

A large, faint watermark of a university crest is visible on the left side of the slide. The crest features a shield with a cross, topped by a crown and surrounded by ornate flourishes. Below the shield, a banner contains the Latin motto "ET VENUSTAS PER SCIENTIAM".

# vict

Applying the principles of nutrition to a physical activity programme

*LO: Understand the principles of nutrition*

# Assessment criteria

1. Describe the structure and function of the digestive system.
2. Explain the meaning of key nutritional terms including:
  - diet
  - healthy eating
  - nutrition
  - balanced diet
3. Describe the function and metabolism of:
  - macronutrients
  - micronutrients
4. Explain the main food groups and the nutrients they contribute to the diet.

*(continued)*

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Assessment criteria

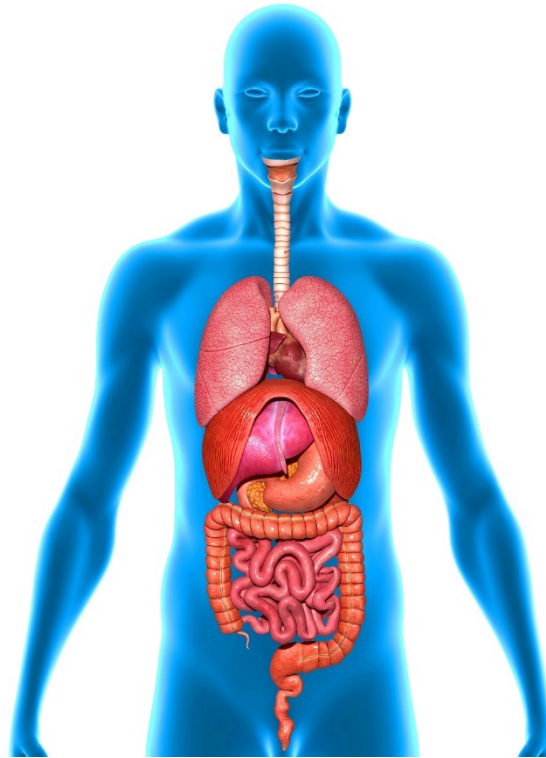
*Continued....*

5. Identify the calorific value of nutrients.
6. Explain the common terminology used in nutrition including:
  - UK dietary reference values (DRV)
  - recommended daily allowance (RDA)
  - recommended daily intake (RDI)
  - glycaemic index
7. Interpret food labelling information.
8. Explain the significance of healthy food preparation.
9. Explain the relationship between nutrition, physical activity, body composition and health including:
  - links to disease/disease risk factors
  - cholesterol
  - types of fat in the diet

The logo for vtct, featuring the letters 'vtct' in a stylized, purple, serif font. The 'v' is lowercase and has a decorative flourish that extends upwards and to the right, crossing over the 't's.

# Activity

Name structures that form part of the digestive system.



Vtct

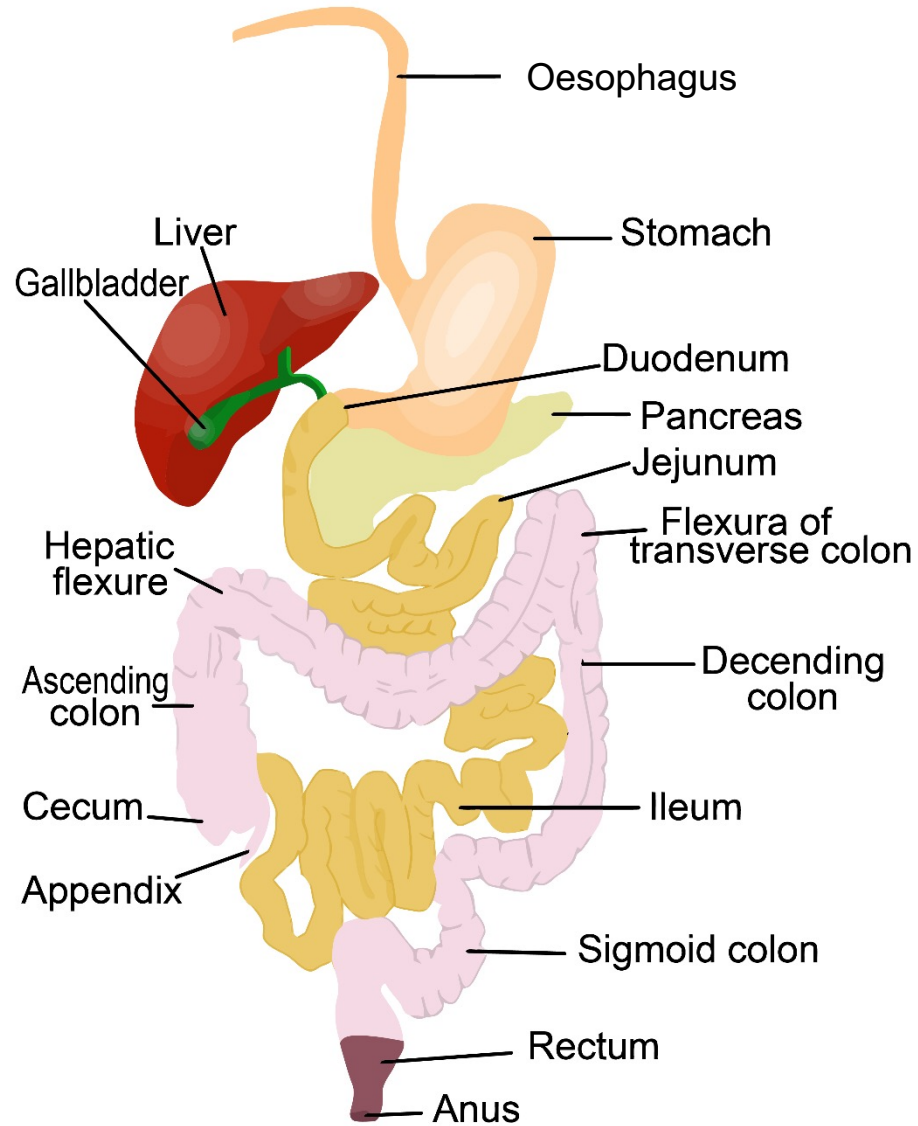


# Digestive system structures

- Mouth (including, the teeth, tongue and salivary glands)
- Pharynx
- Oesophagus
- Stomach
- Liver
- Pancreas
- Gall bladder and bile ducts
- Small intestine (including the duodenum, jejunum and ileum)
- Large intestine
- Rectum and anus

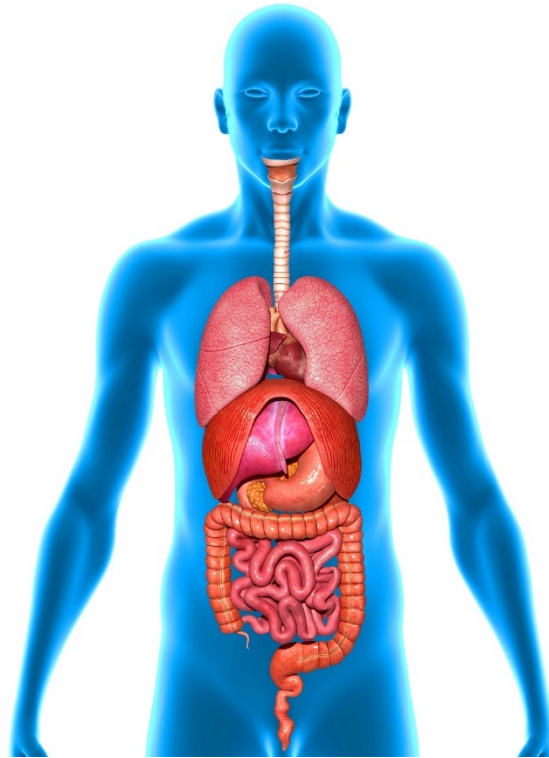
The logo for vtct, featuring the letters 'vtct' in a stylized, purple, serif font. The 'v' is lowercase and has a decorative flourish that extends upwards and to the right, crossing over the 't's.

# DIGESTIVE SYSTEM



# Activity

What is the main function of the digestive system?



Vtct

# Digestive system functions

- The intake and digestion of food
- The absorption of nutrients
- The excretion of waste

*Food is essential for life, it provides the energy required for all body processes.*

Vtct

# The main stages of digestion

- **Ingestion** – eating and taking food into the body
- **Movement** – journey through the GI tract
- **Digestion** – food broken down
  - Mechanical digestion, e.g. mastication (chewing)
  - Chemical digestion, e.g. the action of enzymes
- **Absorption** – nutrients are moved to the body's transport systems and travel to the body cells
- **Defecation** – waste products are eliminated

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# The journey of food

Food typically takes 24-72 hours to travel through the GI tract.

