



# Prevention and Management of Chronic Diseases

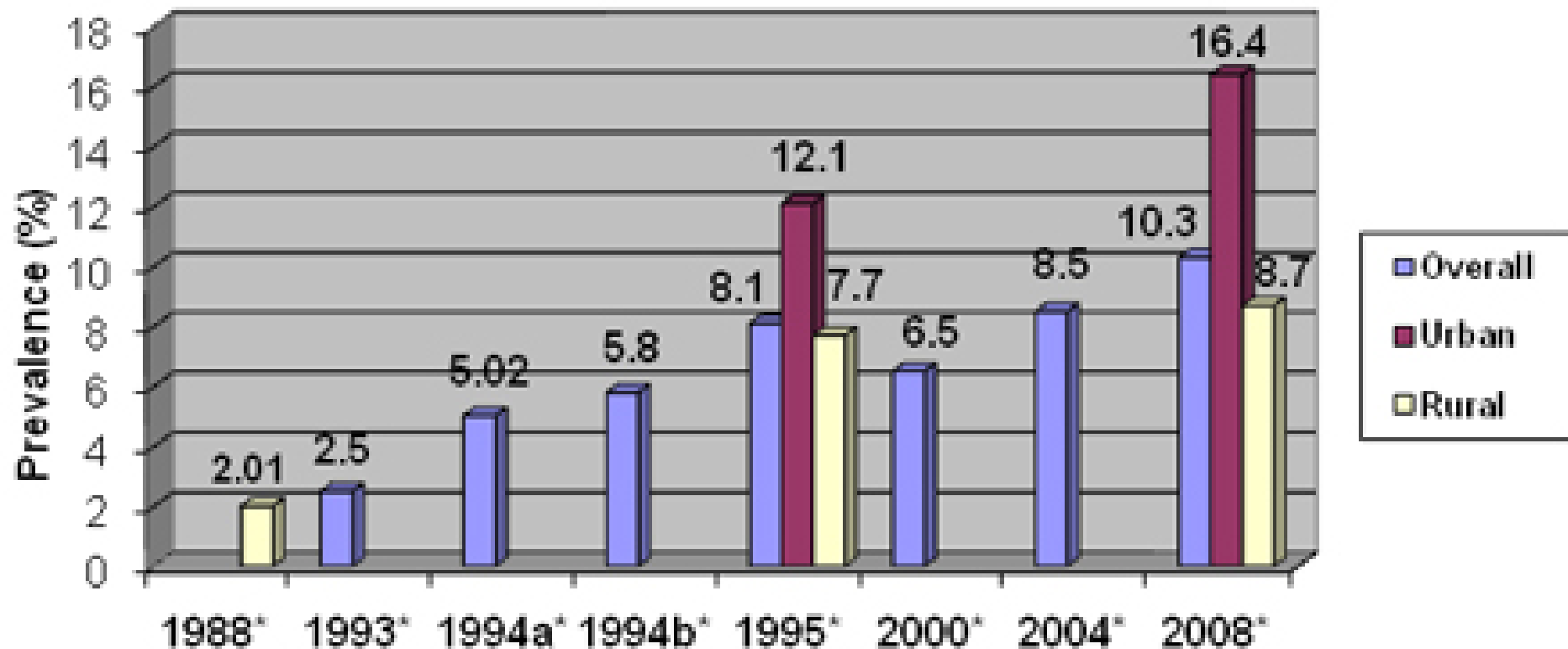
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# Is it time to act?

- Malnutrition and infectious diseases were prominent earlier
- Prevalence and incident rates of chronic diseases increase
- Age of onset of chronic diseases decreases
- Mortality and disability Increase
- Low quality life
- High health cost
- Preventable

