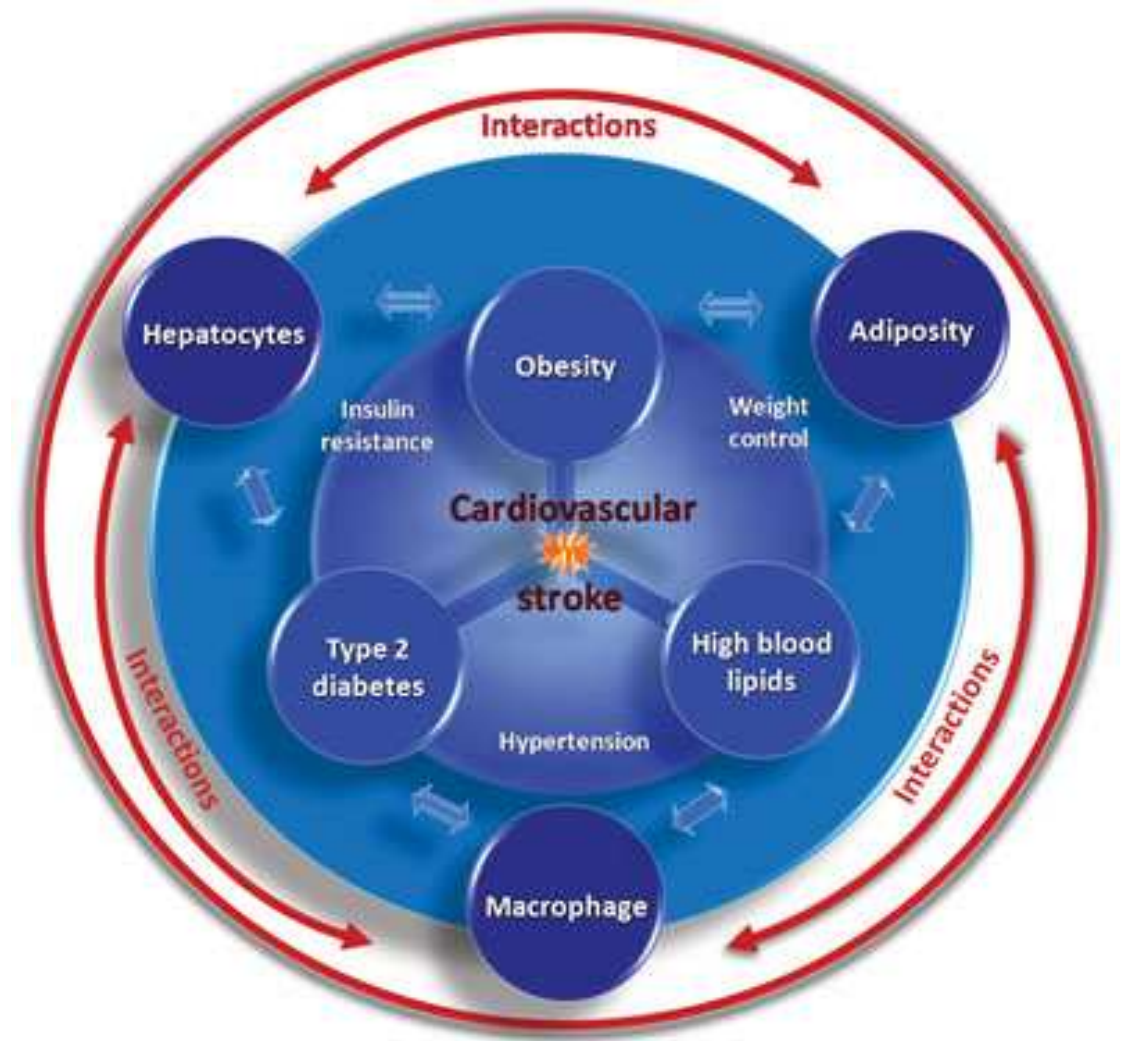
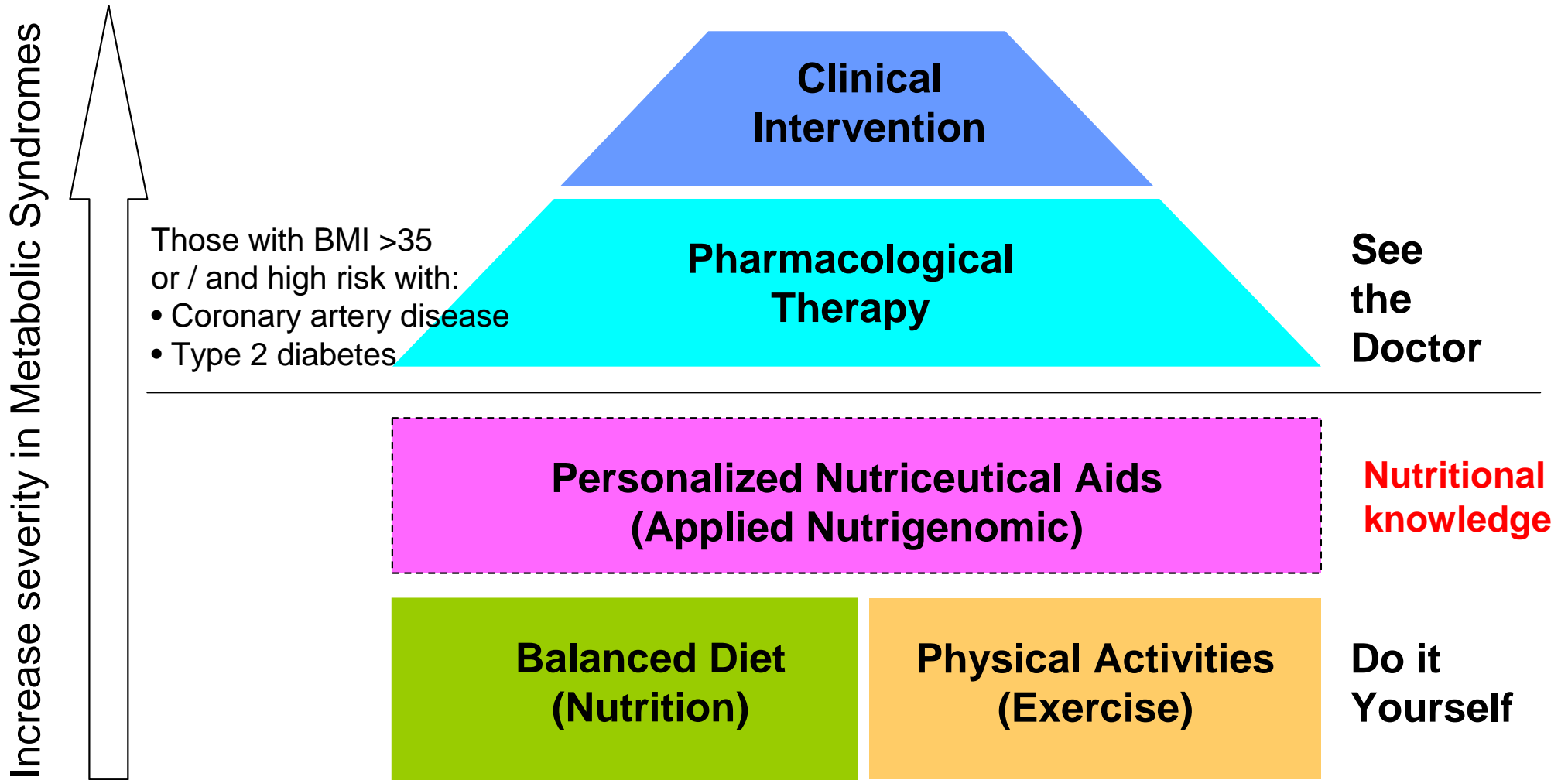