- Chewing
- Peristalsis
- Digestion
- Absorption
- Elimination

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Chewing and peristalsis

## Chewing

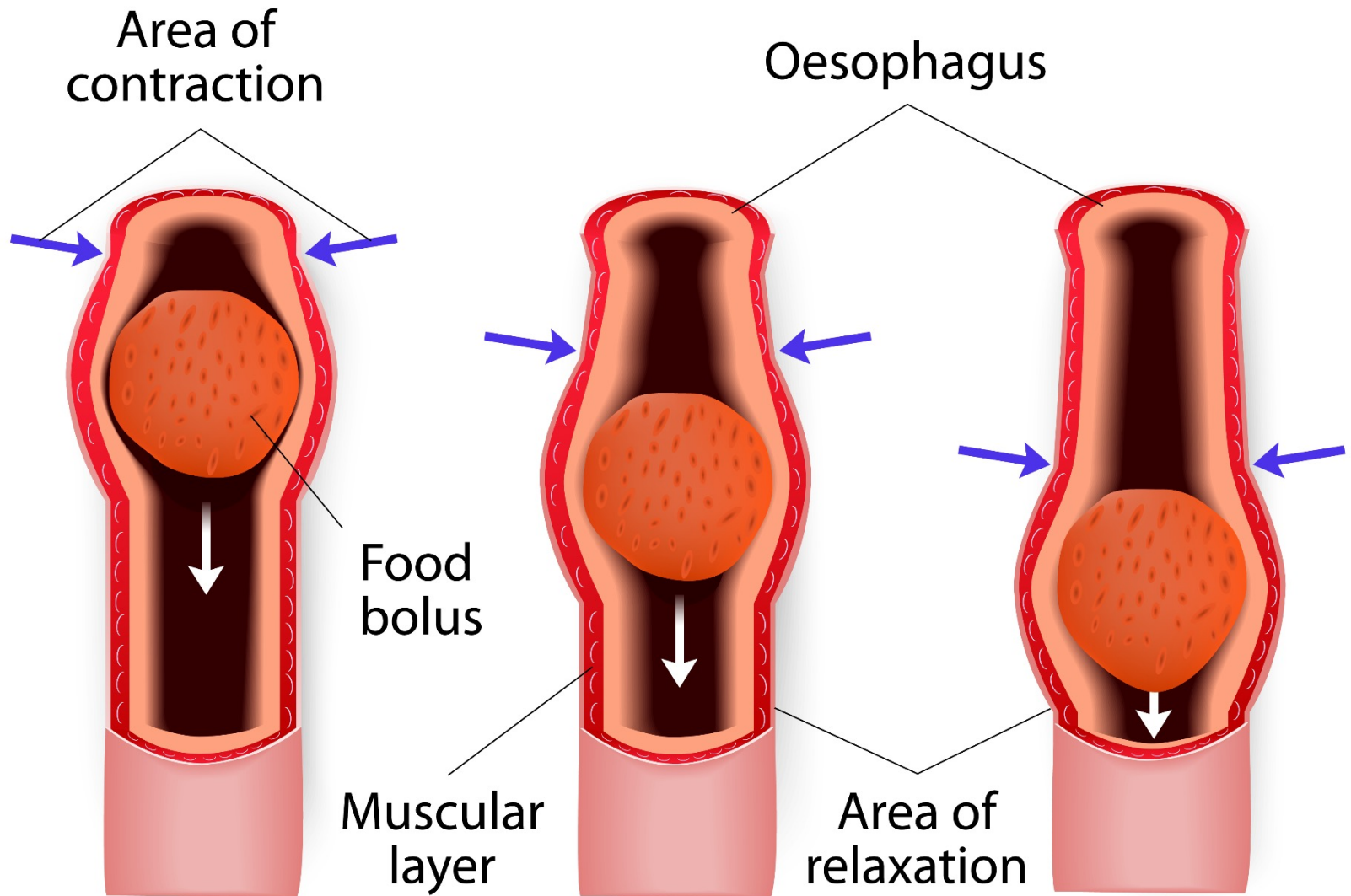
- Food is crushed by the teeth and tongue (mastication)
- Broken down by the salivary enzymes
- Swallowed and enters the oesophagus (gullet)

## Peristalsis

- Waves of involuntary muscular contractions
- Move food through the oesophagus towards the stomach.

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# PERISTALSIS





# Digestion

- Stomach
- Gastric acid and other digestive juices
- The stomach empties this mixture into the small intestine
- The small intestine (and liver and pancreas)
- Digestive juices and enzymes separate out the nutrients
  - Each food group requires a specific enzyme to break it down at different stages of its journey
- Mechanical action continues to move food through the system

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Nutrient break down

Through the process of digestion, the different nutrients are broken down:

- Carbohydrates are broken down into glucose
- Proteins are broken down into amino acids
- Fats are broken down into fatty acids

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Absorption and elimination

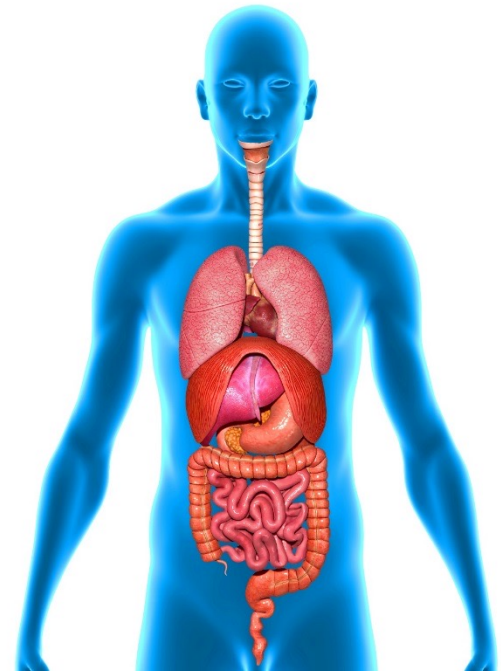
- Nutrients are already digested from food
- Free nutrients are absorbed through the small intestine walls
- Nutrients are transported via bloodstream (glucose, amino acids) and lymphatic system (lipids)
- Digested food waste moves to large intestine (colon)
- Waste products move to the rectum
- Excreted as faeces



# Revision activity

Describe the following processes:

- Chewing
- Peristalsis
- Digestion
- Absorption.
- Elimination



Vtct

# Enzymes

Enzyme	Nutrient broken down	Secreted by and acts in
Salivary amylase	Carbohydrates	Secreted: salivary glands Acts in: mouth & oesophagus
Pepsin	Proteins	Secreted: stomach Acts in: stomach
Lipase	Fats	Secreted: pancreas Acts in: small intestine
Trypsin	Proteins	Secreted: pancreas. Acts in: small intestine

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Revision activity

What are the following enzymes secreted by?

What nutrient does each enzyme digest?

Where does the digestion take place?

- Trypsin
- Salivary amylase
- Pepsin
- Lipase

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Activity

What is meant by the following nutritional terms?

- Diet
- Healthy eating
- Nutrition
- Balanced diet
- UK dietary reference values (DRV)
- Recommended daily allowance (RDA)
- Recommended daily intake (RDI)
- Glycaemic index

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Nutritional terms

- **Diet** - an individual's food intake and eating habits and eating behaviours
- **Healthy eating** - following a healthy diet and eating a balanced intake of all nutrients in the appropriate quantities
- **Unhealthy eating** - following an unhealthy diet, such as an imbalanced intake of nutrients
- **Nutrition** - the branch of science that deals with nutrients and nutrition
- **Balanced diet** – a diet that contains adequate amounts of all the necessary nutrients

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also large and has a similar flourish. The 'c' and 't' are smaller and more standard in style.



# Nutritional terms

- **Calorie** - a unit of heat used to indicate the amount of energy contained within a food or expended by the body
- **UK dietary reference values (DRV)** - new guidelines (replace RDA and RDI), developed to promote the concept of health and not just avoidance of disease. Guidelines provided for energy and all nutrients
- **Recommended daily allowance (RDA)** - the average quantity of a nutrient that should be provided if the needs of all members of a specific population have to be met
- **Recommended daily intake (RDI)** - the amount sufficient, or more than sufficient for the nutritional needs of nearly all healthy people in the UK

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Nutritional terms

- **Glycaemic index (GI)** - a ranking given to carbohydrate foods based on their effect on blood sugar and glucose levels:
  - Low: 55 or less
  - Medium: 56–69
  - High: 70 or more
- **Glycaemic Load (GL)** - a method used to compare the speed and amount of glucose released from different carbohydrate foods, calculated by:  $GL = (GI \times \text{the amount of carbohydrate in grams}) \div 100$ .
  - Low: 10
  - Medium: 11–19
  - High: 20 or more



# Activity

What are the macronutrients?

For each macronutrient, consider:

- Function
- Metabolism
- Calorific value
- Main food sources

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also large and has a similar flourish. The 'c' and 't' are smaller and more standard in style.

# The main nutrients

## Macronutrients:

- Carbohydrates, including fibre
- Proteins
- Fats

## Micronutrients:

- Vitamins
- Minerals



Vtct

# Carbohydrates

- The main fuel for energy
- Simple carbohydrates – sugar
  - Monosaccharides, disaccharides
  - Found in cakes, sweets and fruit
- Complex carbohydrates – starch
  - Polysaccharides, soluble and insoluble fibre
  - Found in pasta, rice, bread, vegetables and potatoes



Vtct

4 kcal  
per  
gram

# Fibre

- Complex carbohydrate
- Adds bulk, roughage to the diet
- Assists movement of food through digestive system
- Assists removal of waste
- Found in vegetables, fruits and whole grains

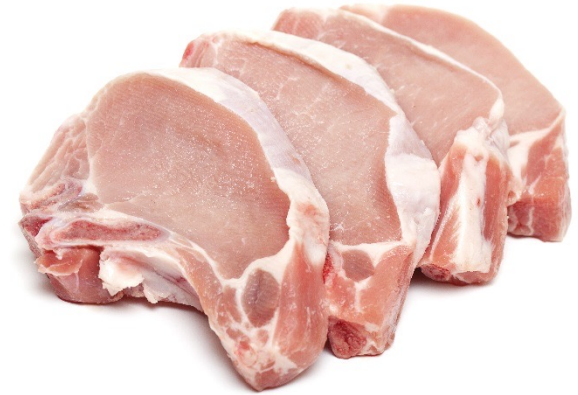


Vtct

4 kcal  
per  
gram

# Protein

- Main role is growth and repair
- Structured from amino acids



4 kcal  
per  
gram

Vtct



# Protein

## Animal protein

- Contains all amino acids
- Found in red and white meat, fish and dairy products, e.g. cheese, eggs



