my revision notes

OCR GCSE

FOOD PREPARATION AND NUTRITION

For the 2016 specification

Val Fehners

HODDER EDUCATION
LEARN MORE

Get the most from this book

Everyone has to decide their own revision strategy, but it is essential to review your work, learn key facts and test your understanding. These Revision Notes will help you to do that in a planned way, topic by topic. You can check your progress by ticking off each section as you revise.

Tick to track your progress

Use the revision planner on pages iv and v to plan your revision, topic by topic. Tick each box when you have:

- revised and understood a topic
- tested yourself
- practised exam questions and gone online to check your answers.

You can also keep track of your revision by ticking off each topic heading in the book. You may find it helpful to add your own notes as you work through each topic.


My revision planner

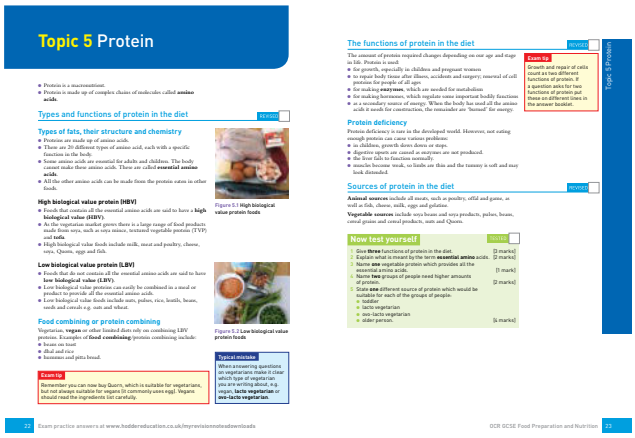
Section A: Nutrition
Topic 1 The relationship between diet and health 1
Topic 2 Nutritional and dietary needs of different groups of people 10
Topic 3 Nutritional needs when selecting recipes for different groups of people 16
Topic 4 Energy balance 19
Topic 5 Protein 22
Topic 6 Fats 24
Topic 7 Carbohydrates 27
Topic 8 Vitamins 30
Topic 9 Minerals 33
Topic 10 Water 35
Topic 11 Nutrients in foods 37

Section B: Food
Topic 1 Food source and supply 47
Topic 2 Food processing and production 54
Topic 3 Food security 62
Topic 4 Technological developments to support better health and food production 65
Topic 5 Development of culinary traditions 68
Topic 6 Factors influencing food choice 71

Section C: Cooking and food preparation
Topic 1 Food science 75
Topic 2 Sensory properties 82
Topic 3 Food safety 85

Section D: Skills requirements (preparation and cooking techniques)
Topic 1 Knife skills 91
Topic 2 Preparation and techniques 96
Topic 3 Cooking methods 97
Topic 4 Sauces 99
Topic 5 Set a mixture 102
Topic 6 Raising agents 103
Topic 7 Dough 106
Topic 8 Judge and manipulate sensory properties 111

Preparing for assessment
Success in the examination 114
Sample examination questions and model answers 116
Exam mark scheme 122
Glossary 125


Topic 5 Protein

Types and functions of protein in the diet

Types of fats, their structure and chemistry

High biological value protein (HBV)

Low biological value protein (LBV)

Food combining or protein combining

The functions of protein in the diet

Protein deficiency

Sources of protein in the diet

Now test yourself

Features to help you succeed

Exam tips

Expert tips are given throughout the book to help you polish your exam technique in order to maximise your chances in the exam.

Typical mistakes

The authors identify the typical mistakes candidates make and explain how you can avoid them.

Now test yourself

These short, knowledge-based questions provide the first step in testing your learning. Answers are at the back of the book.

Key words

Key words from the specification are highlighted in bold throughout the book.

Revision activities

These activities will help you to understand each topic in an interactive way.

Exam practice

Practice exam questions are provided for each topic. Use them to consolidate your revision and practise your exam skills.

Online

Go online to check your answers at www.hoddereducation.co.uk/myrevisionnotesdownloads.