Metabolic Syndrome: Modern Nutritional Therapy



Modern Solution Model for Obesity & Metabolic Syndromes



The Metabolic Syndrome & Obesity Treatment Pyramid

Exercise

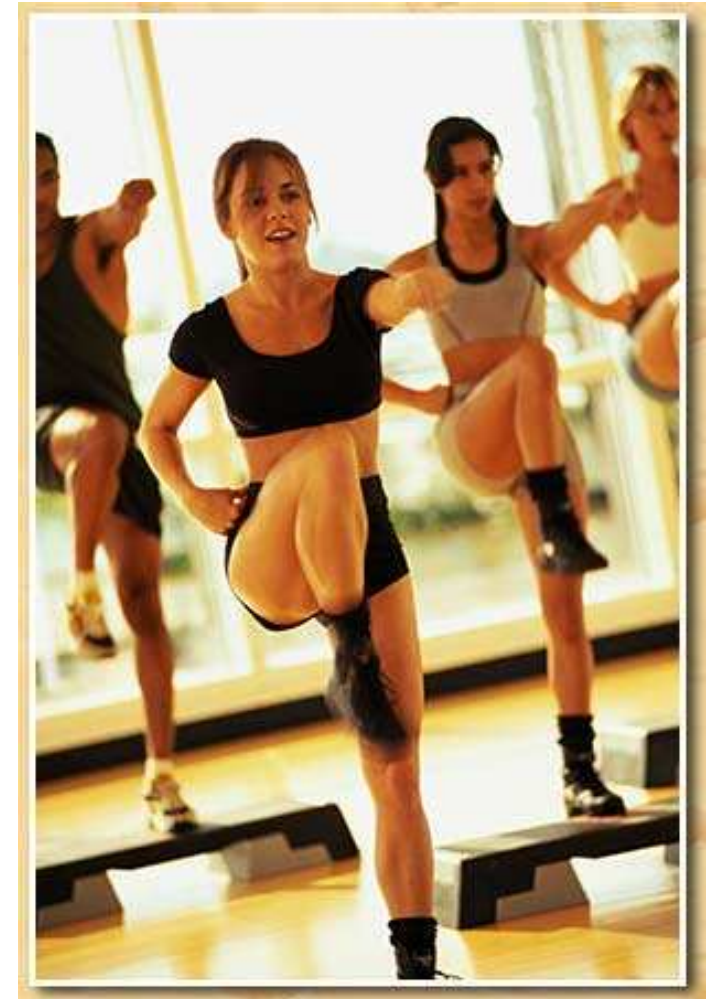
An essential tool in treating metabolic syndrome

Maintain a sustainable program:

- 30 minutes regime each time
- 3-5 times a week
- Adopt interval training regime
- Expose to Sunlight & fresh air

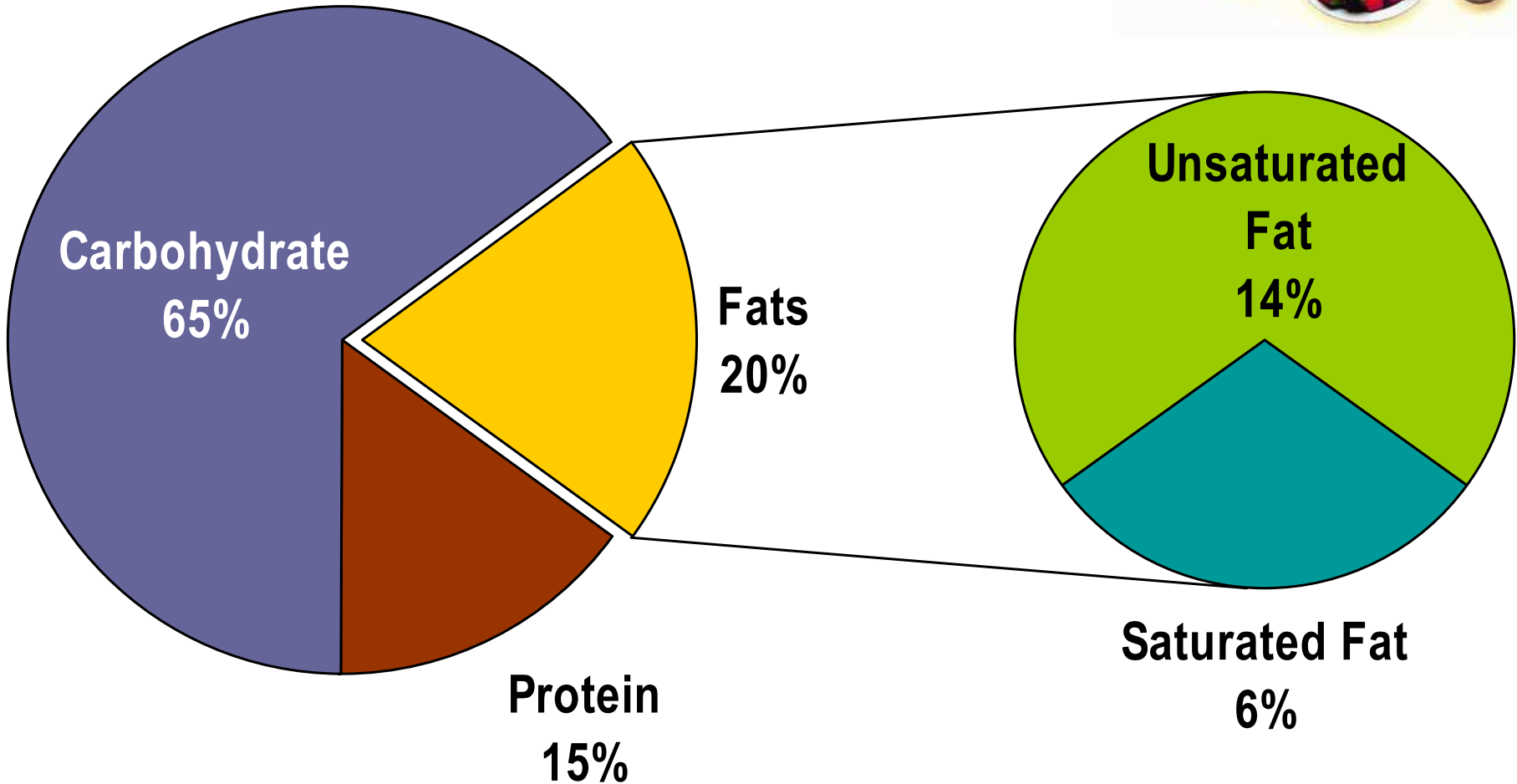
Beneficial effect:

- Blood pressure**
- Cholesterol levels**
- Insulin sensitivity**
- Weight loss**
- Build muscle & endurance
- Detoxification (sweating)
- Strengthen Immunity



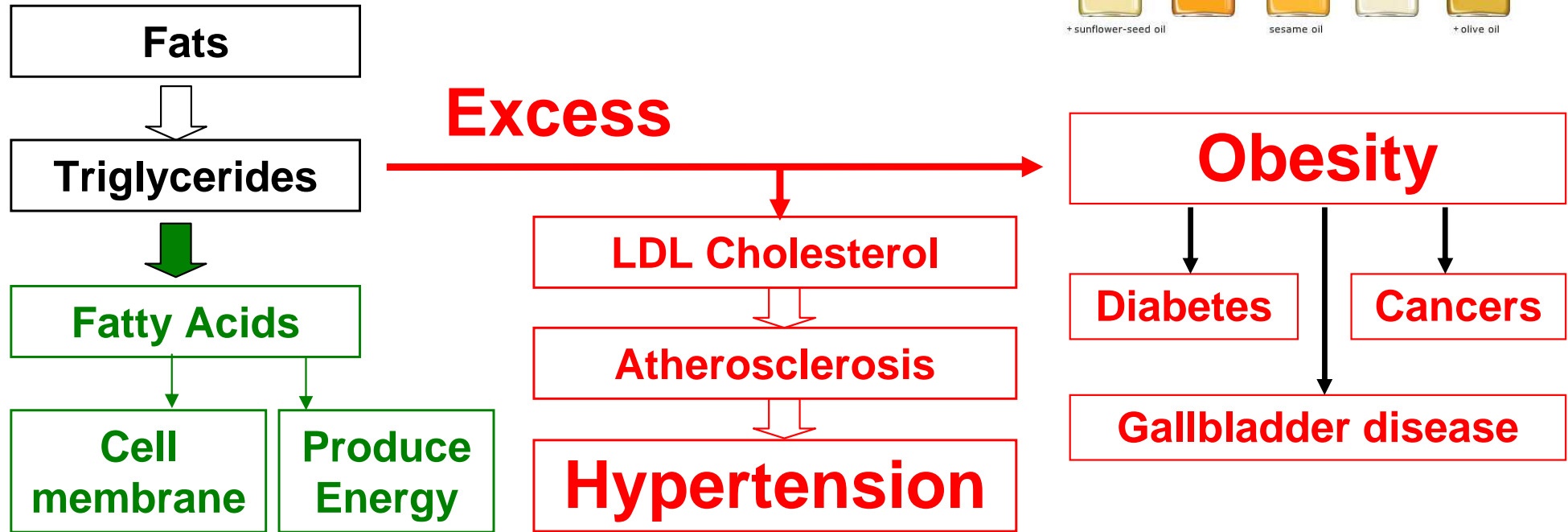
Nutrition

Balanced Diet ?