## Vegetable protein

- Different sources contain different amino acids
- Found in beans, nuts, grains and pulses, e.g. lentils



Vtct

4 kcal  
per  
gram



# Fats

Fats in the diet:

- Carry vitamins A,D,E, and K
- Provide fuel for energy

Fat in the body:

- Component of all cell walls, particularly important for neurons
- Forms steroid hormones
- Provides insulation and warmth
- Protects the internal organs

9 kcal  
per  
gram

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Types of fat in the diet

- Monounsaturated
- Polyunsaturated
  - Omega 3
  - Omega 6
- Saturated
- Trans fats



9 kcal  
per  
gram

Vtct

# Types of fat in the diet

## Monounsaturated

- Avocados, olives, seeds, nuts e.g. peanuts and their oils
- Improve blood lipid profile

## Polyunsaturated

- Oily fish and plant oil
- Include essential fatty acids:
  - Omega 3 – oily fish, flaxseed, walnuts, eggs
  - Omega 6 – soya oil, sunflower oil, grains, eggs



Vtct

9 kcal  
per  
gram

# Types of fat in the diet

## Saturated

- Animal products and tropical oils
- May negatively affect blood lipid profile to increase cardiovascular disease risk

## Trans fatty acids

- Take-aways, cakes, biscuits, pastries and margarines
- Strong negative affect on blood lipid profile to increase cardiovascular disease risk
- Also increase cancer risk

9 kcal  
per  
gram

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right.

# Types of fat in the diet

## Trans fats

- Harmful
- Most are formed artificially during hydrogenation
- Hydrogenation changes chemical structure
- Increase LDL cholesterol and lower HDL cholesterol
- Avoid foods with hydrogenated oils
- Trans fats are used by manufacturers because they are cheap to produce and have a long shelf life
- Not a legal requirement to declare the number of trans fatty acids



# Cholesterol

## Low density lipoprotein - LDL cholesterol

- Small LDL – ‘L for Lousy’
- Transports fats from liver to body cells
- Contribute to fatty plaque on artery walls
- Build up of plaque leads to atherosclerosis
- Large VLDL (very low density lipoprotein) does not contribute to atherosclerosis

## High density lipoprotein - HDL cholesterol

- ‘H for Healthier’
- Transport fats from the body back to the liver
- Removes excess cholesterol from blood
- Can help to clear fatty plaque from artery walls
- Reduces risk of cardiovascular disease

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Vitamins and minerals

## Vitamins

- Fat soluble vitamins A-D-E-K
- Water soluble vitamins B-C
- Antioxidants vitamins C and E

**Minerals** – calcium, iron, potassium, magnesium.



Vtct

# Vitamins and minerals

Different vitamins and minerals have different roles, including:

- Growth and repair
- Healthy skin, hair, teeth, eyes
- Cell function and immune system
- Enzyme action
- Repair and functioning

Sources:

- Abundant in fruit and vegetables
- Variety and colour in diet is key



Vtct





# Minerals

- Bone growth
- Tooth growth
- Energy production
- Enzyme function
- Nerve and muscle function
- Water balance
- Blood clotting
- Oxygen transport in red blood cells



Vtct

# Activity

As a **home study task** – find out the main role of each of the main vitamins and minerals

## Vitamins

- Fat soluble vitamins A-D-E-K
- Water soluble vitamins B-C
- Antioxidants vitamins A, C and E

**Minerals** – e.g. calcium, iron, potassium, magnesium, sodium

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Water

A large percentage of the body is made up of water, e.g. blood

Water is essential for:

- Life
- Mental functioning
- Physical functioning
- Performance
- Efficiency of all body systems



Vtct

# Signs of dehydration

## Mild symptoms:

- Feeling thirsty
- Loss of alertness and concentration
- Flushed, clammy skin
- Lacking energy

## Advanced symptoms:

- Headache
- Shortness of breath
- Dizziness
- Coma and death



Vtct

# Hydration

Dehydration occurs when the body has lost more than 2 per cent of its total fluid volume.

Hydration is influenced by:

- Activity levels
- Humidity of the environment
- Temperature of the environment
- Body temperature
- Drinking water is the best option for maintaining hydration
- Fluids containing alcohol, high levels of sugar or caffeine may have a net dehydrating effect

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Food labelling

- Governed by EU regulations (2011/2013)
- Organic foods must be grown as per regulations
- Ingredients presented in descending order, according to weight
- Health claims should be evidence-based
- Trans fats represented on some labels as *'hydrogenated vegetable oils'*
- Processed and fast foods often contain high proportions of fat, salt and/or sugar to add flavour

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Food labelling

Requirement for most packaged foods:

- Name of food
- Weight of the food
- Any special storage considerations
- A 'best before' date
- A 'use by' date
- The name and address of the manufacturer
- The place of origin

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.



# Food labelling

Not a legal requirement to have nutritional information on a product unless a specific claim has been made, e.g. low fat.

Additional information that is usually included:

- Macronutrient amounts in grams
- Nutritional information provided per 100 grams/per portion of food
- Total energy value (Kjoules, Kcal)
- Micronutrients
- % RDA
- Ingredients - saturated fats, sugars, sodium, salt, fibre
- Food standards agency guidelines

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Food labelling

Traffic light system used by some manufacturers to reflect proportions of nutrients:

- Red – high
- Amber – medium
- Green – low

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Food labelling

How to work out the percentage of calories from fat (or other nutrients) on a food label:

- Grams of fat (or other nutrient) multiplied by number of calories per gram (Fat is 9kcal per gram) = the amount in calories
- Divide this by the number of calories per 100 gram serving
- Multiply by 100 to get the percentage

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.



<b>Nutrition Facts</b>	
Serving Size 1 Apple (125 g)	
<b>Amount Per Serving</b>	
<b>Calories 65</b>	<b>Calories from Fat 2</b>
% Daily Value*	
<b>Total Fat 0g</b>	<b>0%</b>
Saturated Fat 0g	0%
Trans Fat	
<b>Cholesterol 0mg</b>	<b>0%</b>
<b>Sodium 1mg</b>	<b>0%</b>
<b>Total Carbohydrate 17g</b>	<b>6%</b>
Dietary Fiber 3g	12%
Sugars 13g	
<b>Protein 0g</b>	
<b>Vitamin A 1%</b>	<b>Vitamin C 10%</b>
<b>Calcium 1%</b>	<b>Iron 1%</b>

\*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

Vtct

# Activity

Why is healthy food preparation significant?



Vtct

# Healthy food preparation

## Food preparation

- Healthier methods – baking, grilling, boiling, steaming
- Other methods – frying or deep frying in oil, roasting in oil
- Use of healthy cooking oils
- Not adding salt or sugar

## Significance

- Healthy levels of fat, salt and sugar
- Preserving nutrients in the preparation process

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Activity

What is the relationship between nutrition, physical activity, body composition and health?

Consider:

- links to disease/disease risk factors
- cholesterol
- types of fat in the diet (e.g. Trans fats, essential fatty acids)

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.



# Healthy eating and physical activity

- Improve blood lipid profile
- Help maintain healthy body composition
- Reduce risk of many chronic health conditions
- Provide energy to fuel physical activity
- Provide nutrients to aid recovery from and adaptation to training.



Vtct



# Health risks of poor nutrition

Unhealthy eating, an imbalanced nutritional intake and excessive alcohol intake are contributory factors for many health conditions including:

- Cardiovascular disease – stroke, hypertension, high cholesterol, coronary heart disease
- Obesity
- Some cancers
- Diabetes
- Asthma
- Eczema

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Learning check

1. Describe the structure and function of the digestive system.
2. Explain the meaning of key nutritional terms including:
  - diet
  - healthy eating
  - nutrition
  - balanced diet
3. Describe the function and metabolism of:
  - macronutrients
  - micronutrients
4. Explain the main food groups and the nutrients they contribute to the diet.

*(continued)*

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right.

# Learning check

*Continued....*

5. Identify the calorific value of nutrients.
6. Explain the common terminology used in nutrition including:
  - UK dietary reference values (DRV)
  - recommended daily allowance (RDA)
  - recommended daily intake (RDI)
  - glycaemic index
7. Interpret food labelling information.
8. Explain the significance of healthy food preparation.
9. Explain the relationship between nutrition, physical activity, body composition and health including:
  - links to disease/disease risk factors
  - cholesterol
  - types of fat in the diet

The logo for vtct, featuring the letters 'vtct' in a stylized, purple, serif font. The 'v' is lowercase and has a decorative flourish that extends upwards and to the right, crossing over the 't's.



# vict

Applying the principles of nutrition to a physical activity programme

*LO: Understand key guidelines in relation to  
nutrition*

# Assessment criteria

1. Identify the range of professionals and professional bodies involved in the area of nutrition
2. Explain key healthy eating advice that underpins a healthy diet
3. Describe the nutritional principles and key features of the national food model/guide
4. Define portion sizes in the context of the national food model/guide
5. Explain how to access reliable sources of nutritional information
6. Distinguish between evidence-based knowledge versus the unsubstantiated marketing claims of suppliers

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Activity

Name professionals and professional bodies, involved in the area of nutrition, from whom reliable information can be sourced.



Vtct

# Professionals and professional bodies

## Professionals

- Dietician
- Nutritionist
- G.P. (signposting and referral)

## Professional bodies

- British Dietetic Association
- Association for Nutrition
- Food Standards Agency
- Department of Health

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Activity

What is the key healthy eating advice that underpins a healthy diet?

What are the key nutritional principles and features of the national food model/guide?



