The Big Fat Debate

‘Metabolising fats’

Fatty acids
- Caproic (C6:0)
- Caprylic (C8:0)
- Capric (C10:0)
- Lauric (C12:0)
- Myristic (C14:0)
- Palmitic (C16:0)
- Stearic (C18:0)
- Oleic (C18:1)
- Linoleic (C18:2)

Medium chain fatty acids (Medium chain TAGs or MCTs)
- Direct hepatic access ✔
- Rapid oxidation for energy ✔
- Appetite suppression ?
- Reduces postprandial lipaemia ?

Long chain fatty acids
Saturates (C12:0-16:0) circulate in serum lipoproteins and raise serum LDL & HDL cholesterol ✔

Triacylglycerol (TAG)

TAGs

Serum Lipoproteins
Cholesterol (Lipid) Hypothesis

Serum cholesterol → LDL → Coronary heart disease

Saturated fat → LDL → Coronary heart disease

Diet-Heart Hypothesis
Current UK and US guidelines to reduce CVD risk
Intake of saturated fatty acids (SFA) should not exceed 10% of total energy (~30g/day man ~20g/day women)

Meta-analyses fail to support a direct relationship between intake of SFA and death from CVD/CHD
Why should meta-analyses fail to show direct relationship between saturated fat and CVD?

Associations are based on correlation which does not imply direct causality

Consider totality and quality of evidence from different types of study

Causal factor

SFA → CVD

LDL
Factors affecting the quality of evidence that meta-analyses fail to consider

- Confounding effect of time in prospective cohort studies
- SFA substitution with PUFA, MUFA or carbohydrate
- Differential effects of different SFAs on LDL cholesterol
- Biological variation in serum cholesterol response to SFA
- Foods versus nutrients -