Copyright: sample material

My revision planner

Copyright: sample material

Exam practice answers at www.hoddereducation.co.uk/myrevisionnotesdownloads

Section D: Skills requirements (preparation and cooking techniques)

Preparing for assessment

Copyright: sample material

Topic 1 The relationship between diet and health

A balanced diet to provide the correct combination of food and nutrients

REVISED

The importance of a healthy diet

We need to eat food in the correct balance for:

- providing the energy we need to survive, to keep us healthy and to help fight disease
- growth and repair of body tissue
- all bodily functions, which depend on the energy and trace elements found in the food we eat
- stopping us feeling hungry
- health and well-being, as we find eating a pleasurable and enjoyable experience.

To have a **balanced diet**, you need to eat a mixture of foods from each of the main food groups and consume the correct amount of energy to carry out daily activities.

The Eatwell Guide

Figure 1.1 The Eatwell Guide

Copyright: sample material

- The **Eatwell Guide** is a pictorial food guide showing the **proportions** and types of foods that are needed to make up a healthy, balanced diet.
- The Eatwell Guide can be followed by most people with the exception of children under two years.
- Children between the ages of two and five should start to follow the Eatwell Guide.
- If you have special dietary needs you should always check with a dietician or doctor how to adapt the Eatwell Guide to meet your specific needs.
- The Eatwell Guide is based on the five food groups shown in Figure 1.2.
- It shows the proportions of the different groups of foods you should eat.

How to use the major commodity groups to make a balanced food choice

Fruits and vegetables
- Most people need eat more fruits and vegetables.
- Fruits and vegetables should be just over a third of the food eaten in a day.
- You should eat at least at least five portions of fruit and vegetables a day.
- Fruit and vegetables are a good source of vitamins, minerals and fibre.
- If you eat a lot of fruit and vegetables you are less likely to develop diseases such as coronary heart disease and some types of cancer.

What is included
- Choose from fresh, frozen, tinned, dried or juice.
- All fruits and vegetables, including: apples, pears, oranges, bananas, grapes, strawberries, mango, pineapple, raisins, broccoli, courgettes, cabbage, peas, sweetcorn, lettuce, tomatoes, carrots, peas, beans, lentils.

Potatoes, bread, rice, pasta or other starchy carbohydrates
- Eat wholegrain cereal products or higher fibre products such as whole wheat pasta and brown rice.
- Starchy food should make up just over a third of the food we eat.
- Starchy foods are a good source of energy and provide use with other nutrients for example vitamins and minerals.

What is included
- Bread, including: soda bread, rye bread, pitta, flour tortilla, baguettes, chapatti, bagels; rice, potatoes, breakfast cereals, oats, pasta, noodles, maize, cornmeal, polenta, millet, spelt, couscous, bulgur wheat, wheat, pearl barley, yams and plantains

Copyright: sample material

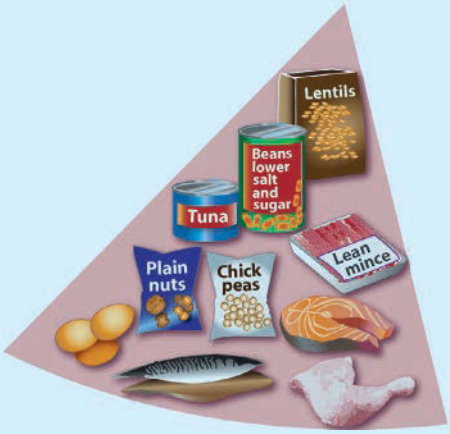
Exam practice answers at www.hoddereducation.co.uk/myrevisionnotesdownloads

Dairy and dairy alternatives

- Milk, cheese, yoghurt and fromage frais are good sources of protein, some vitamins, and calcium.
- You should eat some dairy or dairy alternatives every day.
- There are many low-fat and low-sugar products which can replace those with a higher fat and sugar content for example, 1% fat milk, reduced-fat cheese or plain low-fat or fat free yoghurt.

