

# OBESITY:

## A Lifestyle Medicine Approach

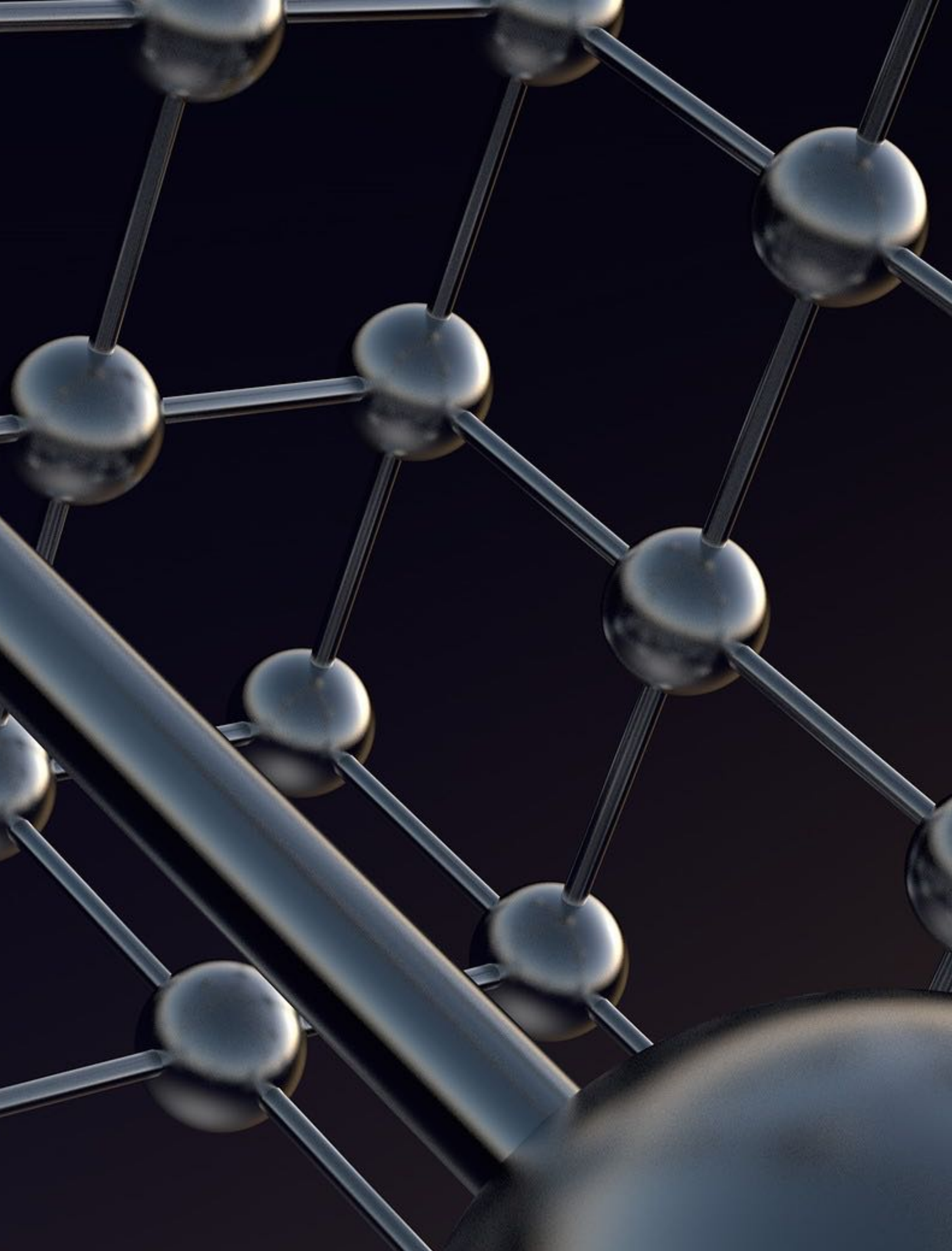
Jan Paolo Dipasupil, MD



# 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.

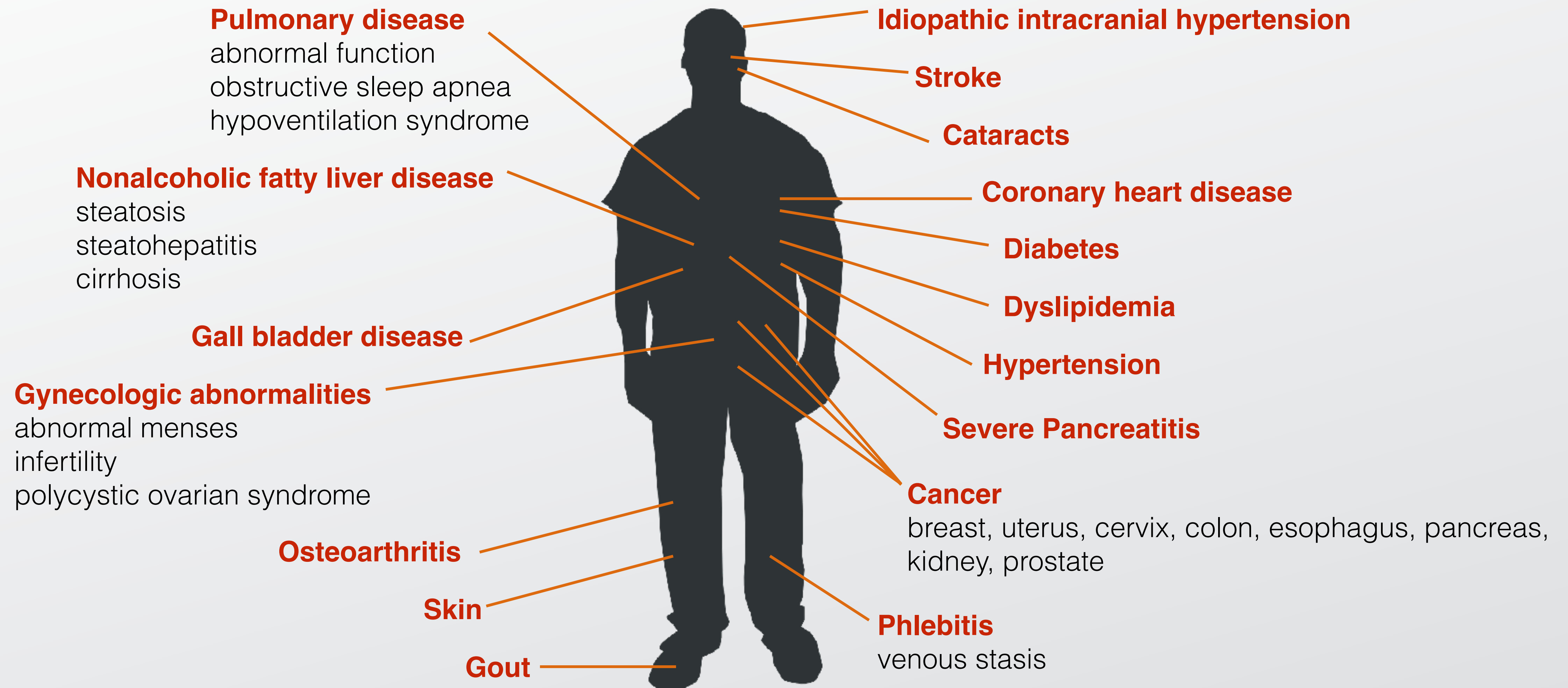
National Institutes of Health. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, The Evidence Report. 1998





# HEALTH IMPLICATIONS

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# 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