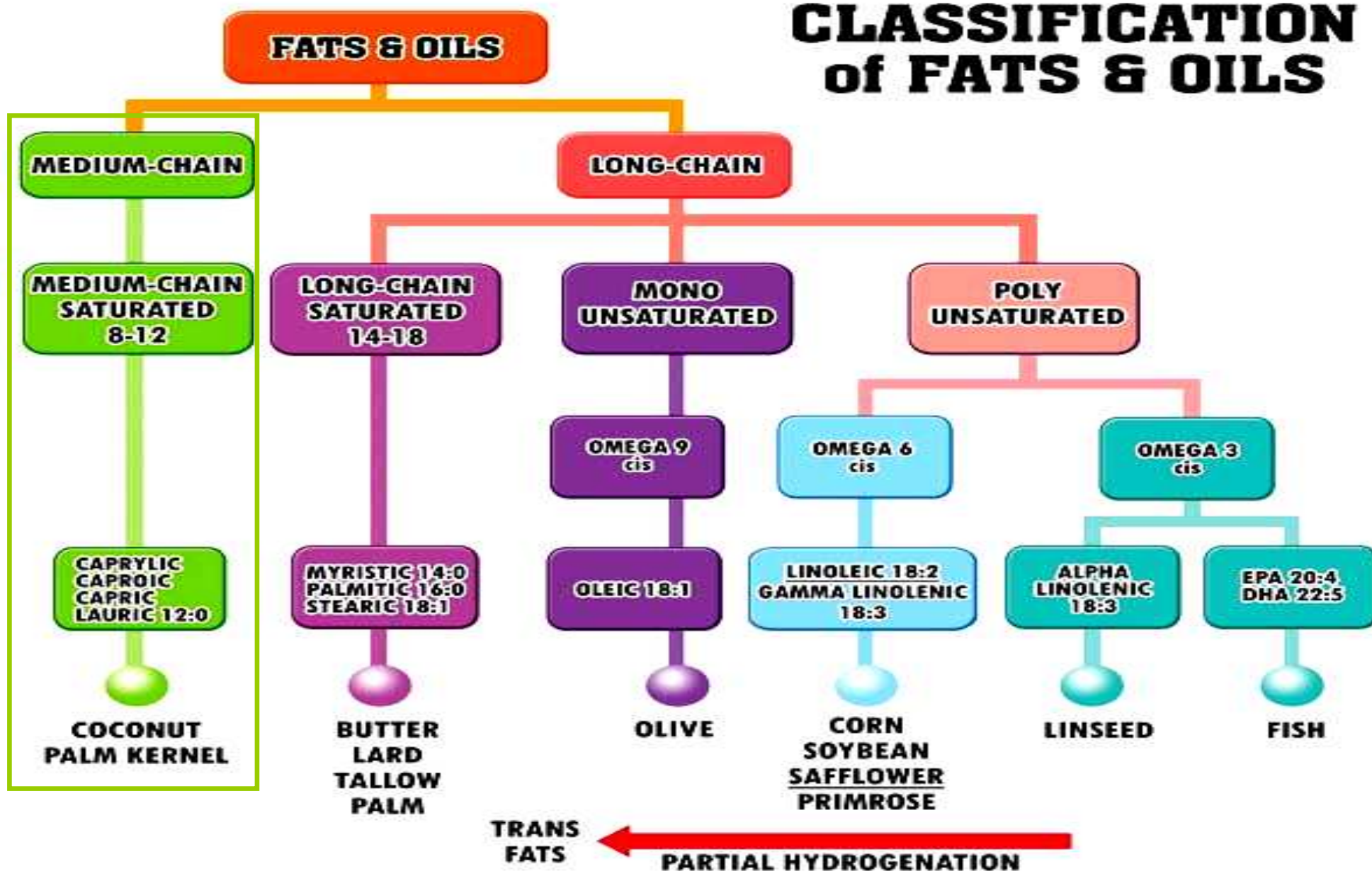
% of total calories intake

Fats



Excessive exposure to dietary fats is an important factor in the **initiation** of **obesity** & **metabolic syndrome** associated pathologies

CLASSIFICATION of FATS & OILS



Coconut oil contain: **medium chain triglycerides (MCTs)**

Helps prevent heart disease, stroke, and hardening of the arteries

MCT results in a higher resting metabolic rate (RMR) is suggested in the treatment of weight reduction.

Dietary Fats 101

Types of Fats	Class of Fat	Other Names	Effect LDL	Effect HDL	Effect on BP	Insulin sensitivity	Other effects
Essential	Poly unsaturated	Omega 3	▼	▲	▼	Improve	Note A
Essential	Poly unsaturated	Omega 6	▼	—	—	Improve	Excess - inflammation & allergy
Non Essential	Mono unsaturated		—	—	—	If < 38% Improve	
Non Essential	Medium Chain Saturated	Medium Chain Triglycerides	▼	—	▼	—	Coconut Oil
Non Essential	Long Chain Saturated		▲	—	▲	Worsen	Fatty Liver
Non Essential	Ring Saturated	Cholesterol	▲	—	▲	Worsen	Fatty Liver
Non Essential	Hydrogenated	Transfat	▲	▼	▲	Worsen	Fatty Liver

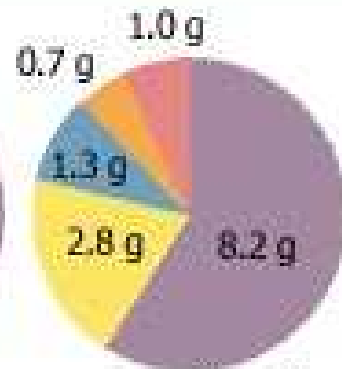
A = Omega-3 is **anti inflammation, anti cancer** & helps in various **mental illnesses**: depression, attention-deficit, hyperactivity & dementia.

