



MODULE



# Self-management

## Overview

Self-management is the cornerstone of overall diabetes care. Optimal outcomes can only be achieved if the person with diabetes is willing to, and capable of, self-regulating their condition on a daily basis for life. While the increase in technology gives people more tools to manage their condition, it also increases the burden on, and expectations of, people with diabetes. It is important that healthcare professionals are aware of the psychological, emotional and economic impact when introducing technology to their patients. People with diabetes have a right to expect high-quality care from experienced, trained professionals, a patient-centred approach and access to services, equipment, medical supplies and hospitalization, if required. People with diabetes have a responsibility to manage their diabetes on a day-to-day basis, communicate with their healthcare professionals periodically throughout the year, and seek advice, when necessary.

An area of importance in self-management is the transition from pediatric to adult care. This process is often poorly implemented by both healthcare professionals and the young person — refer to [Module I-2, Team management](#), [Module I-4, Psychosocial and behavioural approaches](#) and [Module IV-1, Diabetes in children and adolescents](#).

## Goals

To improve people's quality of life (the primary goal of diabetes care).

To provide participants with an understanding of:

- The condition from the perspective of the person with diabetes
- Personal cost
- Economic cost
- Psychosocial cost
- Effective self-management skills from the day of diagnosis
- Ways to facilitate access to services

<p><b>Goals cont'd</b></p>	<ul style="list-style-type: none"> <li>• Ways to facilitate the transition from childhood to adolescents and into adult care.</li> </ul> <p>To provide participants with an understanding of the need to act as an advocate for children and people with diabetes to reduce discrimination against them at school, the workplace and in society in general.</p>
<p><b>Objectives</b></p>	<p>After completing this module, the participant will be able to:</p> <ul style="list-style-type: none"> <li>• Discuss the impact of living with diabetes</li> <li>• Assist a person with diabetes in becoming competent with self-care behaviours appropriate to his/her needs, eg urine and blood glucose monitoring, need for annual complication assessment</li> <li>• Inform the person with diabetes of his/her personal targets for treatment, eg blood glucose, lipid values, blood pressure, HbA<sub>1c</sub>, albumin excretion status, meal planning and activity</li> <li>• Recognize and assess barriers to self-care</li> <li>• Promote self-care as integral to effective management</li> <li>• Adopt a flexible approach to the education and management of individuals</li> <li>• Recognize that individuals manage their diabetes in different ways</li> <li>• Prepare the young person for transition from the pediatric setting to the adult environment</li> <li>• Teach people the importance of regular contact with both the medical practitioner and the allied members of the diabetes healthcare team and the need for regular education updates</li> <li>• Give the person the self-confidence to advocate for their rights when dealing with health professionals</li> </ul>
<p><b>Teaching strategies</b></p>	<p>Experiential learning, hands-on experience with meters and insulin delivery devices, discussion with a person with diabetes, attend camp</p>
<p><b>Suggested time</b></p>	<p>1–2 hours</p>
<p><b>Who should teach this module</b></p>	<p>Diabetes educator, person with diabetes, local member organization</p>

**Evaluation of learning**

Group discussion of experiential learning

**References**

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Funnell MM, Anderson RM, Arnold MS, Barr PA, Donnelly M, Johnson PD, Taylor-Moon D, White NH. Empowerment: an idea whose time has come in diabetes education. *Diabetes Educ* 1991;17(1):37-41.

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# Glucose-lowering medication

MODULE

III-2

**Overview**

Diet and exercise are the first line of treatment for all people with Type 2 diabetes, including the young. However, due to the natural history of Type 2 diabetes, 50–75% are unlikely to achieve normoglycemia through these measures alone. The microvascular complications of diabetes are associated with the duration of diabetes and poor control. Therefore, it is now well accepted that oral agents should be commenced earlier when they are most effective, rather than later in the treatment of people with Type 2 diabetes.

**Goal**

To provide the participant with an understanding of the different oral agents used to treat Type 2 diabetes and why particular agents are chosen in preference to others.

**Objectives**

After completing this module, the participant will be able to:

- Identify appropriate treatment aims when using glucose-lowering medication
- Discuss the role of these medications in the management of Type 2 diabetes
- Describe the different oral medications available, their mechanisms of action and maximum dosage of secretagogues, biguanides, thiazolidinediones and alpha-glucosidase inhibitors
- Describe the potential for hypoglycemia when using secretagogues — refer to **Module III-6, Short-term complications**
- Describe the need for caution when using long-acting sulphonylureas in the elderly — refer to **Module IV-4, The older adult**
- Describe the side effects and potential problems associated with the use of secretagogues, biguanides, thiazolidinediones and alpha-glucosidase inhibitors

<b>Objectives cont'd</b>	<ul style="list-style-type: none"> <li>• Discuss the need for titration of dosage to help avoid potential side effects</li> <li>• Describe the specific contraindications for the use of each type of oral medication</li> <li>• Discuss how and when to take the different oral medications</li> <li>• Identify the appropriate time to commence treatment and type of drug to use in different clinical situations</li> <li>• Discuss strategies for improving tablet compliance</li> <li>• Describe adjustment of glucose-lowering medications and the use of combination therapy, ie using insulin and oral medications together</li> <li>• Discuss the use of oral medication in children with Type 2 diabetes</li> <li>• Define secondary oral failure</li> <li>• Describe the management plan for a person in secondary failure — refer to <b>Module III-3, Insulin therapy</b></li> </ul>
<b>Teaching strategies</b>	Case studies with discussion and feedback, self-directed learning
<b>Suggested time</b>	Case studies: 2 hours
<b>Who should teach this module</b>	Endocrinologist, diabetes educator, pharmacologist
<b>Evaluation of learning</b>	Successful completion of case studies
<b>References</b>	<p>Aronoff S, Rosenblatt S, Braithwaite S, Egan JW, Mathisen AL, Schneider RL. Pioglitazone hydrochloride monotherapy improves glycaemic control in the treatment of patients with Type 2 diabetes: a 6-month randomized placebo-controlled dose-response study. The Pioglitazone 001 Study Group. <i>Diabetes Care</i> 2000;23(11):1605-1611.</p> <p>Bloomgarden ZT. International Diabetes Federation meeting, 1997. Issues in the treatment of Type 2 diabetes; sulfonylureas, metformin, and troglitazone. <i>Diabetes Care</i> 1998;21(6):1024-1026.</p>

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# Insulin therapy

## Overview

People with Type 1 diabetes require daily insulin therapy for life. The majority of children and adolescents who have diabetes have Type 1 diabetes (at the present time). As the move to intensify diabetes management to reduce or delay the onset of complications continues, more and more people with Type 2 diabetes will have insulin added to their oral glucose-lowering medication regimen or given in lieu of oral medication. The United Kingdom Prospective Diabetes Study (UKPDS) demonstrated that more than 50% of people with Type 2 diabetes require insulin therapy after 5 years to achieve better control. Therefore, insulin therapy should never be used as a threat in the context of poor control. Insulin regimens are varied and should be tailored to the goals and lifestyle of the person with diabetes.

