A systematic review to identify gaps that limit translating knowledge on dairy products and inflammation into nutritional guidelines

A. Bordoni, F. Danesi, Dominique Dardevet, D. Gille, C. Nunes dos Santos, Re Pinto R, Didier Remond, Dr Shahar, G. Vergères

HAL Id: hal-02742188
https://hal.inrae.fr/hal-02742188v1

Submitted on 3 Jun 2020

A systematic review to identify gaps that limit translating knowledge on dairy products and inflammation into nutritional guidelines

A. Bordoni[1], F. Danesi[1], D. Dardevet[2], D. Gille[3], C. Nunes dos Santos[4,5], P. Pinto[4,6], R. Re[7], D. Rémond[2], DR. Shahar[8], G. Vergères[3*]

[1]Department of Agro-Food Sciences and Technologies, University of Bologna, Bologna, Italy, [2]Department of Human Nutrition, INRA, Clermont-Ferrand, France,[3]Institute for Food Sciences, Agroscope. Federal Department of Agriculture, Berne, Switzerland, [4]Instituto de Tecnologia Química e Biológica, Universidade Nova de Lisboa, Lisbon, Portugal, [5]Insituto de Biologia Experimental e Tecnológica, Oeiras, Portugal, [6]Escola Superior Agrária, Insituto Politécnico de Santarém, Portugal, [7]Department of Human Nutrition, Leatherhead Food Research, Leatherhead, United Kingdom, [8]The S. Daniel Abraham International Center for Health and Nutrition, Department of Public Health, Ben-Gurion University of the Negev, Beer-Sheva, Israel

*guy.vergeres@agroscope.admin.ch

The challenge of translating knowledge on food composition into dietary guidelines that promote health is compounded by the process of food digestion. INFOGEST tackles this issue by promoting research on this topic. The digestive system is highly interconnected with the gut microbiota and immune system. Knowledge on digestion must therefore integrate these additional processes in order to link food composition to the nutritional signals finally sensed by the human organism. This issue can be addressed by a backward strategy identifying relevant metabolic signals produced by humans in response to the ingestion of specific foods.

Dairy products are major components of the diet and interact with the gut microbiota and the immune system. Also, inflammation is mechanistically linked to the metabolism of nutrients. As a demonstrator of this backwards strategy, this review therefore identifies gaps in knowledge on the association between dairy product consumption and inflammation.

We conducted a systematic review of the literature (Medline, Scopus) and identified >60 human studies using inflammatory markers in relation to the consumption of dairy products. These studies were critically evaluated using the PRISMA checklist and EFSA guidance for the authorization of health claims. An inflammatory score was determined for each reported data set to allow for a quantitative evaluation of the impact of dairy consumption on inflammation.

Our analysis indicates that dairy products can modulate inflammation in humans. This effect is, however, blurred by the heterogeneity in study designs, the health status of the subjects under study, the type and dosage of the dairy products, and the inflammatory markers measured. Furthermore, the literature is characterized by a large gap of knowledge on the bioavailability of the nutrients potentially mediating these effects.

Future research should better combine food and nutritional sciences to adequately follow the fate of bioactive nutrients along the gastrointestinal and metabolic axes.

X For oral presentation ☐ For poster presentation (please tick one)