Fat Distribution in Common Cooking Oils

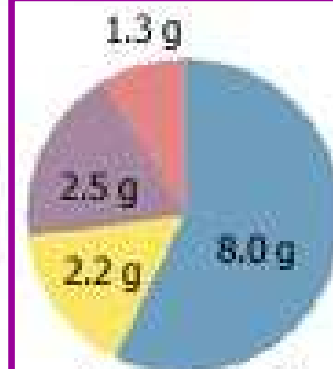
- Saturated Fat
- Monounsaturated Fat
- Other
- Polyunsaturated Fats:
 - Linoleic Acid
 - Alpha-Linoleic Acid



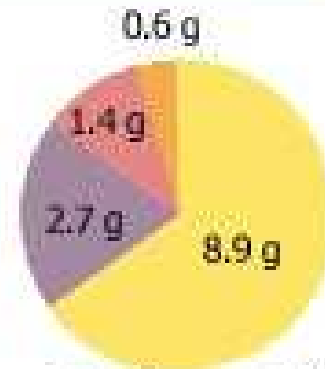
Safflower Oil



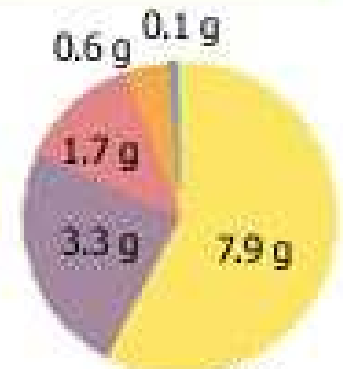
Canola Oil



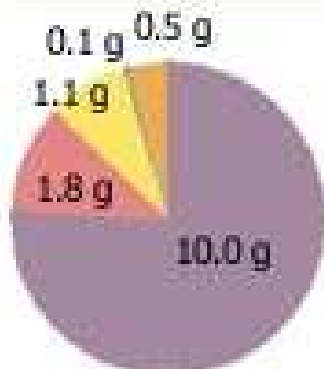
Flaxseed Oil



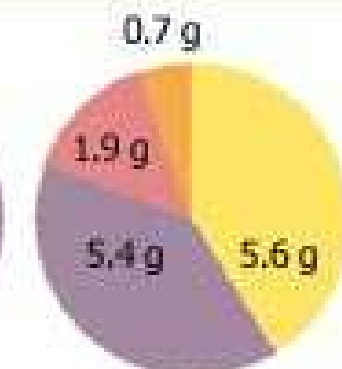
Sunflower Oil