## Goals

To provide participants with an understanding of insulin therapy in Type 1 diabetes, Type 2 diabetes, gestational diabetes and other specific types of diabetes, such as steroid-induced diabetes.

## Objectives

After completing this module, the participant will be able to:

- Differentiate between the various types of insulin
- Describe the role of insulin buffers
- Discuss the duration of action of different types of insulin
- Identify the source of insulin available within the participant's healthcare setting, ie pork, beef, human recombinant DNA, analogues
- Identify factors affecting insulin requirements and absorption
- Describe side effects of insulin treatment including hypoglycemia, insulin edema, weight gain, lipohypertrophy and lipoatrophy

<b>Objectives cont'd</b>	<ul style="list-style-type: none"> <li>• Explain different insulin regimens, including intensive insulin therapy and combination therapy with oral agents</li> <li>• Identify the appropriate type of insulin and regimen to use in different clinical situations</li> <li>• Identify individualized treatment goals in terms of blood glucose levels, HbA<sub>1c</sub>, weight management and lipids</li> <li>• Identify strategies that could assist the person overcome fears associated with commencing insulin therapy</li> <li>• Demonstrate preparation and administration of insulin using different methods, ie syringe, pens, Innovo<sup>®</sup>, pumps</li> <li>• Understand the principles of insulin dosage adjustment</li> <li>• Teach people how to adjust their own insulin dosages in order to achieve their targets for blood glucose control</li> <li>• Discuss adjustment of insulin for special events, ie sick days, travel, physical activity, surgery, religious and cultural events</li> <li>• Discuss the care of insulin and strategies for storing insulin in different parts of the world</li> <li>• Discuss management of insulin for pump users*</li> </ul>
<b>Teaching strategy</b>	Case studies (may include a person with Type 2 diabetes switching to insulin, a person with newly diagnosed Type 1 diabetes, intensive insulin therapy, adjusting insulin according to blood glucose records)
<b>Suggested time</b>	Case studies: 2 hours
<b>Who should teach this module</b>	Endocrinologist or diabetes educator
<b>Evaluation of learning</b>	Successful completion of case studies
<b>References</b>	<p>American Diabetes Association. Clinical Practice Recommendations 2001. <i>Diabetes Care</i> 2001; 24(Suppl. 1).</p> <p>American Diabetes Association. <i>Medical management of Type 1 diabetes</i>, 3rd edn. Alexandria, VA: American Diabetes Association; 1998.</p>

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UK Prospective Diabetes Study (UKPDS) Group. Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with Type 2 diabetes (UKPDS 33). *Lancet* 1998;352:837-853.

\*Indicates objectives at an advanced level





# Physical activity

## Overview

Regular physical activity is important for everyone. It is particularly beneficial in the management of Type 2 diabetes. While exercise is important to improve general well-being in Type 1 diabetes, it does mean that the person needs to be more proactive in adjusting his/her daily management regimen. The potential benefits of a physically active lifestyle for people with diabetes include increased physical fitness, improved glycaemic control, reduced risk of cardiovascular disease, decreased adiposity and enhanced psychological well-being. However, exercise is not without risks, and the recommendation that people with diabetes participate in an exercise programme is based on the premise that the benefits must outweigh the risks.

## Goal

To provide participants with knowledge regarding methods and conditions that can optimize the benefits and minimize the risks of regular exercise for people with diabetes.

## Objectives

After completing this module, the participant will be able to:

- Differentiate between aerobic and anaerobic exercise metabolism
- Describe the characteristics of aerobic physical activity and resistance training and give examples of each
- List the beneficial effects of regular exercise in both Type 1 and Type 2 diabetes, including lower blood glucose concentrations during and after exercise; improved insulin sensitivity; improved lipid profile; lower blood pressure; increased energy expenditure and increased cardiovascular conditioning
- Describe physiological consequences of exercise training in Type 1 and Type 2 diabetes

<b>Objectives cont'd</b>	<ul style="list-style-type: none"> <li>• Discuss the effects of exercise in relation to insufficient and excessive circulating insulin</li> <li>• Identify suitable recommendations for the intensity, duration and frequency of exercise for individuals</li> <li>• Understand the differences between metabolic and cardiovascular fitness targets</li> <li>• Describe the nutritional management around low, medium and intense forms of exercise</li> <li>• Discuss the importance of correctly adjusting energy expenditure (eg frequency, intensity and duration of exercise) with the individual's clinical status and personal preferences</li> <li>• Describe alternatives to exercise for people with micro- or macrovascular complications of diabetes</li> <li>• Describe alternatives to exercise in people with current or previous foot disease, ulceration, Charcot's arthropathy</li> <li>• Describe alternatives for exercise in people with physical limitations, eg arthritis, amputation</li> <li>• Identify the appropriate investigations to complete prior to starting an exercise programme for people at risk</li> <li>• Discuss the risk, prevention and treatment of exercise-induced hypoglycemia in people taking insulin or glucose-lowering medication</li> <li>• Recognize the prolonged effect of exercise in Type 1 diabetes and the subsequent risk of hypoglycemia many hours after exercise</li> <li>• Recognize that individuals have real and perceived barriers to exercise</li> </ul>
<b>Teaching strategies</b>	Lecture, interactive groups
<b>Suggested time</b>	Lecture: 1–1½ hours
<b>Who should teach this module</b>	Physicians, nurses, exercise physiologists or physical therapists
<b>Evaluation of learning</b>	Short assignment, development of an exercise plan
<b>References</b>	<p>Koivisto V. Exercise and diabetes mellitus. In: <i>Textbook of diabetes</i>, Vol. 2. Pickup J, Williams G (eds). Oxford: Blackwell Science; 1991.</p> <p>Meltzer S, Leiter L, Daneman D, et al. 1998 clinical practice guidelines for the management of diabetes in Canada. <i>CMAJ</i> 1998;159(Suppl. 8): S1-S29.</p>



# Nutrition therapy

## Overview

Effective nutrition therapy in diabetes has major benefits for both short- and long-term diabetes outcomes. Both hypo- and hyperglycemia have devastating effects on the individual with diabetes and changes in eating habits can be difficult, especially in some cultural settings. The aim of this module is to provide both a theoretical framework and direct links with effective practical nutrition management and positive diabetes outcomes. A key component of the success of its delivery by diabetes educators is sensitivity to, and awareness of, cultural and religious backgrounds.

Nutrition management should be based upon individual nutritional assessment, optimal glycemic control and reduction of cardiovascular risk.

