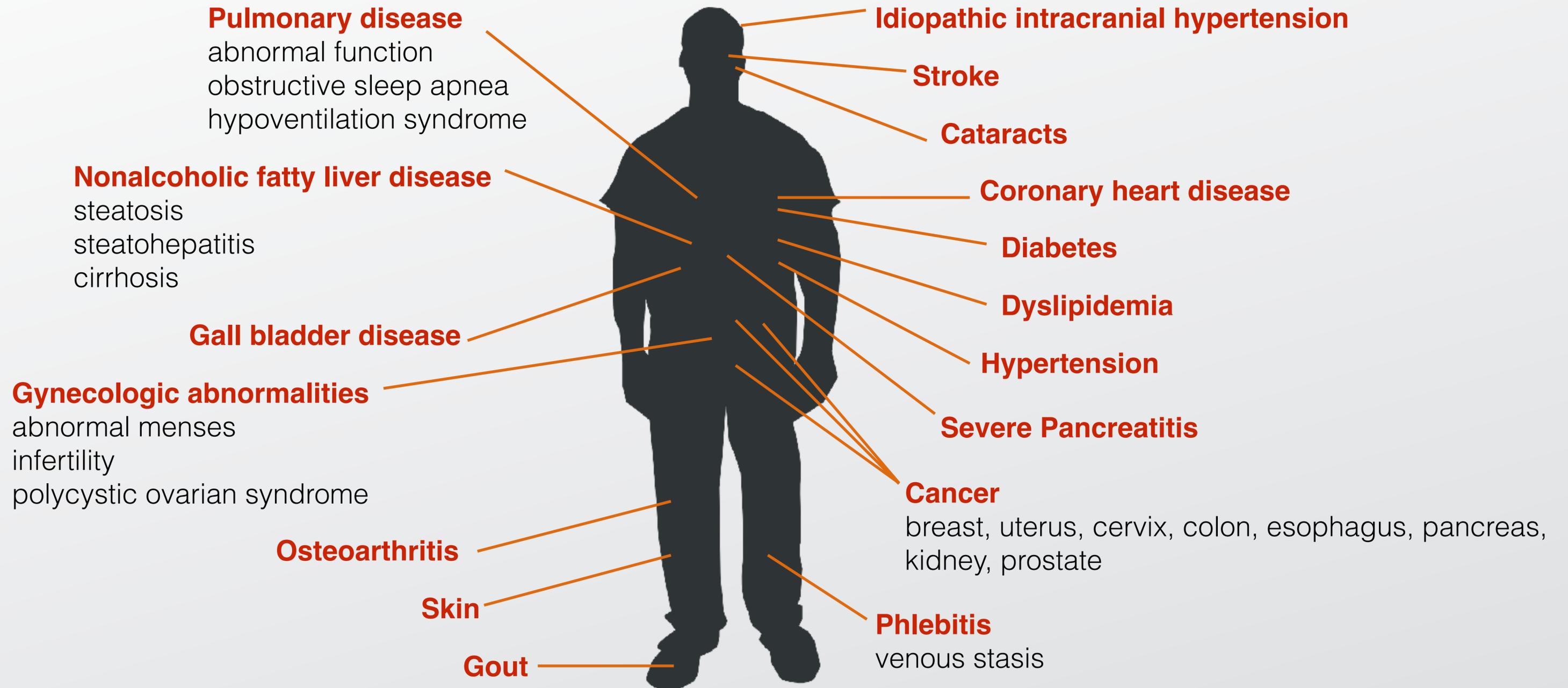
OBESITY

- latin word 'obesitas' meaning **fatness**.
- chronic, relapsing disease characterized as the **excessive accumulation of adipose tissue** that is of sufficient magnitude to impair health.

