Dr Schär Institute

Diabetes and weight control in coeliac disease

Part of an education programme on coeliac disease and the gluten free diet developed by **The Dr Schär Institute**

ROYAL PHARMACEUTICAL SOCIETY FACULTY • ACCREDITED 2013 •

Learning Unit 3 *for pharmacy technicians*

Glutafin GLUTEN FREE

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Learning Unit 3
Diabetes and weight control in coeliac disease *for pharmacy technicians*

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Section 1

Foreword

As you will be aware, these learning units have been developed by the Dr Schär Institute to help you to optimise the service you provide to customers with coeliac disease. This learning unit is designed to be completed with the support of a pharmacist and will build on the knowledge you have gained from Learning Units 1 and 2 by discussing how diabetes and coeliac disease are linked and helping you to understand how you can best support customers who have both conditions. Weight gain may be an issue for some people with coeliac disease, this unit also aims to provide you with practical tips on maintaining a healthy weight that can be shared with your customers.

Learning Unit 3: Diabetes and weight control in coeliac disease can help you to meet the General Pharmaceutical Council requirement to undertake Continuing Professional Development (CPD) each year.

This learning unit has been accredited by the Royal Pharmaceutical Society (RPS) and it's successful completion can provide you with approximately 3.5 hours of CPD (please note this is for guidance only).

This learning unit is the final one in a series of three, the full programme comprises:

Learning Unit 1 - Coeliac disease

Learning Unit 2 - Common health problems in coeliac disease

Learning Unit 3 - Diabetes and weight control in coeliac disease

As you may be aware more cases of this disease are now being recognised. Remember, understanding the long term needs of your customer with coeliac disease allows you to develop valuable customer loyalty.

Activity 1 - a reminder from learning unit 2

Can you name 3 common health problems associated with undiagnosed coeliac disease or poor dietary compliance:

The cornerstone of management is strict adherence to a healthy gluten-free diet. Compliance with a gluten-free diet can mitigate a number of conditions associated with coeliac disease. Look back through learning units 1 and 2 to refresh your memory of what nutrients are of particular importance to this patient group.

How to use this learning unit

This programme of three learning units is for pharmacy technicians and is designed to be completed with the support of a pharmacist.

A parallel programme is available for pharmacists provided by the Dr Schär Institute.

Learning Objectives

On completion of this module, you will be able to:

- Be aware that customers with Type 1 diabetes mellitus have an increased risk of also having coeliac disease.
- Have an understanding of the symptoms seen in customers with Type 1 diabetes mellitus who may have undiagnosed coeliac disease.
- Be aware of the potential role of the pharmacist and pharmacy technician in identifying customers who are at increased risk of developing coeliac disease, for example, Type 1 diabetes mellitus.
- Explain to customers the importance of adhering to, and advise on how to achieve a nutritionally balanced gluten-free diet, which also addresses management of Type 1 diabetes.
- Be able to provide accurate advice to customers about commercial dietary products that are available for people who need to consider diet in the management of both Type 1 diabetes mellitus and coeliac disease.
- Appreciate why customers with coeliac disease following a gluten-free diet may experience problems of weight gain following diagnosis.
- Be able to explain to customers with coeliac disease appropriate and safe food choices, lifestyle modifications and resources to assist with weight management.

Answers to the activities used in this learning unit are to be found on page 26.

Introduction

Having completed units 1 and 2, you should feel confident in dealing with customers and their questions about coeliac disease and associated health problems. However, what about the customer who turns up on a busy Saturday lunchtime and says 'but I have diabetes too'!

This learning unit focuses on the customer with **Type 1 diabetes mellitus** who also has coeliac disease.
This unit will examine issues such as genetic predisposition, screening, diagnosis and dietary management which aim to optimise health and well-being in the short and long-term. Your role will be to support your pharmacist and customers with Type 1 diabetes with their medication, insulin and self-monitoring and provide accurate information to help them maintain a healthy lifestyle and well being.

The second part of this learning unit considers **weight gain**, independent of diabetes which can be a long-term problem for some people with coeliac disease. Health issues associated with being overweight and general dietary and lifestyle strategies for weight management will be reviewed.

Before we continue it would be useful to recap on what you learned in the previous two units.

Activity 2 Recap on previous learning units

a. What are the short and long-term risks associated with coeliac disease that support adherence to a gluten-free diet?

b. What role can the pharmacy technician play in supporting customers with coeliac disease?