Vtct



# Key healthy eating advice

General guidelines include:

- Base all meals around starchy foods, e.g. whole grains
- Eat a minimum of 5 portions of fruit and vegetables a day
- Reduce saturated fat and sugar, e.g. less cakes and biscuits, less processed food
- Eat at least 2 portions of fish per week (1 oily)
- Eat less salt
- Maintain a healthy weight
- Be active
- Drink plenty of water
- Eat breakfast



Vtct

# National food guide model

- A visual resource to assist meal planning
- General guidelines for adults without medical conditions
- Would not cover the dietary requirements for:
  - Pregnant women
  - Athletes
  - Sports people
  - Babies and children
  - Medical conditions, e.g. diabetes

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# The eatwell guide



Source: Public Health England in association with the Welsh government, Food Standards Scotland and the Food Standards Agency in Northern Ireland

© Crown copyright 2018

**Vtct**

# The importance of healthy eating

- Maintain health
- Improve performance
- Growth and repair of tissues
- Recovery and healing of soft tissue injuries
- Weight management.
- Mental well being
- General well being

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Activity

Define portion sizes in the context of the national food model/guide.



Vtct

# Dietary balance

Eatwell Guide approximate portion sizes, servings per day.

- Grains - six to eleven servings each day depending on need, choose wholegrain or higher fibre versions with low sugar, fat and sodium content
- Fruit and vegetables – eat at least 5 portions of a variety of vegetables and fruit each day.=
- Dairy - two to three servings each day choose lower fat and lower sugar options.=
- Meat and protein - two to three servings each day, eat more beans and pulses, eat two servings of sustainably sourced fish each week, one of which is oily, eat less red and processed meat
- Oils and fat spreads – choose unsaturated oils and eat in very small amounts,

## Research task:

What does one serving look like for foods in each food group?



# Portions and portion sizes

Correct proportions of total energy intake from each nutrient:

- Carbohydrate: 50%-60% total energy intake (includes starch and sugar from vegetables and fruit)
- Fat: 20%-35% total energy intake
- Saturated fat: less than 10% total energy intake
- Protein: 10-15% total energy intake
- Fibre: more than 18gm of fibre/starch polysaccharides

*Dietary needs vary according to age, gender, activity levels, health, body size and genetics.*

Vtct



# Activity

How can you distinguish between evidence-based knowledge versus the unsubstantiated marketing claims of suppliers?



Vtct



# Marketing claims

Advertising has to conform to strict legal guidelines

What is being claimed by the following terms and how accurate is the information?

Light

Low sugar

Lite

Fat free

Reduced fat

Low fat

95% fat free

Less than 5% fat

Vtct

# Evidence based sources

- Evidence based text books, journals, websites

For example:

- Food Standards Agency
- NHS choices
- British Association of Sport and Exercise Science
- British Heart Foundation National Centre

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also stylized with a small loop at the top.

# Accessing reliable information

- Public Health England
- National Institute for Health and Care Excellence (NICE):  
[www.nice.org.uk](http://www.nice.org.uk)
- Department of health:  
[www.gov.uk/government/organisations/department-of-health](http://www.gov.uk/government/organisations/department-of-health)
- British Association of Sport and Exercise Science: [www.bases.org.uk](http://www.bases.org.uk)
- British Heart Foundation National Centre: [www.bhfactive.org](http://www.bhfactive.org)
- NHS Choices: [www.nhs.uk/Livewell/Goodfood?pages/water-drinks.aspx](http://www.nhs.uk/Livewell/Goodfood?pages/water-drinks.aspx)

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also stylized with a small loop at the top.

# Accessing reliable information

- Glycemic index: [www.glycemicindex.com](http://www.glycemicindex.com)
- British Heart Foundation: [www.bhf.org.uk](http://www.bhf.org.uk)
- Compendium of physical activities website:  
<https://sites.google.com/site/compendiumofphysicalactivities/>
- Change 4 Life Department of Health Campaign:  
[www.nhs.uk/change4life](http://www.nhs.uk/change4life)
- Diabetes UK: [www.diabetes.org.uk](http://www.diabetes.org.uk)
- The Nutrition Foundation: [www.nutrition.org.uk](http://www.nutrition.org.uk)
- British Dietetic Association: [www.bda.uk.com](http://www.bda.uk.com)
- Association For Nutrition: [www.associationfornutrition.org](http://www.associationfornutrition.org)

The logo for VTCT, featuring the letters 'vtct' in a stylized, purple, serif font. The 'v' is lowercase and has a decorative flourish that extends upwards and to the right, crossing over the 't's.

# Learning check

1. Identify the range of professionals and professional bodies involved in the area of nutrition.
2. Explain key healthy eating advice that underpins a healthy diet.
3. Describe the nutritional principles and key features of the national food model/guide.
4. Define portion sizes in the context of the national food model/guide.
5. Explain how to access reliable sources of nutritional information.
6. Distinguish between evidence-based knowledge versus the unsubstantiated marketing claims of suppliers.

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same font style.

A large, faint watermark of a university crest is visible on the left side of the slide. The crest features a shield with a cross, topped by a crown and surrounded by ornate flourishes. Below the shield, a banner contains the Latin motto "ET VENUSTAS PER SCIENTIAM".

# vict

Applying the principles of nutrition to a physical activity programme

*LO:* Understand nationally recommended practice in relation to providing nutritional advice

# Assessment criteria

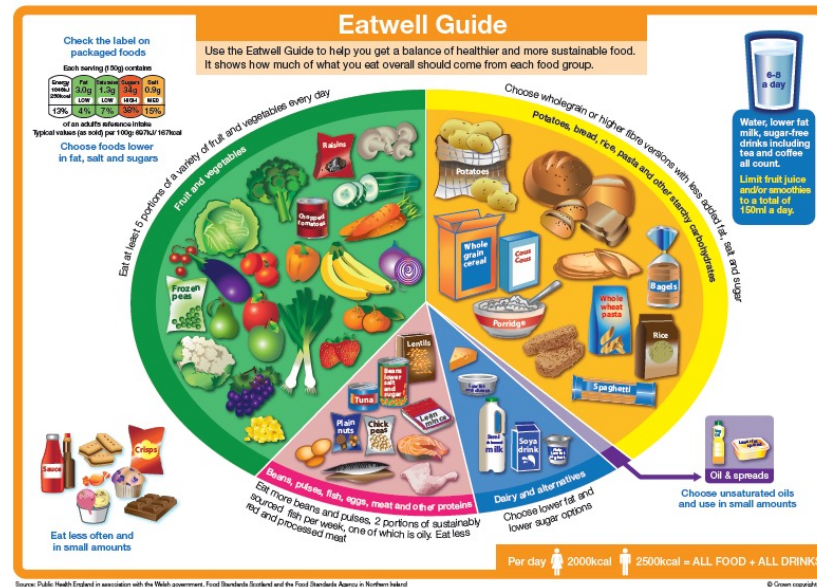
1. Explain professional role boundaries with regard to offering nutritional advice to clients.
2. Explain the importance of communicating health risks associated with weight loss fads and popular diets to clients.
3. Evaluate the potential health and performance implications of severe energy restriction, weight loss and weight gain.
4. Identify clients at risk of nutritional deficiencies.
5. Explain how cultural and religious dietary practices can influence nutritional advice.
6. Describe safety, effectiveness and contra-indications relating to protein and vitamin supplementation.
7. Explain why detailed or complex dietary analysis that incorporates major dietary change should always be referred to a registered dietician.



# Activity

What are the professional role boundaries for personal trainers with regard to offering nutritional advice to clients?

Why should detailed or complex dietary analysis be referred to a registered dietician?



vtct



# Professional boundaries

- Share general healthy eating guidance only – Eatwell guide
- Guidance only to healthy individuals
- Signpost specific needs to dietician
- Respect clients
- Be empathetic and non-judgemental when discussing diet and eating behaviours

The logo for Vtct (The Vegetarian Resource Project) is displayed in a purple serif font. The letters 'Vtct' are stylized, with a decorative flourish on the top of the 't'.

# Professional boundaries

## Must not:

- Advertise or promote nutritionist services
- Diagnose nutritional deficiencies
- Prescribe, write or recommend diets
- Recommend nutritional supplements
- Make dietary recommendations to individuals with medical conditions or specific needs, e.g. diabetes, obesity, pregnancy

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Referral to a dietician

- Registered dietitians are qualified and regulated health care professionals
- They can provide diets for complex and specific needs
- The advice and information they provide meets with current medical guidance
- Clinical responsibility
- Client safety
- Protected liability

The logo for the Voluntary Nutrition and Dietetics Council (Vtct) is displayed in a purple serif font. The letters 'Vtct' are stylized, with a decorative flourish on the 't'.

# Activity

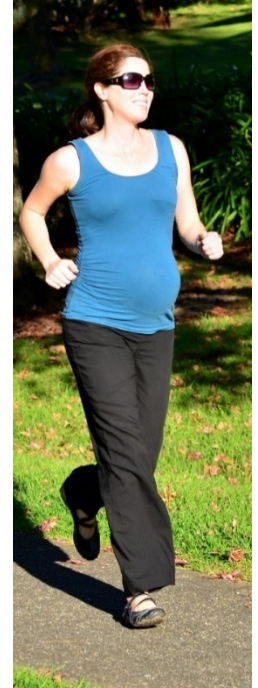
Which clients may be at risk of nutritional deficiencies?



Vtct

# People at risk of nutritional deficiencies

- Babies and young children (unlikely to be clients)
- Pregnant women
- Women who are breast feeding
- Older adults
- People with chronic health conditions, e.g. obesity
- People following fad diets
- People with eating disorders
- Some athletes and sports people, e.g. weight controlled sports
- People observing religious practices, e.g. fasting



Vtct

# Activity

Why is it important to communicate health risks associated with weight loss fads and popular diets to clients?



