

HOME ECONOMICS

BANCHORY ACADEMY

HEALTHY EATING



The Scottish Diet is notoriously high in fat, salt and sugar, and low in fruits and vegetables. Next to smoking, our diet is the single most significant cause of our poor health contributing to a range of serious illnesses which includes coronary heart disease, certain cancers, strokes, osteoporosis and diabetes”

(Towards a Healthier Scotland, 1999)

UNIT 3

NAME:

CLASS:

Unit 3

The health of the people of any Nation is very important to their Government, and Scotland in the past 50 years has one of the worst health records in the Western World. The diseases that are common in Scotland are heart disease, obesity, 'type 2' diabetes and a variety of cancers.

In this unit we are aiming to raise your awareness of the relationship between your lifestyle and your health, providing you with the knowledge to make informed choices about your future life.

Learning intentions

1. To develop an understanding of the issues causing concern in the 'average' diet of the population of Scotland.
2. To demonstrate an awareness of the relationship between current dietary advice and diseases of the Western World.
3. To develop an understanding of the reasons for reducing levels of fat, sugar and salt in the average diet.
4. To develop an understanding of the reasons for increasing the use of complex carbohydrates, fruits, vegetables, fish especially oily fish in the average diet.
5. To recognise recipes which need adaptation to meet current dietary advice
6. To adapt/develop recipes to meet current and medical dietary advice
7. To demonstrate hygienic and safe food preparation.
8. To consolidate on cookery skills learned in earlier units.
9. To work independently by following a recipe.

Scottish Diet

In the early 1990's the Government set up a committee to investigate the diet and lifestyle of the Scottish population. This committee under the leadership of Prof. James of the Rowatt Institute in Aberdeen published their report - "The Scottish Diet" - in 1993. This report recognised the links between the high fat, sugar and salt levels in our diet and diseases such as obesity, heart diseases and dental decay. Doctors, dieticians, health and education services were all encouraging people to reduce the levels of fat, sugar, salt and processed foods in their diet.

In the late 1990's Prof. James and the committee examined the progress made and to consider the increasing links being made between diet and some types of cancers. This committee published a second report - "Scotland's Health - A Challenge to All" - this report included guidelines, which were directed to all sectors of business/industry involved in food production from the farms through to factories and hotels, canteens and homes. These guidelines still form the basis of current healthy eating advice.

Scotland is not the only country in Europe or the world concerned about the diet of their citizens. We see many different diets or patterns of eating which are dictated by necessity, climate or social conditions. Through the television coverage of wars, famines and natural disasters like earthquakes and tsunamis we have become familiar with the word malnutrition. Mal is from French meaning bad, i.e. poor nutrition: a diet lacking in 1 or more of the essential nutrients. (Unit 2 Nutrition)

In this country most people are in the lucky position of having plenty of food to choose from. We expect to enjoy a good, nutritious diet. Unfortunately, we are often guilty of choosing to suffer malnutrition, not due to lack of food but due to a wide choice and convenience of high sugar, salt and fats based foods manufactured. There is also a lack of knowledge in the population about health, nutrition and cookery skills.

Another problem related to the diet, which occurs in much of Western Europe, is gluttony or greed, simply eating for the sake of eating (social eating) and not to satisfy hunger. This is a big factor in the increasing problem of obesity in the Western World.

There are a number of health issues often referred to as "Western" diseases which are frequently caused by poor diet and lack of exercise. Most of these diseases are relatively unknown in the Third World:

- Obesity
- Cardiovascular disease (CVD) including CHD (coronary heart disease)
- Hypertension (high blood pressure)
- Strokes/Cerebral Haemorrhage/Cerebral Embolism
- Thrombosis (blood clot)
- Diabetes especially type 2
- High cholesterol
- Some types of cancer
- Dental Decay
- Constipation
- Diverticular disease