Notes

Section 2

Diabetes Mellitus

Diabetes mellitus is a chronic disease that affects approximately 2.9 million people in the UK. Of these, approximately one in ten people will have Type 1 diabetes and the remainder will have Type 2 diabetes. By 2025, it is estimated that 5 million people will have diabetes in the UK[1].

As a pharmacy technician you probably come across customers with diabetes fairly regularly. It is worth stopping here for a few minutes to consider what you already know about the condition.

Activity 3

For both Type 1 diabetes and Type 2 diabetes briefly describe:

a. What is diabetes?

b. Who is most likely to present with the condition?

b. What are the typical presenting symptoms?

People with Type 2 diabetes have no greater risk of developing coeliac disease than the general population. As such, this unit will not focus on issues associated with this condition. This learning unit focuses on Type 1 diabetes mellitus, as it is these people who are at an increased risk of developing coeliac disease.

Management of Type 1 diabetes mellitus

Activity 4

List the overall aims of the management of Type 1 diabetes mellitus.

Overview of the dietary management of Type 1 diabetes mellitus

General dietary principles for people with diabetes are similar to general,'healthy eating' guidelines that are recommended for the general population. Diabetes UK (the largest patient charity in the UK for people with diabetes) produced nutritional guidelines for type 1 diabetics in 2011 which are outlined below[2].
Specific dietary advice should be provided by a registered dietitian.

- Starchy carbohydrate is the most important nutrient for blood glucose control and should be eaten at every meal.
- Eat regular meals and amounts of carbohydrates every day.
- Carbohydrate counting and insulin dose adjusting are effective in managing blood glucose levels.
- Consistent amounts of carbohydrate, glycaemic index (GI) and starch can improve HbA1c levels.
- A low GI diet can improve HbA1c levels.
- Aim to consume the recommended 24g of fibre daily.
- Moderate amounts of alcohol (1-2 units daily) can be enjoyed and may provide a reduced risk of cardiovascular events.
- Aim to achieve 30-60 min aerobic activity three times a week and resistance training twice weekly to reduce cardiovascular risk.
- Eat whole grain, high fibre carbohydrate foods at regular times throughout the day, for example, high-fibre breakfast cereals, high-fibre breads, rice, pasta, potatoes, noodles, popcorn, dried fruit.
- Limit the amount of sugar, sweets, non-diet drinks, confectionery, sweet biscuits and processed food consumed.
- Reduce the amount of fat in the diet, particularly saturated fats. For example, choose low-fat milk and milk products, use polyunsaturated or monounsaturated margarines and oils as opposed to butter and lard; try to grill, boil, bake, steam or microwave food rather than frying it.
- Try to include foods containing unsaturated fats, including avocados, nuts and oily fish at least twice per week.
- Aim to eat a variety of fruit and vegetables with at least five portions a day.

Gluten-free varieties of recommended foods are necessary for those who have diabetes and coeliac disease. This is particularly important for starchy carbohydrate foods that should form the basis of a healthy diet (these foods are often produced from gluten-containing grains). Fortunately, a wide variety of specially manufactured gluten free foods are available, many of which are high in fibre and fortified with other additional nutrients. Look back to learning unit 1 to refresh your memory of the range of gluten-free foods available on prescription for people diagnosed with coeliac disease.

Source: Department of Health in association with the Welsh Government, the Scottish Government and the Food Standards Agency in Northern Ireland.

The Eatwell Plate (covered in module 1) provides a general healthy eating guide that can also be utilised by those following a healthy diet for diabetes.

Type 1 diabetes mellitus and coeliac disease

Prevalence

Individuals with Type 1 diabetes are at an increased risk of developing coeliac disease compared to the general population. This association was recognised over 40 years ago[3]. The prevalence of coeliac disease amongst those with type 1 is approximately 1.3-6.4%[4] with a genetic link between the two conditions. Individuals with type 1 diabetes share the same genetic pattern predisposing them to a higher risk of developing coeliac disease than the general population. For 90% of individuals with both conditions, Type 1 diabetes was diagnosed before coeliac disease[6].

The NICE clinical guideline for the recognition and assessment of coeliac disease recommends that all adults and children with type 1 diabetes should be offered a blood test for coeliac disease[7]. There is inadequate evidence on the need for repeat coeliac screening amongst diabetics who initially receive a negative result. It is important that all patients being screened for coeliac disease continue to eat gluten-containing foods during the diagnostic process (blood testing and biopsy) in order to avoid a false negative result (see Module 1 Section 2 p13).

