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FUTURE PROOFING HEART HEALTH:

THE ROLE OF LDL CHOLESTEROL & DIET (PART TWO)

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Webinar key messages summarised for you.

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DIETARY INTERVENTIONS TO REDUCE LDL-C

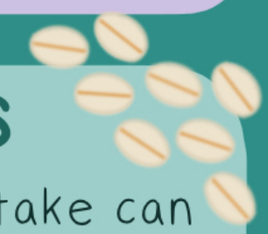
AVOID TRANS FATTY ACIDS

Trans Fatty Acids (TFA) have a large magnitude of influence on LDL-c and increasing cardiovascular disease (CVD) risk. However, thanks to industry reformulation in the UK, TFA are no longer prominent in the food system make it up no more than **1%** of food energy.

REPLACE SATURATED FAT WITH POLYUNSATURATED FAT

Replacing saturated fatty acids (SFA) with polyunsaturated fatty acids (PUFA) will have the biggest impact on lowering LDL-c and reducing CVD risk.

INCREASE DIETARY FIBRE AND OAT BETA-GLUCANS



Research suggests that including oat beta-glucans in the diet and increasing fibre intake can help to reduce LDL-c and CVD risk, but evidence from interventions is scarce. EAS/ESC 2019 guidelines recommend intakes of **25-40G/D**.

INCLUDE PLANT STEROLS AND STANOLS

Daily consumption of functional foods with added plant sterols or stanols has been shown to be effective in lowering LDL-c significantly. Consumption of **2G/D** is needed to see an effect, which can be achieved with fortified products.

RED YEAST RICE NUTRACEUTICALS

Red yeast rice (RYR) supplements have the same structure as a statin and research on their cholesterol lowering effect is promising. However, RYR is still an unregulated supplement so regulations would be needed before thes can be recommended safely.

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THE SFA & PUFA RATIO

SATURATED FAT HAS THE GREATEST EFFECT ON RAISING LDL-C

There is a very large body of evidence from intervention trails dating back to the 1960's which clearly show the impact of saturated fat intake on LDL-c and CVD risk.

Evidence shows large increases in risk at saturated fat intakes of **OVER 18% ENERGY**. Reduce this to 10% energy from saturated fat and we see risk reduction of **UP TO 30%!**

Whilst saturated fat reduction has benefits in and of itself, what's more important is what replaces saturated fat in the diet!

The recommendation is to ensure **<10% ENERGY** comes from saturated fat in the diet. This represents the threshold of intake in which the greatest reduction of total cardiovascular events occur.

POLYUNSATURATED FAT HAS THE STRONGEST LOWERING EFFECT ON LDL-C

THE AMOUNT OF CVD RISK REDUCTION IS DETERMINED BY WHAT REPLACES SATURATED FAT IN THE DIET IN THE FOLLOWING HIERARCHY:

1. POLYUNSATURATED FATS (PLANT & MARINE SOURCES)
2. MONOUNSATURATED FATS (PLANT SOURCES)
3. FIBRE AND WHOLEGRAINS

A robust body of evidence has shown that PUFA have the greatest lowering effect on LDL-c and the SFA:PUFA ratio is of great importance.

Isocaloric (calorie matched) replacement of **5%** SFA with PUFA reduces LDL-c by **0.35MMOL/L**.

Each **5%** increase in PUFA is associated with a **10%** lower risk of coronary heart disease.

This benefit is observed in everyone regardless of gender and also in both primary and secondary prevention of cardiovascular events.

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WHAT THE EVIDENCE SAYS: POLYUNSATURATED FATS

ARE WE EATING TOO MUCH OMEGA 6?

Despite the fact omega-6 fatty acids are polyunsaturated, there have been some concerns raised about these types of fat being detrimental to heart health.

There has long been a narrative that we should cut down on omega 6 to improve our omega 3:6 ratio. This is not the answer.

This belief is primarily based on the **SYDNEY HEART STUDY** conducted in the late 60's to early 70's, which found an increase in CVD risk in the PUFA intervention group.

SO, WHAT WENT WRONG?

The intervention group in the study were given both safflower oil and margarine to consume during the trial. During this time, commercial margarines contained up to **25-40%** trans fats.

More recent analysis of high quality RCTs has found that replacing SFA with PUFA (including omega 6) reduced CVD risk by **20%!**

WHAT ABOUT OMEGA 3?

Omega 3 is not without controversy either! There are some who believe that omega 3 has little benefit to heart health.

A recently conducted study called the **STRENGTH TRIAL** found no significant differences between cardiovascular event risk in an omega 3 intervention compared to the control.

Prior to the **STRENGTH TRIAL**, a study nicknamed **REDUCE-IT** found a significant reduction in risk by **25%** in the omega 3 invention compared to the control.

WHY DID THE TWO TRIALS PRODUCE SUCH OPPOSING RESULTS?

The two trials used different omega 3 supplements, an EPA ethyl ester and a mixed EPA-DHA carboxylic acid.
Looking at plamsa EPA levels in both trials, we can see that the EPA ethyl ester used in the **REDUCE-IT** trial was more bio-available.

Wider evidence suggests the benefit of omega 3 is most evident when in ethyl ester form at a dose of ~850mg/d.

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WHAT THE EVIDENCE SAYS: MONOUNSATURATED FAT

BENEFITS OF EATING MORE MONOUNSATURATED FATS?

Research suggests there is a benefit of replacing saturated fat with monounsaturated fats such as those found in nuts, seeds, avocados and olive oil. However, the benefit is not as great as that seen by replacing saturated fat with polyunsaturated fats.

THE MEDITERRANEAN DIET

The Mediterranean Diet is full of foods rich in monounsaturated fats such as nuts, seeds and olive oil.

One of the most heavily cited studies exploring the Med diet is the **PREDIMED** study:

- Control diet (typical low-fat advice)
- Med diet + 30g/d mixed nuts
- Med diet + 4tbsp olive oil

RESULTS:

- **28%** CVD risk reduction
- **46%** lower risk of stroke
- **31%** CVD risk reduction
- **35%** lower risk of stroke

CATCH UP ON PART ONE OF THIS WEBINAR TO LEARN MORE ABOUT THE EFFECT OF LDL CHOLESTEROL ON HEALTH

THE DASH DIET

The DASH diet is similar to the Mediterranean diet, but takes it one step further by providing specific guidance on portions.

The **OMNIHEART** trial compared the effect of three different variations of the DASH diet on cholesterol:

1. Traditional DASH diet
2. MUFA-enriched DASH diet
3. Protein-enriched DASH diet

Compared to the traditional DASH diet, the plant protein-enriched diet was more effective at lowering LDL and other non-HDL cholesterol. It also had a greater effect compared to the MUFA-enriched variation!

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