What is included

- Milk, cheese, yoghurt, fromage frais, quark, cream cheese.
- This also includes non-dairy alternatives to these foods.



Beans, pulses, fish, eggs, meat and other proteins

- These foods are a good sources of protein and other nutrients.
- Beans, peas and lentils are low in fat and are good alternatives to meat.
- It is recommended that we eat fish at least twice a week and one of these is oily fish, such as mackerel.
- Try to reduce red and processed meat to 70 grams per day.
- Some meat is high in fat (saturated).
- Choose lower-fat meat products, leaner cuts of meat, and trim off any visible fat and skin.
- Use cooking methods that do not use any fat, and drain away fat. Grill, poach, steam, bake or microwave.

What is included

- Meat, poultry and game, including: lamb, beef, pork, chicken, bacon, sausages, burgers; white fish including: haddock, plaice, pollock, coley, cod; oily fish including: mackerel, sardines, trout, salmon, whitebait; shellfish including: prawns, mussels, crab, squid, oysters; eggs, nuts, beans and other pulses, including: lentils, chickpeas, baked beans, kidney beans, butter beans.

Oils and spreads

- Some fat is needed in the diet but most people need to reduce their intake of saturated fat.
- We should not use a lot of these products because they are often high in fat.
- Chose low fat spreads when possible.
- These foods are often high in calories so reducing the amount eaten can also help to control weight.

What is included

- Unsaturated oil, e.g. vegetable oil, rapeseed oil, olive oil, sunflower oil; soft spreads made from unsaturated fats.

Figure 1.2 The sections of the Eatwell Guide

The Eatwell Guide also gives additional information on:

- Foods high in fat, salt and sugar
- Hydration
- Food labelling.

Figure 1.3 Foods high in fat, salt and sugar

Foods high in fat, salt and sugar

- These foods are not needed in the diet and should therefore not be eaten very often.

Copyright: sample material

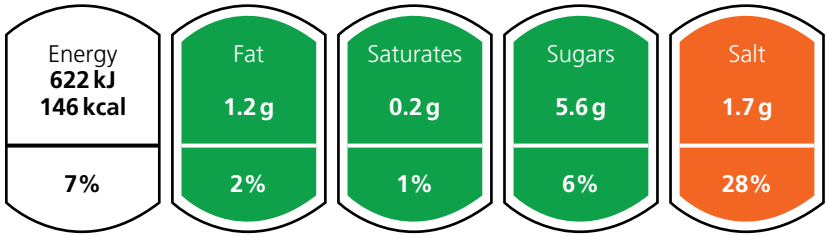
- If you eat these foods and drinks you should eat them in very small quantities.
- Foods and drinks which contain a lot of fat and sugar are high in energy.
- You should check the food labels and choose foods which are low in fat, sugar and salt.

Hydration

- Water, coffee, tea, lower fat milk, and sugar-free drinks all contribute to meeting your needs of six to eight glasses of fluid every day.
- Sugary drinks should be avoided and these should be swapped for sugar-free and no-added-sugar varieties.
- Fruit juice and smoothies do count, but they are also counted as **free sugars**. You should not have more than 150 ml of these a day.
- Alcohol also contains a lot of **calories** and adults should not consume more than 14 units a week.

Food labelling

- Labels often show the nutritional information per serving.
- They also show the contribution the food makes to the daily amounts required.
- The use of colour helps you to easily see the whether they are high in **saturated fat**, sugar and salt.



of an adult's Reference Intake.
Typical values per 100 g: Energy 311 kJ/73 kcal

Figure 1.4 Food label showing contribution to daily required amount

Cutting down on saturated fat

Reducing the amount of saturated fat eaten can:

- reduce the risk of heart disease
- lower blood cholesterol.

Cutting down on sugar

Reducing the amount of sugar can reduce the risk of:

- obesity
- tooth decay.

When sugar is added to a product or a dish to make them sweeter or more **palatable** it is called a free sugar. No more than five per cent of the sugar we eat should come from free sugars.