Nutrition education needs not only to include satisfactory methods to achieve optimum glycemic control, but also provide guidance on recommended daily intake for protein, carbohydrate, fat, saturated fat, poly- and monounsaturated fat, n-3 and n-6 fatty acids, fibre and antioxidant intakes. Nutrition changes are often difficult to achieve, therefore, diabetes educators should possess skills to facilitate positive nutritional changes in people with diabetes that allow them to maintain a good quality of life.

## Goals

To provide a basis for nutritional therapy for people with diabetes that:

- Provides appropriate energy and nutrients for optimal growth, development and health
- Maintains or achieves ideal body weight
- Achieves and maintains optimal glycemic control for the individual by balancing food intake with insulin, metabolic requirements and physical activity

**Goals cont'd**

- Reduces the risk of microvascular complications through optimal glycemic control
- Assists in the prevention and treatment of the acute complications of insulin therapy, such as hypoglycemia, hyperglycemia, illness- and exercise-related problems
- Reduces the risk of macrovascular complications by achieving diabetes nutritional recommendations
- Preserves social and psychological well-being
- Provides the diabetes educator with basic strategies to assist people with diabetes to meet their nutritional needs

**Objectives**

At the end of this module, participants will be able to:

- Define the basic principles of a healthy diet
- State the essential nutrients for healthy eating
- Identify the cultural influences and eating styles of the population, taking into consideration ethnic minority groups
- Identify the social and psychological influences on food choice
- Identify the availability of healthy food choices
- List the indigenous staple foods
- List the carbohydrate content of common foods
- Identify the glycemic index of foods and its importance in the postprandial effect on blood glucose levels

Perform a food/nutrition assessment on a person with diabetes:

- List the problems that may be encountered when taking food/nutrition histories and assessing results
- Assess body mass index (BMI), waist-to-hip ratio and biochemical indices, eg glycemic control, lipids, renal function
- Identify the nutritional priorities for the individual, considering age, diet, medical, biochemical and anthropometric parameters

Provide effective nutrition information:

- Set realistic nutrition-related goals that are based on present dietary habits of the person with diabetes and are easy to achieve
- Consider socio-economic issues

**Objectives cont'd**

- Consider and address common dietary beliefs and misconceptions about food, nutrition and diabetes, and identify examples (eg in the UK “do not eat bananas!”)
- Consider the ethnicity, culture, age and lifestyle of the person
- Consider the psychosocial issues of the person and their family and carers — refer to **Module I-4, Psychosocial and behavioural approaches**
- Consider physical activity and working patterns

Define the nutritional aims and principles for diabetes:

- Identify protein, fat, carbohydrate, sucrose, alcohol, vitamins and antioxidants, minerals and trace elements and sodium recommendations, and the reasons behind the recommendations
- Identify the role of alternative sweeteners, sugar and diabetic foods in healthy eating and identify the acceptable daily intake of each sweetener
- Describe how to read food labels

Discuss different education methods used for teaching:

- Explain the importance of models such as the food pyramid and plate model to teach healthy eating principles
- Explain the various methods to teach carbohydrate assessment, eg carbohydrate counting levels 1, 2 and 3; glycemic index; qualitative diet, meal-planning approach and appropriate diet
- Discuss the benefits and negative aspects of each type of system and their relationship to glycemic control

Identify specific nutrition-related needs of children, adolescents and adults with Type 1 diabetes:

**Adult:**

- Discuss quality-of-life issues and how to maintain psychosocial well-being
- Describe how to prevent hypo- and hyperglycemia
- Describe how to tailor the insulin profile to the individual's nutrition therapy

**Objectives cont'd**

- Appreciate and understand blood glucose monitoring in relation to nutrition/meal plan and insulin profile
- Discuss the effects of alcohol on blood glucose levels and offer appropriate advice

**Children:** (refer to **Module IV-I, Diabetes in children and adolescents**)

In addition to the nutritional aims listed above:

- Describe the constantly changing need for adequate insulin and energy in relation to growth and development
- Describe the reasons why nutrition goals are based on an individual's diabetes management goals
- Appreciate age-related problems, such as toddler food refusal, peer pressure, omission of insulin by teenagers, religious and cultural influences, insulin omission and hypoglycemia, fast food (eg burgers), which will differ between countries
- Appreciate the problems encountered by teenagers, which will differ between countries
- Appreciate the importance of behaviour and other psychosocial issues in children and adolescents that may influence compliance — refer to **Module I-4, Psychosocial and behavioural approaches**

Identify specific nutrition-related needs of people with Type 2 diabetes:

**Adult:**

- Achieve and maintain realistic weight loss through a weight management programme, if necessary, and support it by liaison with other programmes, eg exercise programmes
- Prevent obesity
- Prevent hypo- and hyperglycemia
- Manage dyslipidemia
- Promote psychosocial well-being, self-esteem and encourage physical exercise and changing lifestyle advice, if necessary
- Identify the relationship between weight loss and energy restrictions, insulin resistance and insulin requirements
- Identify the effects of meal spacing on obesity in Type 2 diabetes

**Objectives cont'd**

- Identify the relationship between nutritional intake and micro- and macrovascular complications
- Reduce hypertension by effective weight management
- Appreciate the cultural meaning of obesity in some societies

**Children** (refer to **Module IV–I, Diabetes in children and adolescents**):

- Identify the increasing incidence of Type 2 diabetes in children
- Identify ethnic minority groups that have a high prevalence of Type 2 diabetes in childhood
- Describe the importance of healthy eating for weight loss in children
- Design a suitable weight-reducing programme for a growing child, to include adequate nutrients and lifestyle change\*
- Identify other agencies to facilitate healthy food options and increased physical activities, ie schools
- Identify the various genetic types, eg maturity-onset diabetes of the young (MODY), and give appropriate healthy eating advice if not overweight

## Identify the nutritional needs in dyslipidemia in diabetes\*:

- Explain the links with Type 1 and Type 2 diabetes
- Describe the importance of 'total fat', 'saturated fat', monounsaturated, polyunsaturated and 'trans fatty acids' to cardiovascular risk
- Describe the importance of fish oils to cardiovascular risk
- Describe the relationship between fats and obesity
- Describe the role of cholesterol-lowering spreads and functional foods

Identify specific nutrition-related needs of gestational diabetes, and during and after pregnancy (refer to **Module IV–2, Gestational diabetes**):

- List the important nutrients in meal planning for pre-conception advice and during pregnancy
- Discuss the importance of good glycemic control prior to and during pregnancy
- Identify the outcomes for the child and mother if glycemic control is poor
- Give nutritional advice post-pregnancy

**Objectives cont'd**

- Stress the importance of avoiding hypoglycemia for the breast-feeding mother
- Give nutritional advice for gestational diabetes considering the above objectives and national opinion
- Facilitate the redistribution of carbohydrate in response to the glycemic load

