

## PLAIN LANGUAGE SUMMARIES OF IMPORTANT RESEARCH ARTICLES

### TOPIC: ENDOCRINE & METABOLIC

### SUB-TOPIC: DIABETES MELLITUS

COCHRANE CORNER is being published in KMJ to offer some useful reading material for an ordinary reader regarding new research in medical fields. Here one may find a very high quality research by Cochrane Network, presented as *plain language summary* on topics of public interest. In this issue, we will look at some important studies related to the management of a common metabolic disease called **DIABETES MELLITUS**, usually referred to as **DIABETES**, in which a person has high blood sugar. (Editor)

- **Exercise or exercise and diet for preventing type 2 diabetes mellitus**

Orozco LJ, Buchleitner AM, Gimenez-Perez G, Roqué i Figuls M, Richter B, Mauricio D.

Type 2 diabetes is mainly characterised by a reduced ability of the hormone insulin to stimulate glucose uptake in body fat and muscles (insulin resistance) combined with insufficient insulin secretion that leads to increased blood glucose levels. It has been shown that weight reduction and an increase in daily energy expenditure decreases insulin resistance. There are some factors that are associated with an increased risk of type 2 diabetes: these are obesity, previous gestational diabetes, hypertension, family history of type 2 diabetes, dyslipidaemia and some ethnical groups are more at risk. Persons with “prediabetes” are also at high risk: they have abnormal blood glucose levels but not in the range of diabetes. Prediabetes often precedes the development of type 2 diabetes. We searched for trials that intended to prevent the development diabetes type 2 in the above mentioned at risk groups. We assessed the effects of increased physical activity alone or in combination with dietary interventions on diabetes incidence and other outcomes.

We included eight trials with 2241 participants randomised to exercise and diet intervention and 2509 participants to standard recommendation. Furthermore, 178 participants were randomised to an exercise only intervention and 167 participants to a diet only intervention. The duration of the interventions in the trials ranged from one year to six years. Interventions varied between studies but mainly consisted of caloric restriction if the person was overweight, low fat content (especially saturated fat), high carbohydrate content and the increase of fibre intake. Physical activity varied but on average at least 150 minutes each week of brisk walking or other activities such as cycling or jogging were recommended. Interventions were mainly delivered by frequent indi-

vidual counselling by a physiotherapist, an exercise physiologist and a dietitian. Incidence of diabetes was reduced by 37% (relative risk reduction) with exercise and diet. This had favourable effects on body weight, waist circumference and blood pressure. More evidence is required on effects of exercise alone in the prevention of type 2 diabetes. No study reported relevant data on diabetes and cardiovascular related morbidity, all-cause mortality and quality of life.

Orozco LJ, Buchleitner AM, Gimenez-Perez G, Roqué i Figuls M, Richter B, Mauricio D. *Exercise or exercise and diet for preventing type 2 diabetes mellitus. Cochrane Database of Systematic Reviews 2008, Issue 3. Art. No.: CD003054. DOI: 10.1002/14651858.CD003054.pub3.*

- **Long-term non-pharmacological weight loss interventions for adults with prediabetes**

Norris SL, Zhang X, Avenell A, Gregg E, Schmid CH, Lau J.

Long-term non-pharmacological weight loss interventions for adults with prediabetes Persons with blood glucose levels that are abnormal, but not in the range of persons with diabetes, are said to have prediabetes, which often precedes the development of type 2 diabetes. Most persons with prediabetes are overweight and obesity worsens the blood glucose and other problems associated with prediabetes. In this review we found that dietary, physical activity, or behavioral interventions produced significant improvements in weight among persons with prediabetes and a significant decrease in diabetes incidence. Modest, but not statistically significant improvements were noted in the few studies that examined blood sugar control, blood pressure, and lipid levels. No data on quality of life or mortality were found.

Norris SL, Zhang X, Avenell A, Gregg E, Schmid CH, Lau J. *Long-term non-pharmacological weight loss interventions for adults with prediabetes. Cochrane Database of Systematic Reviews 2005, Issue 2. Art. No.: CD005270. DOI: 10.1002/14651858.CD005270.*

- **Pharmacotherapy for weight loss in adults with type 2 diabetes mellitus**

Norris SL, Zhang X, Avenell A, Gregg E, Schmid CH, Lau J.

Obesity is closely related to type 2 diabetes and weight reduction is an important part of the care delivered to obese persons with diabetes. This review of drugs

for weight loss among adults with type 2 diabetes revealed weight loss of between 2.0 and 5.1 kg for fluoxetine, orlistat and sibutramine at follow-up of up to 57 weeks. The long-term effects remain uncertain. Adverse events were common in all three drugs: gastrointestinal side effects with orlistat; tremor, somnolence, and sweating with fluoxetine; and palpitations with sibutramine. There were few studies examining other drugs used for weight loss in populations with diabetes.

Norris SL, Zhang X, Avenell A, Gregg E, Schmid CH, Lau J. *Pharmacotherapy for weight loss in adults with type 2 diabetes mellitus*. *Cochrane Database of Systematic Reviews* 2005, Issue 1. Art. No.: CD004096. DOI: 10.1002/14651858.CD004096.pub2.

- **Diabetes management in primary care, outpatient and community settings can be improved by interventions targeting health professionals, and organisational interventions that increase continuity of care**

Renders CM, Valk GD, Griffin SJ, Wagner E, van Eijk JT, Assendelft WJJ

Diabetes is a major and growing health problem. This review examined the effects of interventions targeting health professionals or the way care is organised, with the aim of improving the management of people with diabetes in primary care, outpatient and community settings. The review found that multifaceted professional interventions (for example combinations of postgraduate education, reminders, audit and feedback, local consensus processes, and peer review) could enhance the performance of care providers. Organisational interventions that increased structured recall, such as central computerised tracking systems or nurses who regularly

contacted patients, could also lead to improved care for patients with diabetes. The effectiveness of these interventions on patient outcomes (glycaemic control, cardiovascular risk factors, wellbeing) is less clear.

Renders CM, Valk GD, Griffin SJ, Wagner E, van Eijk JT, Assendelft WJJ. *Interventions to improve the management of diabetes mellitus in primary care, outpatient and community settings*. *Cochrane Database of Systematic Reviews* 2000, Issue 4. Art. No.: CD001481. DOI: 10.1002/14651858.CD001481

- **Honey as a topical treatment for wounds**

Jull AB, Rodgers A, Walker N.

Honey is a viscous, supersaturated sugar solution derived from nectar gathered and modified by the honeybee, *Apis mellifera*. Honey has been used since ancient times as a remedy in wound care. More recently trials have evaluated the effects of using honey to help wound healing in both acute wounds (for example burns, lacerations) and chronic wounds (for example venous leg ulcers, pressure ulcers). Although honey may improve healing times in mild to moderate superficial and partial thickness burns compared with some conventional dressings, it was found that honey dressings used alongside compression therapy do not significantly increase leg ulcer healing at 12 weeks. There is insufficient evidence to guide clinical practice for other wound types.

Jull AB, Rodgers A, Walker N. *Honey as a topical treatment for wounds*. *Cochrane Database of Systematic Reviews* 2008, Issue 4. Art. No.: CD005083. DOI: 10.1002/14651858.CD005083.pub2.

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