National Institutes of Health. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, The Evidence Report. 1998



HEALTH IMPLICATIONS



HEALTHY GOAL: 5-10% weight loss



- ↓ Blood pressure
- ↓ Diabetes
- ↓ Bad Cholesterol
- ↓ Stroke
- ↓ Heart disease
- ↓ Back pains

- ↓ Some cancers
- ↓ Inflammation
- ↑ Good Cholesterol
- ↑ Have more energy
- ↑ Sleep better

PEOPLE-FIRST

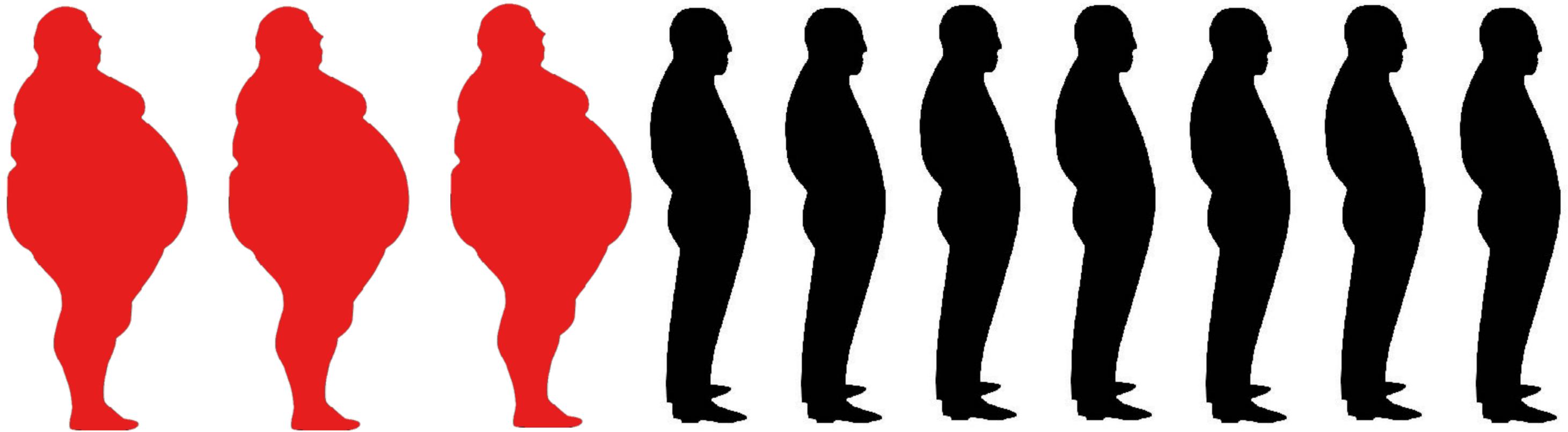
ENCOURAGED TERMS

- Weight
- Unhealthy weight
- Excess weight
- Body mass index
- Affected by obesity

DISCOURAGED TERMS

- Fat
- Obese
- Morbidly obese

PHILIPPINES



3 out of 10 Filipinos were overweight or obese



70%
genes

What causes
obesity?

30%
environment



GENES

Fat mass and
obesity-associated gene (FTO)

1.67x

Individuals with one copy risk allele more likely to be obese than those with no affected alleles and have a mean excess body weight of approximately 3-4 kg.

2.67x

Homozygous individuals with two copies more likely to be obese than those with no copies.



RISK

Childhood obesity

50%

A child with one obese parent has a chance of being obese.

80%

A child with two obese parents has a chance of being obese.



ENVIRONMENT

ALTERED FOOD SUPPLY

STRESS

CULTURAL INFLUENCES

SEDENTARY LIFESTYLE

SOCIAL NETWORKS

Altered Food Supply

- Cheap, energy dense foods high in fat, sugar, and salt
- Unreasonably large portion sizes
- More fast-food chains



Stress

- Independent risk factor for obesity
- direct impact on relevant areas of the brain
- seems to affect food preferences
 - increases the intake of food high in fat, sugar or both.