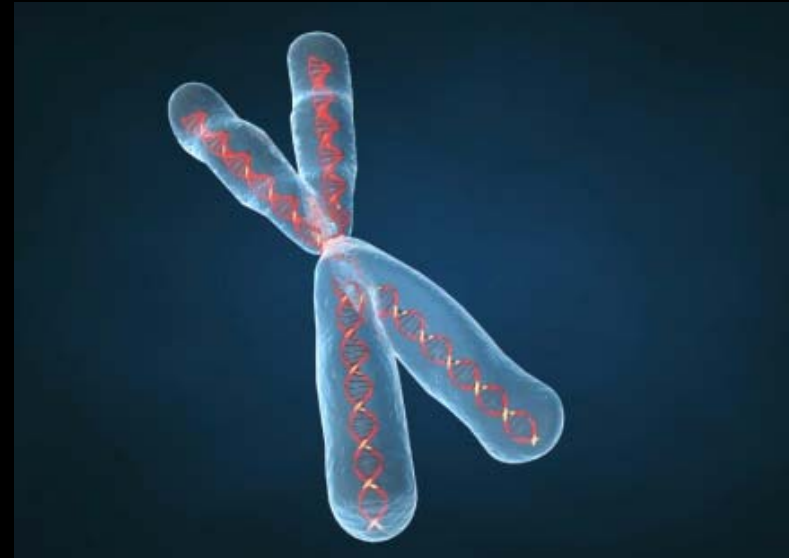
## Prevalence of Diabetes in Sri Lanka



# Major causes

- Genetics
- Diet
- Physical activity
- Stress

Body composition

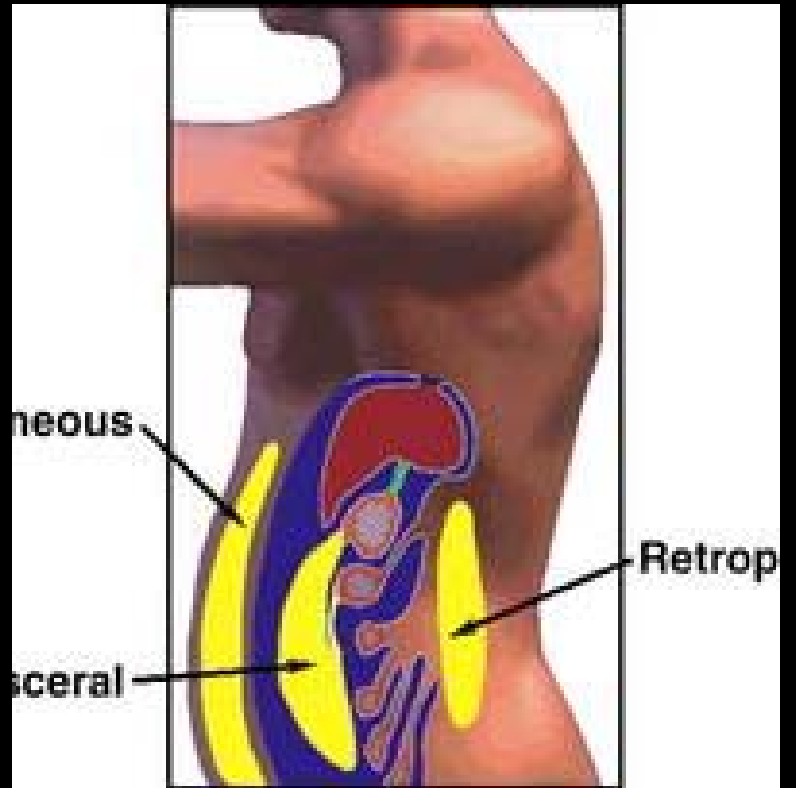


# Genetics

- Bad genes can be Inherited or by mutation
- Hard to change
- However most of the time genetics doesn't come up without a trigger
- Fate of bad genes can be changed by lifestyle factors

# Body composition and its relation to chronic diseases

- Body composed of water, protein fat and minerals
- Excess energy stored as fat
- Excessive fat stores interfere metabolism and increase the risk for chronic diseases
- BMI is a good indicator for fatness
- In sedentary and moderately active persons BMI is proportional to fatness
- For Asians healthy BMI range is 18-23 not 18-25