Presentation

Diagnosis of coeliac disease in people with Type 1 diabetes occurs more commonly as a result of screening programmes than by individuals presenting with symptoms. The gastrointestinal symptoms of coeliac disease rarely occur in type 1 diabetes (<10%), and many patients with coeliac disease and diabetes are either asymptomatic or present only with mild symptoms[8].

In children, presenting symptoms vary but more commonly include:

- tiredness and fatigue (anaemia),
- short stature
- low body weight
- vitamin deficiencies,
- diminished bone mass

Once diagnosed and commenced on a gluten-free diet, some people may retrospectively report a history of slight gastrointestinal disturbances, perhaps not appreciating symptoms were present until their health has improved.

To screen or not to screen? The impact of following a gluten-free diet

The limitations of a gluten-free diet, in addition to a diabetic diet may place significant restrictions on lifestyle and overall dietary variety. The peak age for diagnosis of type 1 diabetes is between 10-14 years[11] with NICE recommendations to offer coeliac screening at diagnosis.

This means that many patients with a dual diagnosis make multiple dietary changes at an age when nutrient requirements for growth frequently conflict with social, emotional and psychological development, offering a particularly challenging context. It is perhaps unsurprising that compliance to a gluten-free diet by children with a dual diagnosis has been reported as generally low (<50% compared to 73% of children diagnosed with coeliac disease alone[12]). The fact that many patients with a dual diagnosis have mild or minimal symptoms of coeliac disease is also likely to contribute to this finding. This makes competent advice on the benefit of adherence and support in maintenance of recommended restrictions even more important.

For those with a confirmed dual diagnosis, the short and long term benefits of following a gluten-free diet are the same as for those with coeliac disease alone. These include reduced and/or resolving nutrient malabsorption, impaired growth, osteoporosis risk and malignancy risk (Refer to: Learning Unit 2 - Sections 2, 3 and 4).

Evidence suggests that children with a dual diagnosis following a gluten free diet have improved diabetic control[13]. Most notably, the glycaemic control of patients who have previously suffered from multiple hypoglycaemic episodes has been shown to improve following identification of previously undiagnosed coeliac disease and commencement of a gluten-free diet. However, this is often at the expense of increased insulin requirement and HbA1C levels that are usually lower compared to matched controls at the time of coeliac disease diagnosis[14-16].

Activity 5

Imagine that the customer with Type 1 diabetes who visited your pharmacy some time ago (page 11) complaining of mild gastrointestinal symptoms was in the pharmacy now. What advice would you give your customer and what action would you take?

A diet for the management of Type 1 diabetes and coeliac disease

Activity 6

Recap – Before moving on to think about the diet for the management of Type 1 diabetes and coeliac disease, think back to learning units 1 & 2:

a. What are the key points of the diet for someone with coeliac disease?

b. Make a list of those nutrients that may be "at-risk" in the diet of customers with coeliac disease. Provide a brief explanation of why?

It is important that customers with a dual diagnosis of Type 1 diabetes and coeliac disease continue to follow the dietary advice that they have received for the management of their diabetes. The key dietary recommendations for the individual with Type 1 diabetes are outlined on page 10. However, this needs to be modified so that it is gluten-free and nutritionally adequate. Substituting starchy carbohydrate foods with gluten-free varieties is explored in Activity 7.

Glycaemic index of gluten-free foods

Customers with Type 1 diabetes who are then diagnosed with coeliac disease may be concerned about how a gluten-free diet will affect the management of their diabetes in particular their blood glucose control. Can they simply use a gluten-free product in place of the equivalent food they have eaten for many years that contained gluten?

Glycaemic Index (GI) is an indirect measure of how rapidly a food causes blood glucose levels to rise. GI is a direct measure of how fast carbohydrates are absorbed with white bread (GI=100) often used as a reference value of high GI. Foods with a low GI are digested and absorbed slowly causing a slow steady rise in blood glucose levels. Examples of low GI foods that should be encouraged include fibre breads and cereals, pasta and rice, fruits and vegetables, beans, peas, lentils and low-fat milk products.

Analysis of a number of readily available and commonly consumed gluten-free products has shown that the GI of these foods was not significantly different from the GI values obtained for equivalent gluten-containing foods[17]. This suggests that replacing gluten-containing foods with comparable gluten-free products is unlikely to significantly alter blood glucose control. Particularly with higher fibre options based on gluten-free grains such as buckwheat, millet and quinoa.

