The importance of promoting exercise in type 2 diabetes

Encouraging adherence to a physical activity programme is a fundamental component of diabetes care. Whether an individual has impaired glucose regulation or established diabetes, an exercise programme is key to preventing diabetes progression and improving the overall control of the condition.

Prevention of diabetes through physical activity

Several factors are associated with an increased risk of the development of type 2 diabetes, including obesity, previous gestational diabetes, hypertension, family history of type 2 diabetes and dyslipidaemia, and it is more common in some ethnic minority groups.

The Finnish Diabetes Prevention Study was the first to target these groups to prevent diabetes, and the trial results emphasised the importance of diet and lifestyle (Tuomilehto et al, 2001). A number of trials have subsequently examined people in these high-risk groups, who have had exercise or diet interventions, and these have been appraised (Orozco et al, 2008). The review concluded that the incidence of diabetes could be reduced by 37% with exercise and diet, but found it more difficult to elucidate the evidence for exercise alone. When physical activity, diet and medical interventions are compared, it is also unclear which contributes most to the delay of type 2 diabetes in people with impaired glucose tolerance (Yuen et al, 2010).

The importance of the role of diet and exercise in the prevention of type 2 diabetes has also been recognised by NICE, which has recently published guidance on the subject (NICE, 2011). NICE is also currently compiling guidance on strategies to prevent the progression from "pre-diabetes" to established diabetes. This guidance may mandate practices to provide physical activity programmes.

Physical activity as a treatment for existing type 2 diabetes

The article by Thomas Yates and colleagues (on page 311) emphasises the role of physical activity in established type 2 diabetes, suggesting that both aerobic activity and resistance training are important.

A review of the evidence suggested that doing any form of activity is more important that its intensity (Hansen et al, 2009). This is reinforced by recent recommendations from the American Diabetes Association (Colberg et al, 2010), which outlined that participation in regular physical activity could improve blood glucose control, lipid profiles, blood pressure, cardiovascular events, mortality, and quality of life. The review also concluded that resistance training could increase muscle mass and improve blood glucose uptake without altering the muscle's intrinsic capacity to respond to insulin. An Australian review concurred, emphasising the benefit from progressive resistance exercise (Irvine and Taylor, 2009)

But how much exercise is required each week to confer real benefit? One review that looked at structured exercise training consisting of either aerobic exercise or resistance training, or both, concluded that >150 minutes per week was associated with greater reductions in HbA_{1c} than <150 minutes per week (Umpierre et al, 2011).

Interventions

Those of us working in primary care are aware that the strong evidence supporting the benefits of exercise is not enough to ensure our

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patients adhere to physical activity regimens. However, doing a little physical activity is better than none at all and intensive regimens, if tolerated, achieve better clinical outcomes than less intensive regimens (Kavookjian et al, 2007). Interventions must be tailored to each individual to be successful, and those at high risk of ischaemic heart disease need careful pre-exercise assessment (Kavookjian et al, 2007).

Many providers have "exercise on prescription schemes" which are helpful, as many healthcare professionals are not skilled enough to give accurate and detailed physical activity guidance. Bouts of at least 10 minutes to make up the 30 minutes, five times weekly, as well as judicial use of pedometers, can reinforce this, as does the "find something you like and do it" concept, which people find easier to continue doing than formalised exercise programmes (Balkau et al, 2008)

Conclusions

Like other non-pharmaceutical interventions, such as diet, smoking cessation and weight reduction, the need to be physically active should be continually reinforced with the person with diabetes. Knowledge of the individual's family setting and culture, lifestyle, employment and leisure pursuits should allow primary care healthcare professionals to tailor physical activity interventions to their context and aspirations. ■

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