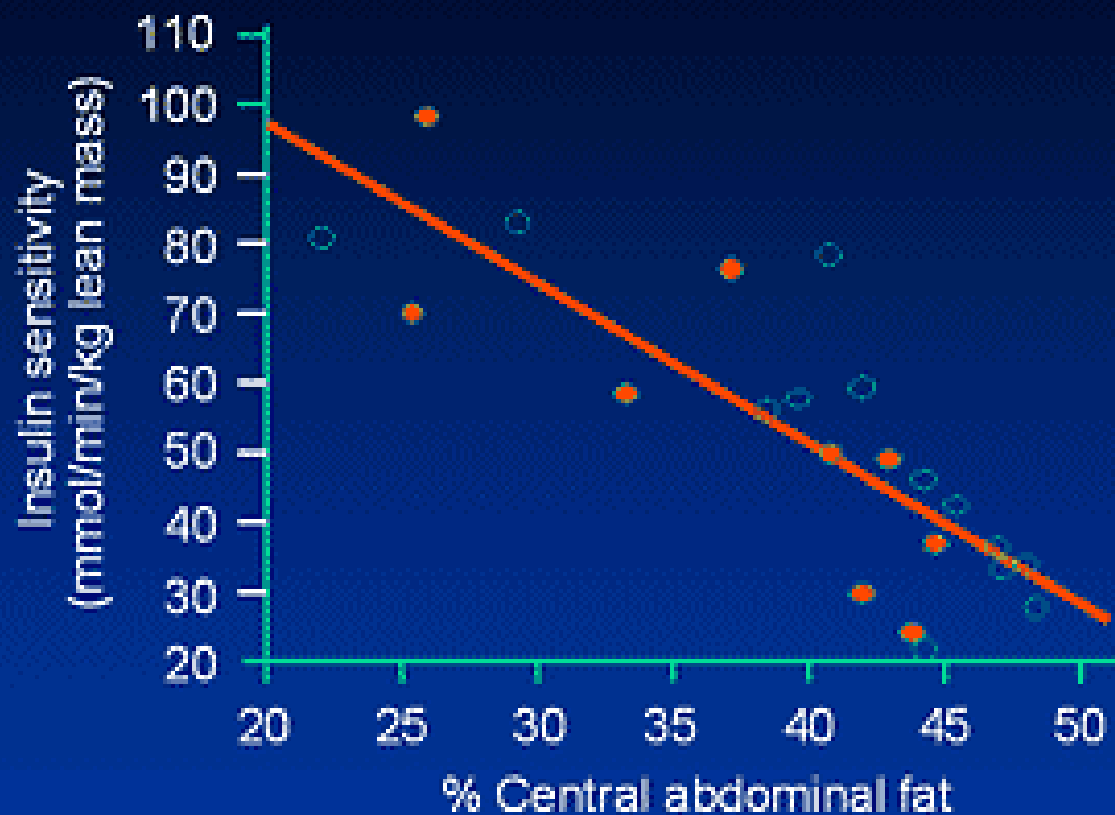


# Body composition and its relation to chronic diseases

- BMI =  $\frac{\text{Body weight in kg}}{(\text{height in meters})^2}$
- Central fat more risky than peripheral fat
- Males store fat around organs and females under the skin
- Muscle mass is beneficial
- Sportsmen and highly physically active persons may have higher BMI due to high muscles mass and pose no risk

# Association Between Visceral Fat and Insulin Resistance

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Carey DG et al. *Diabetes* 1998;45:633-638.

# Diet

- If sedentary and BMI is high or already have a chronic disease is diet has to be changed
- Restrict saturated fats (butter, animal fat)
- Replace with unsaturated fats (margarine, canola oil)
- Do not totally cut down fat
- Restrict red meat and alcohol

