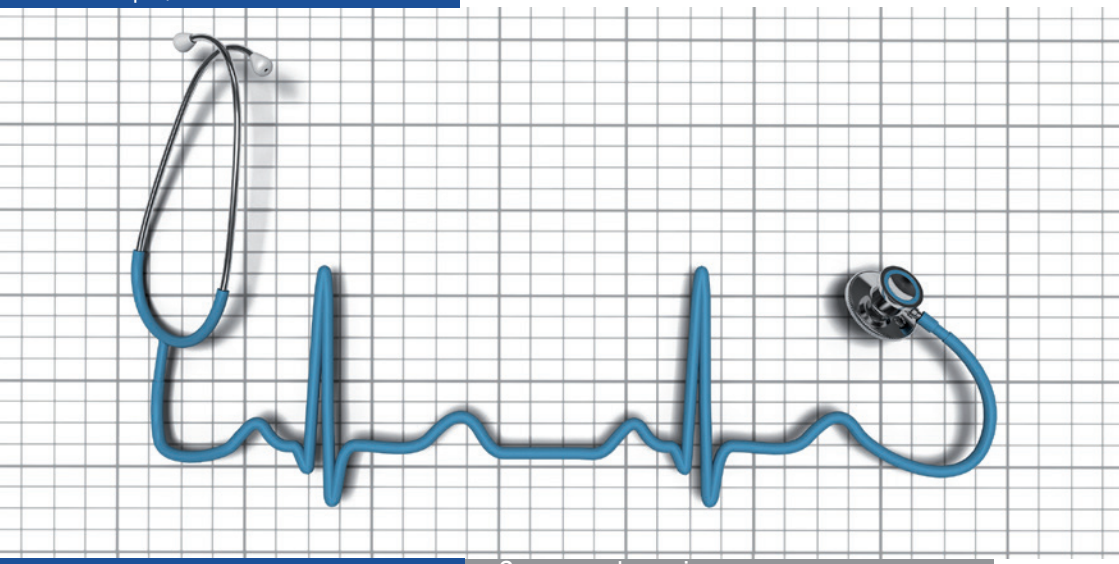
FENS 12th European Nutrition Conference

BERLIN - OCTOBER 21, 2015
4.30 - 6.00 pm / ECC Room 2 Ground floor



Sponsored session

Regular Fat Dairy Foods in Nutrition and Health: The Latest Insights

EMF European Milk Forum · Cniel · The Dairy Council · nzo nederlandse zuivel organisatie

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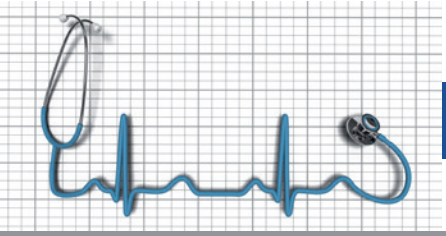

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Introduction

Dietary guidance over the last 30 years has focused on dietary fat and saturated fat reduction to minimize the risk of metabolic diseases, especially the risk of heart disease. However, science is evolving and today saturated fat may not be the major issue. Moreover emerging research points to the importance of the food source of saturated fat and of the matrix effect of foods. Some foods that contribute fat and saturated fat to the diet also contribute other essential nutrients and contain many different components. This is well illustrated with regular fat dairy foods which are nutrient-rich and which have a different impact on several chronic disease outcomes from those that would be predicted based solely on their saturated fat content.

The satellite symposium is organized by the joint action of the European Milk Forum (EMF), Centre National Interprofessionnel de l'Econonomie Laitière (CNIEL), Dutch Dairy Organization (NZO), the Dairy Council (UK), Dairy Farmers of Canada (DFC), Dairy Australia, National Dairy Council (US), Global Dairy Platform, and the International Dairy Federation.

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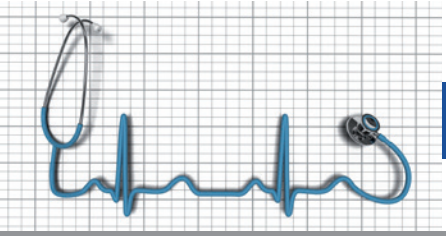

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Programme

REGULAR FAT DAIRY FOODS IN NUTRITION AND HEALTH: THE LATEST INSIGHTS

Chairs

Prof. Philippe Legrand - Agrocampus INRA, Rennes, France.

Dr. Stefanie Oude Elferink - Chair, International Dairy Federation Standing Committee on Nutrition and Health.