A note about sugar

A common myth exists that people with diabetes must have a 'sugar-free' diet. This is not the case. It is now known that sugar does not raise blood glucose levels any higher than starch, provided the same amount of carbohydrate from sugar or starch is consumed[18]. The current advice from Diabetes UK is that sugar can be included in the diet for people with diabetes provided that it is used in the context of a healthy diet and does not account for more than 10% of the total calories[18].

Sugar can be classified as natural or added sugar. Natural sugars can be found in fruit and vegetables or in dairy products like milk. Added sugar refers to sugar added to foods such as sugary drinks, sweets and chocolate. Generally, adults and children in the UK all eat too much sugar, and could benefit from reducing their consumption of foods high in added sugar. It is not recommended to remove foods with additional nutritional value such as fruit, cereals and dairy foods.

For all individuals, excessive sugar intake can contribute towards weight gain, in turn leading to poorer glycaemic control and increased risk of heart disease. The sugar content of the diet can be reduced in a number of ways, for example by substituting sugar used in baking recipes for fresh or dried fruit or artificial sweetners, and by choosing sugar free drinks/ avoiding adding additional sugar to hot drinks. It is important that all meals are based on moderate quantities of starchy carbohydrate foods such as potatoes, rice, bread, pasta, crackers and breakfast cereals. Cakes, biscuits and sweets can be enjoyed **in moderation** and preferably at the end of a meal. Suitable gluten-free, reduced-sugar recipes are available from the manufacturers of gluten-free flour products.

Customers with diabetes or coeliac disease, and especially those with both conditions, should always be referred to a registered dietitian for individual advice.

Activity 7 Food-group based food diary.

The following activity considers the key principles of the dietary management of both Type 1 diabetes and coeliac disease.

a. **Try to remember everything you had to eat and drink yesterday. Write down your food recall in the Food Diary on the next page.**

b. **Identify foods that you have eaten which contain a large amount of added sugar. Also consider what starchy carbohydrates you ate and whether the amounts were evenly distributed throughout the day. Comment on whether you think they are evenly distributed throughout the day.**

c. **Now identify those foods that contain gluten. Suggest suitable gluten-free alternatives that would also be appropriate healthy food choices for a customer with both diabetes and coeliac disease.**

Points to Remember

- Compared to the general population people who have Type 1 diabetes are at an increased risk of developing coeliac disease. Many of these individuals are identified through screening programmes.
- The general principles for the dietary management of individuals with Type 1 diabetes are similar to the general healthy eating principles aimed at the general population.
- People with both Type 1 diabetes and coeliac disease need to follow a gluten-free diet that also addresses the needs of their diabetes control and risk of long term health complications.
- Dietary adherence may be poor especially in adolescents and those who had no symptoms at diagnosis.
- Specially manufactured gluten-free foods are an essential part of treatment, adding essential sources of starchy carbohydrate and variety to the diet. Many are available on prescription.

Time	Food and drink consumed	Foods containing a large amount of added sugar	Healthy gluten-free alternatives
Breakfast			
Mid-morning			
Lunch			
Mid-afternoon			
Dinner			
Evening/Supper			
Comments			

Notes

Section 3

Achieving and maintaining a healthy body weight

This section refers to all individuals with coeliac disease, and does not provide specific advice for diabetic requirements.

Energy imbalance and weight gain

As you may recall from learning unit 1, apart from the exclusion of gluten from the diet, the customer with coeliac disease should follow general healthy eating principles that are recommended for the rest of the population. The Eatwell Plate provides details of the general healthy eating guidelines for the UK population (refer: Learning Unit 1 – section 3 p. 25).

Some customers notice that they put on weight after commencing a gluten-free diet. In some, this may be replacement of weight that was lost prior to their diagnosis, and in children this may represent catch-up growth and development. However, in others the weight gain may be above their ideal body weight and lead to them become overweight or obese.

The potential contribution of pharmacists and pharmacy technicians towards the development and delivery of successful weight management programmes was recognised in the recent government White Paper; Pharmacy in England - Building on strengths - delivering the Future[20.] Pharmacies are conveniently situated on most high streets and can be accessed without an appointment. Pharmacists and pharmacy technicians have expertise in providing other behavioural management programmes, such as smoking cessation and research shows that pharmacist-led weight management programmes can achieve positive results[20 21]. As a pharmacy technician, you can assist your pharmacist with weight management programmes. Integrating these efforts with other healthcare professionals at a local and national level aims to achieve a more efficient approach to health promotion.