Identify specific nutrition-related needs of the older adult, including those living in aged-care facilities (refer to **Module IV-4, The older adult**):

- Recognize that the older adult may have other nutritional problems
- Recognize that people in institutions and homes do not have direct control over their eating patterns and the availability of food
- Discuss other factors, such as poor eyesight or dementia, that can affect diabetes management
- Recognize that poor glycemic control will result in high complication rates in the older adult and surveillance of complications may be poor compared with younger people
- Discuss the fact that more social care and practical help may be necessary and liaison with other agencies is important

Identify specific nutrition-related needs of people of an ethnic minority:

- Discuss the eating patterns of all cultures within the given population
- Discuss particular barriers that affect diabetes, such as the influence of culture and religion on eating patterns and myths about various foods
- Identify local foods/medicines that may be taken as alternative forms of medication and be able to give appropriate advice
- Produce information and leaflets that are culturally sensitive and suitable for the population. For example, photographs of goods may be more appropriate if literacy is an issue
- Identify whether other nutritional problems exist in the given population

**Objectives cont'd**

Identify nutritional information during cultural festivals according to religion:

- Identify the religious and cultural festivals in the region and quantify the implications for diabetes, eg fasting
- Give guidance on adjusting the timing of meals/drinks and medication

Recognition of eating disorders in diabetes\*:

- Identify the higher incidence and prevalence of abnormal eating habits and eating disorders (anorexia nervosa, bulimia nervosa and binge eating) in younger people with diabetes
- Appreciate the antecedents to eating disorders and the prevalence within the given country and population
- Give guidance on strategies when eating disorders are diagnosed
- Identify diagnostic tools suitable for identifying eating disorders, eg questionnaires

Produce suitable resources and information for the needs of the particular diabetic population served:

- Identify availability of and use local/national/international support organizations and networks

Identify coeliac disease in diabetes\*:

- Describe the increased risk of coeliac disease associated with Type 1 diabetes
- Discuss the advantages and disadvantages of screening for coeliac disease
- Identify if prescribable items are available
- Identify if there is information available for people with diabetes and coeliac disease
- Prepare selected foods that are gluten-free and taste them
- Contact organizations that support people with coeliac disease
- Prepare a list of gluten-free products that are readily available in the country

<b>Objectives cont'd</b>	<ul style="list-style-type: none"> <li>• Understand the implications of the requirements of other nutrients, such as calcium (osteoporosis), extra iron at diagnosis, high antioxidants due to increased cancer risk</li> <li>• Appreciate the practical difficulties of food constraints involved with diabetes and coeliac disease</li> </ul>
<b>Teaching strategies</b>	<p>Lectures, demonstrations, label reading practise, BMI measurements, identification of local resources</p> <p>Problem solving through case studies, discussion groups (with adults, children and adolescents with diabetes)</p>
<b>Suggested time</b>	10 hours
<b>Who should teach this module</b>	Dietitians who specialize in both adult and pediatric diabetes
<b>Evaluation of learning</b>	<p>Collection of nutritional information from a person with diabetes and then advise, adapt and negotiate nutritional goals</p> <p>Development of suitable resources and information for the needs of the particular diabetic population served</p> <p>Identification of the different cultures within the population and produce literature and teaching aids that are suitable. These may include translated leaflets, videos, food models and audiotapes</p> <p>Identification and facilitation of local, national and international support organizations, facilitating patient contact with them and advising on the credibility of recommended organizations</p> <p>Awareness of the networks that exist to communicate with other health professionals who are involved with the nutritional management of diabetes</p>
<b>References</b>	<p>American Diabetes Association. Evidence-based nutrition principles and recommendations for the treatment and prevention of diabetes and related complications. In: American Diabetes Association Clinical Practice Recommendations 2002. <i>Diabetes Care</i> 2002; 25(Suppl. 1): S50-S60.</p> <p>American Diabetes Association. Nutrition recommendations and principles for people with diabetes mellitus. In: American Diabetes Association Clinical Practice Recommendations 2001. <i>Diabetes Care</i> 2001;24(Suppl. 1).</p> <p>Delahanty LM, Halford BN. The role of diet behaviors in achieving improved glycemic control in intensively treated patients in the Diabetes Control and Complications Trial. <i>Diabetes Care</i> 1993;16(11):1453-1458.</p>

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\*Indicates objectives at an advanced level





# Short-term complications

MODULE

III-6

## Overview

Short-term complications are caused either by hypoglycemia or hyperglycemia and are a common cause of hospitalization. Hypoglycemia can cause loss of consciousness and seizures. Hyperglycemia can result in diabetic ketoacidosis or hyperglycemic hyperosmolar nonketotic syndrome. Short-term complications are often preventable; therefore, people with diabetes need to know the causes, signs and symptoms, treatment and prevention strategies to minimize the risk of developing these complications.

## Goals

To provide participants with an understanding of hypo- and hyperglycemia, the consequences of both and the need to assist people with diabetes to implement strategies to prevent their occurrence.

## Objectives

After completing this module, the participant will be able to:

### Hypoglycemia:

- Describe the fear that people with diabetes and their relatives have of hypoglycemia and how this impacts on management
- State the causes of hypoglycemia, recognizing that in many cases the causes cannot be identified
- State the signs and symptoms of hypoglycemia, recognizing that these may change from time-to-time and from person-to-person, but also within individuals over a period of time
- Discuss the increased risk of hyperglycemia after an episode of severe hypoglycemia
- Recognize the differences in presentation and symptoms for people on oral medications or insulin therapy
- Discuss the risk of prolonged hypoglycemia in the older adult

**Objectives cont'd**

- Discuss the causes of hypoglycemia unawareness and management strategies
- Discuss methods to improve recognition of hypoglycemia
- Discuss prevention strategies for hypoglycemia, including individual nutrition management
- Discuss treatment of mild, moderate and severe hypoglycemia
- Discuss the use of glucagon
- Discuss the legal implications and safety aspects of driving a motor vehicle and using heavy equipment

**Ketoacidosis:**

- State the causes of diabetic ketoacidosis
- State the signs and symptoms of diabetic ketoacidosis
- Discuss prevention strategies for diabetic ketoacidosis
- Discuss the treatment of diabetic ketoacidosis

**Hyperglycemic hyperosmolar nonketotic syndrome (HHNS):**

- Describe people most at risk of developing HHNS
- Discuss prevention strategies for HHNS
- State the signs and symptoms of HHNS
- Discuss the treatment of HHNS
- Discuss the mortality rate of HHNS
- Recognise the decreased cognition that occurs in the immediate recovery period and the need for supportive education

