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Dietary Oils and Fats and its role towards Supplementation

AAK KAMANI

✓ Health Scenario in India

1)Over 61 per cent of all deaths in India attributed to lifestyle or non-communicable diseases (NCDs)

2)More than 1.73 million new cancer cases likely to be recorded each year by 2020; air pollution, tobacco, alcohol and diet change are primary triggers

3)Every 12th Indian a diabetic -- India ranks second in the list of countries with highest diabetes patients

4)More than 2.7 million people in India die of heart diseases every year – 52 per cent of them below the age of 70

5)Air pollution causes 30 per cent of all premature deaths in the country; linkages with mental diseases revealed

India Wakes up to threat of CVD

17.9 million people die each year from CVDs, an estimated 31% of all deaths worldwide

✓It is estimated that by 2020, CVD will be the largest cause of death in India.

Major Reason-

✓TFA increased total and low-density lipoprotein (LDL) cholesterol and decreased the “good” high-density lipoprotein (HDL) cholesterol.

✓Trans fats appear to increase the risk of CHD more than any other micronutrient.

KNOWING THE FA(C)TS

What are they?

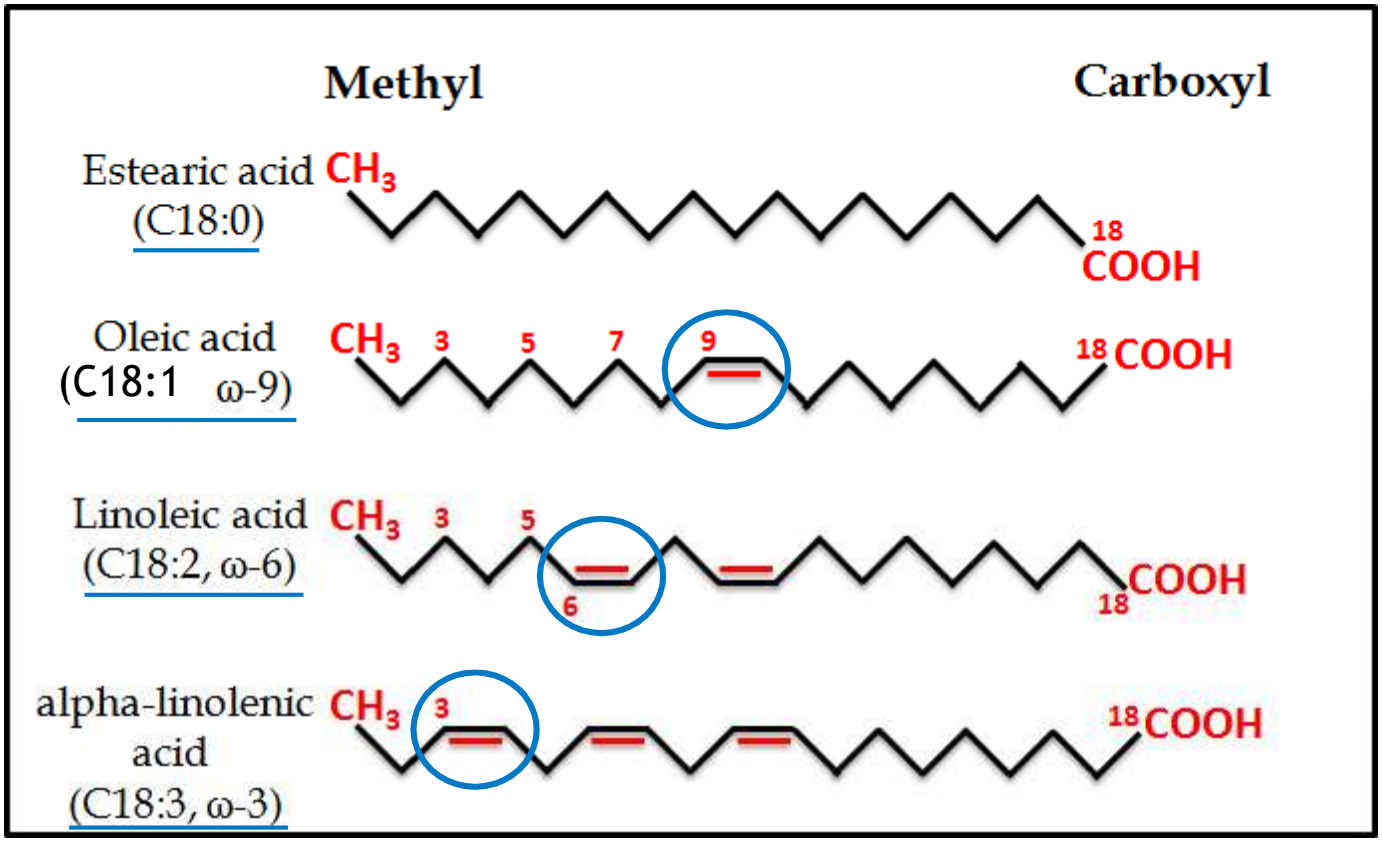
- Monosaturated Fatty Acids (MUFAs) and polyunsaturated fatty acids (PUFAs) with double bonds at the
  - 9th C- atom
  - 6th C- atom
  - 3rd C- atom