Issues associated with excess body weight

Considerable research has been carried out showing significant health risks associated with being overweight (BMI >25 kg/m2). These include increased risk of cardiovascular disease, hypertension and also Type 2 diabetes mellitus[22]. These risks are further increased in individuals who are obese (BMI >30kg/m2). Achievement and maintenance of a desirable body weight is as important in terms of the long-term health of the patient with coeliac disease as it is in the rest of the population.

Activity 8

Make a list of the reasons why you think individuals once commenced on a gluten-free diet are susceptible to gaining weight? (Think about the physiological changes that occur in the small intestine and the general well-being of the patient once they have commenced the gluten-free diet).

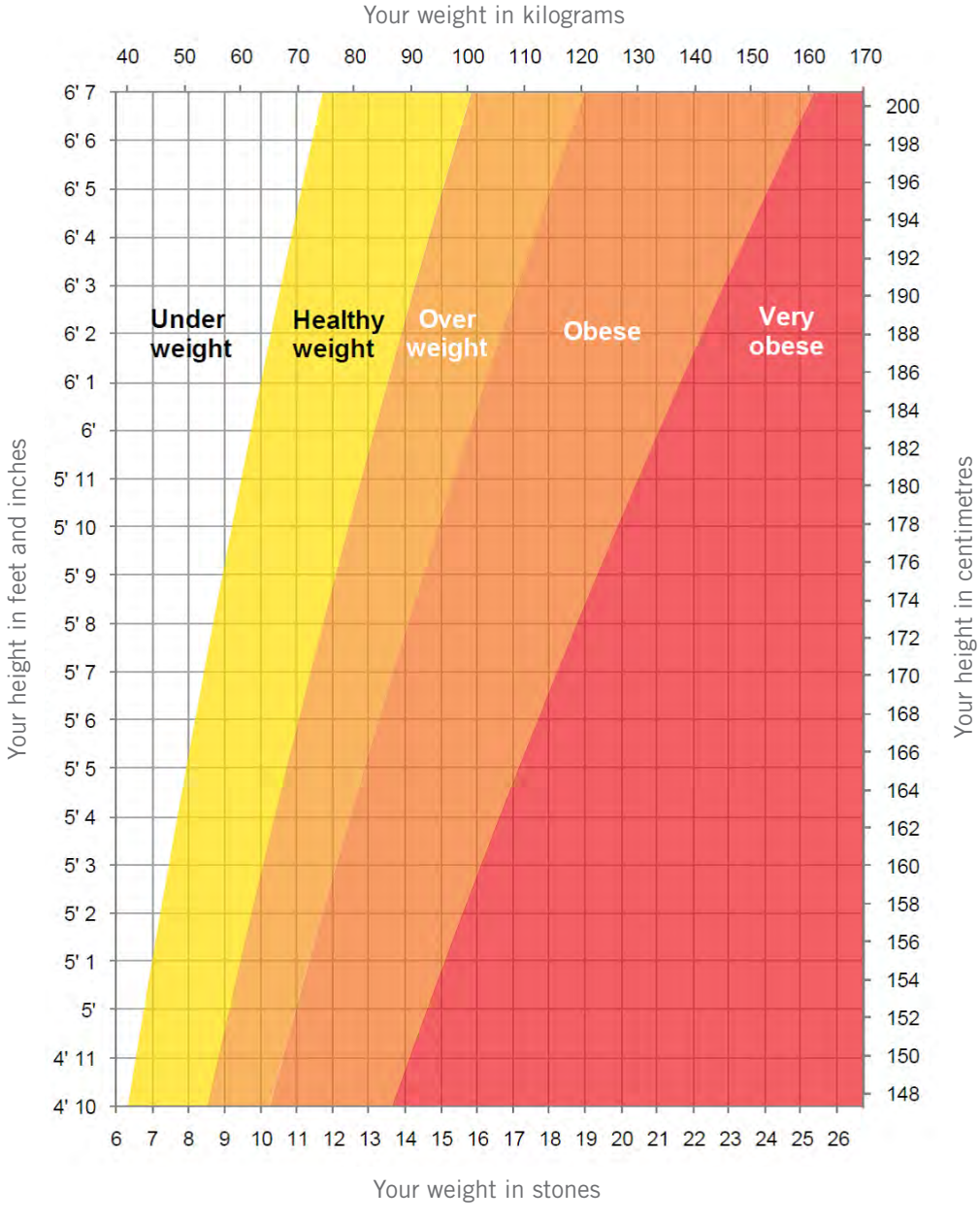
What is a healthy body weight?