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## ENCOURAGED TERMS

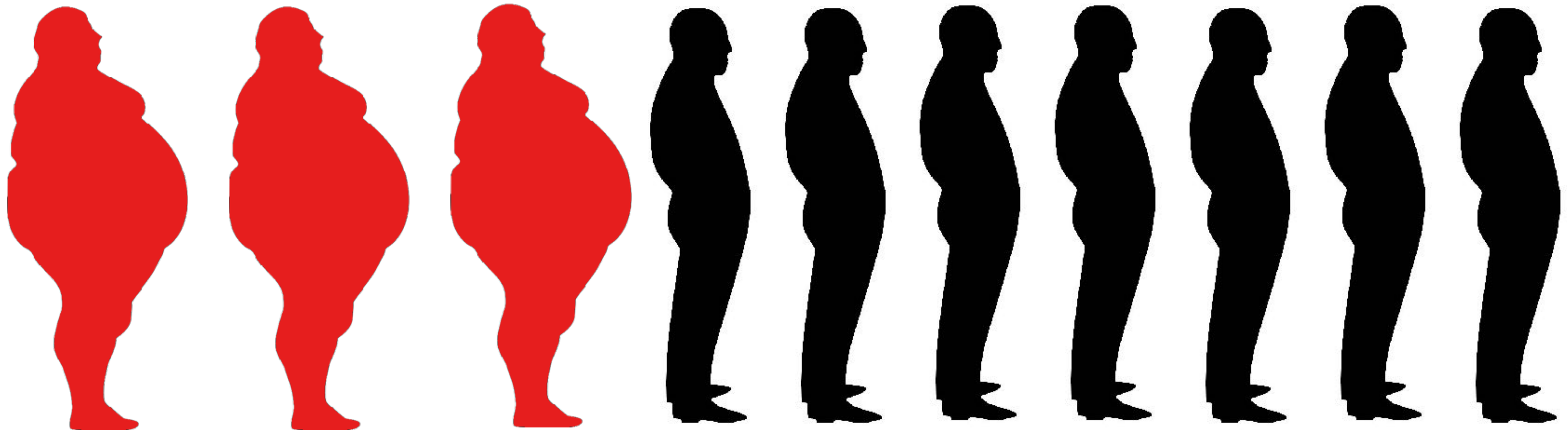
- Weight
- Unhealthy weight
- Excess weight
- Body mass index
- Affected by obesity

## 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

$\geq 25\%$  for men  
 $\geq 32\%$  for women

## WAIST CIRCUMFERENCES

$\geq 90$  cm (35.4 inches) for Asian men  
 $\geq 80$  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