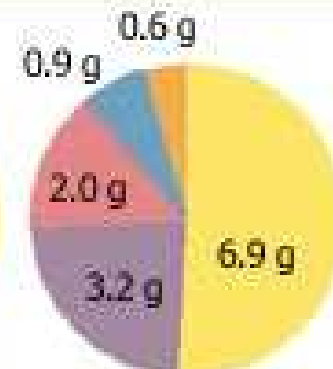
Corn Oil



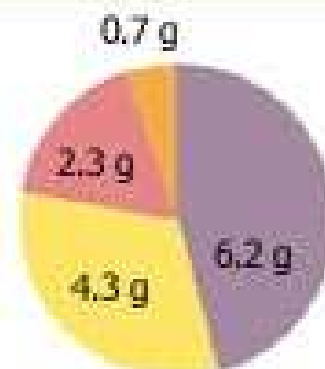
Olive Oil



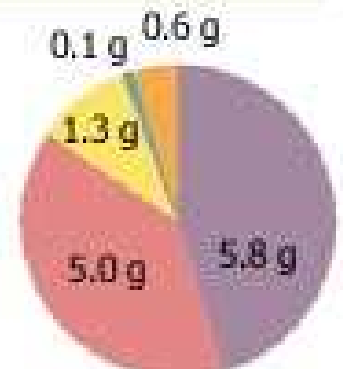
Sesame Oil



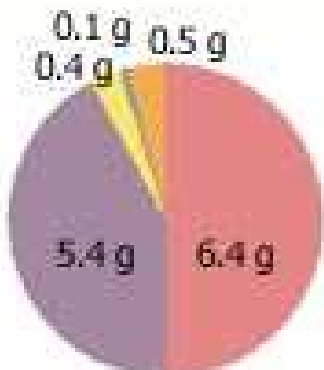
Soybean Oil



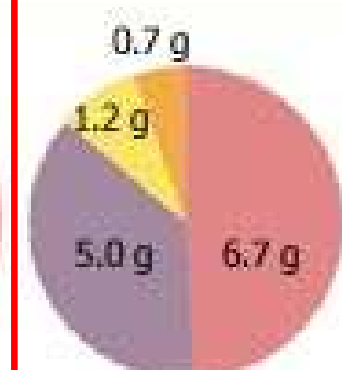
Peanut Oil



Lard (Pork Fat)



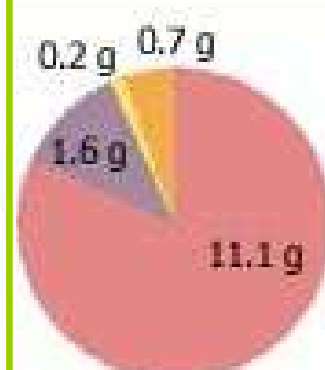
Beef Tallow



Palm Oil



Butter

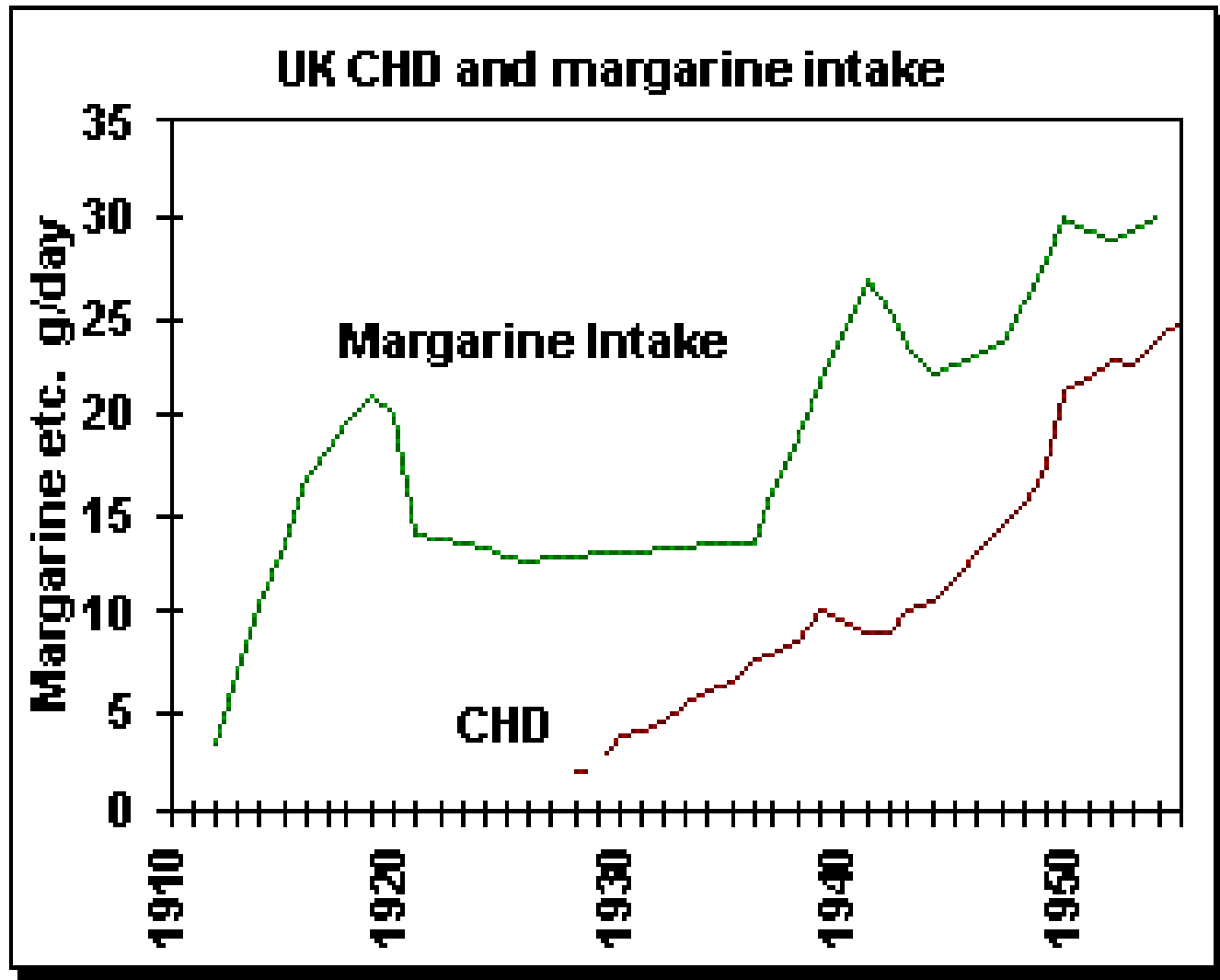
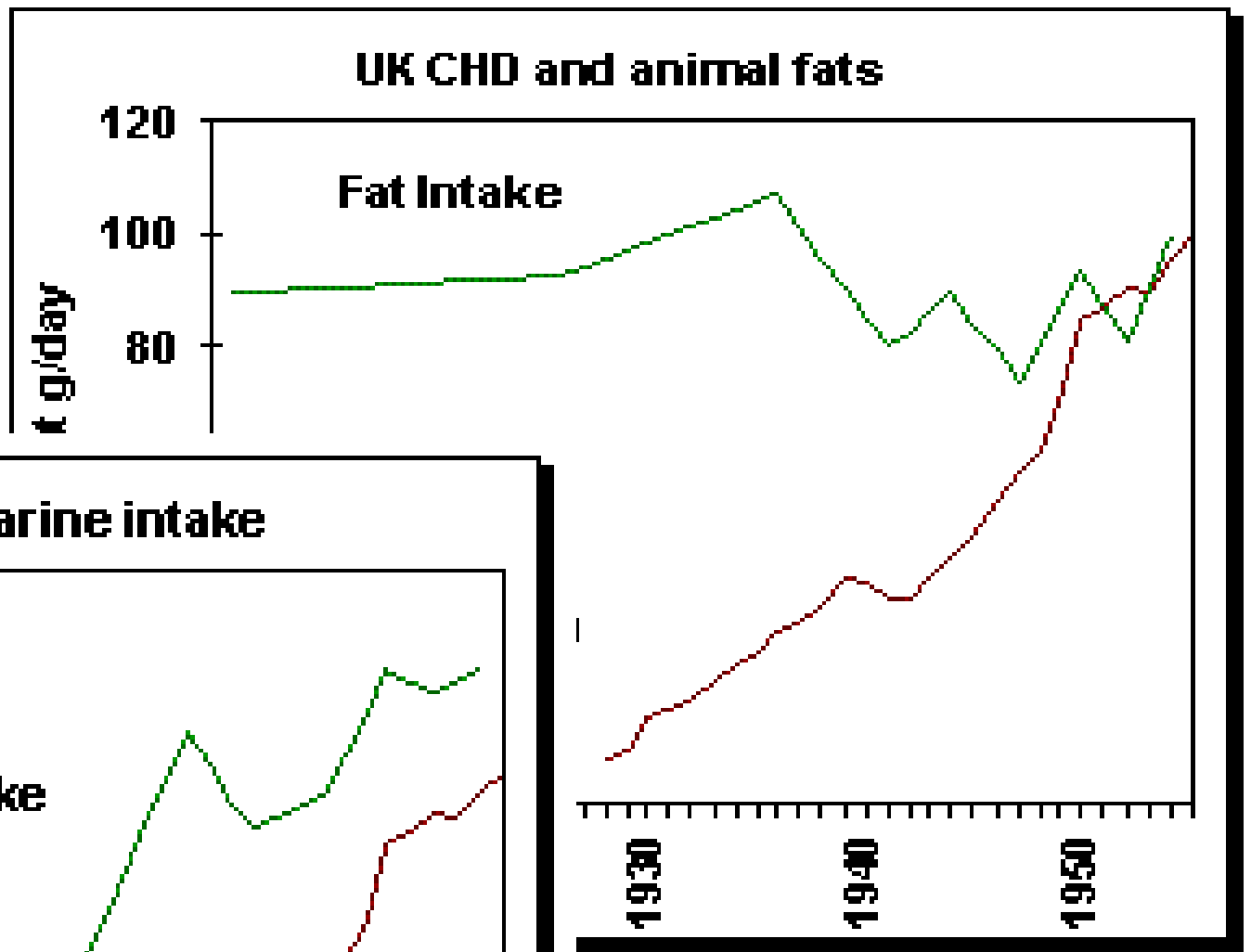