Vtct

# Importance of communicating health risks

- To ensure clients are informed
- To raise client awareness of risks
- To enable clients to make healthier choices
- To promote healthier eating
- To improve client knowledge
- To promote sustainable long term lifestyle change rather than quick fix approach



# Activity

What are some of the diets that you know?

What may be some of the potential health and performance implications of severe energy restriction, weight loss and weight gain?



Vtct



# Diets

- Various brand names and marketing
- Calorie controlled diets – low calorie diets
- Low fat
- Low protein
- Low carbohydrate
- Protein only
- Meal replacement supplements, e.g. shakes and juices
- Detox diets

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Energy balance equation

**Energy intake** – from foods and drinks

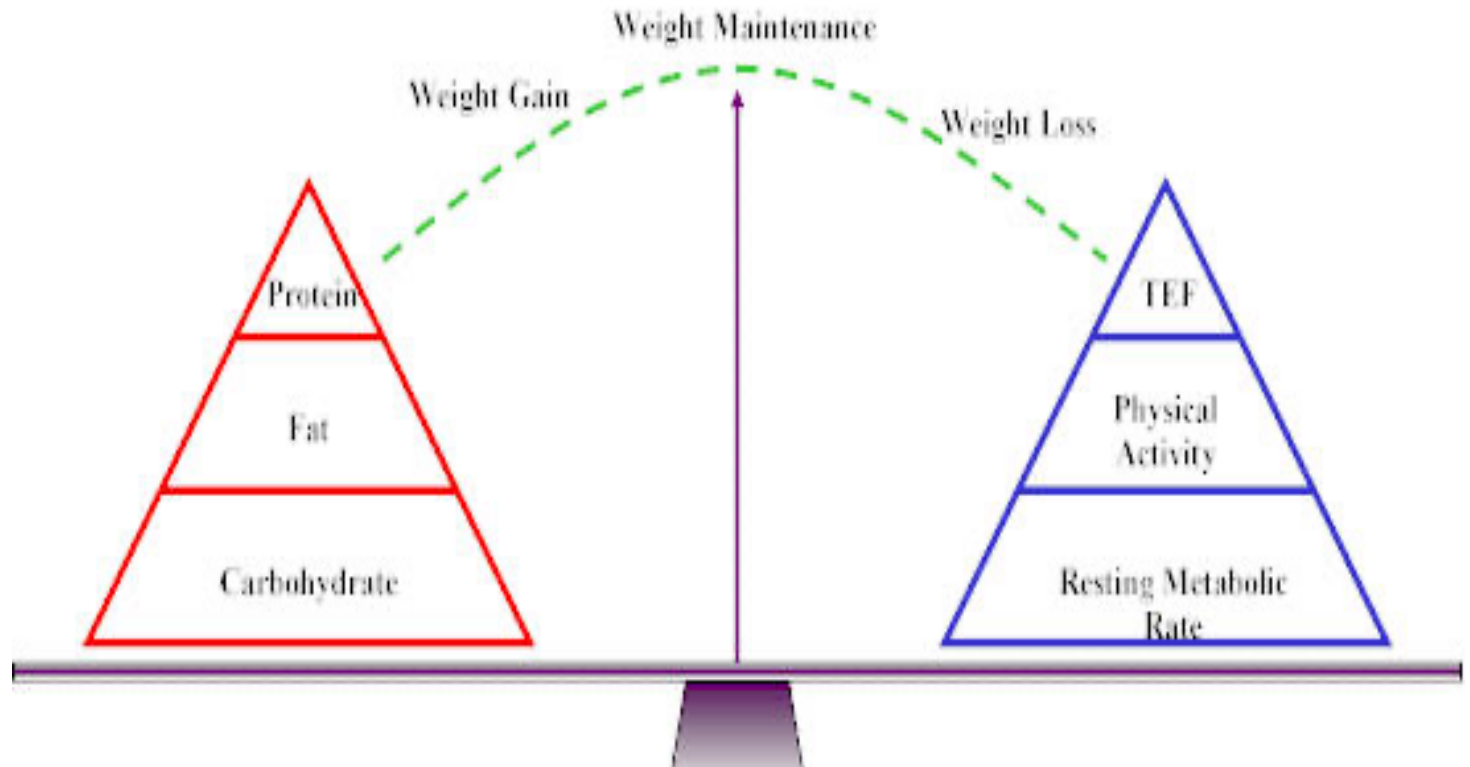
- Alcohol - 7 calories per gram
- Fat - 9 calories per gram
- Protein - 4 calories per gram
- Carbohydrate - 4 calories per gram

**Energy expenditure** – all energy used by the body, including:

- Resting metabolic rate (RMR)
- Thermic effect of food (TEF)
- Physical activity, including:
  - Activities of daily living (ADLs)
  - Exercise and sport

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Energy balance



Vtct

# Energy balance equation



To maintain weight energy intake and energy expenditure need to be balanced over a given period of time, e.g. week, month, year. Neutral energy balance.



To lose weight, energy input needs to be less than energy expenditure over a given period of time. Negative energy balance.



To gain weight energy input needs to exceed energy expenditure over a given period of time. Positive energy balance

Vtct

# Energy balance

- Any intake of energy from food and drink that is surplus to the body's energy expenditure will be stored; in the absence of a stimulus for protein and glycogen synthesis the energy will be stored as fat in adipose cells
- In the long term, this weight gain may lead to obesity
- Around one in every four adults and around one in every five children aged 10 to 11 in the UK is obese

(NHS choices, 2015c)

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also large and has a similar flourish. The 'c' and 't' are smaller and more standard in style.

# Dieting considerations

- Theoretically a deficit of 3500kcal is needed to lose 1lb of body fat although this varies from one individual to another and depends on the approach taken to weight loss
- Low calorie diets – initial weight loss (approx. 1-2Kg in 1-2 weeks) will be mainly from loss of water, and reduced glycogen stores in muscle along with modest fat loss
- If calorie intake remains low, loss of a high proportion of muscle tissue as well as fat loss continues
- Very low calorie intake reduces metabolic rate to conserve energy as a survival mechanism
- Mechanisms of survival to conserve energy include:
  - Gluconeogenesis
  - Ketosis

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same font style.

# Implications

## Gluconeogenesis:

- Caused by low protein intake
- Body breaks down skeletal muscle to release amino acids into the bloodstream
- For every 1g of protein broken down, 4g of water lost from muscle

## Ketosis:

- Low carbohydrate intake (typically low energy intake)
- Ketone bodies formed from stored fats
- Maintain blood sugar levels and fuel the brain
- Ketosis harmful if ketone bodies too high

## Ketoacidosis signs and symptoms:

- Tiredness and fatigue
- Headaches
- Excess thirst.
- Increased urination



# Potential health and performance implications

## Severe energy restriction

Exhaustion, skin problems, confusion, loss of muscle mass, reduced muscular fitness, reduced aerobic capacity.

## Weight loss

Fatigue, reduced concentration, weakened immune system, reduced muscular fitness.

## Weight gain

Obesity, diabetes, hypertension, CHD, increased risk of musculoskeletal injury, reduced aerobic capacity, reduced range of motion and mobility, reduced self esteem, negative body image.

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.



# Health risks of poor nutrition

Unhealthy eating and imbalanced nutritional intake is a contributory factor for many health conditions including:

- Anaemia
- Osteoporosis
- Cardiovascular disease – stroke, hypertension, high cholesterol, coronary heart disease
- Obesity
- Some cancers
- Type 2 Diabetes
- Asthma
- Eczema

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same font style.

# Activity

Review and discuss some of the diets that you know.



Vtct

# When evaluating diets

## Consider:

- Is exercise/physical activity included within the recommendations?
- Are individual lifestyles and needs considered?
- Are all the main nutrients and food groups included?
- Are long-term recommendations provided for diet and activity?
- Does the energy intake meet the minimum requirements?

If the answer to any of these questions is 'no' then the diet or eating plan is unlikely to be balanced, sustainable or healthy.

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Activity

How may cultural and religious dietary practices influence nutritional advice?



**Vtct**

# Cultural and religious practices

- Fasting, e.g. Ramadan
- Halal, e.g. method of slaughtering
- Over indulgence, e.g. Christmas, Easter
- Vegetarian, e.g. people who choose not to eat meat
- Vegan, e.g. no meat or animal/dairy products
- Forbidden foods, e.g. Cow – Hindu



Vtct

# Family and social factors

- Household income
- Single parents or both parents working
- Reduced time and energy to prepare meals and cook
- School meals or grab meal on way home
- Lack of awareness of healthy eating
- Role modelling behaviours
- Food choices and eating patterns
- Convenience foods or take-away (usually low in nutrients and higher in fat and sugar)
- Meal times less of a family affair – eat on the go, or TV meals, rather than sit-down meal times
- Non-mindful eating, e.g. not consciously thinking about eating and can over consume



# Social factors

- Increase of fast food outlets
- Cost
- Media and promotion
- Supermarket value deals
- School dinners
- Taste versus nutritional content

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Activity

Consider protein and vitamin supplementation:

- How can you ensure safe and effective use?
- What may be some contra-indications?



vtct



# Supplementation

- **Safety** – multivitamins and mineral supplements are approved for general population intake within recommended guidelines as advertised; for most people they are an unnecessary expense
- **Effectiveness** – may be beneficial for supplementing restricted diets, or for supporting intense training programmes; do NOT replace a healthy diet, sourcing nutrients from food is always the preferred solution
- **Contra-indications** - e.g. existing chronic medical conditions, under dietetic care, abnormalities in liver and kidney function, digestive system problems.

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same font style.