An individual's body weight is generally assessed relative to their height using Body Mass Index (BMI) to determine whether they are underweight, a healthy weight, or overweight. BMI can be calculated by hand or can be determined using a nomogram like the one shown below.

BMI is a guide only and may not be accurate for older adults, athletes or body builders (who have a high proportion of muscle mass), women who are pregnant or breastfeeding, and people with distorted fluid balance (e.g. oedema, ascites or dehydration). Adult BMI reference ranges are not appropriate for children.

$$\text{Body mass Index (BMI)} = \frac{\text{weight (kg)}}{\text{height (m}^2\text{)}}$$

BMI reflects body fat stores and is important as a predictor of morbidity and mortality in people classified as underweight or obese.



Research now suggests that your body shape is as important as your weight in predicting risk of obesity-related health issues, including diabetes and heart disease[23]. The table below provides a reference regarding waist circumference and associated health risk.

	Your health is at risk if you have a waist size of:	Your health is at serious risk if you have a waist size of:
Men	>94cm (37 inches)	>102cm (40 inches)
Women	>80cm (31.5 inches)	>88cm (34.5 inches)
Asian Men		>90cm (35.5 inches)
Asian Women		>80cm (31.5 inches)

Activity 9

Calculate your BMI and waist circumference using the information provided.
What is your weight status?

Healthy approaches to weight loss

The advice to customers with coeliac disease who are overweight and wish to lose excess weight should be the same as that given to the general population.

According to clinical guidelines from the National Institute for Health and Clinical Excellence (NICE), healthcare professionals providing advice on weight management should encourage people to set realistic goals. This should be a maximum weekly weight loss of 0.5 to 1kg (1 to 2 lb), with an overall weight loss of a 5 to 10% drop in their bodyweight. A modest amount of weight loss (9-10 kg) can have a positive benefit on health, such as a drop in mortality, almost halving obesity-related cancer deaths and the risk of developing diabetes, and cardiovascular disease whilst also improving lung function[21].

Treatment and care offered to overweight or obese clients should be tailored to meet their lifestyle, individual needs and preferences. A successful weight management strategy should include the following components[22]:

1. Assessment - regarding the degree of overweight or obesity, current lifestyle, diet, comorbidities and willingness to change.
2. Management - multicomponent interventions to increase physical activity, improve eating behaviour and encourage general healthy eating practices, and lifestyle modification.
3. Regular long-term follow up by a trained professional.

There are multiple diet regimens promoted daily, each vowing to be the diet to achieve the weight loss where other diets have failed. However, many of these diets are not nutritionally balanced and thus are not suitable for the customer with coeliac disease. It is important that the customer with coeliac disease who wishes to lose weight follows a diet that is nutritionally balanced. It is important to ensure that those nutrients that are considered "at-risk" in the gluten-free diet, for example, calcium, iron and fibre are still adequate in the weight-reducing diet.

Successful weight loss is not just about changing what we eat. Increasing physical activity is also important. The activity does not need to be strenuous but it should be enjoyable! Simple modifications to lifestyle can increase energy expenditure levels and assist in reducing body fat. Many people don't realise that simple measures such as walking instead of taking the car, getting off the bus two stops earlier than usual and using the stairs instead of the escalator or lift can all help.

Increasing physical activity not only helps in maintaining weight loss, there are other health benefits to be gained such as cardiovascular fitness, muscle strength, stamina, flexibility, improvements in bone health (we know from learning unit 2 how important this is for people with coeliac disease) and also an improved sense of well-being.

Pass these simple messages on!

- Be active most days.
- Moderate activities are good for you (e.g. walking, swimming or gardening).
- Be active for at least 30 minutes in total (or one hour if you are a child or young person).

  or

- Be moderately active for a minimum of 30 minutes on at least five days of the week.

A number of charitable and government- backed organisations offer useful information and support for people wishing to lose weight and improve their health and wellbeing. Below you will find some examples of useful resources that you may want to share with your patients. Do remember that these are not specific to those with coeliac disease and adaptations to specific dietary recommendations will need to be considered by anyone who requires a gluten-free diet:

Change 4 Life: www.nhs.uk/change4life
A government initiative aimed at reducing obesity and related health risks across all ages. The Change 4 Life website contains healthy eating tips and suggestions on increasing physical activity including links to local sports and leisure facilities.

BDA Weight Wise: www.bdaweightwise.com
An online support resource produced by the British Dietetic Association containing advice for healthcare professionals and patients including downloadable food diaries, BMI and waist circumference calculators, interactive food quizzes and goal setting advice.