Palm Kernel Oil



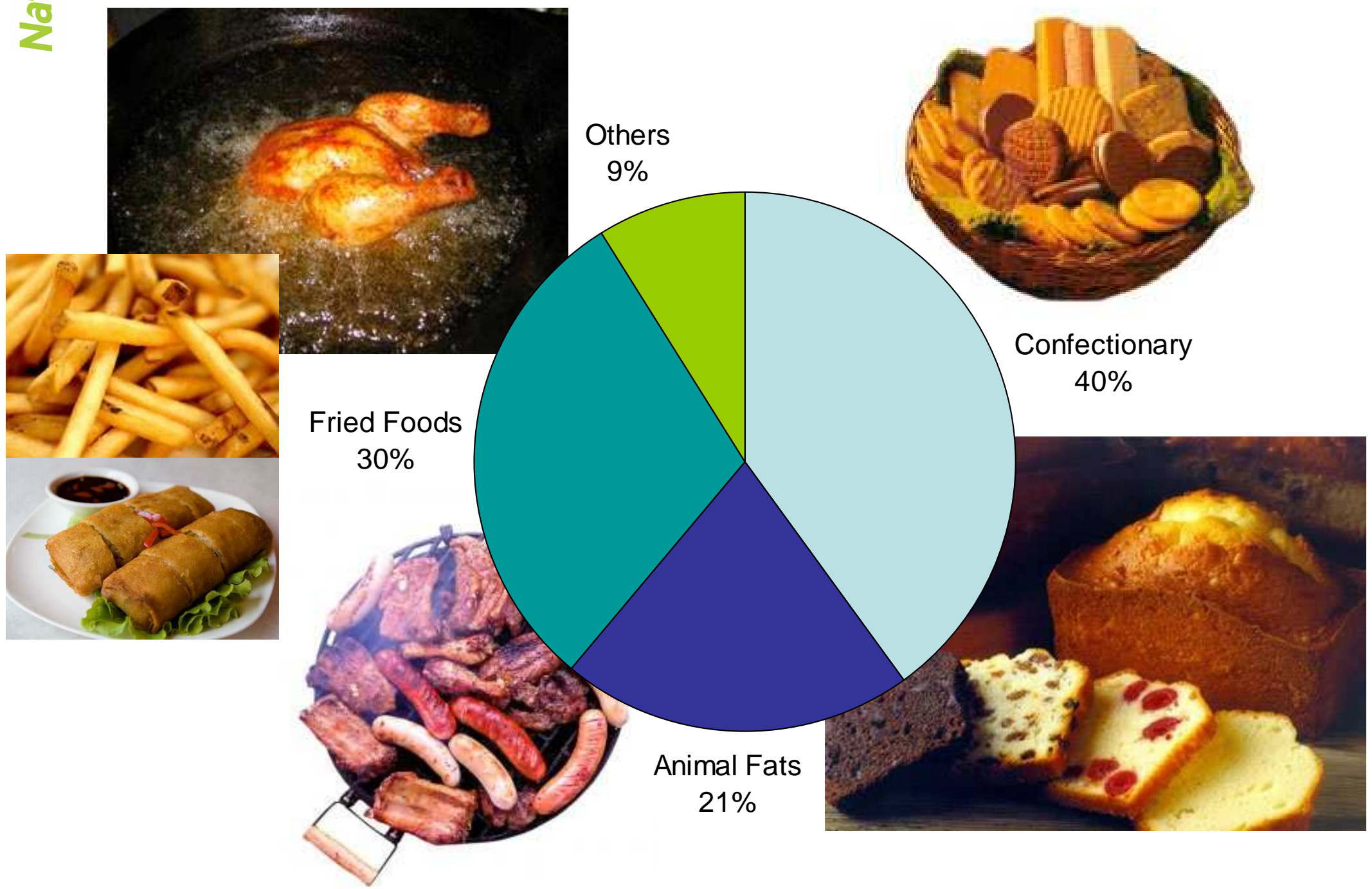
Coconut Oil

Nutrition



**Trans-fat is
worse than
Animal Fats**

Major Sources of Trans-fat



Guideline for Dietary Fat intake

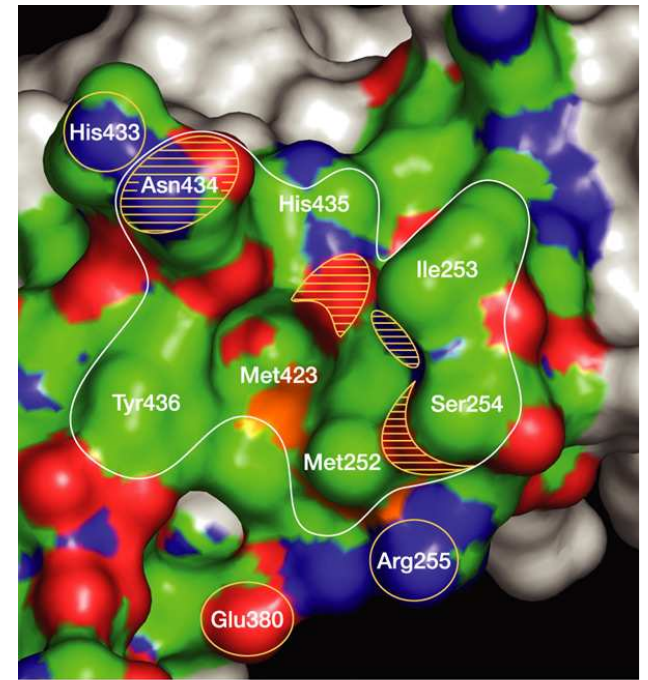
Prevention of metabolic syndrome is targeted:

- **To correct overweight**
- **To improve insulin sensitivity**



- Limits the total dietary Fat intake $< 20\%$ TCI
- Take High Quality Fat
(i.e. high polyunsaturated & low saturated)
- Minimize intake of saturated fat & cholesterol
- Avoid trans-fat (hydrogenated fat)

- **Every cell in the human body contains protein**
 - body repair cells and make new ones
- **All enzymes are proteins**
- **Nerves systems functioning**
- **Many hormones are proteins**



- **Animals protein**

- Is very similar to human protein needs.
- You can get all 9 essential amino acids
- Can be synthesized very efficiently



- **Plant protein**

- No plant contains all 9 essential amino acids.
- Most vegetables are low in lysine



While we need to get all of nine essential amino acids, we don't need to get them together, or even in the same day

Nutrition

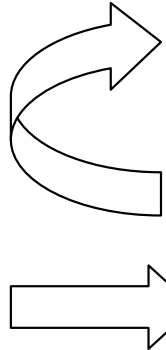
Protein: Homocysteine Health Risk

Methionine (dietary protein)



Homocysteine (amino acid)

