EUROPEAN MARGARINE ASSOCIATION

IMACE position on
nutritional recommendations on saturated fatty acids

Brussels, February 2015

KEY MESSAGES

- ✓ Reducing intake of saturated fat can reduce a number of risk factors related to CVD.
- ✓ If saturated fat is reduced in the diet, care should be taken over what this is replaced with.
- ✓ Rather than view saturated fatty acids (SAFA) as 'bad fats' it may be better to view polyunsaturated fatty acids (PUFAs) and monounsaturated fatty acids (MUFAs) as 'healthier fats'.
- ✓ The type of fat eaten is as important as the total amount consumed.
- ✓ For the moment, there is not enough evidence to set recommended levels for individual saturated fatty acids.
- ✓ A heart friendly diet is one which is low in *trans*-fatty acids (TFA), SAFA and salt, contains MUFAs, is rich in in omega-6 and omega-3 fatty acids (from PUFA) and is balanced in energy intake.

REDUCING SATURATED FAT

Reducing intake of saturated fats can reduce a number of risk factors related to CVD, but any effect is dependent on what replaces it within the diet. On the basis of evidence from various meta-analyses and cohort studies, the FAO/WHO recommended that the total SAFA intake should not exceed 10% of total energy (28g SAFA/day for men and 22g/day for woman).

Current SAFA intakes exceed these recommendations in the majority of countries across the world, especially in western countries (see [1], [2]).

EFSA/WHO states that there is convincing evidence that replacing SAFA with PUFA and MUFA decreases LDL cholesterol and the risk of developing coronary heart diseases. Dietary recommendations point towards diets with a high intake of TFAs as being harmful for cardiovascular health and for this reason, intakes should be limited (see [3], [5]).

Based on different types of studies the overall cardiovascular health effect of reducing SAFA with other nutrients is summarized:

- Replacing SAFA with PUFA is beneficial for cardiovascular health and the scientific evidence is convincing (see [5], [6], [7]).

- Replacing SAFA with MUFA: possibly convincing effect. Blood lipid improvements but effects on clinical endpoint not proven (see [5], [6], [8]).

- The health effect of replacing SAFA with carbohydrates depends of the type of carbohydrates consumed. Replacing SAFA with largely refined carbohydrates would not reduce the CVD risk. There are insufficient proofs to assess the effect of replacing SAFA with complex carbohydrates (see [5], [10]).

- Replacing SAFA with TFA has a negative effect on cardiovascular health and the scientific evidence is very convincing (see [3], [9]).

When considering SAFA reduction, one must always consider the recommendations for other macronutrients, including other fatty acids (PUFA, MUFA and TFA) and carbohydrates (refined carbohydrates versus complex carbohydrates).

Table - WHO/FAO Guidelines for fat intake in adults

MACRONUTRIENT	% of total Energy	Male intake	Female intake
Total fat	20-35 EN%	56-97 g/day	44 - 78 g/day
Total SAFA	< 10 EN%	28 g/day	22 g/day
Total MUFA	Depends on intake of the other faty acids		
Total PUFA	6-11 EN%	17-31 g/day	13-24 g/day
Omega 3 PUFA	005-2 EN%	1-6 g/day	1-4 g/day
EPA +DHA		0.25-2 g/day	0,25-2 g/day
Omega 6 PUFA	2.,5 – 9 EN%	7-25 g/day	6-20 g/day
TFA	< 1 EN%	3 g/day	2 g/day
Carbohydrates	Min 55 EN%	255 g/day	200 g/day
Free sugars	Max 10 EN%	63.75 g/day	50 g/day

DISTINCTION BETWEEN DIFFERENT INDIVIDUAL SATURATED FATTY ACIDS

Though a number of studies state that individual SAFA have different effects on CVD risk factors, at the moment, there is not enough evidence to justify specific recommendations for individual SAFA.

FAO/WHO recommendations highlight that individual SAFA are likely to have different effects on plasma concentrations of LDL, HDL and total cholesterol. Lauric, myristic and palmitic acids (C12, C14 and C16) would increase LDL cholesterol, while stearic acid (C18) has no effect (1). The effects on blood lipids & other CVD markers are often ambiguous and the number of studies that have investigated these effects is limited. As SAFA are not usually used in isolation within food products, specific dietary recommendations are difficult to make and implement.
Some EU Member States have dietary recommendations for specific SAFA (e.g. Belgium and France), but according to EFSA and WHO, there is not enough scientific evidence to set dietary recommendations for specific SAFA.

HEART FRIENDLY DIET

A heart friendly diet considers the total intake of all nutrients. It is clear that a heart friendly diet does not only consider a limited intake of saturated fats but also highlights a low intake of *trans* fatty acids, a low intake of refined carbohydrates and is rich in unsaturated fats, notably omega-6 & omega-3 fatty acids. A heart friendly diet also considers a balanced, reduced energy intake, limited salt intake, limited alcohol intake and increased intake of fibres and starchy carbohydrates.