Points to Remember

- Customers with coeliac disease may experience weight gain after they commence a gluten-free diet.
- Excess body weight is associated with a number of significant health issues.
- Customers with coeliac disease following a gluten-free diet should be advised to follow the healthy eating principles recommended for the general population.
- Strategies for weight loss should be aimed at achieving sustainable changes to eating habits and lifestyle.

Notes

Answers to activities

Activity 1

Three common health problems associated with undiagnosed coeliac disease or poor dietary compliance include:

1) Anaemia
2) Reduced bone mineral density & increased risk of bone fracture
3) Infertility

Activity 2

Short and long-term risks associated with coeliac disease that support adherence to a gluten-free diet:

Short-term - Symptoms: Abdominal discomfort, tiredness, malnutrition, stunted growth and delayed development (children).

Long-term - reduced bone mineral density and thus increased risk of bone fracture, nutritional deficiencies including anaemia and risk of lymphoma.

Role of the pharmacist: Keeping your customers up to date with the range of gluten-free foods available both on prescription and over the counter, ensuring they are receiving their minimum monthly prescriptions (Gluten-free foods: a revised prescribing guide, 2011). It is important to also inform them of other sources of information and remain alert to the possible complications of coeliac disease.

Activity 3

Diabetes affects the endocrine system and results from a lack of insulin in the body. Insulin is a hormone produced by the pancreas that is essential for the transfer of glucose from the blood to the body cells where it (glucose) is used as an energy substrate. Inadequate insulin production or insulin resistance leads to insulin deficiency and hyperglycaemia. The excess glucose is excreted in the urine causing polyuria, and because this glucose that would normally provide energy to the body is not available, weight loss occurs.

Type 1 diabetes is a life-long condition that generally presents in children and younger adults and results from partial or total failure of insulin production. Diagnosis is relatively straightforward, with the patient presenting with a rapid onset of symptoms, typically polyuria, nocturia, excessive thirst, weight loss and a raised blood glucose level. The inability of the body to produce insulin means the individual is required to administer synthetic insulin on a daily basis for the rest of their life to manage their condition.

The onset of Type 2 diabetes generally occurs later in life. Insulin is produced but in an inefficient or ineffective form. It is a condition that is associated with an accumulation of excess body fat, being overweight, eating a poor diet and other lifestyle factors resulting in reduced insulin sensitivity. However, as the proportion of children who are overweight or obese continues to rise, more cases of Type 2 diabetes are being seen in younger people. Treatment is with diet and lifestyle measures, often in combination with oral hypoglycaemic drugs or in some cases with insulin.

Activity 4

In addition to the daily administration of insulin, diet plays a central role in the management of Type 1 diabetes. The overall aims of the management of Type 1 diabetes are to:

- Achieve 'normal' blood glucose levels
- Reduce the risk of hypoglycaemia
- Alleviate all symptoms
- Achieve normal growth and development in children
- Achieve self-management of the condition
- Reduce the risk of long-term microvascular and macrovascular complications

Activity 5

Explore the nature of the symptoms with your customer. Check that they have been following the advice of their dietitian and doctor in terms of insulin regimen and diet. How long have they experienced these symptoms?
It is most likely that your customers symptoms are unrelated to coeliac disease, but you may consider asking this lady when her diabetes was diagnosed as this may indicate whether or not she received a test for coeliac disease at diagnosis.

Activity 6

1) Key points of the diet for someone with coeliac disease:

- Avoid gluten-containing cereals and foods made from these cereals, such as wheat, rye, barley and in some cases oats.
- Choose a variety of foods, Eatwell Plate provides a good guide.
- Ensure gluten-free breads, mixes, crackers, pasta and breakfast cereals are included to ensure an adequate energy and micronutrient intake and to add variety.
- Pay particular attention to iron-rich and calcium-rich foods.

2) The nutrients which may be "at-risk" in the diet of customers with coeliac disease:

Energy they may just exclude gluten-containing foods from the diet if not familiar with suitable gluten-free alternatives.

Fibre many gluten-containing foods (breads, cereals, pasta) are key sources of fibre in the diet.

Iron following diagnosis they may need to replete depleted stores, remember the section on anaemia in unit 2.

Calcium customers with coeliac disease need to achieve an intake of 1000-1500mg of calcium per day. Again refer back to unit 2 to refresh your memory.