# Dietary guidelines

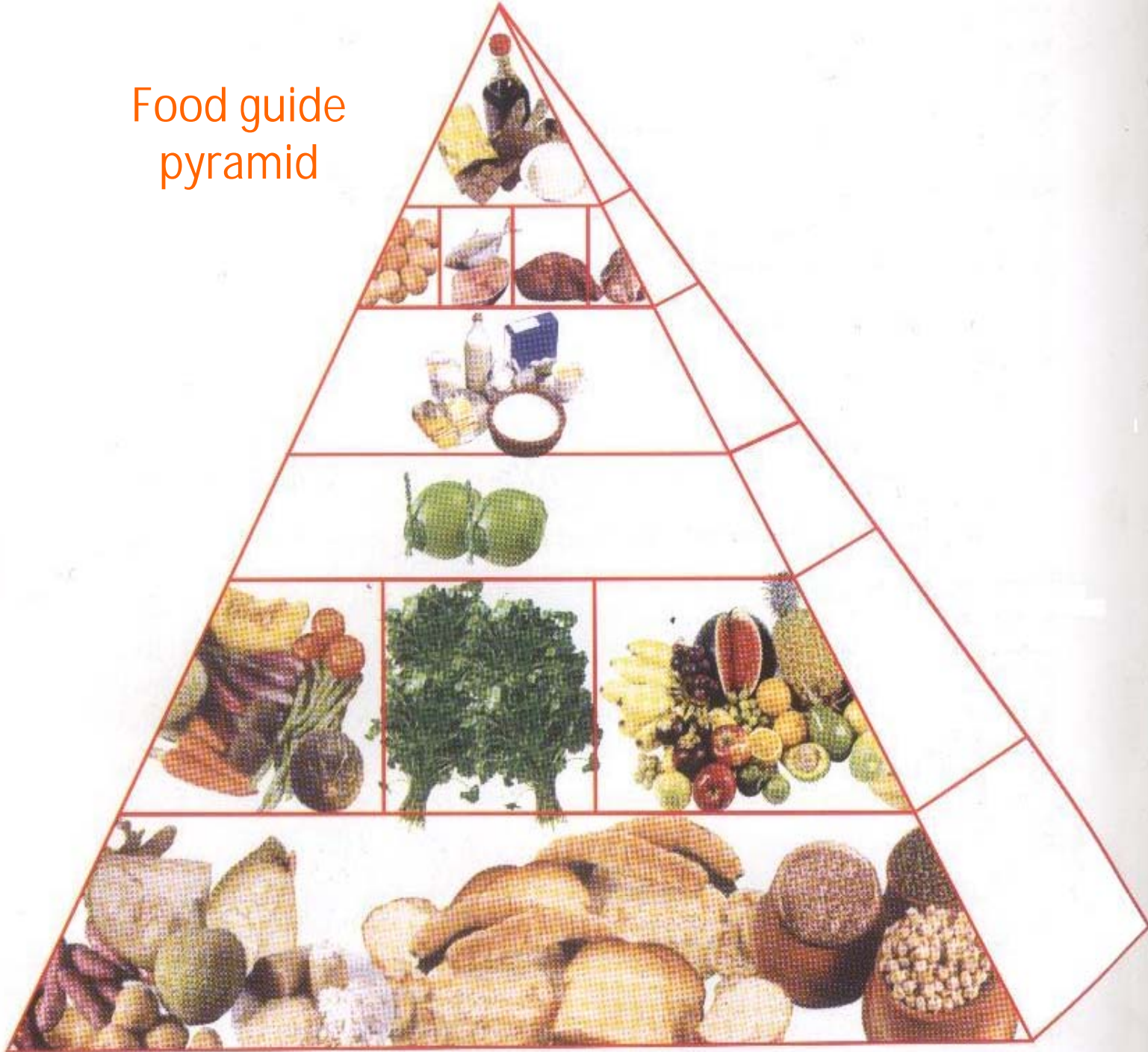
- Alcohol- consume in moderation (if regularly use)
- Salt intake ?
- Consume food with high dietary fiber and restrict refined foods and added sugar
- Eat fresh fruits and vegetables
- Include food with health benefits –green tea, yoghurt

# Diet

Macronutrient	Kcal/g
Carbohydrate	4
Protein	4
Fat	9
Alcohol	7
Artificial sweeteners	negligible

Food	Kcal/g
Leeks/carrot/cabbage	0.2
Mango/milk (plain)	0.6
Rice	1.3
Bread	2.5
Sausages	3.2
Margarine	7.2
Cooking oils	9

Food guide pyramid



# Physical Activity

- Sedentary lifestyle strongly associated with chronic diseases
- It changes body composition by reducing muscle mass and increasing fat mass
- Physical activities/ exercises provide
  - Strong muscles and bones
  - Increase muscle and bone mass
  - Facilitate circulation
  - Increase HDL cholesterol and decrease LDL and TAG

# Physical Activity

- Facilitate uptake of glucose by cells and increase insulin sensitivity.
- Reduce stress
- Attractive figure
- Enhance total health
- Increase basal metabolic rate



# Physical activity

- Exercise at least 20 min per day and 3 days per week
- Spot exercises- Can you reduce 4 inches by 4 minute workout for 7 days?
  - Spot exercises- may strengthen muscles but ineffective in fat reduction.
  - Do both aerobic and anaerobic exercise

# EXERCISE ZONES

## AGE

20 25 30 35 40 45 50 55 65 70

100% 200 195 190 185 180 175 170 165 155 150

**VO2 Max (Maximum effort)**

90% 180 176 171 167 162 158 153 149 140 135

**Anaerobic (Hardcore training)**

80% 160 156 152 148 144 140 136 132 124 120

**Aerobic (Cardio training / Endurance)**

70% 140 137 133 130 126 123 119 116 109 105

**Weight control (Fitness / Fat burn)**

60% 120 117 114 111 108 105 102 99 93 90

**Moderate activity (Maintenance / Warm up)**

50% 100 98 95 93 90 88 85 83 78 75

**BEATS PER MINUTE**

# Stress

- Many chemicals are produced during stress and interfere with the metabolism
- Do one work at a time
- Try to complete not to compete
- Relax and spend your life