Food additives make you fat

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An important recent study indicates that two additives which are commonly used by the processed food industry, polysorbate 80 and carboxymethylcellulose, destroy the equilibrium of the intestinal flora, leading to inflammation of the intestine and a serious perturbation of metabolism which provokes weight gain. Another good reason to avoid eating processed food products too often!

The industrialized production of food has had a remarkable impact on the eating habits of the population: while these transformed foods did not even exist a century ago, they currently represent more than 70% of food sales on the global scale. These products, mainly produced by multinational food companies, are very often industrial creations containing all sorts of things, a mixture of inexpensive ingredients (fat, sugar, salt, some additives) which have been cleverly assembled to generate attractive products which are easy to use and which will last a long time before spoiling. We don’t always realize, however, that the transformed foods are often the result of chemical engineering rather than culinary art!

This “food chemistry” is well-illustrated by the long list of ingredients found in the majority of processed foods. While a cookie baked at home usually contains less than 10 ingredients, its industrial equivalent can have two or three times more ingredients, most notably a panoply of additives which serve to improve the texture or lifespan of these products. Amongst these additives, the use of emulsifiers is particularly widespread, because these compounds can simultaneously bind both oils and water, permitting them to create a smooth and homogeneous texture to preparations containing these two liquids which normally do not mix. This property means that the synthetic emulsifiers, such as polysorbate 80 and carboxymethylcellulose, have become ubiquitous in processed foods, and the average North American consumes nearly 100 mg of these emulsifiers every day.

INFLAMMATORY EMULSIFIERS

The ability of emulsifiers to mix water and oil raises, however, certain questions regarding possible effects on some of our protective barriers which must remain insoluble in water. The layer of mucus which covers the surface of the intestine is a good example: the integrity of this viscous, watertight structure which covers the cells of the intestine is essential to prevent the hundreds of billions of bacteria which reside in the intestine from coming into contact with the immune system and provoking inflammation. Recent observations suggest, however, that dietary emulsifiers can weaken this barrier and permit the bacteria to come into contact with the intestinal cells, raising the disquieting possibility that repeated consumption of these molecules could contribute to the increased incidence of intestinal inflammatory diseases which has been observed over the past few decades.

This fear is supported by the results of a study recently published in the prestigious journal Nature. A team of American researchers observed that addition of weak quantities of polysorbate 80 or carboxymethylcellulose to the diet for test animals provoked inflammation of the intestine, a consequence of the infiltration of bacteria across the mucus barrier. This inflammation was associated with significant changes in the composition of the bacterial flora and a deterioration in metabolic health, with a notable hyperglycemia and an increase in body weight. This impact of emulsifiers on the intestinal flora seemed particularly severe because the simple act of transferring the microbial content of the intestines from animals exposed to emulsifiers to non-exposed animals was sufficient to recreate the metabolic problems (hyperglycemia and obesity).

EATING REAL FOODS

These observations thus show that emulsifiers in food can alter the integrity of the intestinal barrier and the composition of the microbial flora, which generates a chronic inflammation that deranges the metabolism and favors the accumulation of fat. The ubiquitous nature of these compounds in modern processed foods could thus contribute to the high incidence of overweight people seen in today’s population, as well as to the increased frequency of inflammatory diseases of the intestines.

To remain trim and in good health, we must therefore reduce to a minimum the consumption of processed, transformed foods and instead turn to “real” foods, particularly those of plant origins. It is also interesting to note that the consumption of plant-based foods rich in polyphenols provokes an increase in beneficial intestinal bacteria, a normalization of blood sugar and a reduced accumulation of fat, effects which are the complete opposite of those provoked by the industrially processed foods.

References: