LO5: Lifestyle d's + Diet (Dyslipidaemia)

Protective Dietary factors:
- n-6 PUFA's
- n-3 PUFA's
- MUFA'S
- Fruit + vegetables
- Fibre
- Low-Moderate Alcohol intake
- Plant sterols/stanols
- Antioxidants: Vit E
  - : β-carotene

↓ Prevent oxidation of
↳ NB Vit E ∅ prevent CVD
⇒ folate + Vit B6 must not come from supplements but from diet!

Different Types of Dietary Fats:
"Good Fat" (CVD protective)
- MUFA
- n-3 PUFA (omega 3)
- n-6 PUFA (omega 6)

Must be in correct ratio = protective (pro-inflammatory state if wrong proportion)

"Bad Fat"
- Saturated Fatty Acids
- Trans Fatty Acids

MUFA's
"Mono-unsaturated Fatty Acids"
Oleic acid (Fx on lipoproteins)
More Resistant to oxidation
→ Neutral Fx (if replace carbs with it)
→ ↓ LDL if it replaces SFA'S
→ ↑ insulin sensitivity
Sources: canola oil, olive oil, Avocado, nuts

Omega-6 FA'S (PUFA'S)
Linoleic Acid (omega 6) – Essential
↓ T-chol/↓ LDL/↓ HDL
↑ insulin sensitivity
In large amounts: Fx on vessels endothelium
↑ LDL oxidation
: Pro-inflammatory (production)
Sources: Sunflower oil, soft margarine
15g/day ↵ ↳ 20g/day
More if fat intake is < 25%

Omega-3 FA'S (PUFA'S)
EPA, DHA, ALA
EPA & DHA (essential)
More Bioavailability in fish oils
↳ 1-2% TE
Sources: Oily fish (salmon, Mackerel, Sardines)
Legumes, canola oil, flaxseed oil, walnuts
↳ (ALA)

Omega 3 NOA:
↓ cardiac Arrhythmias (protect Antiarrhythmic cells)
Anti-Thrombotic Fx
↓ T-chol, LDL-chol & TG
Better Endothelial Relaxation } ↑ NO production = ↑ Relaxation
inhibits Atherosclerotic inflammation
↓ Cytokine production
Alters Prostaglandin synthesis
→ NB prefer to get fats from Diet ∅ supplements

Omega-3 side Fx
↑ LDL (when TG ↑)
Bleeding Tendency
Vit A toxicity
Supplementation under Medical supervision
↳ > 3g/day

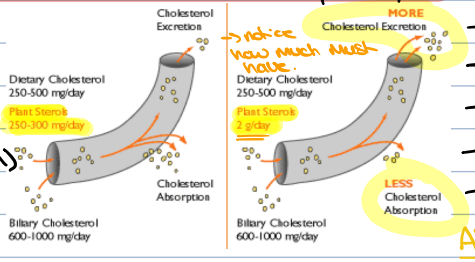
Summary of Recommendations:
Without CVD:
2 portions of oily fish/week
include oil & foods rich in α-LA
α-LA = α-Lactalbumin (protein)

With CVD:
1g EPA/DHA per day (oily fish/consider supplementation)

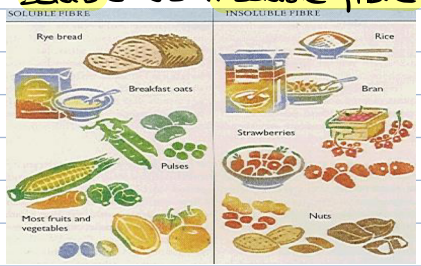
High TG:
2-4g EPA/DHA per day under Dr's Supervision.

Plant Sterols & Stanols (phytochemicals)
↓ total Cholesterol
found in avocado, sunflower seeds etc.
[Pro-Active Margarine]
ModuCore (OTC Medication)
→ Need ± 4 teaspoons = betters LDL lvls (to have any Fx)

Action of plant sterols
↳ More Excretion + less Absorption (GIT)



Complex CHO & fibre:
Soluble vs insoluble fibre



Fx of CHO & fibre:
Soluble fibre = (has β-glucan)
↳ ↑ SCFA (short chain - Fatty Acids)
↳ ↓ LDL
⇒ Binds bile salts + ↓ cholesterol absorption
⇒ Favourably d's LDL R. status
↳ inhibit Cholesterol synth + absorption.
⇒ High fibre diets ∝: Lower BMI
: Lower BP
: Lower TG lvls

⇒ Fibre = talking about whole grains
↳ use a variety of sources
↳ ↑ TG esp Refined CHO
↳ Limit intake of Refined sugar ∈ (sweets, sugars etc.) ↑ TG

⇒ Fibre
- 25 → 35 g/day or 13g/4200 kJ/d.
- ↑ intake slowly (too fast = severe cramping)
- Sufficient fluid intake = NB

⇒ Any diet < 45% CHO proportion = Low carb
⇒ NB high Meat diets = ↑ [] of proteolytic bacteria in GIT (↓ saccolytic bacteria []) ↳ NB for SCFA'S (Clostridium)