# Activity

## Research task:

Find out what protein and vitamin & mineral supplements are available.



# Learning check

1. Explain professional role boundaries with regard to offering nutritional advice to clients.
2. Explain the importance of communicating health risks associated with weight loss fads and popular diets to clients.
3. Evaluate the potential health and performance implications of severe energy restriction, weight loss and weight gain.
4. Identify clients at risk of nutritional deficiencies.
5. Explain how cultural and religious dietary practices can influence nutritional advice.
6. Describe safety, effectiveness and contra-indications relating to protein and vitamin supplementation.
7. Explain why detailed or complex dietary analysis that incorporates major dietary change should always be referred to a registered dietician.



A large, faint watermark of a university crest is visible on the left side of the slide. The crest features a shield with a cross, topped by a crown and surrounded by ornate flourishes. Below the shield, a banner contains the Latin motto "ET VENUSTAS PER SCIENTIAM".

# vict

Applying the principles of nutrition to a physical activity programme

*LO:* Understand the relationship between  
nutrition and physical activity

# Assessment criteria

1. Define the role of carbohydrate, fat and protein as fuels for aerobic and anaerobic energy production.
2. Explain the components of energy expenditure and the energy balance equation.
3. Explain how to calculate an estimate of Basal Metabolic Rate (BMR).
4. Explain how to estimate energy requirements based on physical activity levels and other relevant factors.
5. Identify energy expenditure for different physical activities.
6. Evaluate the nutritional requirements and hydration needs of clients engaged in physical activity.



# Activity

Remember the energy systems?

How are carbohydrate, fat and protein used as fuels for aerobic and anaerobic energy production?



Vtct

# Adenosine triphosphate (ATP)

- The body's main energy currency
- Chemical substance
- Limited stores, has to be re-synthesised
- ATP broken down to create energy for all body processes
- When energy is produced a phosphate ion is released
- Leaving adenosine diphosphate (ADP)
- Re-synthesis occurs via three energy systems using the following substrates (fuels):
  - Phosphocreatine
  - Carbohydrate (Glucose/glycogen)
  - Fat (Fatty acids)
  - Protein (Amino acids)

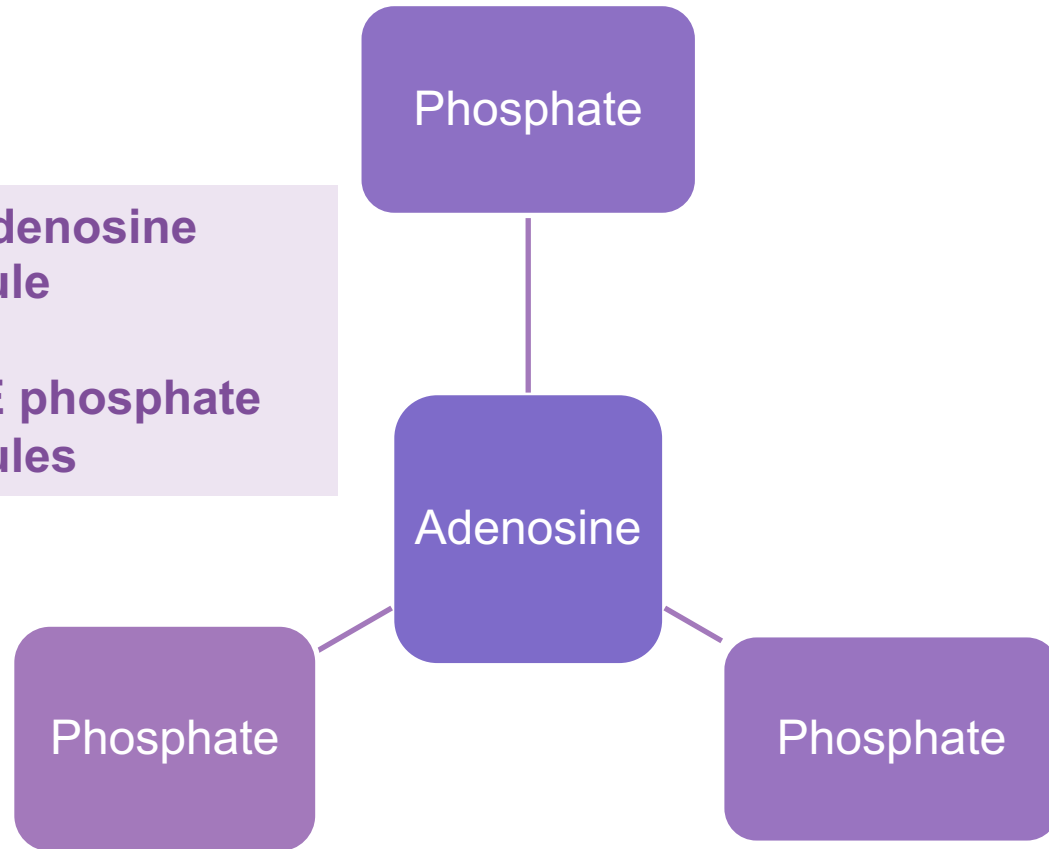
Vtct

ATP

80p

# Adenosine triphosphate (ATP)

**ONE** adenosine molecule  
and  
**THREE** phosphate molecules

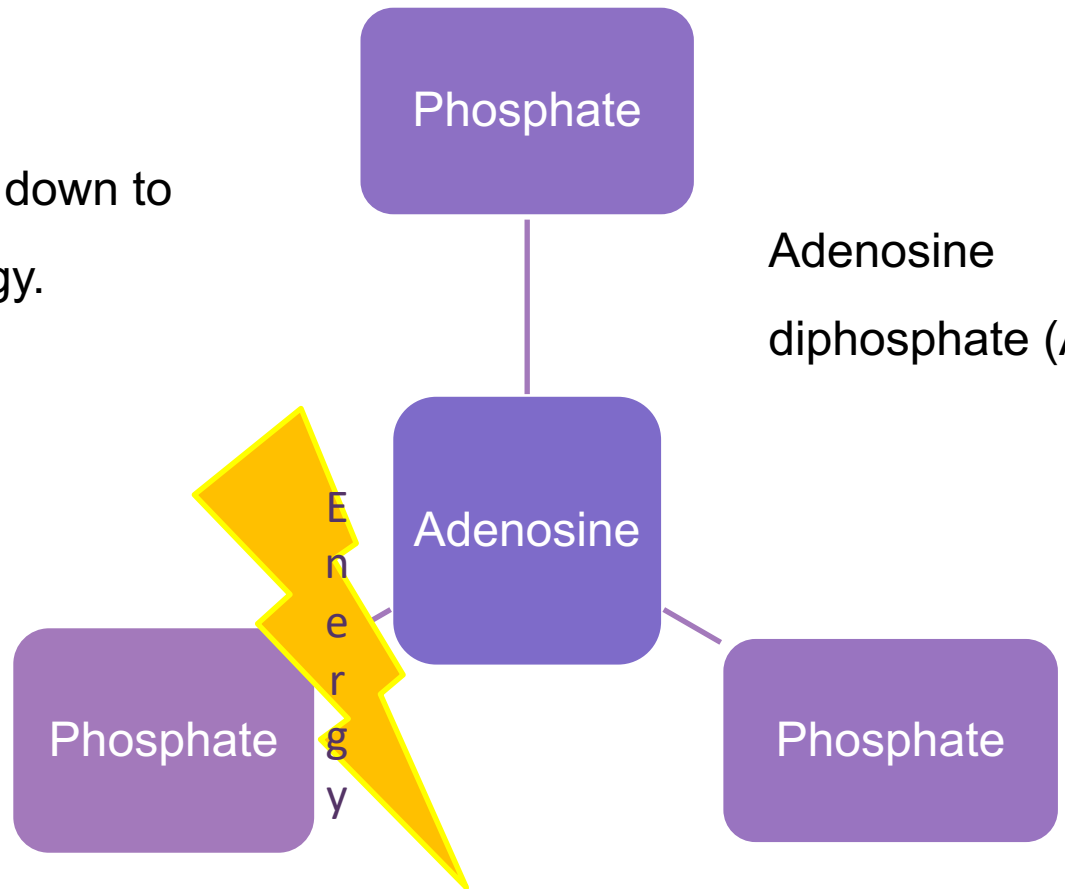


Vtct



# Adenosine triphosphate (ATP)

ATP broken down to  
create energy.