Introduction

Nutritional interest of saturated fatty acid, the specific case of dairy fat

Prof. Philippe Legrand - Agrocampus INRA, Rennes, France.

Saturated fat and cardiovascular risk

Prof. Benoît Lamarche - Laval University, Québec, Canada.

Regular fat dairy products and diabetes type 2: the role of dietary fats and their food sources

Dr. Ulrika Ericson - Lund University, Sweden.

Cheese and metabolic diseases

Prof. Arne Astrup - University of Copenhagen, Denmark.

Panel discussion and question and answer period with the speakers

Moderator: Prof. Philippe Legrand - Agrocampus INRA, Rennes, France.

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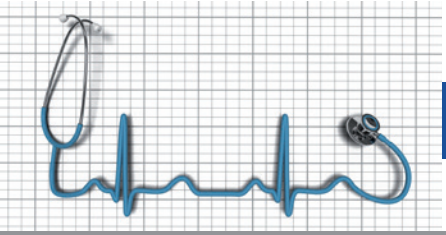

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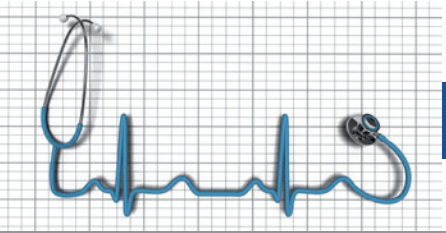
Abstract

Nutritional interest of saturated fatty acid, the specific case of dairy fat.

Prof. Philippe Legrand - Agrocampus INRA, Rennes, France.

Dietary saturated fatty acids (SFA) are usually associated with negative consequences for human health because of their negative impact on atherosclerosis biomarkers. However, experimental results on the relationship between doses, physiological effects, specificities and functions of individual saturated fatty acids are conflicting. Distinction among saturated fatty acids has been made, the subgroup of lauric, myristic and palmitic acids considered the ones being atherogenic in case of excess. Moreover, recent research clearly reports that saturated fatty acids have important and specific biological roles in the cell like protein acylation (N-myristoylation, S-palmitoylation). If we consider now the epidemiological approaches, recents meta-analysis and cohort studies all report the absence of any link between SFA and cardiovascular risk, which completely reverses the old dogma on deleterious effects of saturated fat. As a consequence, a new balanced view is needed in term of potential nutritional benefits of saturated fatty acids, and subsequently a reassessment of the current nutritional dietary recommendations, as recently done in France with the ANSES opinion.
More specifically, dairy fat appears protective for some aspects of metabolic syndrome and type II diabetes, suggesting that the richness and variety of fatty acid including short , middle chain, minor fatty acids like trans-palmitoleic acid, and conjugated fatty acids, induce specific and protective functions.

References
1 Opinion of the French Food Safety Agency on the update of French population reference intakes (ANC) for fatty acids. 2010. www.anses.fr
2 Complete report on the update of French population reference intakes (ANC) for fatty acids. 2010. www.anses.fr
3 P. Legrand, V. Rioux, (2010) The Complex and Important Cellular and Metabolic Functions of Saturated Fatty Acids, Lipids, 45, 941-946.



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Abstract

Saturated fat and cardiovascular risk

Prof. Benoît Lamarche - Laval University, Québec, Canada.

Research over the last decades has provided insightful but sometime discordant information as to the role of dairy foods in health. Because high-fat dairy products contribute significantly to dietary fat and SFA intake, and because SFA are so strongly believed to be involved in the etiology of CVD, many guidelines advocate consumption of low-fat dairy products as opposed to products with higher fat content. Yet, the association between SFA and the risk of CVD remains highly controversial. Meta-analysis of data from early intervention studies has suggested that replacement of dietary SFA by PUFA (mostly linoleic acid) reduces the risk for CVD. On the other hand, meta-analyses of population studies have failed to find an association between dietary SFA intake and the risk of CVD. A systematic review of evidence from epidemiological studies indicated that intake of total dairy, low-fat dairy, cheese and fermented dairy is associated with a reduced risk of stroke. Consumption of total dairy, low-fat dairy and milk specifically may be associated with a lower risk of hypertension. A large clinical trial on dairy intake and clinical outcomes such as CVD is highly unlikely in the future. In that context, interpretation of the association between dietary SFA from various dairy foods and health will always rely on indirect evidence from epidemiological data as well as from a thorough understanding of their impact on many cardiometabolic risk factors, not just LDL-C and blood pressure. We argue that focus on low-fat dairy products in current guidelines to limit dietary SFA intake is not justified by current evidence.