Saturated fatty acid (SFAs)

MUFA, Omega 9

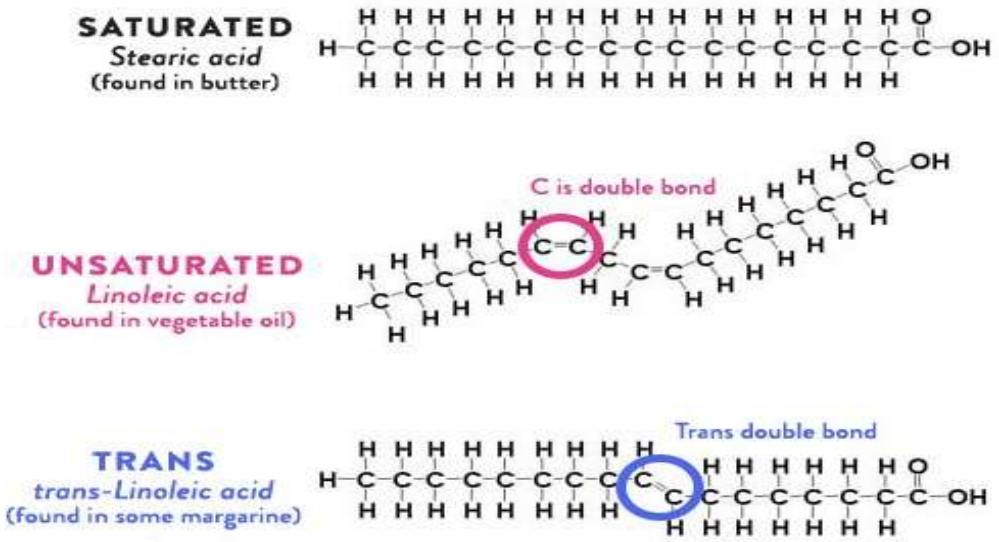
PUFA , Omega 6

PUFA , Omega 3



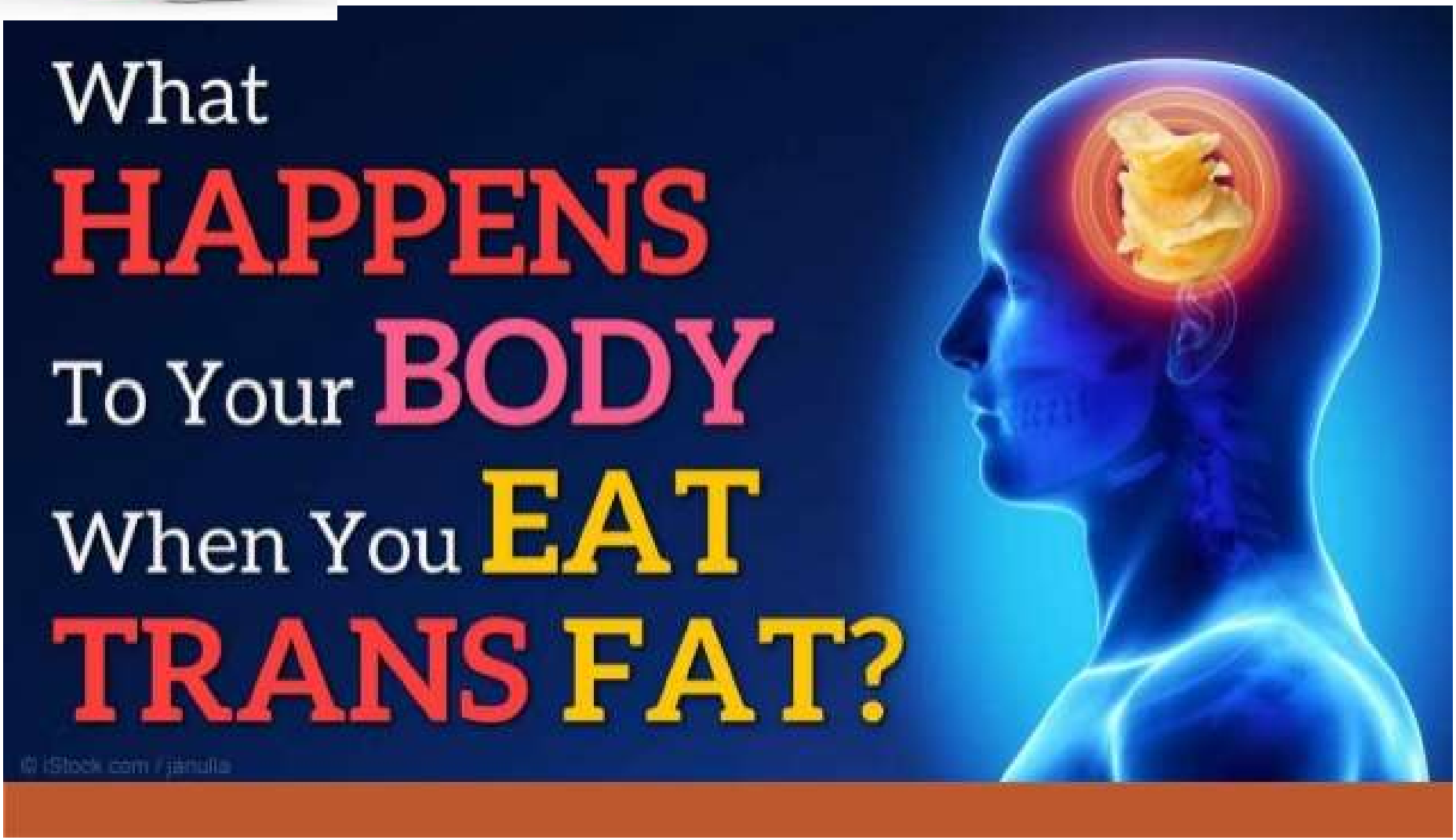
Trans Fat

Trans fatty acids (TFA) by definition are geometric isomers of monounsaturated and polyunsaturated fatty acids having at least one carbon-carbon double bond with hydrogens on opposite sides of the double bond.



Regulation-

- Existing- 5% Trans
- Later- reduce it to 2% by 2020 and eradicate it completely 2022