Adenosine  
diphosphate (ADP)

Phosphate ion  
released

Vtct

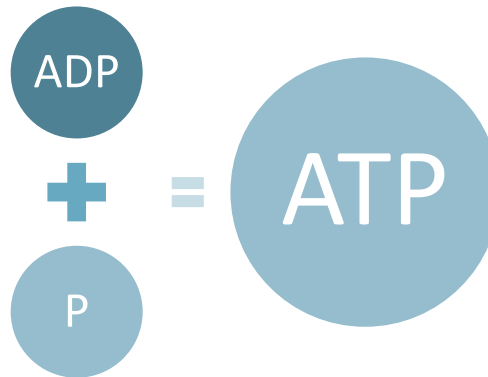
# Re-synthesis of ADP to ATP

- Three energy systems
- Use of different fuels
- Phosphocreatine or creatine phosphate system (anaerobic)
- Lactate or anaerobic glycolytic system (anaerobic)
- Aerobic system (aerobic)

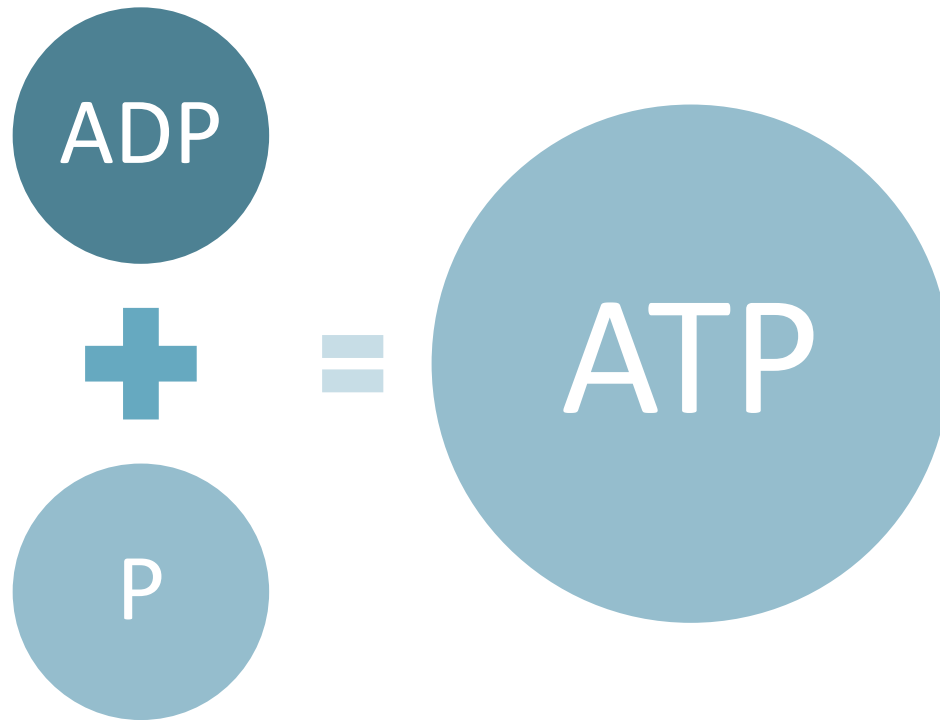
The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Creatine phosphate system

- Phosphate required to re-synthesise ATP
- No oxygen is needed
- No macronutrients are used, e.g. fat or carbohydrate
- Immediate ATP re-synthesis
- Stores last for up to 10 seconds
- Primary energy system in explosive, very high intensity activities, e.g. 100 metre sprint, powerlift



# Creatine phosphate system



By-product is creatine ions

Eventually resynthesized

30 seconds to restore 50% CP stores  
5 min to replenish 100% CP stores

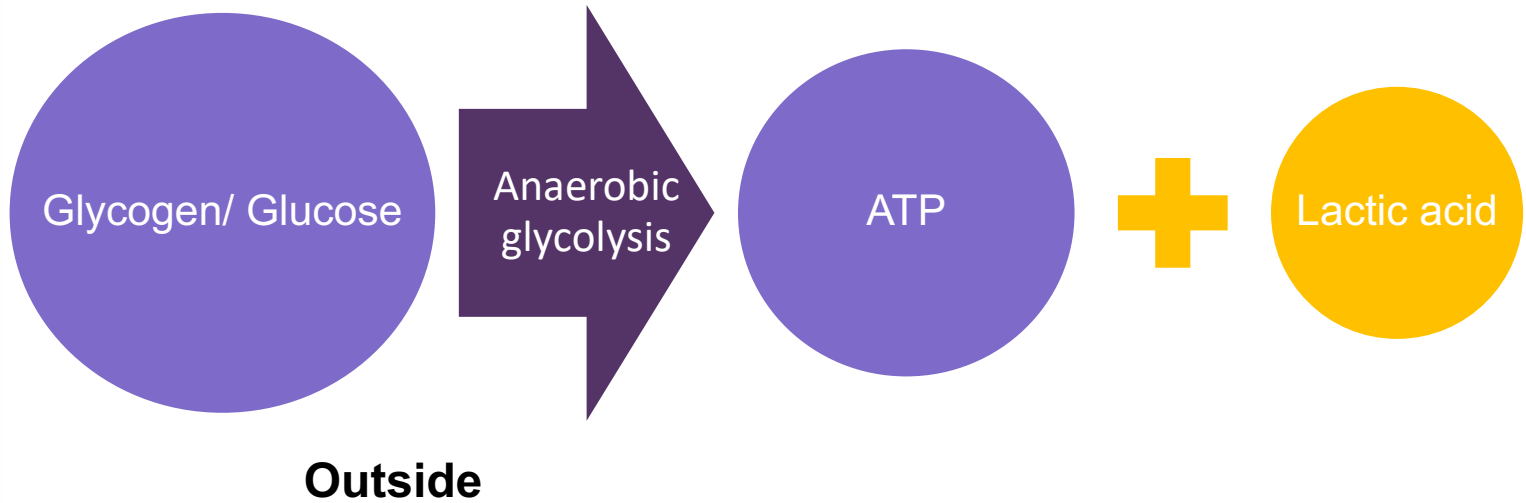


# Lactate system

- Glycogen and glucose used to remake ATP
- Without using oxygen glucose molecules are partially broken down
- By-product is lactic acid – the hydrogen ions are thought to be responsible for the ‘burn’ felt during prolonged intense exercise
- Onset of blood lactate accumulation (OBLA) - when lactic acid build up exceeds the body’s ability to remove it from blood
- High-intensity activities up to three minutes, e.g. 400 metre sprint
- Interval training can improve tolerance



# Lactate system



# Oxygen system

## A E R O B I C

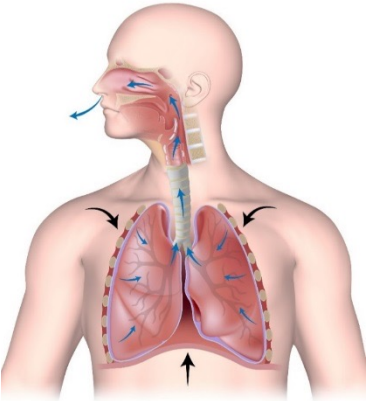
- Uses carbohydrates (glycogen and glucose), fats (fatty acids) and carbon skeletons of de-aminated amino acids (proteins)
- Oxygen required
- By-products:
  - Carbon dioxide (CO<sub>2</sub>) – removed via expiration
  - Water (H<sub>2</sub>O) – metabolic water for hydration or removed via expiration, perspiration or urination
- Long lasting – provided CV system can meet demands, carbohydrate availability is the limiting factor
- Sustained, long duration activities, e.g. marathon running

Vtct

# Oxygen system

A  
E  
R  
O  
B  
I  
C

Expiration

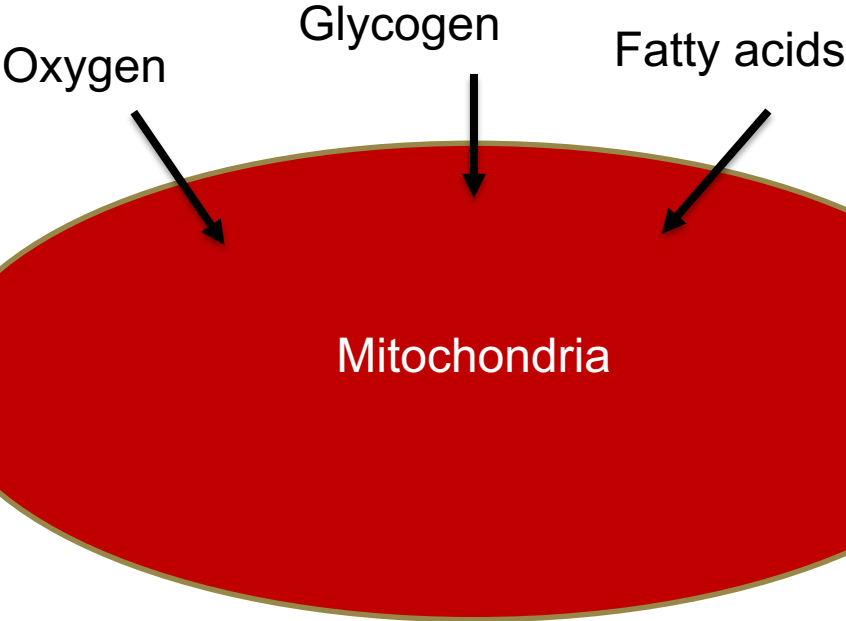


CO<sub>2</sub>

H<sub>2</sub>O



ATP



Vtct



<b>Energy systems</b>	<b>Creatine phosphate</b>	<b>Lactate</b>	<b>Aerobic</b>
Time to engage	Immediate	Quick	Slower
Use of oxygen	Anaerobic	Anaerobic	Aerobic
Fuel	Phosphocreatine	Glycogen	Glycogen and fatty acids
ATP re-synthesis	Very limited ATP	Limited ATP	Unlimited ATP
By-products	Creatine - not fatiguing, recycled	Lactic acid – a fatiguing waste product	Carbon dioxide and water – not fatiguing
Duration	Short Up to 10 seconds	1-3 minutes intense activity	Long Beyond 3 minutes
Intensity	Very high (95-100% maximum)	High (60-95% maximum)	Low to moderate (up to 60% maximum)
Recovery	Fast - 30 seconds (50%) to 5 minutes (100%)	Slower 20 minutes to 2 hours - dispersal of lactic acid	Slower Replenish fuel stores by eating
Muscle fibre type	Type IIb	Type IIa	Type I

# Activity

## Revision

What are the components of energy expenditure and the energy balance equation?