Folate
B2, B6, B12



Excess

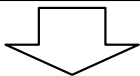


Metabolic Enzymes

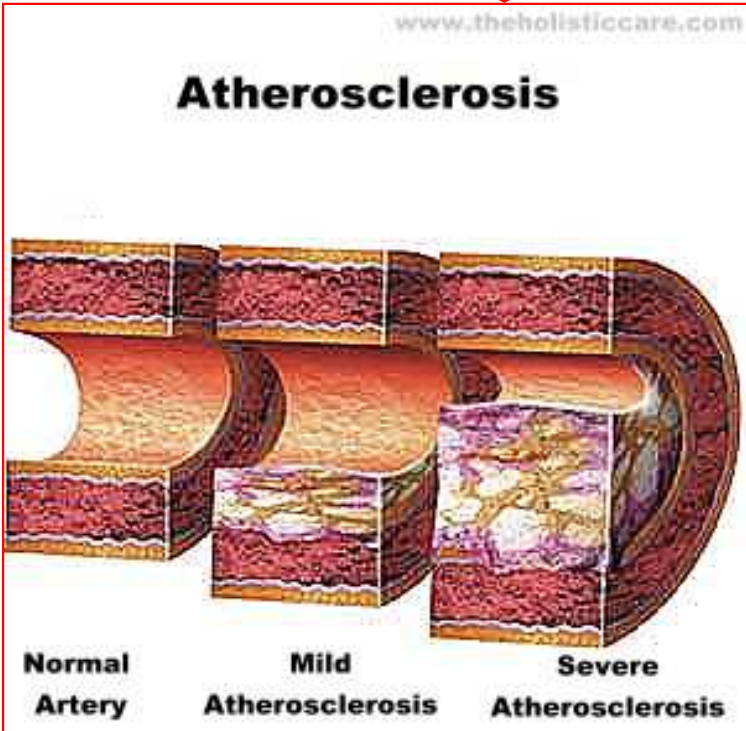
Detoxifier

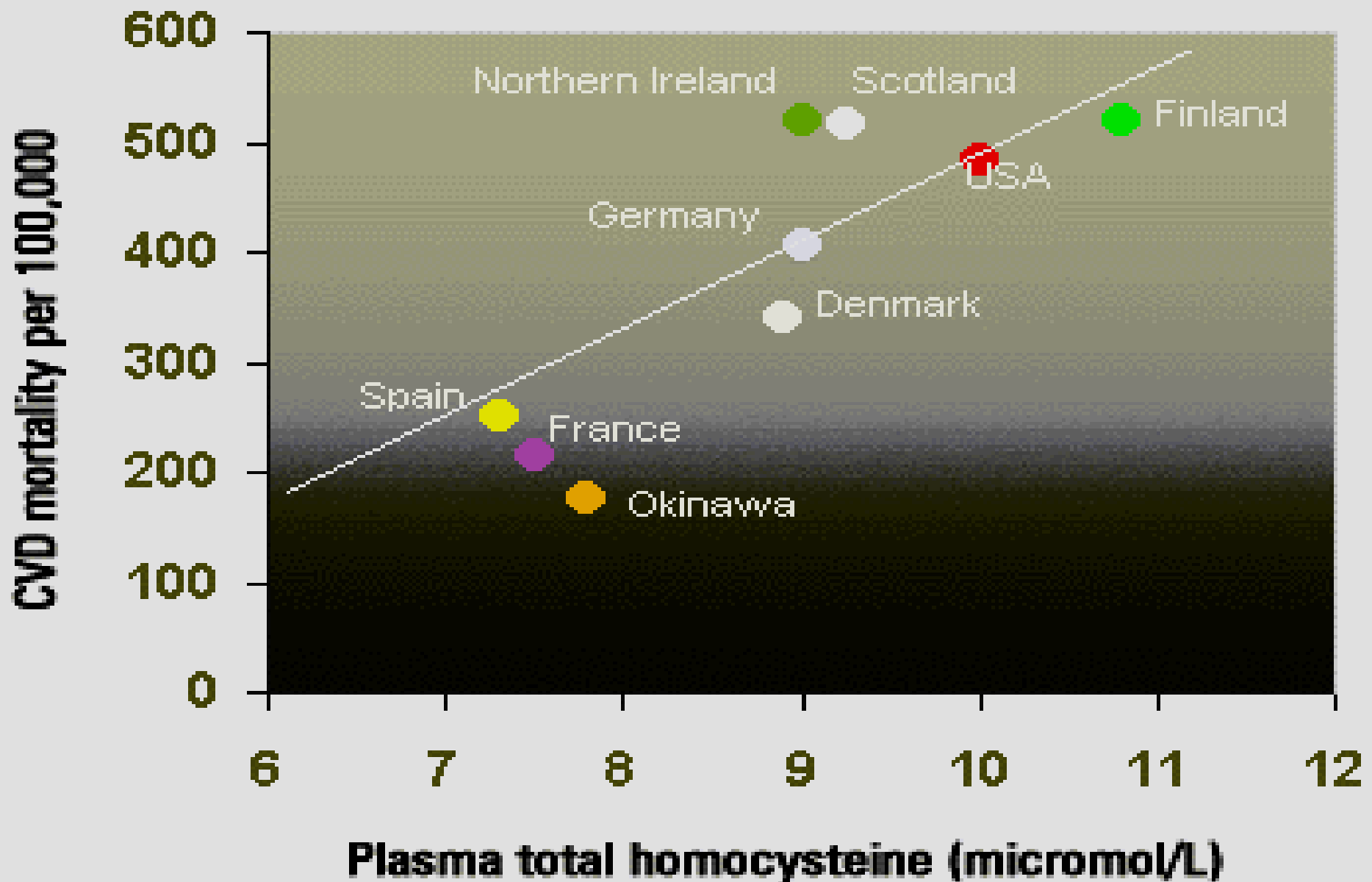
Glutathione

SAMe



Brain Hormones

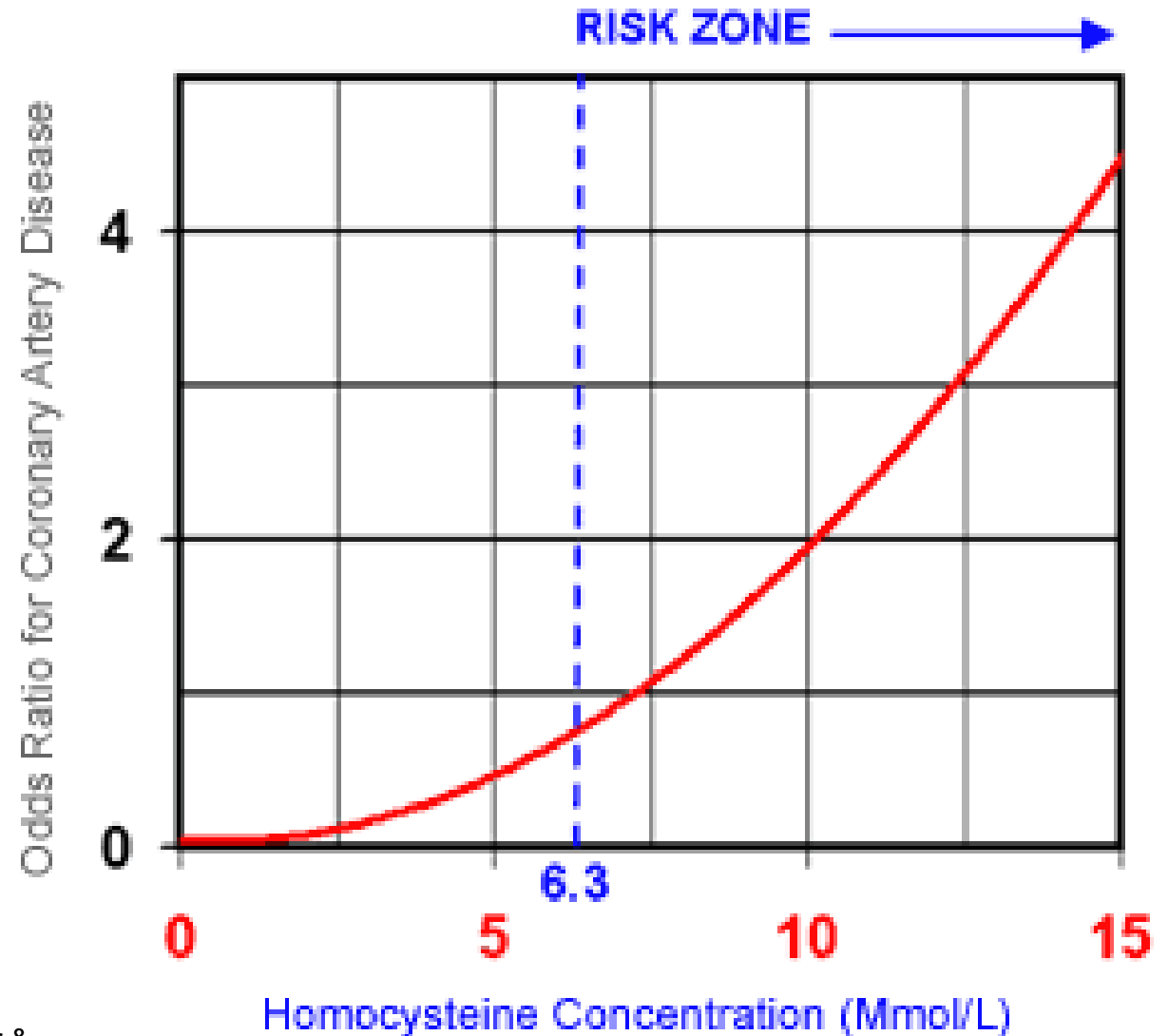




Adapted with permission from:
Alfthan, G., et al. *Lancet* 1997;349:397

5 units reduction of Homocysteine level will result in reduction of:

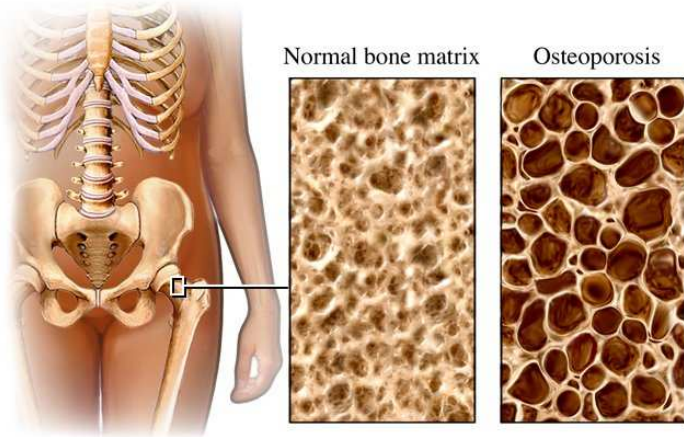
- 75% CVD
- 50% Alzheimer's
- 33% Cancer
- 50% Death (ac)



Nutrition

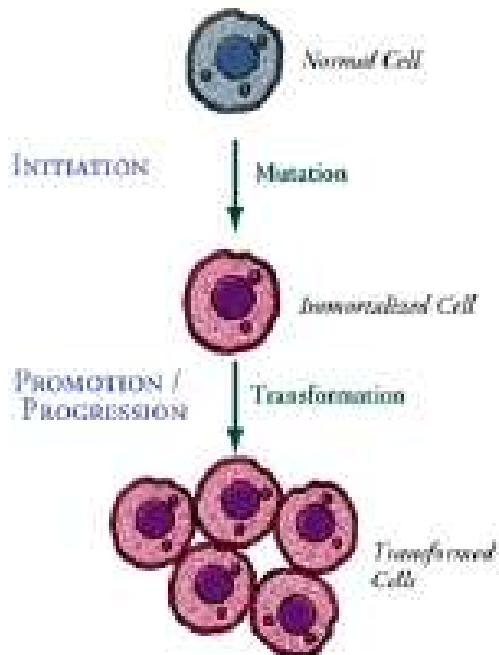
Animal based Diets

associated diseases:



Osteoporosis –

- Animal diets is **acidifying**
- **encourage calcium loss.**



Animal based diets are often:

- **Higher in fat & contains cholesterol**
- **Used in highly heated foods (>140°C)**

