

## Glycaemic Control with Unavailable Carbohydrates Including Polyols

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### Summary

Seven circumstances or mechanisms are indicated whereby fibre and polyols could reduce blood glucose and insulin concentrations and so potentially help to reduce the prevalence of diabetes, CHD, and certain cancers. All are independent of possible additional influences by associated substances such as antioxidant lignans. Further, high cereal fibre intake additionally lowers the starch:fibre ratio thus lowering the glycaemic index of total carbohydrate while not affecting that of available carbohydrate; this may be helped by fibre in whole grain causing some starch to be unavailable. It seems that glycaemic index expressed as g equivalents per g available carbohydrate does not account for the full effects of fibre on lowering of blood glucose in some circumstances whereas glycaemic load in units of g equivalents per day (or per unit food) would. Overall, the glycaemic load appears stronger at present than glycaemic index for: the epidemiology on development of type-2 diabetes and heart disease combined; the epidemiology of HDL, TG, and C-reactive protein; the interventions on body weight in *ad-libitum* studies; and the interventions on glycated proteins and fasting blood glucose in diabetics. These data appear more consistent than is generally discussed in the literature, and indicates a need for a more analytical assessment of the evidence base than undertaken so far by either national authorities or associations of health professionals or by application of simple fixed-effects meta-analyses. Scope exists for a reduction in glycaemic load by replacing high glycaemic available carbohydrate with either low-glycaemic available carbohydrate or fibre or polyols and this potentially could reduce the prevalence of diabetes and CHD by up to thirty percent.