What
HAPPENS
To Your BODY
When You EAT
TRANS FAT?
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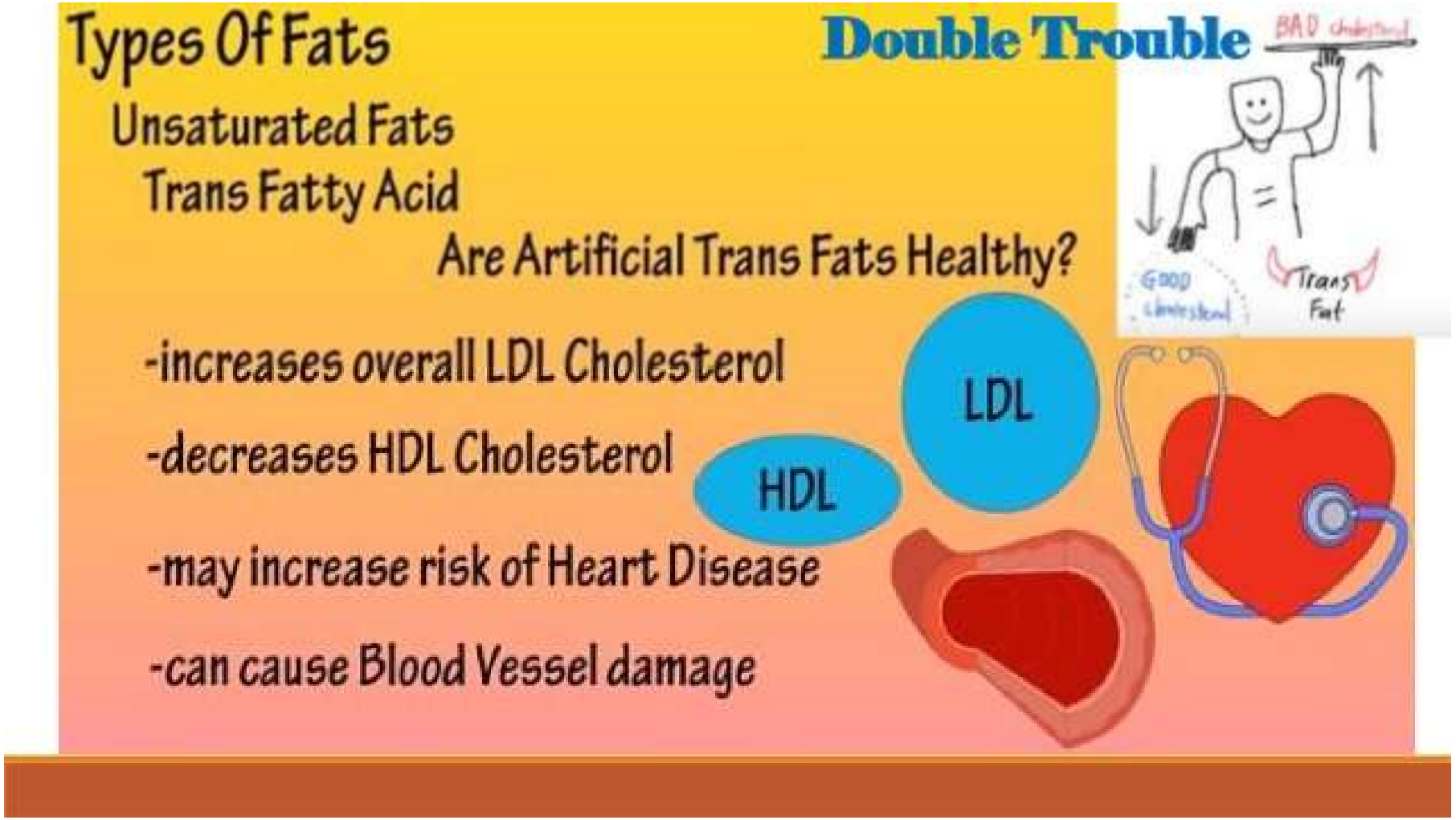
Effects of Trans fat



Dietary Recommendations

RECOMMENDED DIETARY INTAKE ON AN AVERAGE - 2000 CALORIES/DAY/PERSON

- TOTAL FAT - 30% or less
- SAFA- <7%
- PUFA- appx 10%
- MUFA- appx 15%
- TRANS < 1%
- OMEGA 6 AND OMEGA 3 RATIO- 10:1 TO 5:1
- CHOLESTEROL < 300mg /DAY

World Health Organization

AAK KAMANI range of vegetable oils and fats

- Applications of Vegetable oils and fats
  - Bakery
  - Confectionery
  - Nutrition
  - Ice Cream.

Bakery

Fats used in biscuits, cookies, puffs, cakes etc that deliver health benefits

- Trans free/Zero trans shortenings & margarines (non hydrogenated)
- Fortified fats – with phytonutrients, omega 3 fatty acid, MCT, vitamins, minerals
- Low saturated / High MUFA fats

Confectionary

- Chocolates contain 20-30% fat
- Cocoa Butter - Limited availability, high price premium chocolates, not for the masses
- Development of Cocoa butter Alternatives / specialty fats – cheaper than Cocoa butter chocolates for the masses
- 3 types of Speciality Fats

CBS : Cocoa butter substitutes

CBR : Cocoa butter replacers

CBE : Cocoa butter equivalents

Ice cream / Frozen desserts

- Dairy Fat analogues – Trans free & Cholesterol free, convenient to store at room temp – Economical & Nutritious

- Ice-creams/FD fortified with
- Omega 3
- Vitamins, Minerals (calcium)

- Ice-cream/FD for diabetics (artificial sweeteners)

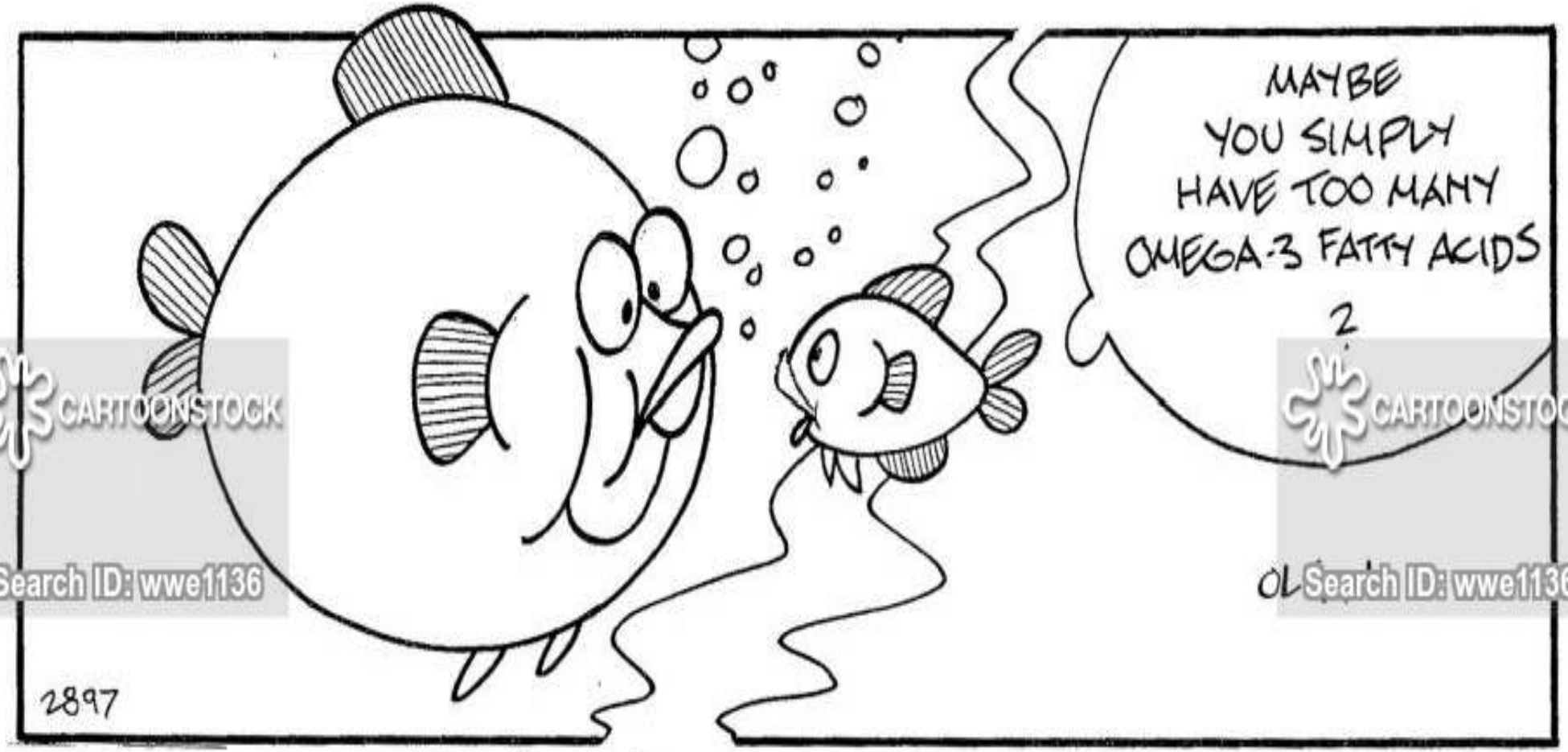