Activity 7

Refer to lists of gluten-free foods provided by manufacturers for help. Remember that some sugar is allowed as part of a healthy diet, in moderation of course!

Ensure starchy carbohydrate foods are evenly spread over the course of the day and included at each meal.

Activity 8

Customers with coeliac disease may be susceptible to gaining weight on starting a gluten-free diet due to:

- Improvement in the structure of the small intestine (villi-regrowth) and therefore improved nutrient absorption.
- Improved general health and well-being, improved appetite and improved overall food intake.
- If energy intake is in excess of energy expenditure then the individual will gain excess weight. As in the general population some people are likely to do less physical activity than is recommended and therefore are susceptible to weight gain.

Activity 9

Calculation of BMI and waist circumference and determination of own weight status. For example, if your height is 1.7m and weight is 75kg, your BMI will be 25.9kg/m^2, meaning that your weight is just above the healthy range. Remember this is just a guide and BMI calculation is not always the most reliable measure of weight-related health in some people. Check your waist circumference as an additional health indicator.

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Useful Contacts

Coeliac UK

Coeliac UK, 3rd Floor, Apollo Centre,
Desborough Road, High Wycombe, Bucks HP11 2QW
Coeliac UK Helpline: 0845 305 2060 www.coeliac.org.uk

Diabetes UK

Diabetes UK Central Office
Macleod House,10 Parkway, London NW1 7AA
Tel 020 7424 1000 www.diabetes.org.uk

Dr Schär; our brands and services.

Dr Schär UK is the leading European manufacturer of gluten and wheat free foods. Our brands Glutafin (available on prescription) and DS Gluten Free (available in retail outlets) offers patients a combination of choice, quality and superior taste.

The Dr Schär Institute is a dedicated healthcare professional resource specialising in coeliac disease and gluten sensitivity. Our online and written resources, produced in collaboration with leading experts in the field, provide the latest information and training on the diagnosis and management of gluten-related disorders.

Address:
Dr Schär Uk Ltd, Station Court, 442 Stockport Rd,
Warrington. WA4 2GW.

For medical and scientific support, healthcare professionals may visit:
www.drschaer-institute.com
email: professionals@drschaer.com
Tel: 0800 988 8470

For product information, technical advice, recipes and patient support relating to our prescription products, visit:
www.glutafin.co.uk
email: glutenfree@glutafin.co.uk
Tel: 0800 988 2470

For product information, technical advice, recipes and patient support relating to our retail brand, visit:
www.dsglutenfree.com
email: info@dsglutenfree.co.uk
Tel: 0800 954 1981

My local Dr Schär UK contact is:

Name:

Contact Number

Assessment

The local health centre is putting on a 'Weight-Wise Week' for the general population. You have been asked by the GP to come along and provide advice for various patient groups, including individuals with coeliac disease who are overweight. Collect any local information you can find of any groups, services or resources that are available to which you could refer any customers with coeliac disease wishing to lose weight.

List the suitable resources you have identified.

Please return this completed module by email to professionals@drschaer.com or print and post to the Dr Schär UK, Units 1-2 Station Court, 442 Stockport Road, Thelwall WA4 2GW.

A certificate of completion can then be issued to you.

Evaluation Form

To enable us to meet your continuing education needs in future resources would you mind taking a few moments to complete this evaluation form. Please place a tick on the line at a point, which most represents your opinion.

For example:
I would rate my own Continuing Professional Development as being

1	2	3	4	5
Not Important		Fairly Important	✔	Very Important

1. Was this learning unit appropriate to your professional development needs?

1	2	3	4	5
Not very appropriate		Appropriate		Very appropriate

2. Will what you have learned from this module help you in your clinical practice?

1	2	3	4	5
Not at all		Some of it will		Definitely

3. How did you enjoy working through this learning module?

1	2	3	4	5
Did not enjoy		No strong feeling		Really enjoyed

4. Was the support you receieved in completeing this learning module adequate?

1	2	3	4	5
Insufficient		Adequate		Just right

Please complete the following and return by email to professionals@drschaer.com or print and post to the Dr Schar Institute Dr Schär UK, Units 1-2 Station Court, 442 Stockport Road, Thelwall WA4 2GW

Your name:

Job Title:

Work address:

Telephone Number (Optional):

Email:

Subscribe to healthcare professional newsletter (please tick): Yes ☐ No ☐

Thank you.

Dr Schär Institute

Healthcare Professional Helpline: 0800 988 8470

Email: professionals@drschaer.com

Website: www.drschaer-institute.com