

FROM THE HEART **Aseem Malhotra**

Saturated fat is not the major issue

Let's bust the myth of its role in heart disease

Scientists universally accept that trans fats, found in many fast foods, bakery products, and margarines, increase the risk of cardiovascular disease through inflammatory processes.¹ But "saturated fat" is another story. The mantra that saturated fat must be removed to reduce the risk of cardiovascular disease has dominated dietary advice and guidelines for almost four decades.

Yet scientific evidence shows that this advice has, paradoxically, increased our cardiovascular risks. Furthermore, the government's obsession with levels of total cholesterol, which has led to the overmedication of millions of people with statins, has diverted our attention from the more egregious risk factor of atherogenic dyslipidaemia.

Saturated fat has been demonised ever since Ancel Keys's landmark "seven countries" study in 1970.² This concluded that a correlation existed between the incidence of coronary heart disease and total cholesterol concentrations, which then correlated with the proportion of energy provided by saturated fat. But correlation is not causation. The aspect of dietary saturated fat that is believed to have the greatest influence on cardiovascular risk is elevated concentrations of low density lipoprotein (LDL) cholesterol. Yet the reduction in LDL cholesterol from cutting saturated fat seems to be specific to large, buoyant (type A) LDL particles, when in fact it is the small, dense (type B) particles (responsive to carbohydrate intake) that are implicated in cardiovascular disease.⁴

Indeed, recent prospective cohort studies have not supported any significant association between saturated fat intake and cardiovascular risk.⁵ Instead, saturated fat has been found to be protective. The source of the saturated fat may be important. Dairy foods are exemplary providers of vitamins A and D. As well as a link between vitamin D deficiency and a significantly increased risk of

cardiovascular mortality, calcium and phosphorus found in dairy foods may have antihypertensive effects.⁶⁻⁸

In the past 30 years in the United States the proportion of energy from consumed fat has fallen from 40% to 30% (although absolute fat consumption has remained the same), yet obesity has rocketed. One reason: when you take the fat out, the food tastes worse. The food industry compensated by replacing saturated fat with added sugar. The scientific evidence is mounting that sugar is a possible independent risk factor for the metabolic syndrome (the cluster of hypertension, dysglycaemia, raised triglycerides, low HDL cholesterol, and increased waist circumference).

In previous generations cardiovascular disease existed largely in isolation. Now two thirds of people admitted to hospital with a diagnosis of acute myocardial infarction really have metabolic syndrome, but 75% of these patients have completely normal total cholesterol concentrations.¹⁴ Maybe this is because total cholesterol isn't really the problem?

The Framingham heart study sanctified total cholesterol as a risk factor for coronary artery disease, making statins the second most prescribed drug in the US and driving a multibillion dollar global industry. In the UK eight million people take statins regularly, up from five million 10 years ago. With 60 million statin prescriptions a year, it is difficult to demonstrate any additional effect of statins on reduced cardiovascular mortality over the effects of the decline in smoking prevalence and primary angioplasty.¹⁵

Despite the common belief that high cholesterol is a significant risk factor for coronary artery disease, several independent population studies in healthy adults have shown that low total cholesterol is associated with cardiovascular and non-cardiac mortality, indicating that high total cholesterol is not a risk factor in a healthy population.¹⁶⁻¹⁸

A meta-analysis of predominantly



“
When you take the fat out, the food tastes worse. The food industry compensated by replacing saturated fat with added sugar



bmj.com

● Feature: Sugar and the heart: old ideas revisited (*BMJ* 2013;346:e7800) <http://www.bmj.com/content/346/bmj.f7800>

● Research: Anatomy of health effects of Mediterranean diet: Greek EPIC prospective cohort study (*BMJ* 2009;338:b2337)

industry sponsored data reported that in a low risk group of people aged 60-70 years taking statins the number needed to treat (NNT) to prevent one cardiovascular event in one year was 345.²⁰ The strongest evidence base for statins is in secondary prevention, where all patients after a myocardial infarction are prescribed maximum dose treatment irrespective of total cholesterol, because of statins' anti-inflammatory or pleiotropic (coronary plaque stabilising) effects. In this group the NNT is 83 for mortality over five years. This doesn't mean that each patient benefits a little but rather that 82 will receive no prognostic benefit.²¹ The fact that no other cholesterol lowering drug has shown a benefit in terms of mortality supports the hypothesis that the benefits of statins are independent of their effects on cholesterol.

Adopting a Mediterranean diet after a heart attack is almost three times as powerful in reducing mortality as taking a statin. The recently published PREDIMED randomised controlled trial was stopped early after it showed that in high risk people the Mediterranean diet achieved a 30% improvement over a "low fat" diet in terms of cardiovascular events.²²

Pharmacotherapy can assuage symptoms but can't alter pathophysiology. Doctors need to embrace prevention as well as treatment. The greatest improvements in morbidity and mortality have been due not to personal responsibility but to public health. It is time to bust the myth of the role of saturated fat in heart disease and wind back the harms of dietary advice that has contributed to obesity.

Aseem Malhotra is an interventional cardiology specialist registrar, Croydon University Hospital, London
aseem_malhotra@hotmail.com

Competing interests: None declared.

Provenance and peer review: Commissioned; peer reviewed.

A longer version with references is on bmj.com.

Cite this as: *BMJ* 2013;347:f6340

● ANALYSIS, p 15