**Management of home emergencies:**

- Recognize the need **never** to omit insulin administration in Type I diabetes when the person is sick
- Recognize the impact of different types of illnesses, such as fever or malabsorption, on blood glucose
- Describe the need for regular (2- to 4-hourly) testing of blood or urine glucose and ketones during the acute illness
- Recognize the need to adjust insulin according to blood glucose levels and ketones
- Discuss strategies for supplying sufficient carbohydrate when appetite is poor

<b>Objectives cont'd</b>	<ul style="list-style-type: none"> <li>• Describe when medical or hospital intervention is necessary</li> <li>• Describe the local guidelines for insulin therapy and carbohydrate management during sick days</li> </ul>
<b>Teaching strategies</b>	Lecture, case studies
<b>Suggested time</b>	2 hours: lecture and case study
<b>Who should teach this module</b>	Diabetes educator
<b>Evaluation of learning</b>	Question and answer, quiz, case study review and a plan for managing sick days
<b>References</b>	<p>American Diabetes Association. <i>Medical management of Type 1 diabetes</i> (3rd edn). Alexandria, VA: American Diabetes Association; 1998.</p> <p>American Diabetes Association. <i>Medical management of Type 2 diabetes</i> (4th edn). Alexandria, VA: American Diabetes Association; 2000.</p> <p>Clarke WL, Cox DJ, Gonder-Frederick LA, Kovatchev B. Hypoglycemia and the decision to drive a motor vehicle by persons with diabetes. <i>JAMA</i> 1999;282:750-754.</p> <p>Gonder-Frederick LA, Cox DJ, Kovatchev B, Julian D, Clarke W. The psychosocial impact of severe hypoglycemic episodes on spouses of patients with IDDM. <i>Diabetes Care</i> 1997;20:1543-1546.</p> <p>Gonder-Frederick LA, Cox DJ. Behavioral responses to perceived hypoglycemic symptoms. <i>Diabetes Educ</i> 1986;12:105-109.</p> <p>International Society for Pediatric and Adolescent Diabetes (ISPAD). <i>Consensus Guidelines 2000</i>. Swift PGF (ed.). Zeist, The Netherlands: Medforum; 2000.</p> <p>Laffel L. Sick-day management in Type 1 diabetes. <i>Endocrinol Metab Clin North Am</i> 2000;29(4):707-723.</p> <p>Musey VC, Lee JK, Crawford R, Klatka MA, McAdams D, Phillips LS. Diabetes in urban African-Americans. I. Cessation of insulin therapy is the major precipitating cause of diabetic ketoacidosis. <i>Diabetes Care</i> 1995;18(4):483-489.</p> <p>Pichert JW, Snyder GM, Kinzer CK, Boswell EJ. Problem solving anchored instruction about sick days for adolescents with diabetes. <i>Patient Educ Couns</i> 1994;23(2):115-124.</p> <p>Diabetes Control and Complications Trial (DCCT) Research Group. Epidemiology of severe hypoglycemia in the Diabetes Control and Complications Trial. <i>Am J Med</i> 1991;90:450-459.</p> <p>Diabetes Control and Complications Trial (DCCT) Research Group. Influence of intensive diabetes treatment on quality-of-life outcomes in the diabetes control and complications trial. <i>Diabetes Care</i> 1996;19:195-203.</p>





# Long-term complications

MODULE

III-7

## Overview

While the underlying pathophysiology and management of both forms of diabetes are different, a common feature is the development of long-term micro- and macrovascular complications such as retinopathy, nephropathy, macrovascular disease, and peripheral and autonomic neuropathy. These complications are associated with increased morbidity and mortality. Duration of diabetes and poor metabolic control are predictors of the development of microvascular complications. However, the progression of these complications can be reduced by prompt and aggressive treatment. Therefore, strategies must be in place for their early detection. As Type 2 diabetes can be present for many years before diagnosis and up to 30% of people already present at least one complication upon diagnosis, assessment of complications should begin at diagnosis and annually thereafter. People with Type 1 diabetes should be assessed within 5 years of diagnosis and annually thereafter.

## Goals

To develop a comprehensive understanding of the pathophysiology of micro- and macrovascular complications.

To provide participants with an understanding of their role in recommending and advocating early screening and prompt treatment, and in some cases performing screening for complications.

To discuss the implications of the monitoring and treatment of long-term complications.

To understand the psychological consequences of long-term complications to an individual.





# Diabetic retinopathy

## Objectives

Upon completing this module, the participant will be able to:

- Counsel children, adolescents and adults about the risks of developing retinopathy associated with poor glycemic control
- Reassure the person that blurred vision associated with poor metabolic control is likely to be transient and will resolve itself with improved control
- Describe the epidemiology of diabetic retinopathy, including incidence and prevalence rates
- Describe predictors of the development of retinopathy and the natural history of the condition
- Describe the different grades of retinopathy and the characteristic clinical features of each grade\*
- Understand that vision can be normal in the presence of serious retinopathy
- Discuss the importance of testing visual acuity
- Describe the need for regular screening
- Reassure the person that not all retinopathy is vision-threatening
- Describe the role of fluorescein angiography
- Describe the information that should be given to a person with diabetes regarding the use and side effects of fluorescein angiography
- Understand that, apart from intensive glycemic and blood pressure control and laser therapy, no other therapy has been shown to influence the development or progression of retinopathy\*
- Discuss the rationale for laser therapy and the clinical trials that provided evidence for this form of therapy, ie the Early Treatment Diabetic Retinopathy Study (ETDRS) and the Diabetic Retinopathy Study (DRS)\*

<b>Objectives cont'd</b>	<ul style="list-style-type: none"> <li>• Understand that early treatment with laser therapy is more effective in preserving vision if visual acuity is better than 6/24*</li> <li>• Describe the different patterns of laser therapy*</li> <li>• Describe the information required to inform a person with diabetes about the benefits and side effects of laser therapy, ie loss of night vision, decreased ability to accommodate quickly, some deterioration in visual acuity if laser therapy is given for macular edema</li> <li>• Discuss the consequences of vitreous hemorrhage and the role of vitrectomy*</li> <li>• Discuss the increased risk of exacerbating retinopathy in special circumstances such as following cataract surgery or with some forms of strenuous exercise*</li> <li>• Describe the increased frequency in the development of cataracts at an earlier age in people with diabetes</li> <li>• Describe the psychosocial impact of visual loss on a person with diabetes and their relatives — refer to <b>Module I-4, Psychosocial and behavioural approaches</b></li> <li>• Investigate the resources available in the community for the visually impaired</li> </ul>
<b>Teaching strategies</b>	Lecture, experiential learning
<b>Suggested time</b>	Formal session involving a case study: 1–2 hours Visit eye clinic, if possible
<b>Who should teach this module</b>	Doctor, diabetes educator, ophthalmologist, Society for the Blind representative
<b>Evaluation of learning</b>	Role play discussing the implications for a person with newly diagnosed retinopathy; name at least one community resource for the visually impaired
<b>References</b>	Diabetes Control and Complications Trial (DDCT) Research Group. The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus. <i>N Engl J Med</i> 1993;329:977-986.