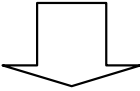
=> *Cancer promotion*

Nutrition

Carbohydrate



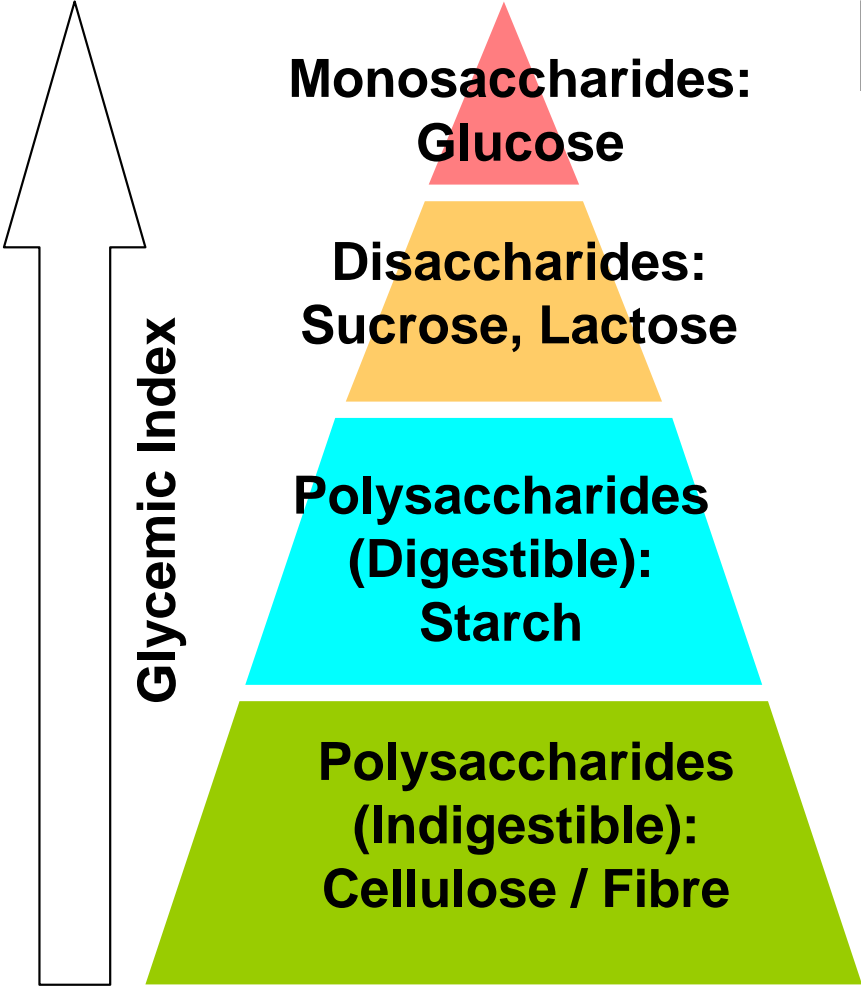
Carbohydrate



Blood Glucose



Produce Energy



Excess

Store as Fat

Obesity

Insulin resistance

Diabetes

Hypertension

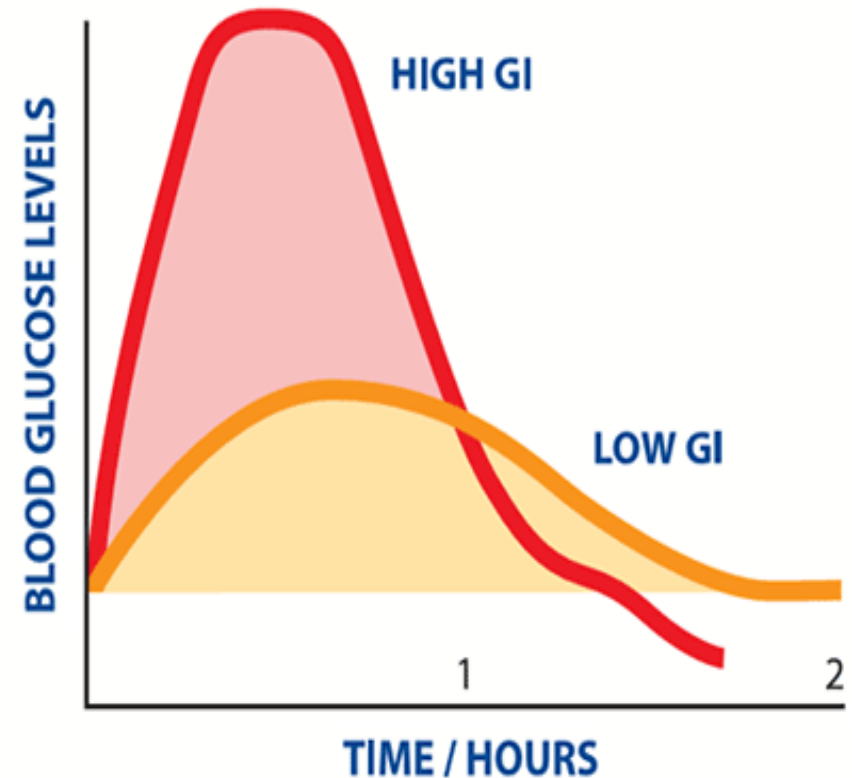
CVD

Accelerated aging

Glycemic Load

Low glycemic load diet :

- Lower net calories intake
- Easier to lose weight
- Keep BS more consistent
- Prevent insulin resistance



Foods with a low glycemic load of <10:

- Fiber-rich fruits and vegetables, like carrots, green peas, apples, grapefruit, and watermelon
- Kidney, garbanzo, pinto, soy, black beans, Lentils, Cashews, Peanuts
- Whole-grain breads like barley, pumpernickel, and whole wheat

Foods with a high glycemic load of >20:

- High-sugar beverages
- Candy
- Sweetened fruit juices
- White rice , White pasta
- French fries and baked potatoes
- Cereals (high in added sugar)
- Macaroni and cheese, Pizza
- Raisins and dates

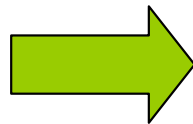
Plant > Carbohydrate



**Polysaccharides
(Digestible):
Starch**

**Polysaccharides
(Indigestible):
Cellulose / Fiber**

Micro Nutrients	Vitamins Minerals
Digestive Enzymes	Amylase; Catalase Protease; Peroxidase
Phyto - Chemicals	Bioflavonoids (anti oxidants) Carotenoids (anti oxidants) Chlorophyll Isoflavonoids (phytoestrogens) Lentinan, Lutein: (anti cancer) Probiotics (GI health) Quercetin (anti inflammation) Triterpenes: (anti-cancer/inflammation)

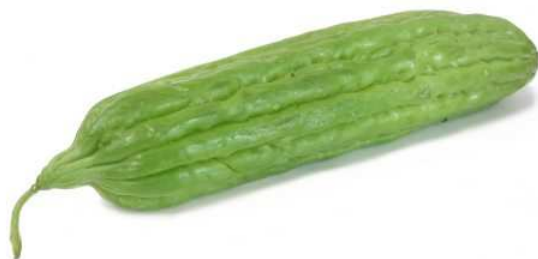


**Essential for
gastrointestinal health**

Nutrition

Useful plants for Obesity & Metabolic Syndromes

Bitter melon	Blood sugar regulation
Celery	Hypertension, Weight loss, Anti cancer, Bone health
Cinnamon	Blood sugar regulation, High cholesterol
Garlic	Hypertension, Blood sugar regulation, High cholesterol
Banaba Tea	Blood sugar regulation, Hypertension, Weight loss
Green Tea	Blood sugar regulation, High cholesterol, Weight loss



Nutrition

Useful MS Nutritional Supplements



	BS	BP	TC	Common food source	Max Daily Toler limit
Vitamins B complex		■	■ (niacin)	Meat, all whole, unprocessed foods, bananas, liver, yeast	B3 - 35 mg B6 -100mg B9 - 1mg
Vitamins D	■	■		Fish, liver, cheese, egg yolks	250 ug
Calcium	■			Dairy products, Chinese cabbage, kale, and broccoli	2,500 mg
Magnesium	■	■		legumes, nuts, whole grains	350 mg
Zinc			■	Oysters, meat, beans, nuts, crab	40 mg
Co Q10	●	●		Fish: mackerel, herring	1200 mg
Omega-3		■	■	Fish Oil	None
L- Arginine	●	●		<i>Semi essential amino acid</i>	None
L- Lysine		■	■	Meats, legumes	None

* **B-12** is not available from plant products,

Those at risk for Lysine deficiency:
Vegetarians & Athletes

The general dietary recommendations:

- Do not Over Eat** (periodic fasting)
- Keep a Balanced Diet:** (65-75% C : 15-20% F : 10-15% P)
- Low glycemic load –**
Rich in fruits and vegetables, low in sugar / refined carbohydrates
- Low intake of saturated fats, cholesterol & trans fats**
- Low in red meat, processed meat, rich in nuts & fish**
- Cut back on salt & MSG**
- Avoid alcohol**

- Improve Digestion with:**
 - Probiotics & Food Enzymes
- Learn to use Nutraceuticals**



SUMMARY

Modern Remedies for Obesity & Metabolic Syndromes is based on:

- A Balanced & Healthy Diet**
- Sustainable Physical Activity**
- Applied Nutrigenetic
Supplementation**

Thank you