

Protective nutrients and functional foods for the gastrointestinal tract^{1,2,3}

Christopher Duggan, Jennifer Gannon and W Allan Walker

► ABSTRACT

Epithelial and other cells of the gastrointestinal mucosa rely on both luminal and bloodstream sources for their nutrition. The term *functional food* is used to describe nutrients that have an effect on physiologic processes that is separate from their established nutritional function, and some of these nutrients are proposed to promote gastrointestinal mucosal integrity. We review the recent in vitro, animal, and clinical experiments that evaluated the role of several types of gastrointestinal functional foods, including the amino acids glutamine and arginine, the essential micronutrients vitamin A and zinc, and 2 classes of food additives, prebiotics and probiotics. Many of the data from preclinical studies support a strong role for enteral nutrients in gastrointestinal health; in comparison, the data from human studies are limited. In some cases, impressive data from in vitro and animal studies have not been replicated in human trials. Other clinical trials have shown positive health benefits, but some of those studies were plagued by flaws in study design or analysis. The methods available to detect important changes in human gastrointestinal function and structure are still limited, but with the development of more sensitive measures of gastrointestinal function, the effects of specific nutrients may be more easily detected. This may facilitate the development of phase 3 clinical trials designed to more rigorously evaluate the effects of a particular nutrient by focusing on valid and reliable outcome measures. Regulatory changes in the way in which health claims can be made for dietary supplements should also be encouraged.

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