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Nathan DM. The pathophysiology of diabetic complications: how much does the glucose hypothesis explain? *Ann Intern Med* 1996;124(1 Pt 2):86-89.

Ohkubo Y, Kishikawa H, Araki E, et al. Intensive insulin therapy prevents the progression of diabetic microvascular complications in Japanese patients with non-insulin-dependent diabetes mellitus: a randomized prospective 6-year study. *Diabetes Res Clin Pract* 1995;28(2):103-117.

\*Indicates objectives at an advanced level





# Diabetic nephropathy

## Objectives

At the completion of this module, the participant will be able to:

- Counsel children, adolescents and adults about the risks of developing nephropathy associated with poor glycemic control
- Describe the epidemiology of diabetic nephropathy, including incidence and prevalence rates
- Describe predictors of the development of nephropathy and the natural history of the condition
- Describe the various levels of renal involvement, including micro- and macro-albuminuria
- Understand the transient nature of microalbuminuria and the causes of transient increases in albumin excretion
- Discuss the impact of microalbuminuria in both Type 1 and Type 2 diabetes
- Understand that microalbuminuria is a marker for vascular disease
- Describe the various intervention studies demonstrating the benefits of improving glycemic control (Diabetes Control and Complications Trial [DCCT], UK Prospective Diabetes Study [UKPDS])
- Describe the relationship between hypertension and the progression of renal disease in diabetes
- Describe the importance of blood pressure control in managing diabetic renal disease and often the need for more than one blood pressure medication used concurrently
- Describe the various intervention studies demonstrating the benefits of improving hypertension, including the Lewis study, the Prospective Epidemiological Study of Myocardial Infarction (PRIME), the Candesartan And Lisinopril Microalbuminuria (CALM) study and the Heart Outcomes Prevention Evaluation (HOPE) study

<b>Objectives cont'd</b>	<ul style="list-style-type: none"> <li>• Describe the clinical features of end-stage renal failure</li> <li>• Describe the dietary changes necessary with the progression of renal failure</li> <li>• Understand the need for reducing insulin requirement in end-stage renal failure</li> <li>• Describe the differences between peritoneal and hemodialysis*</li> <li>• Understand that renal transplantation is a treatment option for some people</li> <li>• Describe the psychosocial impact of end-stage renal failure on the person with diabetes and their relatives — refer to <b>Module I-4, Psychosocial and behavioural approaches</b></li> <li>• Investigate the resources available in the community</li> </ul>
<b>Teaching strategies</b>	Lecture, experiential learning
<b>Suggested time</b>	Formal session involving a case study: 1–2 hours
<b>Who should teach this module</b>	Endocrinologist, diabetes educator, renal nurse, nephrologist
<b>Evaluation of learning</b>	Role play discussing the implications for a person with newly diagnosed kidney disease and the management required
<b>References</b>	<p>Krolewski AS, Warram JH, Cupples A, Gorman CK, Szabo AJ, Christlieb AR. Hypertension, orthostatic hypotension and the microvascular complications of diabetes. <i>J Chronic Dis</i> 1985;38(4):319-326.</p> <p>Mehler PS, Jeffers BW, Estacio R, Schrier RW. Associations of hypertension and complications in non-insulin-dependent diabetes mellitus. <i>Am J Hypertens</i> 1997;10(2):152-161.</p> <p>Mogensen CE. Microalbuminuria as a predictor of clinical diabetic nephropathy. <i>Kidney Int</i> 1987;31:673-689.</p>

\*Indicates objectives at an advanced level



# Diabetic neuropathy

## Objectives

At the end of this module, the participant will be able to:

- Counsel children, adolescents and adults about the risks of developing neuropathy associated with poor glycemic control
- Define the different types of poly- and mononeuropathies associated with diabetes, eg motor, sensory, autonomic, truncal and cranial nerve
- Describe the impact of autonomic neuropathy on various organs
- Describe the impact of autonomic neuropathy on quality of life — refer to **Module I-4, Psychosocial and behavioural approaches** and **Module III-9, Diabetes and sexual health**
- Describe the impact of gastroparesis on metabolic control and the management of gastroparesis
- Identify the most common form of diabetic neuropathy
- Describe the role and function of the sensory and motor nerves
- Describe the metabolic and structural abnormalities that occur in diabetic peripheral neuropathy and the suggested physiological pathways of those abnormalities
- Describe the signs and symptoms of diabetic peripheral neuropathy
- Demonstrate the clinical assessment for peripheral neuropathy and understand the significance of the findings
- Describe the features of painful diabetic neuropathy
- Differentiate between painful diabetic neuropathy and other causes of peripheral pain
- Explain the significance of the asymptomatic insensate foot

**Objectives cont'd****Assess the diabetic foot:**

- Describe the effect of diabetes on blood vessels, nerves and joints
- Define those factors that place the foot at risk of ulceration
- Define the 'high-risk foot'
- Describe how these factors can lead to amputation
- Perform non-invasive tests, elicit relevant history and observe for clinical signs and symptoms of peripheral vascular disease
- Perform and understand the results of non-invasive tests such as biothesiometer or monofilament, obtain a history of the associated symptoms and observe clinical signs of peripheral neuropathy
- Perform routine assessment of mechanical factors, such as foot deformity
- Assess nail and skin integrity
- Assess the presence of claudication and rest pain
- Assess a person's ability to care for his/her feet
- Interpret the results of patient assessment to determine a management plan

**Provide preventative foot care:**

- Define the appropriate self-care practices to be taught to a person with diabetes and vascular disease and/or loss of sensation:
  - selecting and wearing appropriate footwear
  - first aid for minor skin breaks, tinea, dry skin, etc
  - safe exercise
  - daily foot inspection
  - where and when to seek appropriate medical attention
- Describe the treatment of common minor foot problems, such as tinea, skin fissures, dry skin, calluses, corns and ingrown toenails

**Assess foot problems:**

- Describe the presentation and pathophysiology of Charcot's arthropathy\*
- Assess and monitor the Charcot's foot to determine the stage of the condition as acute or chronic\*