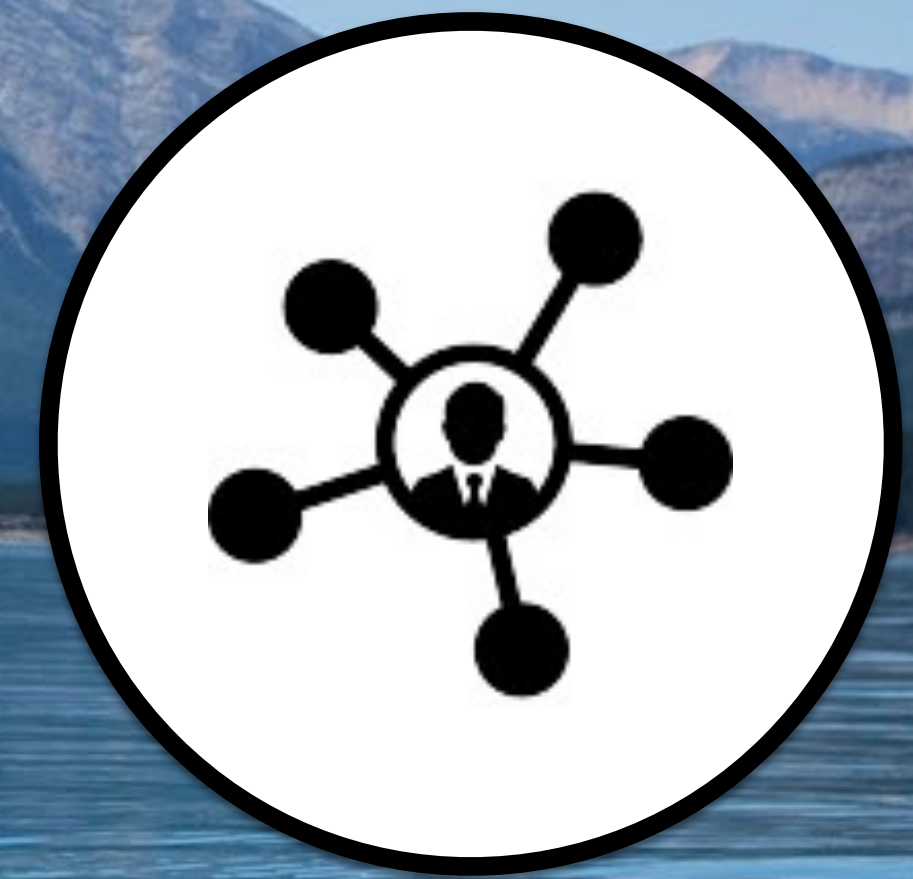
# LIFESTYLE INTERVENTIONS



NUTRITION



PHYSICAL ACTIVITY



BEHAVIOR



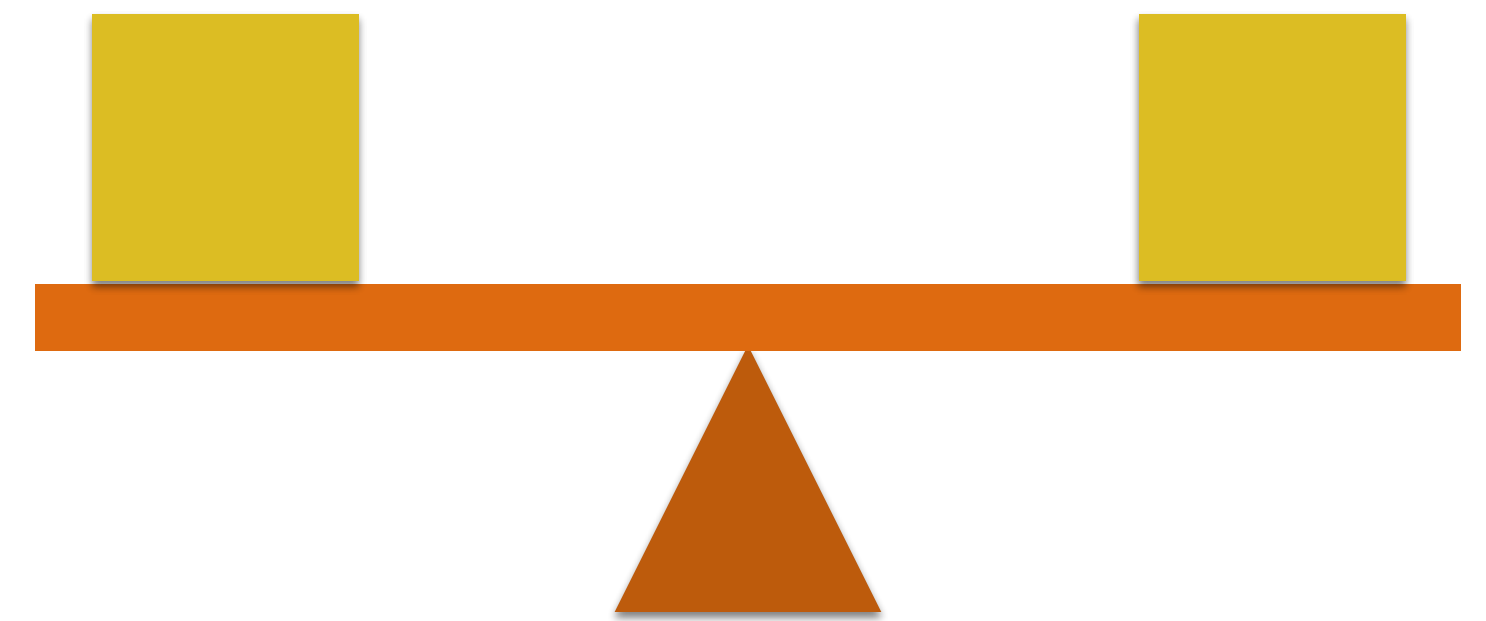
MEDICATION AS TOOL



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# 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
<b>Atkins</b>	low carb (<50g/d), high fat	↑ HDL ↓ TG, insulin
<b>Plant-based</b>	low fat (10-15 %/d), high carb, no eggs, dairy, no meat	↓CVD, DM
<b>DASH</b>	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
<b>Mediterranean</b>	no definition, in ↑F/V, legumes, ↑PUFA (nuts), MUFA (olive oil), ↓red meat, + wine	↓CVD
<b>Ketogenic</b>	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	↓ <b>10.9 kg</b> at 1 yr and sustained ↓ <b>5.8 kg</b> 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
<b>Brown rice</b> , Spaghetti, Macaroni, Linguini	White rice, rice cakes, mashed potato
Multi-grain or <b>Whole wheat</b> bread	White bread, muffin, donut, french fries
<b>Rolled oats</b> or All-bran cereal	corn flakes cereal, pretzels, corn chips
Corn, carrots, lentils, chickpeas, beans, sweet potato, <b>broccoli</b> , cabbage, greens,	potatoes
apples, oranges, strawberries, mangoes, pears, peaches, <b>banana</b>	watermelon
<b>Milk</b> , yogurt	soft drinks



# PRINCIPLES OF HEALTHY NUTRITION

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## 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?

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## **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

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**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

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**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

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**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

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## Begin with

**F**requency \_\_\_\_\_ times each week

**I**ntensity \_\_\_\_\_ intensity (i.e. an intensity where you can talk/sing while active)

**T**ime/duration \_\_\_\_\_ minutes each day

**T**ype \_\_\_\_\_ 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*

*Jan Dipasupil*  