Cultural Influences

- Dietary celebration of various holidays such as fiesta, Christmas, New Year's eve.
- Social interactions as well as pleasure and punishment
- Media influence



Sedentary Lifestyle

- Known contributor for acquiring and maintaining obesity.
- excessive sitting is associated with obesity & diabetes



Social Networks

Chance of becoming obese ↑ with:

57% having a friend who became obese

40% if a sibling became obese

37% if a spouse became obese

Christakis, NA et al. The Spread of Obesity in a large social network over 32 years.
NEJM 2007





INDICATORS

BODY MASS INDEX (BMI)

most common
generally correlated with metabolic diseases

BODY FAT PERCENTAGES

≥ 25% for men
≥ 32% for women

WAIST CIRCUMFERENCES

≥ 90 cm (35.4 inches) for Asian men
≥ 80 cm (31.5 inches) for Asian women

BMI CLASSIFICATION

CLASSIFICATION	WHO	ASIA-PACIFIC
Underweight	Under 18.5	Under 18.5
Normal	18.5 - 24.9	18.5 - 22.9
Overweight	25 - 29.9	23 - 24.9
Obese Class I	30 - 34.9	25 - 29.9
Obese Class II	35 - 39.9 (Class III > 40)	≥ 30

WPRO (2000): The Steering Committee of the Regional Office for Western Pacific Region of WHO, the International Association for the Study of Obesity and the International Obesity Task Force proposed the appropriateness of the classification of obesity in Asia in 2000.



DIAGNOSTICS

Complete Blood Count (CBC)
Fasting blood glucose
Lipid Profile
ALT & AST
Electrolytes (Potassium, Sodium, Calcium)
Creatinine
Uric Acid
Thyroid stimulating hormone (TSH)