- Ice-cream/FD with probiotics

- Low Saturate Coverture Fat

Nutrition

- **Infant Nutrition** – Human milk fat replacer, MCT, Omega 3 DHA (veg source)
- **Geriatric Nutrition** – Omega 3 (ALA, EPA, DHA), Coconut oil, GLA
- **Sports Nutrition –** MCT, CLA

Background Omega 3,6,9



Different omega's

Common name	Abbreviation	Lipid name
Omega-3		
α-linolenic acid	18:3, n-3	**ALA**
Eicosapentaenoic acid	20:5, n-3	**EPA**
Docosahexaenoic acid	22:6, n-3	**DHA**
Omega-6		
Linoleic acid	18:2, n-6	**LA**
Gamma-linolenic acid	18:3, n-6	**GLA**
Dihomo-gamma-linolenic acid	20:3, n-6	**DGLA**
Arachidonic acid	20:4, n-6	**AA/ARA**
Omega-9		
Oleic acid	**18:1, n−9**	

Focus on most one`s ALA, EPA, DHA, LA, ARA and Oleic Acid

Sources omega 3, 6, 9

Omega 3

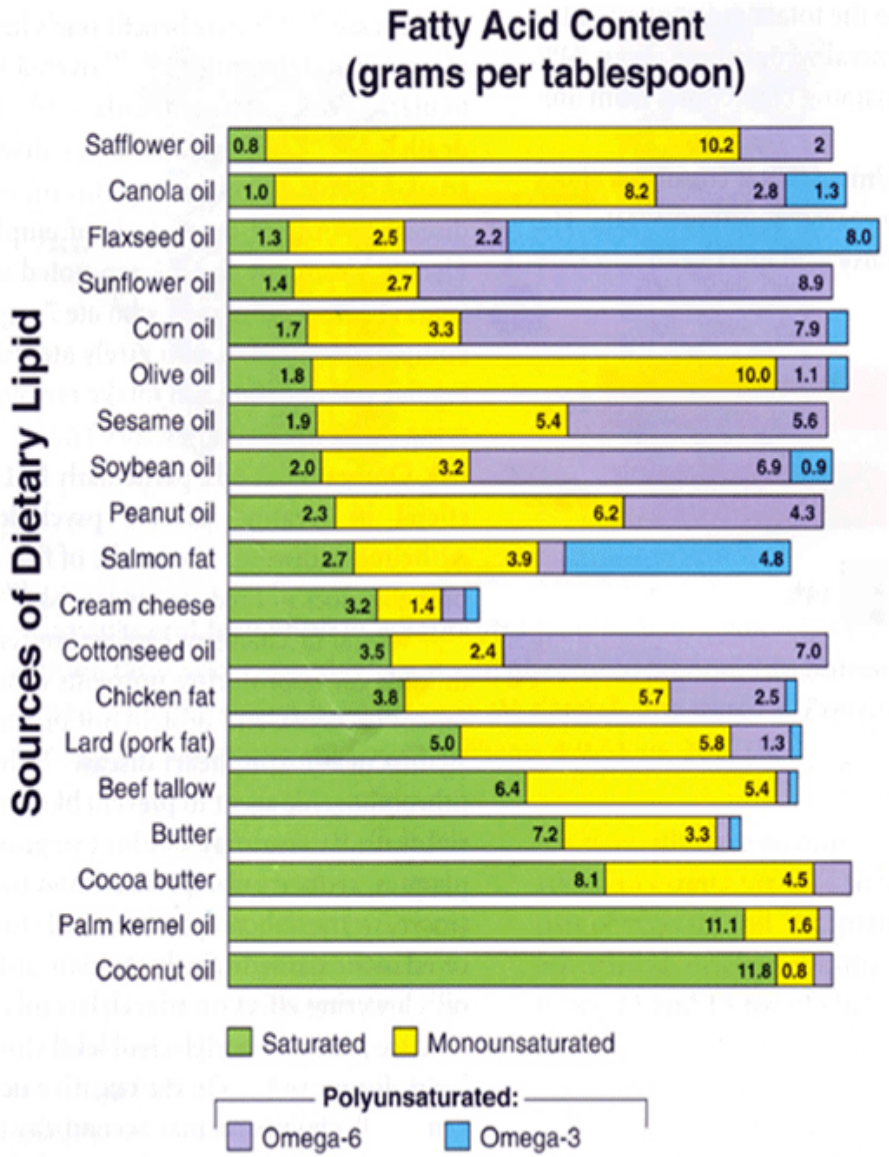
- ALA- Green leafy vegetables, seeds (flax, chia, rape)
- EPA and DHA- fish , algae and krill
- Vegetable oil- Flaxseed
- Intake – low