\_\_\_\_\_, MD



# 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.

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# BEHAVIORAL TREATMENT

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





# MEDICATIONS

>30

Weight gain  
promoting  
medications



Medications	Mechanism of Weight gain
<b><u>Glucocorticoids</u></b> prednisone, hydrocortisone, methyl prednisone	act centrally on HPA axis which exerts <b>anabolic</b> effect on overall energy homeostasis thru stimulation of reward and feeding behaviors.
<b><u>Anti-histamines</u></b> benadryl, hydroxyzine, cetirizine, fexofenadine	unknown but partially explained by <b>mild sedative effect</b> causing reduction in energy expenditure.
<b><u>Betablockers</u></b> propanolol, metoprolol, atenolol	hypothesized that it causes weight gain by reducing daily energy expenditure: dietary thermogenesis and <b>habitual activity</b>
<b><u>Diabetes Medications</u></b> insulin, sulfonylureas, thiazolidinediones	insulin: stimulates <b>lipogenesis</b> ; hypoglycemia -defensive snacking sulfonylureas: similar to insulin; appetite stimulation & defensive snacking TZD: ↑ no. of insulin-sensitive small adipocytes & total body water (75%)
<b><u>Atypical antipsychotics</u></b> <b>clozapine</b> , olanzapine, quetiapine, risperidone, aripiprazole	Uncertain. Strong association between <b>H1 receptor affinity</b> and anti-psychotic-induced weight gain.
<b><u>Anti-depressants</u></b> trazodone, nortriptyline, amitriptyline <b>paroxetine</b> , citalopram, escitalopram	appetite increase and <b>carbohydrate craving</b> stimulated via serotogenic pathways, changes in serotonin 5-HTC receptor activity.
<b><u>Anti-epileptics</u></b> gabapentin, <b>valproate</b> , carbamazepine, oxycarbamazepine	cause <b>sedation</b> may affect the exercise capacity of an individual, thus causing a more sedentary lifestyle.



# Summary

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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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