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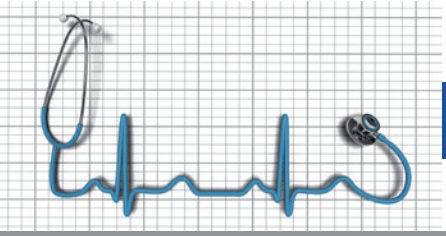

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Abstract

Regular fat dairy products and diabetes type 2: the role of dietary fats and their food sources

Dr. Ulrika Ericson - Lund University, Sweden.

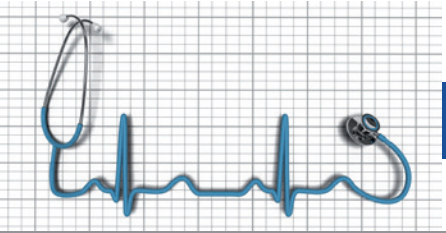
Introduction: Dietary fats could affect glucose metabolism and obesity development, and may thereby have a crucial role type 2 diabetes (T2D) etiology. Studies indicate that replacing saturated fats with unsaturated might be favorable in T2D prevention, and that plant foods might be a better choice than animal foods. Nevertheless, epidemiological studies suggest dairy foods to be protective.

Objectives: In order to clarify the role of dietary fat in T2D development, we examined dietary fat, and its food sources classified according to fat type and fat content.

Method/Design: The study included 26,930 individuals (61% women), 45-74 years, from the Malmö Diet and Cancer cohort. Dietary data were collected with a modified diet history method. During 14 years follow-up, 2,860 incident T2D cases were identified.

Results: Total intake of high-fat dairy products (regular-fat alternatives) was inversely associated with incident T2D (HR for highest (median=8 portions/day) vs. lowest (median=1 portion/day) quintile: 0.77; 95% CI: 0.68, 0.87; P-trend<0.001). Most robust inverse associations were seen for intakes of cream and high-fat fermented milk (P-trends<0.01), and for cheese in women (P-trend=0.02). High intake of low-fat dairy products was associated with increased risk, but this association disappeared when low- and high-fat dairy were mutually adjusted (P-trend=0.18). Both high intakes of high-fat (P-trend=0.04) and low-fat (P-trend<0.001) meat were associated with increased risk. Finally, we did not observe significant association between total dietary fat content and T2D (P-trend=0.24), but intakes of saturated fatty acids with 4 to 10 carbons, lauric (C12:0) and myristic acid (C14:0) were associated with decreased risk (P-trends<0.01).

Conclusions: The decreased risk of T2D at high intake of high-fat dairy products, but not of low-fat dairy products, suggests that dairy fat partly could have contributed to previously observed protective associations between dairy intake and T2D. Meat intake was associated with increased risk independently of fat content.



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Abstract

Cheese and metabolic diseases

Prof. Arne Astrup - Department of Nutrition, Exercise and Sports, University of Copenhagen, Denmark

Current recommendations to reduce the intake of saturated fat to prevent cardiovascular disease (CVD) are seriously questioned by meta-analyses of both observational studies and randomized controlled trials showing no adverse effect of saturated fat. However, observational studies find robust inverse associations between intake of dairy and obesity, type 2 diabetes and CVD, and fermented dairy may play a special protective role. Our aim was to elucidate mechanisms by which the cheese food matrix influences the cardio-metabolic response to saturated fat. In a series of studies we found that calcium in cheese interferes with fat digestion and absorption in the intestine, and fecal fat excretion is enhanced (~ 1,000 mg Ca increases fecal fat excretion by 4-5 grams/d). In controlled feeding studies in pigs and humans we have shown that feeding a high-fat diet enriched with dairy calcium minerals as compared with a diet with a similar saturated fat content markedly lowers the increase plasma total cholesterol and LDL-cholesterol, but not HDL-cholesterol. In the human study, total cholesterol and LDL-cholesterol concentrations were 6% ($P<0{\cdot}002$) and 9% ($P<0{\cdot}03$) lower after the dairy minerals compared with the control period. By enrichment of milk with calcium to mimic the content of cheese we could show that the high calcium contents of cheese is the predominant factor for these effects. The LDL-cholesterol lowering effect correlated with the increase in fecal fat excretion. These short-term studies indicate that the addition of milk minerals to a high-fat diet attenuates the increase in total cholesterol and LDL-cholesterol concentrations, without affecting HDL-cholesterol concentration. Conclusion: Although dairy today is know not to increase CVD, cheese seems to exert a cardio-protective effect, and the mechanism seems to be in the matrix, where the high calcium content play an important role. Cheese should be recommended as an essential part of a heart-healthy diet.

Biography

Philippe Legrand

Pr. Philippe Legrand, PhD in Nutritional Biochemistry from University of Paris in 1987 and post-doc at Cornell University (USA) in the Division of Nutritional Sciences. He is Professor and chairman of the laboratory of Biochemistry and Human Nutrition in the Agronomic University of Rennes. For more than 30 years, he performs research on fundamental aspects of fatty acid synthesis and metabolism. More precisely, he worked on the role of fatty acid desaturases showing that the conversion of poly-unsaturated n-6 and n-3 fatty acid shared the same desaturases, leading to the recommendations on the required n-6/n-3 balance in human diet. He works also since 15 years on saturated fatty acids, showing their nutritional interest and the necessary evolution to distinguish between short / middle chain / long chain saturated fatty acids. He is chairman since 1998 of the french guidelines committees for the fatty acid dietary recommendations, in the Food Safety Agency (ANSES) where he proposed a new approach for considering saturated fatty acids.

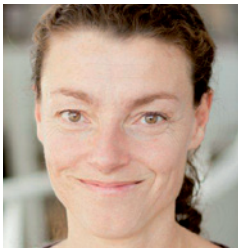
Biography

Benoît Lamarche

Benoît Lamarche, PhD is Full Professor at the School of Nutrition and Chair of Nutrition at Laval University. He has published more than 260 peer-reviewed papers in areas related to nutrition and its impact on metabolic syndrome, obesity, inflammation and dyslipidemia. His research on the association between small dense LDL particles and the risk of CHD, on the effect of trans fat from industrial and ruminant sources on blood lipids and on Mediterranean diet is highly cited. He has received numerous awards, including awards from the Société Québécoise de lipidologie, nutrition et métabolisme (Prix des Fondateurs, 2013), the Canadian Nutrition Society (Centrum New Investigator Award, 2011), the Utrech Group and the International Dairy Federation (Wiebe Visser Bi-annual International Nutrition Award, 2004).

Biography

Ulrika Ericson



Ulrika Ericson is a nutritionist and works as associate researcher at Lund University at the Department of Clinical Sciences in Malmö, Sweden. Her main research interest is the role of macronutrients in type 2 diabetes development and gene-diet interactions. She is also interested in diet assessment methodology and is responsible for the diet data collection in the Malmö Offspring study, which includes children and grandchildren to individuals in the Malmö Diet and Cancer cohort.

Biography

Arne Vernon Astrup

Arne Astrup is Head of The Department of Nutrition, Exercise and Sports at The Faculty of Science, University of Copenhagen, Denmark. He is Director of the OPUS Research Centre 2009-14 funded by the Nordea Foundation (total grant of 15 mill. €).

Arne Astrup was created Knight of the Order of Dannebrog in 1999, and Knight of the First Order of Dannebrog in November 2012.

Astrup attained his medical degree from the University of Copenhagen in 1982 and a Doctorate in Medical Science in 1986. He was appointed Professor of Nutrition at the Research Department on Human Nutrition at the Royal Veterinary and Agricultural University, Denmark in 1990. His main areas of interest include the physiology and pathophysiology of energy and substrate metabolism, with special emphasis on the aetiology and treatment of obesity. Major research collaborations include participation in the EU multicenter studies EUROSTARCH, CARMEN, NUGENOB, DIABESITY, DIOGENES, EMOB, and HEALTHGRAIN. He is author/co-author of Over 510 peer-reviewed original, review, and editorial publications (citations-H-index: 66), and more than 950 other academic publications such as textbook chapters, scientific abstracts and letters. The great majority of these publications relate to nutrition, obesity and diseases relating to obesity, and several are published in the New England Journal of Medicine, The Lancet, and Nature. Thomson Reuters Science Index 2010: 5th for obesity publications.

Arne Astrup is currently Associate Editor of American Journal of Clinical Nutrition (2010-) and member of the Editorial Committee of Annual Reviews of Nutrition (2013-). He was founding Editor-in-Chief of Obesity Reviews in 1999-2010. He was President of The International Association for the Study of Obesity (IASO) 2006-2009 and Chairman 2009-2010.