<b>Objectives cont'd</b>	<ul style="list-style-type: none"> <li>• Describe the treatment for acute and chronic Charcot's arthropathy*</li> <li>• Describe the etiology of: <ul style="list-style-type: none"> <li>– neuropathic foot ulceration</li> <li>– ischemic foot ulceration</li> <li>– mixed etiology (neuroischemic) foot ulcers</li> </ul> </li> <li>• Identify the features of each type of ulcer</li> <li>• Describe the treatment goals for each type of ulcer</li> <li>• Understand the principles of moist wound healing and the stages of normal wound healing</li> <li>• Understand the factors that delay wound healing in a person with diabetes</li> <li>• Understand the indications for, and application of, locally available wound dressing</li> <li>• Identify the signs and symptoms of infection in a diabetic foot</li> <li>• Understand the importance of appropriate control of infection</li> <li>• Employ simple strategies to reduce the pressure on the wound to facilitate healing</li> <li>• Understand the safe indications for wound debridement</li> <li>• Describe the role of relevant investigations, such as wound swabs and X-rays in the management of foot ulceration</li> <li>• Describe how optimum nutritional intake facilitates wound healing</li> <li>• Describe local referral pathways for wound management</li> <li>• Understand the impact on quality of life for people with insensate feet, foot problems or amputation — refer to <b>Module I-4, Psychosocial and behavioural approaches</b></li> </ul>
<b>Teaching strategies</b>	<p>Lecture, theory, practical demonstration and group participation for clinical assessment of neuropathy</p> <p>Visit multidisciplinary foot clinic, if possible</p>
<b>Who should teach this module</b>	<p>Doctor, diabetes educator, podiatrist, wound care consultant</p>
<b>Evaluation of learning</b>	<p>Role play demonstrating neurological assessment</p> <p>Student-facilitated teaching of foot care for high-risk feet</p>

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- Gilden JL. Orthostatic hypotension in individuals with diabetes. *Diabetes Spectrum* 1998;11(4):241-247.
- Kumar S, Fernando DJ, Veves A, Knowles EA, Young MJ, Boulton AJ. Semmes-Weinstein monofilaments: a simple, effective and inexpensive screening device for identifying diabetic patients at risk of foot ulceration. *Diab Res Clin Pract* 1991;13(1-2):63-67.
- McGill M, Molyneaux L, Yue DK. Use of the Semmes-Weinstein 5.07/10 gram monofilament: the long and the short of it. *Diabet Med* 1998;15(7):615-617.
- Pecoraro RE, Reiber GE, Burgess EM. Pathways to diabetic limb amputation. Basis for prevention. *Diabetes Care* 1990;13(5):513-521.
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- Schumer MP, Joyner SA, Pfeifer MA. Cardiovascular autonomic neuropathy testing in patients with diabetes. *Diabetes Spectrum* 1998;11(4):227-231.
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- Williams DRR. The size of the problem: epidemiological and economic aspects of foot problems in diabetes. In: *The foot in diabetes*, 2nd edn. Boulton AJM, Connor H, Cavanagh PR (eds). Chichester: Wiley; 1994. p. 15-24.

\*Indicates objectives at an advanced level



# Cardiovascular disease

## Overview

Although microvascular and neuropathic complications can impede the quality of life of a person with diabetes, macrovascular disease is responsible for considerably higher morbidity and mortality. Every study in this area has found that people with diabetes are at least 2–4 times more likely to develop macrovascular disease compared to the general population. This increased risk is particularly striking in women, especially for coronary heart disease. The increase in vascular disease in diabetes occurs in all major vascular systems: cardiovascular, cerebrovascular and peripheral vascular systems.

## Goals

To understand the significant impact of morbidity and mortality due to macrovascular disease in people with diabetes.

To understand that diabetes is more than a ‘blood glucose’ disease, it is also a condition with significant macrovascular risk.

## Objectives

At the end of this module, the participant will be able to:

- Understand that manifestations of macrovascular disease vary between different ethnic groups
- Understand that macrovascular disease can be divided into three types: coronary heart disease, cerebrovascular disease and peripheral vascular disease
- Describe silent ischemia, angina, transient ischemic attack (TIA), claudication and rest pain
- Understand what a macrovascular event is, including stroke and myocardial infarction

**Objectives cont'd**

- Discuss the increased risk of a macrovascular event in people with diabetes, ie strokes occur twice as often in people with diabetes and hypertension than in those with hypertension alone, TIAs occur 2–6 times more frequently in people with diabetes; people with diabetes are 15–40 times more likely to have an amputation; and those over 70 years of age have a 70-fold increase in lower limb gangrene
- Describe how diabetes increases the risk of cardiac failure
- Discuss the relationship or lack of evidence for the relationship between hyperglycemia and increased macrovascular risk
- Recognize central obesity as a marker for increased vascular risk
- Describe risk factors and the additive effect of multiple risk factors
- Describe the different types of cholesterol and targets for treatment
- Discuss the role of nutrition in primary and secondary prevention
- Discuss the role of lifestyle factors in therapy (regular exercise, smoking cessation, sustained weight loss for those who are overweight)
- Discuss the role of HMG-CoA reductase inhibitors in reducing the chance of a macrovascular event within 6 months of beginning therapy in a person with established heart disease
- Describe the role of lowering blood pressure in reducing the risk of stroke and cardiac failure
- Discuss the benefits of aggressive management of dyslipidemia and hypertension, even in the elderly
- Discuss the use of aspirin in primary and secondary prevention
- Describe the increased risk of macrovascular disease in the presence of microalbuminuria/nephropathy and the need for aggressive management of macrovascular risk factors
- Describe the clinical trials that give evidence for the treatment of macrovascular risk including MicroHOPE (Heart Outcomes Prevention Evaluation [HOPE]) study, Hypertension Optimal Treatment (HOT) study, the Scandinavian Simvastatin Survival Study (4S), UK Prospective Diabetes Study (UKPDS), and the Heart Protection Study\*
- Describe the Diabetes and Insulin-Glucose Infusion in Acute Myocardial Infarction (DIGAMI) study\*

