Management

Essentials of Management

The Self-Care Programme

The person with diabetes should know:

- The nature of the disorder.
- Symptoms of diabetes.
- Risk of complications and, in particular, the importance of foot care.
- Individual targets of treatment.
- Individual lifestyle requirements and meal planning.
- Importance of regular exercise in treatment.
- Interaction of food intake, physical activity and oral hypoglycaemic drugs, insulin (administration and adjustment of insulin, when appropriate) or other drugs.
- Self-monitoring of blood or urine glucose (only if blood glucose monitoring is not available or practical), and the meaning of blood glucose results, as well as what action needs to be taken.
- How to cope with emergencies such as illness, hypoglycaemia, stress and surgery.
- Women with existing diabetes require special attention during pregnancy.

Education is essential for successful self-care, thus a teaching programme must be offered to each patient.

Management is an active partnership between people with diabetes, their family and their healthcare team.

Other community resources are often available to supplement this.
Monitoring of glucose levels can be done by either blood or urine testing. Blood testing is optimal, but if this is not available then urine testing is an acceptable compromise. The frequency of monitoring will depend upon resources available, either to the individual or the country concerned.

**Self-monitoring of glucose levels**

Self-monitoring of blood glucose levels should be regarded as essential to improve the safety and quality of treatment. Methods and frequency of self-monitoring depend on the targets and mode of treatment. Blood measurements should be recorded.

**Blood glucose self-monitoring**

Blood glucose testing is preferable for metabolic control. It is mandatory for patients on insulin or during pregnancy, and desirable for patients on oral antidiabetic drugs. It is also a vital safeguard against hypoglycaemia.

**Urine self-monitoring**

Urine glucose self-monitoring is an alternative to blood glucose self-monitoring only when the latter is not possible. The aim generally is to keep the urine glucose-free.

### All patients

- Self-monitoring technique should be checked once or twice per year by the physician or healthcare team. Quality control of tests is essential, particularly if results are inconsistent with glycated haemoglobin or clinical state.
- Extra tests should be performed during illness or prior to strenuous activity.
- Urine ketone tests should be performed during illness or when blood glucose is >20 mmol/L (>360 mg/dl).

### Monitoring procedures

- Test:
  - before each meal
  - at bedtime.
- Monitor well-controlled/stable patients on 1 or 2 days per week. This can be less frequent in consistently well-controlled subjects.
- Monitor poorly controlled/unstable patients, or patients during illness, daily until targets of control are achieved.

### Urine glucose testing

- Does not give warning of impending hypoglycaemia.
- Is not useful in certain situations such as where renal threshold is elevated (e.g. in the elderly) or low as in pregnancy.
- Always check urine ketone during illness.

Blood glucose testing is the optimal monitoring method; however, in certain countries this is not available and urine testing is acceptable.
Effective management of type 2 diabetes cannot be achieved without proper attention to diet and nutrition. This extends to medically associated cardiovascular risk factors such as hypertension, dyslipidaemia and obesity.

**Principles of nutrition**

- **Weight control**, where appropriate.
- 25–30% of the total dietary energy should come from fats and oils. Less than one-third of this should come from saturated fats with the balance provided by mono- and polyunsaturated fatty acids.
- 55–65% of the total dietary energy should come from complex carbohydrates rather than refined carbohydrates. Complex carbohydrates can be found in some vegetables and wholemeal products.
- Protein should not exceed requirements. No more than 15% total energy should be derived from protein.
- Food selection guided by available foods, which will vary from country to country.
- Distribution of food intake should be as even as possible throughout the day for patients on oral hypoglycaemic agents or insulin.
- Restrict alcohol intake, particularly in obese, hypertensive and/or hypertriglyceridaemic patients. Alcohol may cause hypoglycaemia in patients on sulphonylureas or insulin.
- Non-calorific rather than nutritive (sorbitol and fructose) sweeteners can be used.
- Restrict salt intake to below 10 g/day, particularly in hypertensive patients.

**Eat most**

*Use these foods as the basis of every meal*

e.g. legumes, lentils, beans, cereals, rice, fresh fruit (non-sweet), vegetables

**Eat moderately**

*Have small servings of protein foods*

e.g. fish, seafood, eggs, lean meat, skinless chicken, nuts, low-fat cheese, yoghurt, milk

**Eat least**

*Minimise fats, sugars and alcohol*

e.g. fats, butter, oils
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Physical Activity

Physical activity plays an important role in the management of type 2 diabetes. Physical activity improves insulin sensitivity, thus improving glycaemic control, and may help with weight reduction.

The common health goal should be to achieve at least 30 minutes of moderate-intensity physical activity every day. This includes activities such as brisk walking, cycling, golf and gardening. Additional health benefits can be obtained by more vigorous activity (such as dancing, jogging, swimming continuous laps, cycling uphill or heavy digging in the garden), or through longer durations of moderate-intensity activities. Strength-developing activities (e.g. weight training) should be encouraged at least twice per week for the major muscle groups of the legs, trunk, arms and shoulders, with the emphasis on using light to moderate resistance, but performing more repetitions (8–12) on each physical activity. Physical activity programmes need to be appropriate for the person’s age, social, economic, cultural and physical status.

Do sparingly ⚠️

Avoid sedentary activities
e.g. watching television, using the Internet, playing computer games
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Do regularly 🏃‍♂️
Participate in leisure activities and recreational sports
e.g. brisk walking, gardening, golf, weight-lifting, cycling, tennis

Adoption of healthy lifestyle practices within daily living, such as taking the stairs rather than the elevator/escalator, or maximising opportunities for vigorous physical activities such as those that would have occurred with traditional lifestyles, e.g. working in fields or plantations, or fishing, should be encouraged. However, careful attention should be given to potential physical activity hazards such as cuts, scratches and dehydration, and special care of the feet should be taken.

If physical activity is sudden and/or vigorous, people with diabetes should be advised about adjusting their food intake or medications (insulin or oral agents) in order to avoid hypoglycaemia.

Do every day 🏃‍♀️
Adopt healthy lifestyle habits
e.g. walk to the shops instead of driving, use the stairs rather than the elevator, walk to office colleagues instead of using the telephone, walk the dog