

Low carb diets, going against the grain



Low carbohydrate diets have, once again, grabbed the headlines; this despite a substantial body of evidence showing that a range of dietary patterns, which include grains, promote health and reduce risk of chronic disease.

Support for low carbohydrate-high fat (LCHF) diets has escalated worldwide. Alarming, in areas of Sweden where the uptake of these diets has been particularly prevalent, blood cholesterol levels have risen.¹ Such diets invariably involve radical restriction of total carbohydrate (typically <12% of energy intake) and largely unrestricted intakes of saturated fat rich foods including butter and fatty meats. The movement has been fuelled by the publication of a limited number of apparently suggestive papers in respected journals²⁻⁴, and promotion by some health professionals.⁵ Recent evidence, however, confirms the well-established cornerstones of dietary advice (reduce saturated fat, free sugars and sodium, and increase wholegrain cereals and fibre) but changing disease patterns and additional data have necessitated some changes in emphasis.⁶⁻⁸

One important change has been the acceptance of a wider range of macronutrients than previously recommended for the prevention and treatment of obesity and associated chronic diseases, enabling the translation of nutritional recommendations into dietary patterns as diverse as Mediterranean diets relatively high in total fat and unsaturated vegetable oils and Asian diets relatively high in carbohydrate. However the totality of epidemiological, experimental and clinical trial evidence overwhelmingly supports lowering blood cholesterol by reducing saturated fat with substitution with unsaturated fats.^{7,9-11} Reduction of conventional risk factors has contributed to dramatic declines in coronary heart disease death rates in most western countries during the past 30 to 40 years.¹²

Much of the justification for the use of LCHF diets stems from the relatively short-term studies (typically <6 months) which have demonstrated benefit in terms of weight reduction and improvement in biomarkers for cardiovascular disease and diabetes.¹³ However longer term trials clearly show that compliance with energy restriction is the principal determinant of sustained weight loss with no clear merit of LCHF diets over those of different macronutrient composition.¹⁴ WHO commissioned systematic reviews and meta-analyses have confirmed the importance of free (added) sugars¹⁵ and total fat intake¹⁶ when consumed *ad libitum* as causes of excess body fatness, thus the strong draft recommendations from WHO¹⁷ as well as from the Specialist Advisory Committee on Nutrition (SACN) in the United Kingdom that free sugars intake should be radically reduced from present levels of intake.⁸ Recent recommendations have extended the acceptable upper limit of total fat intake to 35-40% of total energy.^{6,18} While relatively high intakes of total fat from nuts, seeds, and unsaturated vegetable oils may be acceptable in terms of reducing cardiovascular risk, and for those who are not overweight or obese, lower fat intakes may reduce calorie intake and prevent weight gain in overweight individuals and populations with high rates of obesity and diabetes.

Other than the need to restrict consumption of free sugars, nature of dietary carbohydrate and justification for a recommended range of intakes have received less attention. In many countries grains are heavily processed and white rice and potatoes provide a high proportion of total carbohydrate calories. These are rapidly digested, absorbed and metabolised and have predominated in many studies purporting to show adverse metabolic effects when high and low carbohydrate intakes have been compared.¹³ On the other hand diets relatively high in fibre from wholegrains, pulses, fruit and vegetables have been shown to be protective against type 2 diabetes, colorectal cancer and cardiovascular disease.⁸ Longer randomised trials have shown that diets high in such carbohydrates can substantially reduce risk of progression of prediabetes to diabetes and cardiovascular disease.¹⁹ Thus consumption of appropriate carbohydrate sources is recommended rather than carbohydrate restriction. The SACN report suggests that carbohydrate should principally be derived from vegetables, fruits and wholegrains, mean adult intakes of dietary fibre should increase to 30 g/day and the population should derive about half of total calories from carbohydrate.⁸ Nordic recommendations suggest similar foods to provide total

carbohydrate intakes ranging between 45 and 60% total energy⁶ broadly comparable with a WHO Scientific Update on Carbohydrates.²⁰

Public health initiatives to promote health and reduce risk of chronic disease will be advanced by the recognition that a range of dietary patterns supported by strong evidence based research relating to nutrients as well as foods are acceptable. This does not include a LCHF diet. Several features are common to recommended dietary patterns. These include increased consumption of fruits, vegetables, nuts, legumes, fish, unsaturated oils and low fat dairy foods. Cereal based foods should be predominantly whole grain and minimally processed. Restriction of saturated fat and sodium continue to be advised. Fad diets often arise from the publication of a small number of studies that appear to contradict conventional wisdom. Urgent headline appeals to overturn dietary recommendations on such limited evidence can harm public health.

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