Copyright: sample material
Exam practice answers at www.hoddereducation.co.uk/myrevisionnotesdownloads

Table 1.1 How much sugar should we eat? (*Source*: Public Health England, The Eatwell Guide, March 2016)

Age	Recommended maximum free sugars intake	Sugar cubes
4–6 years	No more than 19 g/day	5 cubes
7–10 years	No more than 24 g/day	6 cubes
From 11 years, including adults	No more than 30 g/day	7 cubes

- Remember, sugary drinks are not needed and we should change these to water, **low fat** milk or sugar-free drinks.
- Although ingredients lists are required by law on food products, it is sometimes difficult to spot the difference between a free sugar and a **not free sugar**.

Table 1.2 Free and not free sugars

Free sugars		Not free sugars
• Cane sugar • Honey • Brown sugar • Dextrose • **Fructose**	• **Sucrose** • Maltose • Fruit juice concentrate • Corn syrup • Molasses	Sugars found naturally in food: • in fresh, dried or frozen fruits and vegetables • in milk, cheese and natural yoghurt.

Cutting down on salt

Reducing the amount of salt can:
- reduce blood pressure
- reduce the risk of heart disease
- reduce the risk of a stroke.

Adults should have no more than six grams salt per day and children should have less.

Remember, salt is added to many foods that you buy, so you need to check the labels carefully.

Typical mistake

Many candidates link salt to obesity. Salt does not cause obesity.

How much food do I need?

- Everyone needs different amounts of energy to maintain a healthy body weight.
- The amount of energy we need depends on many different factors.
- If we do not use all the energy we consume it will be stored as fat.

Now test yourself

TESTED

1 State which **two** sections of the Eatwell Guide are the largest. [2 marks]
2 Explain why the Eatwell Guide is useful for consumers. [4 marks]
3 Name **two** foods which are found in the oils and spreads section of the Eatwell Guide. [2 marks]
4 Give **two** examples of **not free sugars.** [2 marks]
5 Give **two** examples of **free sugars.** [2 marks]

Copyright: sample material

The government's guidelines for a healthy diet

REVISED

The government recommendations are to use the Eatwell Guide as a model for healthy eating.

The government has also produced other guidance linked to healthy eating, including:

- **Eight tips for healthy eating**
- **5 a day campaign.**

Application of the eight tips for healthy eating

The eight tips for healthy eating are clearly linked to the Eatwell Guide:

1 Base your meals on starchy foods.
2 Eat lots of fruit and vegetables.
3 Eat more fish – aim for two portions a week and one of these should be oily.
4 Cut down on saturated fat and sugar.
5 Eat less salt – adults should eat no more than six grams per day.
6 Get active and try to maintain a healthy weight.
7 Don't get thirsty – drink plenty of water.
8 Don't skip breakfast.

5 a day

This campaign:

- encourages us to eat at least five portions of fruit and vegetables a day
- ensures a variety of vitamins, **minerals**, trace elements and fibre are in the diet.
- promotes the inclusion of **antioxidants** and plant chemicals needed for good health.

Figure 1.5 Fruits and vegetables can be eaten in a variety of ways

Exam tip

Questions on balanced diets and healthy eating often require longer responses. Read the question carefully and check how many marks are going to be awarded.

Now test yourself

TESTED

1 Give **four** of the eight tips for healthy eating. [4 marks]
2 Explain why we are encouraged to eat at least five portions of fruit and vegetables a day. [4 marks]

Copyright: sample material
Exam practice answers at www.hoddereducation.co.uk/myrevisionnotesdownloads

Major diet-related health issues caused by a poor diet and lifestyle

REVISED

There are a number of diseases and conditions caused by having a poor diet and lifestyle.

Obesity

The number of people who are overweight or obese in the UK is increasing.

The main cause of being overweight is eating more food than the body requires, so that excess energy is stored as fat. Being overweight is unhealthy because it puts a strain on the organs of the body. It can cause:

- heart disease
- high blood pressure
- **diabetes**
- osteoarthritis
- varicose veins
- breathlessness
- chest infections
- unhappiness
- low self-esteem
- may lead to depression.