A heart healthy diet is a diet with a proper energy balance, varied in terms of foods, in a healthy lifestyle with increased physical activity and no smoking.

REACTION ON PRESS RELEASES REGARDING SATURATED FATS *"Eat more butter"*

Based on the Chowdhury study ([9]), many press releases were found stating that we can eat more saturated fatty acids. These 'easy' messages are based on one of the conclusions of the above study, namely that current evidence does not clearly support cardiovascular guidelines that encourage low consumption of total saturated fats.

When referring to the Chowdhury study, we have to realize that it has been criticized by leading scientists and organisations, such as the American Heart Association (AHA) and European Heart Network (EHN). The main criticism is that it neglects to consider the nutrient(s), which replaces saturated fats in the product. When speaking of cardiovascular health, we should always have a whole diet approach. A heart friendly diet is low in TFA and SAFA, contains MUFAs and is rich in omega-6 and omega-3 PUFAs, and is balanced in energy intake. Dietary recommendations are still valid and we should reduce SAFA intake to maximum 10% of daily energy intake.

Margarine contains 2-3 times less SAFA than butter, and is extremely low in TFA. Nowadays margarine is often a key source of MUFA and PUFA, because of its vegetable oil content. The composition of margarine is thus well balanced, and it fits perfectly within the recommendations of a heart friendly diet.

[1] **Harika RK, Eilander A, Alssema M, Osendarp SJ, Zock PL**. Global, regional, and national consumption levels of dietary fats and oils in 1990 and 2010: a systematic analysis including 266 country-specific nutrition surveys.Ann Nutr Metab. 2013;63(3):229-38. doi: 10.1159/000355437. Epub 2013 Oct 29. Review. PMID: 24192557

[2] **Micha** R, Khatibzadeh S, Shi P, Fahimi S, Lim S, Andrews KG, Engell RE, Powles J, Ezzati M,**Mozaffarian** D; Global Burden of Diseases Nutrition and Chronic Diseases Expert Group NutriCoDE. Global, regional, and national consumption levels of dietary fats and oils in 1990 and 2010: a systematic analysis including 266 country-specific nutrition surveys. BMJ. 2014 Apr 15;348:g2272. doi: 10.1136/bmj.g2272. PMID:2473620

[3] **FAO/WHO** (2010) Fats and fatty acids in human nutrition. Report of an expert consultation. Rome, Italy

[4] **Elmadfa I, Kornsteiner M** (2009) fats and fatty acid requirements for adults; Ann Nutr Metab 55:56-75. Doi:10.1159/0002289996

[5] **Jakobsen MU, O'Reilly EJ, Heitmann BL, Pereira MA, Balter K, Fraser GE, Goldbourt U, Hallmans G, Knekt P, Liu S, Pietinen P, Spiegelman D, Stevens J, Virtamo J, Willett WC, Ascherio A**. Major types of dietary fat and risk of coronary heart disease: a pooled analysis of 11 cohort studies. Am J Clin Nutr 2009 May;89(5):1425-32

[6] **Mozaffarian D, Micha R, Wallace S**. Effects on coronary heart disease of increasing polyunsaturated fat in place of saturated fat: a systematic review and meta-analysis of randomized controlled trials. PLoS Med 2010;7(3):e1000252

[7] **Ramsden CE, Hibbeln JR, Majchrzak SF, Davis JM**. n-6 fatty acid-specific and mixed polyunsaturate dietary interventions have different effects on CHD risk: a meta-analysis of randomised controlled trials. Br J Nutr 2010 Dec;104(11):1586-600.

[8] **Mensink, Zock, Kester, Katan**, Effects of dietary fatty acids and carbohydrates on the ratio of serum total to HDL cholesterol and on serum lipids and apolipoproteins: a meta-analysis of 60 controlled trials Am J Clin Nutr 2003

[9] **Rajiv Chowdhury, MD, PhD; Samantha Warnakula, MPhil*; Setor Kunutsor, MD, MSt*; Francesca Crowe, PhD; Heather A. Ward, PhD; Laura Johnson, PhD; Oscar H. Franco, MD, PhD; Adam S. Butterworth, PhD; Nita G. Forouhi, MRCP, PhD; Simon G. Thompson, FMedSci; Kay-Tee Khaw, FMedSci; Dariush Mozaffarian, MD, DrPH; John Danesh, FRCP*; and Emanuele Di Angelantonio, MD, PhD.** Association of Dietary,

Circulating, and Supplement Fatty Acids With Coronary Risk: A Systematic Review and Meta-analysis 2014

[10] **Kuipers et al**. saturated fat, carbohydrates and cardiovascular disease. The Netherlands Journal of Medicine. 2011; 69 (9):372-378