Dietary Targets for Scotland

<i>FRUIT AND VEGETABLES</i>	Eat at least 5 portions of fruit and vegetables per day
<i>BREAD</i>	Increase daily intake to 6 large slices, mainly using wholemeal fibre-rich bread.
<i>BREAKFAST CEREAL</i>	Increase intake of cereal per day to 2 small bowls.
<u>FATS</u>	Reduce average intake of total fat in the diet to no more than 35% of total energy. Reduce average intake of saturated fats to no more than 11% of total energy.
<u>SALT</u>	Reduce intake to eat approximately 1 gram of salt per day
<u>SUGAR</u>	Average intake of sugars in adults should not increase. <input type="checkbox"/> Reduce average intake of sugars in children by half i.e. to less than 10% of total energy intake.
<i>BREASTFEEDING</i>	To encourage at least 50% of mothers to breast-feed their children for at least the first 6 weeks of life.
<i>TOTAL COMPLEX CARBOHYDRATES</i>	Increase average starchy carbohydrates intake by 25% to approx 170 grams per day, through the increased consumption of fruits and vegetables, bread, breakfast cereal, rice and pasta and through an increase of 25% in potato consumption.
<i>FISH</i>	White fish to be eaten at least twice a week. Oily fish to be eaten at least once a week.



Examine the eatwell plate. Discuss how well the Scottish Dietary Targets fit the eatwell system

Starchy Carbohydrates -Total Complex Carbohydrate

Total complex carbohydrates are often referred to as starchy carbohydrates and are simple everyday foods like p_ _ _ _ , r_ _ _ _ , b_ _ _ _ , p_ _ _ _ _ _ _ _ , cereals(grains) and more unusual foods like plantain. These starchy carbohydrates should make up 1/3 of our daily food intake.

Starchy foods are good as they provide:

- Good sources of energy.
- Contains calcium, iron and B vitamins.
- Source of protein especially important for _____/_____.
- A relatively cheap food
- Bulk, these foods help to fill us up and reduce the tendency to over-eat.
- Can have good levels of fibre helps to remove waste products from the body.
- They contain little or no fat.

In Scotland we traditionally had a diet rich in total complex carbohydrate until the mid 20th Century. The predominant carbohydrate was oats, a traditional Scottish cereal. Oats are not only a good source of carbohydrate but they also contain good levels of soluble fibre that helps to reduce the cholesterol in the blood stream. The water-soluble fibre has also been linked to helping prevent coronary heart disease and helping to treat some diabetic complaints.

Oats are a good source of protein (12%) and B vitamins making it a particularly valuable food for vegans and vegetarians. (Lentils and beans have similar benefits in the diet.)

Porridge, oatcakes, haggis, white/mealie pudding, crannachan, broonie, skirlie/oatmeal stuffing, oat bannocks/scones and Athol Brose are tradition uses of oatmeal.

Food manufacturers are using oats more widely in ready prepared foods, even in low fat spreads that contain an extract of oats called oatrium.

Other cereal grains are

Wheat –

Rye – widely used in Northern Europe as flour for breads.

Barley – used in Scotland in broths, puddings and as flour/meal.

Corn/maize – widely used as a cereal as well as a vegetable.

Rice –

Sir Walter Raleigh introduced another good total complex carbohydrate food into Britain from “The New World” - potatoes. These were found to grow very well in the Scottish climate and have become considered as a traditional crop.

Watch the video on fibre and complete the questions below.

Fibre

1. What is fibre?
2. How much dietary fibre does the cabbage leaf contain?
3. How much dietary fibre does the lettuce leaf contain?
4. Why is there no fibre in orange juice?
5. How are carbohydrates classified?
6. Where do we find cellulose?
7. Hemicelluloses are important for its ability to _____.
8. What is the unavailable carbohydrate found in fruits called?
9. Which NUTRIENTS are absorbed in the stomach?
10. Why are high fibre foods important in the stomach?
11. Which type of fibre is especially important for the colon?
12. Why do many African people have much better health than people in the Western World?
13. Give 3 examples of diseases associated with a low fibre diet.
 -
 -
 -

14. What cereal, often associated with Scotland, is high in fibre and is also linked to the lowering of cholesterol levels?

15. How does a high fibre diet help us to reduce the likelihood of obesity?

16. How can we increase the amount of fibre in our diet?

17. What do dieticians recommend as a suitable level of fibre in the diet?

Using the Food Tables and kcal figures find the energy value of the following foods.