Exam tip

Do not mix up the terms 'heart attack' and 'coronary heart disease'.

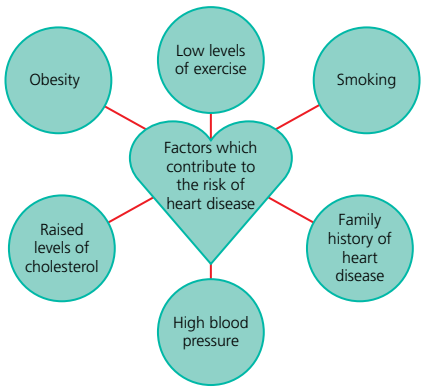


Figure 1.6 Factors which influence the risk of heart disease

Cardiovascular disease

Cardiovascular disease is a term used to describe all different types of diseases of the heart and circulatory system.

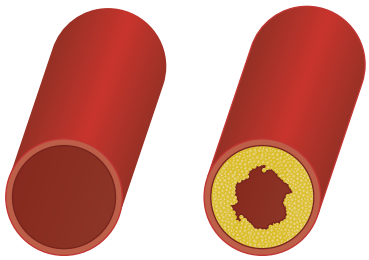
Blood flow to the heart, brain or body is reduced because of a blood clot or narrowing of the arteries.

Coronary heart disease is one of the main types of cardiovascular disease.

Coronary heart disease

In the UK, coronary heart disease (CHD) is a major health problem and one of the main causes of death.

- CHD is linked to the amount of fat in the diet.
- A diet high in **saturated fats** is also likely to be high in cholesterol.
- Cholesterol is a substance made in the liver and carried in the bloodstream. It can build up and be deposited with other material as 'plaque' on the walls of the arteries.
- Blocked arteries can cause a person to have a heart attack which, if severe, can cause death.



Healthy blood vessel | Unhealthy – blocked with cholesterol

Figure 1.7 Plaque build-up in the arteries

High blood pressure

To reduce the risk of high blood pressure you should follow the advice given in the Eatwell Guide:

- eat at least five portions of fruit and vegetables a day
- eat a varied diet
- reduce your fat intake
- eat more starchy **carbohydrates**
- consume mono and **polyunsaturated fats**
- reduce your salt intake
- eat at least two portions of fish a week.

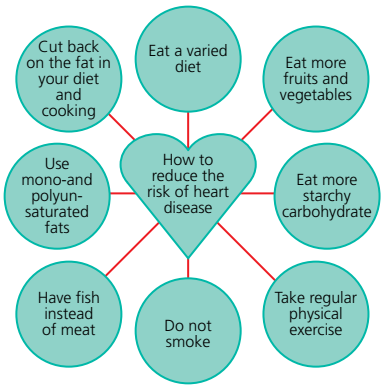


Figure 1.8 How to reduce the risk of heart disease

Copyright: sample material

Diabetes

Diabetes is a medical condition where the glucose in the bloodstream is not balanced correctly.

- Glucose is carried in the blood to all body cells to supply them with energy.
- Insulin, a hormone produced by the pancreas, controls the amount of glucose in the bloodstream and stops it getting too high.

There are two types of diabetes:

- Type 1 – this is usually diagnosed in children and is caused by the pancreas not producing enough insulin.
- Type 2 diabetes – this is usually diagnosed in older people, although there are younger people being diagnosed with this due to a poor diet.

Meals for diabetics should follow the guidance in the Eatwell Guide and include high-fibre, starchy carbohydrate foods such as potatoes, rice and pasta, but should be low in sugar and sweet foods.

Figure 1.9 Diabetes risk factors

Diverticulitis

- **Diverticulitis** is a condition which affects the large intestine. It is often linked to having a diet which is low in fibre (**non-starch polysaccharide** or **NSP**).
- The lining of the bowel becomes inflamed, infected and damaged.

Symptoms of **diverticular disease** include pain and discomfort in the abdomen and feeling bloated. Figure 1.10 shows what happens to your colon if you do not have a high-fibre diet.