Omega 6

- LA – Plentiful in nature from processed foods
- ARA – meat, dairy, processed foods
- Vegetable oils- corn, soybean, sunflower
- Intake- high

Omega 9

- Oleic acid – animal fat and vegetables
- Vegetable oils – oleic, high oleic sunflower oil, safflower
- Intake - High



Omega 3 rich diet :a move towards life long good health

Expecting mothers	Brain & Retina Development
Lactating Mothers	DHA an essential component to Brain development
Infancy Childhood	Brain &Mental development
Teenagers	Reduces menstrual pain, Reduces aggression & Depression
Middle Years	Prevent Heart diseases, Cancer, Lung diseases & Osteoarthritis Improves blood circulation
Senior years	Prevent joint & inflammatory diseases Mental deterioration

Ratio omega 3 to 6 to 9

- Omega 3-6-9 supplements provide these FA in proper proportions e.g. 2:1:1

  Belief: more complete, more for their money

  Myth that all omega's should be supplemented:

- People already consume too many omega 6
- Omega 9 can be produced by the body

- No need for supplementation

  Advice

- Only supplement the diet with omega 3
- Replace SFA or carbohydrates with MUFA and PUFA

Claims

FDA (US)

- Qualified health claim:
- The consumption of EPA and DHA omega-3 fatty acids may reduce the risk of coronary heart disease

Codex (Malaysia)

- Nutrient function claim:
- DHA and ARA may contribute to the visual development of the infant:
  17mg DHA + 34mg ARA/100 kcal

FSSAI (India)

- Nutrient claim:
- Source of omega-3 fatty acids: > 40 mg of EPA + DHA/100g and 100 kcal
- High in omega-3 fatty acids: > 80 mg of EPA + DHA/100g and 100 kcal

Other emerging technologies

- Oils with Low/No 3-MCPD & glycidyl esters
- Fat Powders/Flakes- Convenience - For dried ready to eat foods and dietary supplements.
- Oils as lipid excipients in pharmaceuticals – injections, oral suspensions, vaccines, dermatological preparations, etc.

Take home messages

- MUFA and PUFA consumption healthier than SFA
- Imbalance in the omega 6:3 ratio in our diet

Advise

- No need to increase:
  - Omega 6 - already to high
  - Omega 9 - enough in the diet

- Ratio 6:3:
  - Infants: 3:1
  - Adults: 1:1
- Mostly increase omega-3 - DHA


ANY QUESTION?
NO HARD QUESTION PLEASE...


THANK YOU !
AAK KAMANI