Weetabix
Bananas
Pancakes
Plantain, boiled
Yam, boiled
Cream crackers
Spaghetti, boiled
Oatmeal porridge
Brown bread
Rice, boiled
Potatoes, baked with skin
Muesli
Chapattis, without fat
Macaroni cheese
Cornflakes

We eat a wide variety of total complex carbohydrate. At your table discuss all the types of cereal products you can think of and complete the list below.

Breads and baked items	Pastas and rice	Breakfast cereals	Potatoes and starchy veg/fruits

Fruits and Vegetables

The Scottish Diet Report recommends that we double our intake of fruits and vegetables per day, to at least 5 servings per day.

What do fruits and vegetables provide us with?

- High water content
- Low in fat
- Source of vitamins A, B, C and E
- Source of protein when using pod vegetables e.g. _____ and pulses.
- Source of iron and calcium, particularly important for _____ / _____, also a good source of folic acid.
- Good source of fibre (NSP)

Fruits and vegetables are best eaten when very fresh to get the best nutritional value, vitamin C is destroyed by storage and heat. If fruit/vegetables are to be stored for a long time they should be commercially frozen as this prevents the loss of nutritional value. The exception to this are the root vegetables such as carrots, turnip, parsnips etc., which are still traditionally autumn harvested vegetables and store well without too much loss of vitamins.

Convenience use of fruits/vegetables should be frozen rather than tinned, tinned foods are generally high in added salt and sugar. They are also subjected to high temperatures during the canning process that destroys much of the vitamin content.

What are fruits?

Fruits are basically the seed protectors from a large number of trees and bushes. In nature the fruit will ripen naturally and drop to the ground where it will rot, protecting the seed as it matures ready for the spring growth.

We pick the fruits before they ripen and will usually consume them before they become fully ripe as we may consider ripeness to be unacceptable e.g. black bananas.

Fruits can be grouped in families according to plant types or geographic area e.g. citrus fruit, soft fruits, stone fruits, tropical fruits.

Fruits are best eaten fresh where possible, as they have no vitamin loss due to preservation or cooking. Frozen fruits are a good alternative when fresh fruits are not available.

Dried fruits are often used to add sweetness and flavour to sweet and savoury dishes, they are a good source of the mineral iron, especially important for vegetarians and vegans.

What are vegetables?

Their "family" or the way in which they grow most easily identifies vegetables.

Bulbs – the onion family e.g. garlic, leeks

Stems and shoots e.g. asparagus, celery

Root vegetables e.g. carrots, ginger

Brassicas or leafy greens e.g. cauliflower, pak choi

Legumes or pods e.g. peas, broad beans

Salad vegetables e.g. cucumber, peppers etc, most of this group are botanically fruits as they are the result of flowers.

The health wealth food debate

Scotland produces a huge amount of soft fruits each year but the majority of these fruits are exported to countries such as Norway, Sweden and Finland both as fresh and frozen produce.

All three of these countries had very high rates of avoidable illnesses such as coronary heart disease, obesity, hypertension and a number of types of cancers. Over 20 years ago the Governments of these countries became so concerned at the health of their people that they brought in a number of measures to improve the eating habits of the people. This included large Scandinavian Government contracts being awarded to Scottish fruit producers to export vast quantities of fresh and frozen berries, which were sold at a subsidised price to encourage increased consumption of fruit by the Scandinavian population.

The Scandinavian countries have now some of the lowest heart disease rates in the world.

Answer the following questions while watching the fruit and vegetables video.

1. What is the main component of fruits and vegetables?
2. What percentage of cucumber is made up of water? %
3. What percentage of milk is made up of water? %
4. What makes up most of the solid materials in fruit and vegetables?
5. Why do we cook potatoes before we eat them?
6. What do fruit and vegetables contain besides water?
7. Which 2 fruits/vegetables contain oil?
8. What are the skins of fruit and vegetables composed of?
9. Why should fruits be well washed before eating?
10. How is vitamin C lost from fruits and vegetables?
11. Which cooking methods help to retain vitamin C in fruits and vegetables?