ECG

OLD PARADIGM



DIET
Eat less



EXERCISE
Move more

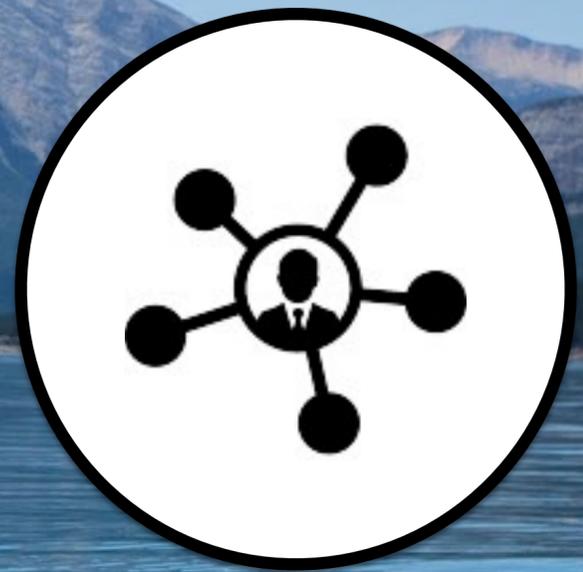
LIFESTYLE INTERVENTIONS



NUTRITION



PHYSICAL ACTIVITY



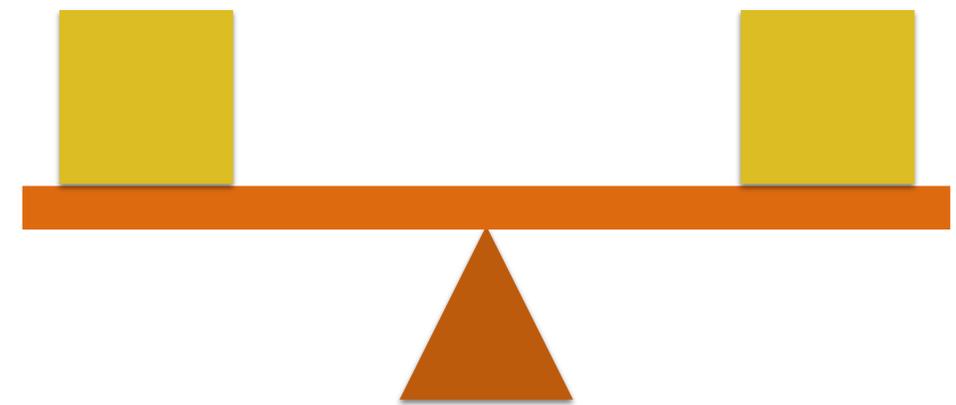
BEHAVIOR

 MEDICATION AS TOOL

1

Nutrition

- Reduced Calorie Intake
- Calorie In \neq Calorie Out



Energy Expenditure

70%

Resting metabolic rate

20%

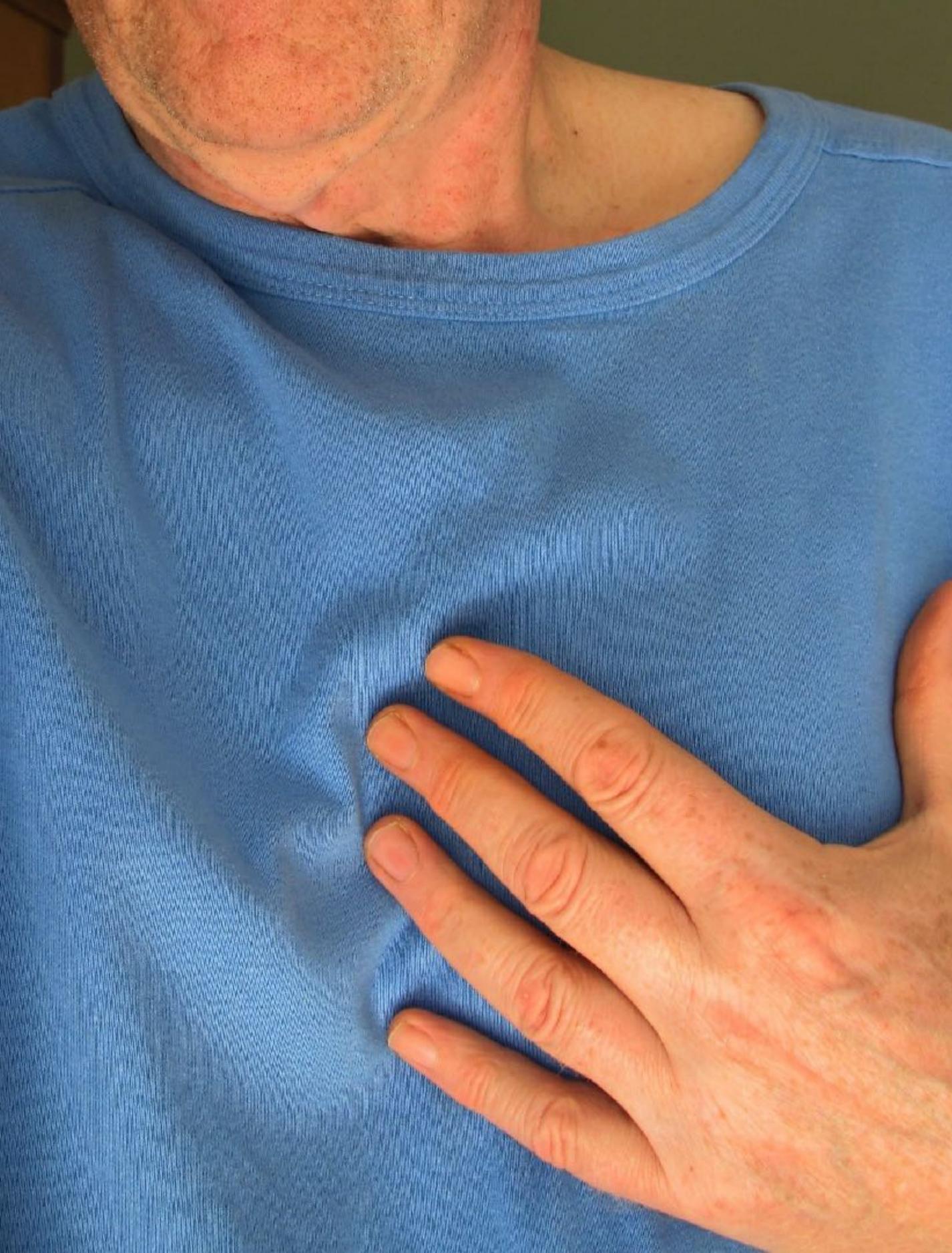
Physical activity

10%

Dietary thermogenesis

TYPES OF DIET

	Content	Health Effects
Atkins	low carb (<50g/d), high fat	↑ HDL ↓ TG, insulin
Plant-based	low fat (10-15 %/d), high carb, no eggs, dairy, no meat	↓CVD, DM
DASH	low fat, high carb (4-5 servings of F/V), low in sweets, meats, snacks, ↑ foods in rich in Ca, Mg, K, fiber	↓blood pressure
Mediterranean	no definition, in ↑F/V, legumes, ↑PUFA (nuts), MUFA (olive oil), ↓red meat, + wine	↓CVD
Ketogenic	low carb, protein, fat from long chain FA	↓ seizures