<b>Teaching strategy</b>	Problem-based learning involving case studies
<b>Suggested time</b>	1 hour
<b>Who should teach this module</b>	Endocrinologist, diabetes educator, cardiologist
<b>Evaluation of learning</b>	Assignment: describe the importance of risk-reduction strategies in Type 1 and Type 2 diabetes. Design a care plan for an overweight person with Type 2 diabetes who has a family history of heart disease, listing which assessments should be performed
<b>References</b>	<p>Alberti KGMM, Zimmet P, DeFronzo RA, Keen H, (eds). <i>International textbook of diabetes mellitus</i>. Vol. 1, 2nd edn. Chichester: Wiley; 1997.</p> <p>Arch J, Korytkowski M. Strategies for preventing coronary heart disease in diabetes mellitus. <i>Diabetes Spectrum</i> 1999;12(2):88-94.</p> <p>Cummings J, Mineo K, Levy R, Josephson RA. A review of the DIGAMI study: intensive insulin therapy during and after myocardial infarctions in diabetic patients. <i>Diabetes Spectrum</i> 1999;12(2):84-88.</p> <p>Deckert T, Feldt-Rasmussen B, Borch-Johnsen K, Jensen T, Kofoed-Enevoldsen A. Albuminuria reflects widespread vascular damage. The Steno hypothesis. <i>Diabetologia</i> 1989;32(4):219-226.</p> <p>Hansson L, Zanchetti A, Carruthers SG, et al. Effects of intensive blood-pressure lowering and low-dose aspirin in patients with hypertension: principal results of the Hypertension Optimal Treatment (HOT) randomised trial. HOT Study Group. <i>Lancet</i> 1998;351(9118):1755-1762.</p> <p>Iltz JL, White JR. Clinical management of hyperlipidemia in diabetic patients. <i>Diabetes Spectrum</i> 1998;11(2):88-93.</p> <p>International Diabetes Federation. <i>Diabetes and cardiovascular disease: Time to act</i>. Brussels: IDF; 2001.</p> <p>Laing SP, Swerdlow AJ, Slater SD, et al. The British Diabetic Association Cohort Study, II: cause-specific mortality in patients with insulin-treated diabetes mellitus. <i>Diabet Med</i> 1999;16(6):466-471.</p> <p>UK Prospective Diabetes Study (UKPDS) Group. Intensive blood-glucose control with sulphonylureas or insulin compared with conventional treatment and risk of complications in patients with Type 2 diabetes (UKPDS 33). <i>Lancet</i> 1998;352(9131):837-853.</p>

\*Indicates objectives at an advanced level





# Complementary therapies

MODULE

III-8

## Overview

Globally, there is increasing use of complementary therapies by the general population and health professionals. In some countries, a complementary therapy practitioner could be the first contact for healthcare assessment. The frequency of use of complementary therapies by people with diabetes is largely unknown, but probably mirrors that of the general population. Therefore, there is a need for diabetes educators to have some knowledge about the issues surrounding the use of complementary therapies by people with diabetes.

Complementary therapies are known by a variety of terms such as 'alternative', 'natural', and 'traditional'. The varied terminology can be applied differently in different countries, or even in regions of the same country. Importantly, although complementary therapies have a common philosophical basis, they are very heterogeneous in their approach and each therapy is different from the others.

## Goal

To explore the place of complementary therapies in the management of people with diabetes.

## Objectives

After completing this module, participants will be able to:

- Discuss the philosophical basis of complementary therapies
- Identify the different complementary therapies available within their region
- Describe the types of therapies and frequency of use by people with diabetes in their region
- Discuss the role of complementary therapies in diabetes management

<b>Objectives cont'd</b>	<ul style="list-style-type: none"> <li>• Describe issues related to the safety and efficacy of complementary therapies, including the knowledge and competence of therapists, potential for allergies, drug–drug interactions and adverse events, fragmented care and the issue of untested and unregulated substances</li> <li>• Provide advice to people with diabetes about the use of complementary therapies that is non-judgmental and relevant to the particular country</li> </ul>
<b>Teaching strategies</b>	Lectures, group discussion, visit to a complementary therapist, debate, seminar
<b>Suggested time</b>	1–2 hours
<b>Who should teach this module</b>	Joint teaching between a complementary therapist and knowledgeable conventional practitioners
<b>Evaluation of learning</b>	Short assignment on the implications of the increasing use of complementary therapies for the practice of diabetes education in the participant's country/region
<b>References</b>	<p>Cochrane Collaboration. <i>The Cochrane Library complementary health field</i>. Oxford: Cochrane Collaboration; 2001.</p> <p>Dunning T. Complementary therapies and diabetes — a perspective. <i>J Aust Diabetes Educ Assoc</i> 2002;5(1):13-15.</p> <p>McCabe P (ed.). <i>Complementary therapies in nursing and midwifery</i>. Melbourne: Ausmed Publications; 2000.</p> <p>Woodhart K. Herbal therapies in the treatment of Type 2 diabetes. <i>J Aust Diabetes Educ Assoc</i> 2002;5(1):6-11.</p>



# Diabetes and sexual health

MODULE

III-9

## Overview

Sexual health is a core part of the general well-being of an individual. Diabetes can affect aspects of human sexuality. Sexual health should be an integral part of the care of people with diabetes and should address the physical, psychological, social and personal aspects of sexuality in a culturally sensitive and relevant way.

Sexual health should include preventative strategies, as well as the management of specific sexual problems, recognizing that sexual dysfunction is multifactorial and can occur as a result of poor glycemic control or can be unrelated to diabetes. An individual's sexuality is a highly sensitive issue and sexual health assessments must be approached with due consideration of privacy and confidentiality.

Issues related to sexual health should be incorporated into the overall assessment of an individual.

## Goals

To discuss the human sexual response and the effects that diabetes can have on the physical, psychological and social well-being and relationships of an individual.

To discuss body image concepts and how diabetes can impact on an individual's sexual identity.

## Objectives

At the end of this module, the participant will be able to:

- Describe the human sexual response
- Describe the effects of fluctuations in blood glucose levels on sexual responsiveness in both men and women
- Discuss the individual, interpersonal and disease factors that can impact on a person's sexual health

<b>Objectives cont'd</b>	<ul style="list-style-type: none"> <li>• Take a basic sexual history, respecting the individual's culture and right to privacy and confidentiality</li> <li>• Know the difference between asking relevant questions about sexual health and voyeurism</li> <li>• Discuss appropriate preventative strategies for sexual health, eg practice safe sex, pap smears, good blood glucose control</li> <li>• Understand that age and the stage of an individual's life and duration of diabetes can affect sexual health, sexual identity and the sexual activity they engage in</li> <li>• Understand that there is a wide range of 'normal' sexual activity</li> <li>• Describe the management of common diabetes-related sexual problems, such as erectile dysfunction, monilia and balanitis</li> </ul>
<b>Teaching strategies</b>	Case presentations, short lecture
<b>Suggested time</b>	1–2 hours
<b>Who should teach this module</b>	Sexual health counsellor, diabetes educator
<b>Evaluation of learning</b>	Evaluation of a case history with sexual health as a focus
<b>References</b>	<p>Consultative Section on Diabetes Education (DECS). <i>IDF position papers on diabetes education</i>. Brussels: IDF; 2001. p. 61.</p> <p>Dunning P. Sexuality and women with diabetes. <i>Patient Educ Couns</i> 1993;21:5-12.</p> <p>Guay AT. Treatment of erectile dysfunction in men with diabetes. <i>Diabetes Spectrum</i> 1998;11(2):101-111.</p> <p>IDF Consultative Section for Diabetes Education. <i>International consensus position statements for diabetes education diabetes and sexual health</i>. London: Class Publishing; 2000. p. 56-61.</p> <p>Ross M, Channon-Little L. <i>Discussing sexuality: A guide for the health practitioner</i>. Sydney: MacLennan &amp; Petty; 1991.</p>