12. What effect does sugar have when added to fruit?

13. 100j of energy is provided by _____g boiled potatoes
100j of energy is provided by _____g roast potatoes
100j of energy is provided by _____g chips
100j of energy is provided by _____g crisps

13. Why are salad vegetables not suitable for freezing?

Using your Risotto Milanese recipe

Suggest ways of increasing the fibre content using vegetables.
(use the Food Table books to assist your choices.)

SALT

Salt is an important item in our diet, it is composed of two minerals we require in small amounts: sodium and chloride. Salt is often referred to by its chemical name of _____.

Why do we need salt?

-
-
-
-

The body requires only **1 gram** of salt per day to remain healthy and function correctly. This can be achieved by eating a range of foods which naturally contain salt i.e. meats, dairy products, fruit and vegetables.

Currently **the average intake of salt per day is between 12 and 15grams per day**. This amount of salt can lead to hypertension (high blood pressure) and increased likelihood of heart disease. 75% of the salt we eat is added to food before we buy it.

List all the foods you can think of as salty:

Sodium is naturally present in all foods that are grown in the earth or are bred to eat the natural vegetation. This means that we would all consume more than enough sodium daily without any salt being added to foods.

Watch the video and answer the questions

SALT

1. What is the chemical name of salt?
2. The average percentage of salt in seawater is ____%.
3. What are the main functions of salt?
4. How much do we need to eat per day?
5. Why do teenagers eat more salt than other age groups?

6. What does salt sensitive mean?

7. Why does blood pressure rise with age?

8. Give four lifestyle factors, which can help to reduce the risk of high blood pressure.

-
-
-
-

9. Why does a high salt diet increase the risk of osteoporosis?

10. How much salt do we add at the table?

11. How much salt is found in tomato soup

- a. Meat pie
- b. Cornflakes

12. Which canned food contained the highest salt content?

13. How can we reduce our salt intake?

Salt is referred to in the video as having a number of possible disguises e.g. monosodium glutamate (MSG), hydrolyses vegetable protein, baking powder, sodium bicarbonate, meat or yeast extract, stock cubes, soy sauce and chemicals with sodium as the first part of the name.

Look at the selection of convenience food in the boxes and complete the table below.

NAME OF FOOD	Type of salt

Homework

1. Look at food packaging and note down 10 savoury foods with sodium values, you will find the information on the nutritional content labelling.

Food	Sodium in mg	High/medium/low

2. Identify the foods that are high in salt in the following diet by highlighting or underlining.

Breakfast – grilled bacon and sausage, toast, low fat spread and tea.

Lunch – can of tomato soup

Dinner – Pizza and chips, Slice of fruit pie and tinned custard.

Evening snack – dry roasted peanuts.

FATS

Fat is used for a number of different purposes in our body: (use your unit 2 booklet to help you)

-
-
-
-

But we are advised to keep our intake of fats to a low level:

- Fat is a high source of energy, providing twice the energy per gram compared to carbohydrates or proteins. (_____ kj per gram)
- Excess energy is converted into body fat and stored around the body

Both of these problems are linked to CHD (Coronary Heart Disease), one of the major health problems in the Western World today. Coronary heart disease is caused by the arteries supplying the heart with blood becoming narrower due to the build up of fatty deposits (cholesterol).

The arteries may become so narrow that the heart does not get enough blood and the oxygen supply to the heart is reduced. This causes severe, sharp pains referred to as angina. If the narrowed artery becomes blocked by a blood clot it will cause a heart attack.

Watch the video and answer the questions fully

1. What are all fats made up of?
2. How much energy do we get from fat?
3. What percentage of fat in our diet comes from meat?
4. Why is it easy to put on weight if we eat a lot of fat?
5. What is the definition of obesity?
6. Why are saturated fats a problem?
7. What is atherosclerosis?
8. What is the difference between a boiled potato and a potato crisp in terms of fat content?

The amount of manufactured foods in our diet is a major problem. Many of these foods are referred to as INVISIBLE FATS. (Ref Unit 2)

Give 2 examples of foods containing invisible fats.

1.

2.

Fats can be categorised by their **FATTY ACID** type.

There are 3 main types of fatty acids:- **Saturated fatty acids - animal fats, coconut and palm oil**

oil/rapeseed

Monounsaturated fatty acids - olive

oil/avocado

oils, oily fish

Polyunsaturated fatty acids - vegetable/nut

Saturated fatty acids are mainly found in **animal fats** e.g. butter, cheese and milk. (Fats high in **saturated fats** are naturally **solid** at room temperature.)

