

Nutrients, food and cardiovascular health – distinguishing fact from fantasy

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The influence of food on cardiovascular health has been suspected for centuries but only put on a firm scientific basis in the last hundred years. Coupled with this has been the quest for specific micro or macro nutrients that might be responsible for cardiovascular benefits ie the elixir of life approach, or alternatively the search for substances that might be particular culprits in disease. As data has accumulated so has the move to create tailored foodstuffs either de novo, as in the case of margarines, or to add, concentrate or dilute specific nutrients in food, eg with many so called low fat products now available. Much of the focus has been on factors predisposing to coronary heart disease and subtypes of stroke with different casualties which may be affected differentially by nutrients. High blood pressure is a major predisposing factor to both conditions and will be the focus of some of this talk. However what is bad for blood pressure and haemorrhagic stroke may not always be so for coronary heart disease; viz alcohol. In a field where poorly substantiated claims for benefits of specific nutrients or food extracts abound the importance of high quality scientific methods in dissecting out the truth cannot be overemphasised. Most studies initially rely on epidemiological evidence for an association between a particular food or nutrient and disease, using within population, between population or migrant studies of a cross sectional or prospective nature. Such studies may have strength in numbers and consistency but are frequently confounded by the high degree of collinearity between different diet and lifestyle characteristics, not all of which may be measured accurately, if at all. A further problem with such studies is the difficulty in assessing food and nutrient intake. In the case of prospective cohort studies the fact that there is often only one time point used to assess dietary intake in relation to events decades later. Randomised controlled clinical trials in which effects of dietary change on surrogates of disease can be monitored can be of great value. Such trials evaluating the effects on measures such as lipids, blood pressure, glucose metabolism, clotting and coagulation and more recently measures of oxidative stress and endothelial function form the next tier of evidence. Nevertheless surrogate endpoints may also be misleading and the ultimate test of the value of dietary change is a randomised controlled trial in which the outcome is disease process per se, most commonly either fatal or non fatal clinical heart disease and stroke. Such trials require very large numbers of subjects, they are costly, very difficult to fund and difficult to fund and difficult to conduct with the high level of compliance needed to provide proof of principle unless involving provision of a micronutrient supplement which can be taken as a pill or capsule. Interestingly it is this last type of trial involving antioxidant vitamins which is leading us back to the understanding the value of complex dietary patterns rather than placing too much reliance on specific nutrients. Despite the methodologic hurdles some areas are moving rapidly. This is particularly so in the field of long chain omega-3 fatty acids of marine origin, where the value of both increased fish intake and fish oil supplements has substantive scientific backing. Work will be described outlining some of the approaches by the food industry to provide more omega-3 fatty acids at various levels in the food chain and suggest some caution in relation to claims being made.