THE LIFESTYLE HEART TRIAL

Goal: to determine whether comprehensive lifestyle changes affect coronary atherosclerosis after 1 year.

Methodology: Experimental group of 28 patients (low-fat vegetarian diet, stopping smoking, stress management training and moderate exercise) vs Usual-care control group of 20 patients

Result: 82% of experimental group showed regression of coronary artery lesions.

Intensive Lifestyle Intervention

	Experimental group (n=20)	Control group (n=15)
Weight changes	↓ 10.9 kg at 1 yr and sustained ↓ 5.8 kg at 5 years	minimal changes
LDL cholesterol	↓ 40% at 1 year and remained below 20% at 5 years	↓ 1.2% at 1 year and by ↓ 19.3% at 5 years
Angina frequency	↓ 91% at 1 year and ↓ 72% at 5 years	↑ 186% report at 1 year and ↓ 36% at 5 years.
% diameter stenosis (angiographic changes)	↓ 1.75% at 1 year and ↓ 3.1% at 5 years	↑ 2.3% at 1 year and ↑ 11.8 at 5 years
Cardiac events (ie, MI, CABG, Cardiac related hospitalization and death)	25 cardiac events	45 cardiac events

Glycemic Index (GI) Foods

SWAP for Low GI	INSTEAD of High GI
Brown rice , Spaghetti, Macaroni, Linguini	White rice, rice cakes, mashed potato
Multi-grain or Whole wheat bread	White bread, muffin, donut, french fries
Rolled oats or All-bran cereal	corn flakes cereal, pretzels, corn chips
Corn, carrots, lentils, chickpeas, beans, sweet potato, broccoli , cabbage, greens,	potatoes
apples, oranges, strawberries, mangoes, pears, peaches, banana	watermelon
Milk , yogurt	soft drinks

PRINCIPLES OF HEALTHY NUTRITION

ENCOURAGE

- Healthy proteins and fats, vegetables, leafy greens, fruits, nuts, legumes, whole grains
- Complex over simple sugars
- High over low fiber foods
- read labels rather than marketing claims

LIMIT

- Highly processed foods: sweets, junk foods, cakes, cookies, candies, pies, chips
- sugar-sweetened beverages



Physical activity

- *any bodily movement* produced by skeletal muscle that results in energy expenditure.

Exercise

- *planned, structured and repetitive* body movement done to improve or maintain fitness.

What is your level of intensity?

Moderate Physical Activity

- you're working hard enough to raise your heart rate and break into a sweat.
- you're able to talk but unable to sing the words to a song.

Vigorous Physical Activity

- you're breathing hard and fast and your heart rate has increased significantly.
- you won't be able to say more than a few words without pausing for a breath.

MODERATE PHYSICAL ACTIVITY

RECOMMENDATION: 150 mins/week

walking briskly (5 km/h), do household chores,

bicycling on light effort, ballroom dancing,
fishing, golf, yoga

swimming leisurely, badminton, table tennis,
tennis double



VIGOROUS PHYSICAL ACTIVITY

RECOMMENDATION: 75 mins/week

race walking, jogging, running, shoveling sand

aerobic dancing, basketball, bicycling fast,
boxing, swimming hard

tennis singles, jumping rope, hiking, volleyball



GAUGE INTENSITY USING HR

Maximum Heart Rate = $220 - \text{age}$

MODERATE PA

- 50 - 70% of maximum heart rate

Example: 45 y/o male

MHR = 175

HR Range = 88 - 123

VIGOROUS PA

- 70 - 85% of maximum heart rate

Example: 27 y/o male

MHR = 193

HR Range = 135 - 164

EXERCISE PRESCRIPTION

Begin with

Frequency _____ times each week

Intensity _____ intensity (i.e. an intensity where you can talk/sing while active)

Time/duration _____ minutes each day

Type _____ type of exercise (e.g. walking, running, etc)

Name: Juan Dela Cruz **Age/Gender:** 40/M

Address: 58 Roxas St, Manila **Date:** 7/5/17

Rx

Frequency: *three times a week*

Intensity: *you can talk while active*

Time: *30 minutes each day*

Type: *walking briskly to jogging*

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NATIONAL WEIGHT CONTROL REGISTRY



78%

eat breakfast every day

75%

weigh themselves 1x/week

62%

watch < 10 hours of TV/week

90%

exercise about 1 hour/week

94%

↑ physical activity by WALKING

Behavior Treatment

- approach used to help individuals develop a set of skills to achieve a healthier weight.
- facilitated through the use of self-monitoring, and goal setting.
- produces weight loss of 8-10% during the first 6 months of treatment.

3

BEHAVIORAL TREATMENT

SELF-MONITORING

- weekly body weights
- food diaries
- physical activity logs
- pedometer/accelerometer
- changes in clothing size

GOAL SETTING

- give step-by-step instructions
- SMART - Specific, Measurable, Assignable, Realistic, Tim-related
- include overall improvement of physical and mental health

Mindful Eating Principles

Principles	How to Apply
Reduce Eating Rate	Chew thoroughly before swallowing, take smaller bites, pause between bites and/or drink water between bites
Reduce portion sizes	Serve less food, use smaller dishes, order smaller portions at restaurants
Reduce distractions while eating	Turn off television and music, sit at a table, focus on enjoying food
Avoid skipping breakfast	Going long periods (longer than 3-4 hours) without eating and skipping breakfast should be discouraged.
Minimize temptations by not keeping “goodies” at home	store foods in the kitchen cabinet, not on the dining table



MEDICATIONS

> 30

Weight gain
promoting
medications

Medications

Mechanism of Weight gain

Glucocorticoids

prednisone, hydrocortisone, methyl prednisone

act centrally on HPA axis which exerts **anabolic** effect on overall energy homeostasis thru stimulation of reward and feeding behaviors.

Anti-histamines

benadryl, hydroxyzine, cetirizine, fexofenadine

unknown but partially explained by **mild sedative effect** causing reduction in energy expenditure.

Betablockers

propranolol, metoprolol, atenolol

hypothesized that it causes weight gain by reducing daily energy expenditure: dietary thermogenesis and **habitual activity**

Diabetes Medications

insulin, sulfonylureas, thiazolidinediones

insulin: stimulates **lipogenesis**; hypoglycemia -defensive snacking
sulfonylureas: similar to insulin; appetite stimulation & defensive snacking
TZD: ↑ no. of insulin-sensitive small adipocytes & total body water (75%)

Atypical antipsychotics

clozapine, olanzapine, quetiapine, risperidone, aripiprazole

Uncertain. Strong association between **H1 receptor affinity** and anti-psychotic-induced weight gain.

Anti-depressants

trazodone, nortriptyline, amitriptyline
paroxetine, citalopram, escitalopram

appetite increase and **carbohydrate craving** stimulated via serotonergic pathways, changes in serotonin 5-HTC receptor activity.

Anti-epileptics

gabapentin, **valproate**, carbamazepine, oxycarbamazepine

cause **sedation** may affect the exercise capacity of an individual, thus causing a more sedentary lifestyle.

Summary

Obesity is a rising global health problem. It is defined as a chronic relapsing disease characterized as the excessive accumulation of adipose tissue that is of sufficient magnitude to impair health.

The principal components of lifestyle interventions for weight management include: 1) prescription of a moderately reduced-calorie diet; 2) a program of increased physical activity; and 3) the use of behavioral strategies to facilitate adherence to diet and activity recommendations.

There are certain medications that are known to cause weight gain such as antidepressants, steroids, antihistamines, beta blockers, diabetes medications, antipsychotics and other psychotropic drugs.



Obesity and Lifestyle Medicine



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