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Can increased lycopene consumption reduce cardiovascular risk in diabetic patients?

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Type-2 diabetes is associated with an increased risk of stroke, heart disease and peripheral arterial disease, which are the leading cause of mortality and morbidity in Western countries. In the UK, the incidence of diagnosed type 2 diabetes significantly increased over the last 10 years, reaching 515 cases per 100,000 in 2010. Epidemiological evidence indicates that high consumption of fruits and vegetables reduces the risk of chronic disease such as CVD and increased intake of tomato-based products has been associated with a significant reduction of relative risk of CVD, which could be of particular benefit for diabetic patients. Such potential benefits to cardiovascular health from a tomato-rich diet are often ascribed to high concentrations of lycopene in tomato products. Lycopene is carotenoid which constitutes 80-90% of the pigments present in tomato. It is readily bioavailable and represents one of the main carotenoids found in human plasma blood. Elevated systemic concentrations of lycopene correlate with a reduction in CVD incidence, and are inversely associated with markers of CVD risk, such as c reactive protein and vascular endothelial dysfunction. Potential mechanisms by which lycopene could protect against heart disease include the reduction of serum total and low density lipoprotein cholesterol concentrations, modulation of inflammatory markers, and by reducing oxidative damage. This presentation will review the evidence for the cardiovascular benefits of high lycopene consumption and new aspects on the mechanisms of action will be presented.

Biography

Frank Thies completed his PhD in Nutritional Physiology at the University of Burgundy in 1991. After working at NIH, Oxford University, and the University of Southampton, he joined the University of Aberdeen in 2001. He is the Secretary of the Scottish section of the Nutrition Society, and a member of the Scientific Committee and Council of the Nutrition Society. His research mainly relates to the influence of various dietary components on cardiovascular function and cardiovascular risk, with particular emphasis being placed on the role of inflammatory processes.

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