These fatty acids are high in natural chemical called **cholesterol** that is absorbed into the blood stream. The **cholesterol** becomes deposited on the walls of our arteries eventually blocking the artery in extreme cases this is a major contributing factor in CHD. Reducing levels of animal fats in the diet can help reduce high cholesterol levels.(for more information on cholesterol see www.eatwell.gov.uk/healthissues/healthyheart/cholesterol/).

Effect on arteries:

Monounsaturated fatty acids and **polyunsaturated fatty acids** are mainly found in **vegetable** foods. (These are naturally **liquid** at room temperature.)

Monounsaturated fats are found in olive oil, rapeseed oil, avocado pears and are often thought to be the reason for the low levels of heart disease in Mediterranean countries.

Polyunsaturated fats are found mainly in vegetable and nut oils e.g. corn oil, groundnut oil and sunflower oil.

From your own knowledge complete the following:-

HIGH FAT FOODS	LOWER FAT ALTERNATIVE
Butter	
Margarine	
Full fat milk	
Roast potatoes	
Cheddar cheese	
Double cream	
Fried bacon	
Full fat yoghurt	
Deep fried chips	
Red meat	

Tran Fats

Trans fats are vegetable fats that have been subjected to a process called hydrogenation, which converts liquid fats into solid fats, mimicking the properties of animal fats. The trans fats have a similar effect on our arteries to saturated fats and there is some strong medical evidence to show that they may be worse for our bodies than the natural saturated fats. Trans fats are found commonly in biscuits, cakes, pastries and some margarines

It is recommended that we should not eat more than 5 grams of trans fats per day.

Class/homework

Examine a range of food packaging, note down the types/amounts of fats contained in each.

Name of food product	Monounsaturated fat	Polyunsaturated fat	Saturated fat	Trans fat

Homework

Use the information in the table to answer the questions on fats.

All the figures in the table are for 100g weight of the product to allow comparison.

Nutritional information	Butter	Utterly Butterly	Bertolli spread
Energy	3031kJ/737kcal	2345kJ/570kcal	2203kJ/536kcal
Protein	0.5g	0.3g	0.2g
Carbohydrate	Trace	0.5g	1g
Of which sugars	Trace	0.5g	1g
Fat	81.7g	63g	59g
Of which saturates	54g	14.6g	14g
Of which monounsaturate	20g	27.5g	30g
Of which polyunsaturate	2.5g	9.5g	14.5g
Of which trans fatty acids	5g	No figure given	0.5g
Fibre	0g	0g	Trace
Sodium	0.61g	0.7g	0.32g

1. Why does butter have the highest amount of energy per 100g?

2. Using the information on the fat types and amounts in the table which product do you think is the best option for a healthy diet? Explain your answer.

3. Using the information on the fat types and amounts in the table which product do you think is the least acceptable option for a healthy diet. Explain your answer.

4a. There is no figure given for the trans fatty acids in Utterly Butterly, work out what the figure should be.

4b. Why do you think it is not included in the nutritional information?

SUGAR

There are two types of sugar occur within our foods;

1. Natural sugars occurring in milk, cereal grains, fruit and vegetables. These sugars are not seen as a threat to our health. Natural sugars occurring in foods like cereals, fruit and milk have to be broken down into glucose within the digestive system. The amounts of these foods we eat are at an acceptable level, sugar types are;

maltose from cereals e.g. barley, corn and oats.

fructose from fruits - all fruits contain fructose and vegetables such as carrots.

lactose and **galactose** from milk.

2. Processed sugars (sucrose) from sugar beet and cane. These processed sugars are linked to health issues and are commonly referred to as sugar - caster, granulated, icing, demerara, brown, syrup, treacle, etc

Processed sugar is often referred to as empty calories or empty energy.

- **It contains no vitamins.**
- **It contains no minerals.**
- **It is not required for bodybuilding or body protection.**

Sugars that are highly processed and added to foods, i.e. sucrose are the sugars we need to reduce – sweets, ice-cream, soft drinks, jam etc.

