

Associations between food and beverage groups and major diet-related chronic diseases: an exhaustive review of pooled/meta-analyses and systematic reviews

Anthony Fardet and Yves Boirie

Associations between food and beverage groups and the risk of diet-related chronic disease (DRCD) have been the subject of intensive research in preventive nutrition. Pooled/meta-analyses and systematic reviews (PMASRs) aim to better characterize these associations. To date, however, there has been no attempt to synthesize all PMASRs that have assessed the relationship between food and beverage groups and DRCDs. The objectives of this review were to aggregate PMASRs to obtain an overview of the associations between food and beverage groups (n = 17) and DRCDs (n = 10) and to establish new directions for future research needs. The present review of 304 PMASRs published between 1950 and 2013 confirmed that plant food groups are more protective than animal food groups against DRCDs. Within plant food groups, grain products are more protective than fruits and vegetables. Among animal food groups, dairy/milk products have a neutral effect on the risk of DRCDs, while red/processed meats tend to increase the risk. Among beverages, tea was the most protective and soft drinks the least protective against DRCDs. For two of the DRCDs examined, sarcopenia and kidney disease, no PMASR was found. Overweight/obesity, type 2 diabetes, and various types of cardiovascular disease and cancer accounted for 289 of the PMASRs. There is a crucial need to further study the associations between food and beverage groups and mental health, skeletal health, digestive diseases, liver diseases, kidney diseases, obesity, and type 2 diabetes.

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INTRODUCTION

The role of dietary risk factors in noncommunicable chronic diseases is now well recognized.¹⁻³ Dietary risk factors have been calculated to account for approximately 14% of disability-adjusted life-years and approximately 26% of deaths in the United States.² Indeed, the transition from a traditional diet toward a diet composed of more industrialized, refined, and energy-dense foods (i.e., Western diet) has led to the well-known worldwide epidemics of obesity and type 2 diabetes (i.e., the so-called

“nutritional transition”). The causes of these two chronic metabolic diseases may be related to the consumption of an unbalanced diet over many years. In addition, both diseases may be risk factors for other diet-related chronic diseases (DRCDs), including cardiovascular diseases (CVD), cancers, digestive diseases, mental illnesses, sarcopenia, and some skeletal, kidney, and liver diseases.⁴ It was recently shown that the origin of these DRCDs is multifactorial and may result from at least 10 different deregulated metabolic parameters, including antioxidant status, acid-base imbalance, increased inflammatory

Affiliations: A Fardet and Y Boirie are with the Unité de Nutrition Humaine, INRA de Theix & Université d'Auvergne, 63122 Saint-Genès-Champanelle, Auvergne, France.

Correspondence: A Fardet, INRA, UMR 1019, Unité de Nutrition Humaine, 63122 Saint-Genès-Champanelle, France. E-mail: anthony.fardet@clermont.inra.fr. Phone: +33-4-73-62-47-04. Fax: +33-4-73-62-47-55.

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