Alcohol:
♂: 2 vs ♀: 1 (units per day)

Advantages:
→ Protect against Atherosclerosis & thrombosis
→ 30g/day (± 2 drinks) ↑ HDL lvls

Mechanism: [NB]
↳ Flavonoids in Red wine = Anti-oxidant
↳ inhibits LDL oxidation
↳ ↓ lvls of fibrinogen & ↓ lvls of PA (NB)
PA = plasminogen Activator = slows clot formation

Contra-indications of Alcohol:
- ∅ weekend binging
- ↑ TG
- Pregnant + Lactating females
- Family History of Alcoholism
- Liver disease/pancreatitis
- Heart failure/uncontrolled HT
- Obesity

Alcohol Equivalents: (10-12g alcohol)
- 340 ml beer
- 60ml fortified wine
- 120 ml dry/semi-sweet wine
- 25 ml brandy, whiskey, Liqueur

Factors promoting CVD:
- Sat. FA'S
- Trans Fatty Acids
- T-chol
- High Na^+ intake
- Excessive alcohol intake.
- Excessive Refined CHO intake.

Reduce intake of SFA:

SFA ↓ CVD risk (< 7%)

↳ Saturated (↑ LDL cholesterol)

Replace SFA → polyunsaturated

= ↓ CVD Risk ↳ PUFA's

Diet ∆'s

↑ poultry & fish (remove skin)

lean cuts of meat

skimmed milk or 2% milk

↳ not full cream

cottage cheese instead of hard cheese

soft margarine instead of hard / butter

Limit palm & coconut oil → Mostly SFA

↳ plant oils = better

Reduce intake of Trans FA's

↳ TFA = very Atherogenic (↑ SFA's)

=> ↑ LDL, ↓ HDL = ↑ % of CVD

found in: Hard margarines

: cakes

: Biscuits

: pastries

Diet ∆'s = Replace hard fats with soft fats/oils.

Improving HDL:LDL Ratio

↑ HDL: Exercise

: weight loss

: Moderate Alcohol (<2 drinks per day)

: Stop smoking

↓ T-Chol (Dietary)

AHA used to recommend ↓ dietary cholesterol

but no longer.

=> Be cautious of high cholesterol foods

esp. in Hyper/Hypo & Genetic Dyslipidaemia's

↳ Eggs

↳ organ meats: Heart/Liver/Kidney/Brain

↳ Shellfish (prawns/mussels/crayfish)

↳ ↓ Portion sizes of meat//fish/chicken

↓ LDL: ↓ intake of SFA / Trans FA / cholesterol

↑ MUFA & PUFA & soluble fibre intake

Plant sterols & stanols

↑ Soy protein intake.

Hypertriglyceridaemia

↓ fat intake

↓ Refined CHO intake

↓ alcohol intake

Omega-3 FA

↳ 100g oily fish/week

Weight loss

Exercise

Nutritional Recommendation in FH (familial Hyperlipidaemia)

Severe HyperTG

Rescue diet < 10g of fats

Maintenance diet < 25g of fats

Rescue diet for Acute episodes (2-3 days)

followed by Maintenance diet.

[No added animal prod.]

Dietician input = NB

In FH (↑↑LDL + ↑ HyperTG)

Low cholesterol Diet (< 200mg)

Low fat intake (25% total Energy)

Very Limited added fats

↳ Low fat food options

↳ cooking methods

-> High fibre, carbs, fruits, low fat meat, fish, chicken. } NB.

1) Choose whether the statement is true or false
Saturated fats has no harmful effects.

- True
- ✓ False

2) Match the following items:

1. Polyunsaturated fats	1. Flora margarine
2. Monounsataruated fats	2. Almonds
3. Omega 3 fats high source	3. Snoek

3) Select the correct answer from the choices below
Low carbohydrate diets are

- ✓ Severe restrictions eliminates fruits, starchy vegetables and wholegrains
- Restrictions allow for a low intake of protein
- Restrictions are greater than 45% of energy allowance

4) Choose whether the statement is true or false
Soluble fibre is found in oats and apples

- ✓ True
- False

5) Choose whether the statement is true or false
Low carbohydrate diets have a significant effect in cardiovascular disease risk factors over balanced diets.

- True
- ✓ False

6) Choose whether the statement is true or false
Eggs are high in cholesterol and must be completely avoided

- True
- ✓ False

7) Match the following items:

1. Omega 3	1. Fish
2. Plant sterols	2. Pro-active FLora
3. Saturated fat	3. Poultry skin

8) Choose whether the statement is true or false
Alcohol is various amounts (4 drinks) is cardioprotective

- True
- ✓ False

9) Select the correct answer from the choices below
Sugar in high amounts affect triglyderide (TG)levels in which way

- Neutral effect
- ✓ Increases TG
- Decreases it

10) Enter the correct number
How many teaspoons of Pro-Active Margarine should be used to have an effect on lowering cholesterol

4