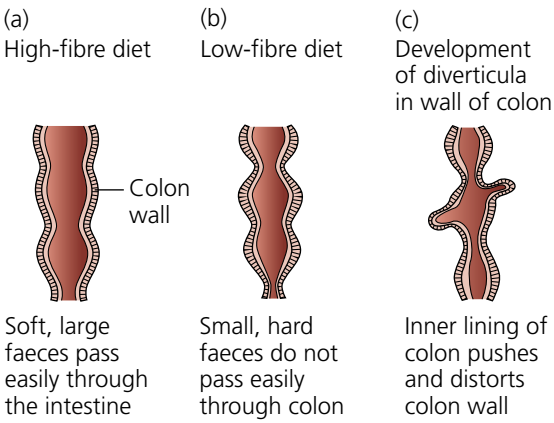


Figure 1.10 Waste passing through the digestive system

Bone health (osteoporosis)

- Healthy bones do not break easily.
- Calcium and other minerals are gradually added to bones to strengthen them.
- Our bones are at their strongest between the ages of 20 and 35, when our peak bone mass is reached.
- If we do not achieve peak bone mass then we are more likely to get **osteoporosis**. The bones start to lose minerals and their strength.
- If we lose too many minerals the bones become brittle and break.

Copyright: sample material
Exam practice answers at www.hoddereducation.co.uk/myrevisionnotesdownloads

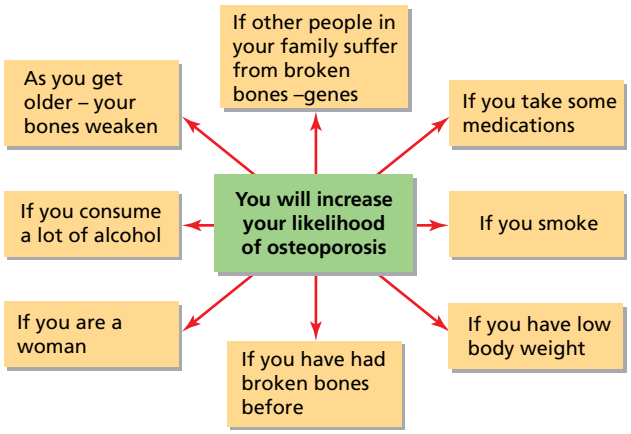


Figure 1.11 Factors which increase the likelihood of osteoporosis

Dental health

- To maintain healthy teeth you need to have a balanced diet based on the Eatwell Guide.
- Tooth decay is caused when the **bacteria** in your mouth (plaque) feed on the sucrose to produce an **acid**. The acid then causes small holes in your teeth (dental caries).
- Sugars found naturally in fruits and vegetables are not as harmful, as they are less likely to lead to tooth decay and are easier for the body to absorb.

Anaemia

Anaemia, caused by a lack of **iron** in the diet, is one of the most common nutritional problems worldwide.

- We need iron as it forms haemoglobin, which gives blood its red colour and carries oxygen around the body to the cells.
- Teenage girls and women must make sure they have enough iron in their diet to cope with menstruation.
- Pregnant women need a good supply of iron to support the baby's blood supply.
- Symptoms of anaemia are tiredness and lack of energy.
- Good sources of iron are found in liver and kidneys, red meat, oily fish and leafy green vegetables.
- In the UK, some foods are **fortified** with iron, e.g. breakfast cereals and flour.
- Vegetarians need to ensure that they get an adequate supply of iron from bread, pulses and vegetables.

Now test yourself

TESTED

1 State **two** causes of heart disease. [2 marks]
2 State **three** changes that a person with heart disease should make to their diet. [3 marks]
3 Explain the difference between type 1 and type 2 diabetes. [2 marks]
4 Name **two** symptoms of diverticulitis. [2 marks]
5 State **three** factors which could increase your risk of osteomalacia. [3 marks]
6 Explain how tooth decay is caused. [2 marks]
7 Name **two** groups of people most at risk of suffering from anaemia. [2 marks]

Copyright: sample material