Processed sugar, sucrose from sugar beet/cane often appears on ingredients lists under several different names: **Glucose, invert sugar, hydrolysed sugar,**

Sugar is broken down into glucose by our digestive system and is stored in our muscles as glycogen until required for energy. If the glycogen is not required for energy, our bodies convert it into body fat.

We are advised to reduce our intake of processed sugar if we are children but the adults in Scotland are advised that their intake of sugar is at an acceptable level.

- Why do adults not need to reduce their intake?

How could children reduce their intake?

-
-
-
-

Sugar is the form of carbohydrate that the human body can digest most rapidly meaning that sugar energy is passed quickly into the blood stream providing an intense boost of energy. This is ideal if the body is undergoing strenuous physical activity and it is required but if the body is at rest it will convert the excess energy into stored body fat.

A diet that is commonly high in sugar and low in physical activity can lead to **obesity** developing. This will put an unnecessary strain on the heart and can lead to aggravation of other medical problems such as **arthritis** due to excess weight being carried by the body joints.

High sugar diets also lead to an increased likelihood of developing **Type 2 Diabetes** and **dental problems** including tooth decay and gum disease.

Diabetes – develops when the body cannot use glucose correctly and is the 3rd most common long-term disease after CVD and cancers. There are 2 types of diabetes.

Type 1 is usually diagnosed during childhood and is due to the pancreas not producing insulin properly. Insulin is required to control the amount of sugar in the blood. **Type 1** diabetes is usually controlled by insulin injections.

Type 2 develops mostly in older people but has recently been diagnosed in rising numbers of teenagers. The pancreas not producing enough insulin for the sugar level in the diet causes it. It can usually be controlled by changes to the diet and increased exercise, in severe cases Type 2 diabetes may require insulin treatment.

Well controlled diabetes of either type allows a normal healthy life but if it is poorly controlled it can increase the likelihood of developing heart disease, kidney disease, blindness, nerve problems and blood circulation problems.

Watch the video and answer the questions.

Sugar - Pure, White and Deadly

1. How is sugar described?
2. Which are the sweetest sugars?
3. What is sucrose?
4. What does sucrose provide us with?
5. What is sucrose often combined with during food manufacture?
6. How much sugar do we eat per day?
7. What types of foods contain high amounts of hidden sugar?
8. How much sugar is contained in the following?
 - Special K
 - Sports drinks
 - Soft drinks
9. Sugar is linked to dental decay; give 2 examples of what can happen to teeth.
10. Why does sugar tend to aggravate obesity problems?

Homework

Complete the following table using the word bank below

Name of sugar	Sugar information
Glucose	<ul style="list-style-type: none"> The _____ form of sugar Most _____ sugar are broken into this during _____
Lactose	<ul style="list-style-type: none"> Form of sugar found in _____ Breaks down into _____ during digestion
Maltose	<ul style="list-style-type: none"> Sugar found in cereal grains such as _____ and barley
Fructose	<ul style="list-style-type: none"> One of the _____ form of sugar Found in all fruits and some _____
Sucrose	<ul style="list-style-type: none"> Table sugar, e.g. _____ and granulated sugars Is broken down into _____ during digestion Found in sugar _____/cane
Galactose	<ul style="list-style-type: none"> A simple form of _____

<p>Word bank digestion milk wheat vegetables castor glucose beet complex simplest sweetest sugar galactose</p>

Examine the information below and calculate the starch value for each bar (carbohydrate – sugar = starch)

All values per 100g	Alpen light	Ryvita goodness	Tracker roast nut	Frusli	Go ahead	Doves farm bars
Energy	1199kJ	1117kJ	2094kJ	1708kJ	1646kJ	1503kJ
Carbohydrate	56.9g	54.8g	56.5g	63.9g	65.2g	63.3g
Of which sugar	23.0g	20.8g	27.1g	34.7g	23.7g	38.7g
Starch						
Fat	3.6g	2.8g	25.9g	13.9g	11.4g	11.5g

Which of the bars would be most suitable for an athlete to snack on during a competition, give reasons for your answer?

Which bar would be most suitable for a person with heart problems to snack on, give reasons for your answer?