Vtct

# Energy balance equation

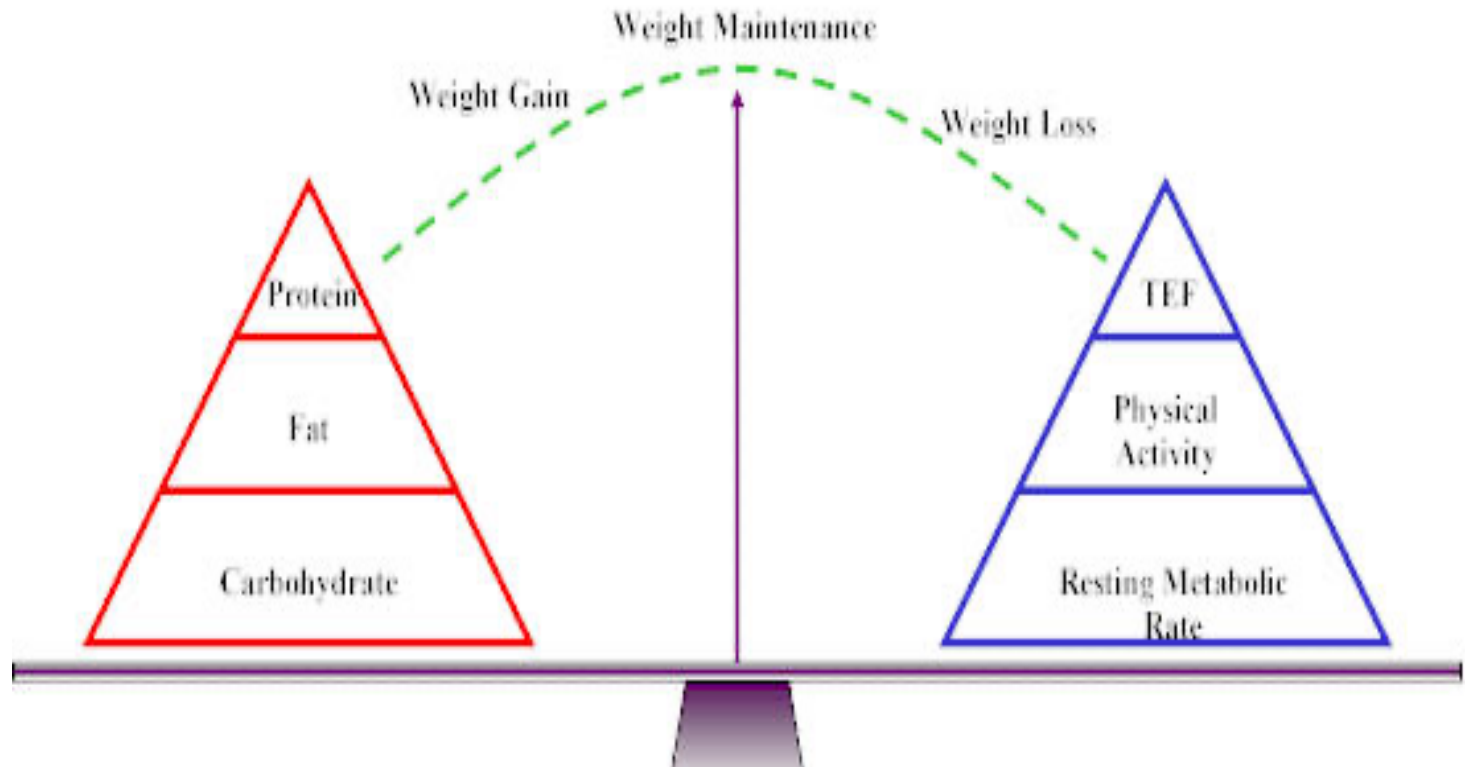
**Energy intake** – all foods and drinks taken into the body that contain calories, including alcohol.

- Alcohol provides 7 calories per gram
- Fat provides 9 calories per gram
- Protein contains 4 calories per gram
- Carbohydrate contains 4 calories per gram

**Energy expenditure** – all the sources for energy expenditure and use of calories, including resting metabolic rate (RMR), thermic effect of food (TEF), activities of daily living (ADLs), exercise and sport.

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Energy balance



Vtct

# Energy balance equation



To maintain weight energy intake and energy expenditure need to be balanced over a given period of time e.g. week, month, year. Neutral energy balance.



To lose weight, energy input needs to be less than energy expenditure over a given period of time. Negative energy balance.



To gain weight energy input needs to exceed energy expenditure over a given period of time. Positive energy balance

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right.

# Calculating BMR

- Basal Metabolic Rate (BMR)
- Different formulas/equations used to calculate, including:
  - Harris-Benedict
  - Schofield
  - Indirect calorimetry
  - BIA devices
  - Online calculator – [www.bmi-calculator.net/bmr-calculator](http://www.bmi-calculator.net/bmr-calculator)

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also stylized with a flourish. The 'c' and 't' are smaller and more standard in style.

# Calculating BMR

Quick method:

- **Women:** Weight in Kg x 2 x 11 = BMR
- **Men:** Weight in Kg x 2 x 12 = BMR

Example: 60kg x 2 x 11 = 1,320kcal

Source: Food for Fitness – Anita Bean

Calculate  
your BMR

Vtct

# Activity

Estimate your energy requirements based on physical activity levels and other relevant factors.

$$\text{BMR} \times \text{PAL} = \text{daily energy requirements}$$

Individuals with higher than average muscle mass add 150 calories

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also stylized with a small loop at the top.



# Physical activity level

Activity level	Value
Mostly inactive or sedentary (mainly sitting)	1.2
Fairly active (walking and exercise 1-2 days weekly)	1.3
Moderately active (exercise 2-3 x a week)	1.4
Active (exercise hard more than 3 x a week)	1.5
Very active (exercise hard every day)	1.7

**Source:** Food for Fitness – Anita Bean

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right.

# Weight loss or weight gain

**To lose weight** reduce your calorie intake by 15 per cent or multiply (BMR X PAL total) by 0.85. to produce a fat loss of 0.5kg per week.

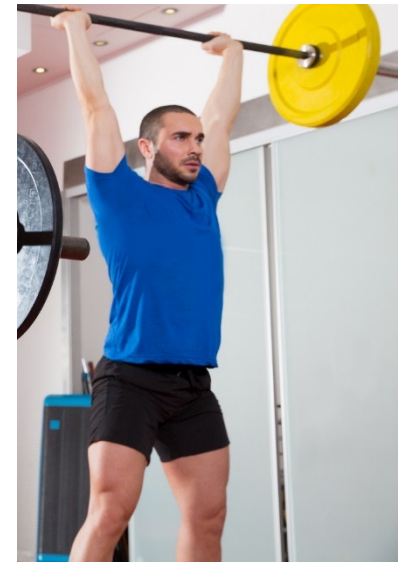
**To gain weight** increase your calorie intake by 20% or multiply (BMR X PAL total) by 1.2. in conjunction with resistance training, expect a weight gain of 0.25- 0.5kg per month.

**Source:** Food for Fitness – Anita Bean

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also large and has a similar flourish. The 'c' and 't' are smaller and more standard in style.

# Activity

How can energy expenditure for different physical activities be estimated?



Vtct

## Activities and Metabolic equivalent (MET) and intensity

Activity	MET	Intensity
Washing face and hands	2.0	Light
Cleaning and dusting	2.5	
Light gardening	3.0	Moderate
Walking (strolling) at 2.5 mph (1 mile in 24 minutes)	3.0	
Painting and decorating	3.0	
Hoovering	3.5	
Cycling (stationary bike, 50 watts, very light effort.	4.0	Vigorous
Walking at 3.5 mph (1 mile in 17 minutes)	4.0	
Heavy gardening	4.0	
Golf (walking and carrying clubs)	4.5	
Tennis – doubles	5.0	
Cycling (stationary) 100 W light effort	5.5	
Swimming leisurely	6.0	
Walking at 4 mph (1 mile in 15 minutes)	6.0	
Mowing lawn (hand mower)	6.0	
Aerobic dancing	6.5	
Swimming (crawl, slow moderate or light effort)	8.0	Vigorous
Running 5 mph (12 min/mile)	8.0	
Running 8 mph (7.5 min/mile)	13.5	

**Source:** The Complete Guide to Exercise Referral – Debbie Lawrence (Adapted from Ainsworth et al 2000 and DoH 2004 and DoH 2012)

# Energy expenditure estimates

Activity Kcalories/per minute (based on a participation by a 65kg individual)

- Weight lifting (low/mod intensity) 3.25
- Hatha yoga 4.25
- Brisk walking 6.0
- Indoor cycling (low/moderate intensity) 6.0
- Power lifting 6.5
- High intensity aerobics 7.5
- Light jogging 8.5
- Running 10.5
- Indoor cycling (high intensity) 11.0

**Adapted from source:** Manore and Thompson (2002) Sports Nutrition for Health and Performance. Human Kinetics

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also large and has a similar flourish. The 'c' and 't' are smaller and more standard in style.

# Energy expenditure for activity

The Compendium of physical activities provides an online reference tool that contains the energy expenditure for thousands of different physical activities from activities of daily living to sports and exercise.

It can be accessed for free at:

Compendium of physical activities website:

<https://sites.google.com/site/compendiumofphysicalactivities/>

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Activity

How would you evaluate the nutritional requirements and hydration needs of clients engaged in physical activity?



Vtct



# Evaluating nutritional and hydration needs

## Consider:

- Individual goals
- Body composition
- Physical activity levels
- Exercise levels
- Sports participation
- Occupation
- Lifestyle
- Requirements - before, during (fuelling and hydration) and after (recovery, refuelling, rehydration) activity.



Vtct



# Learning check

1. Define the role of carbohydrate, fat and protein as fuels for aerobic and anaerobic energy production.
2. Explain the components of energy expenditure and the energy balance equation.
3. Explain how to calculate an estimate of Basal Metabolic Rate (BMR).
4. Explain how to estimate energy requirements based on physical activity levels and other relevant factors.
5. Identify energy expenditure for different physical activities.
6. Evaluate the nutritional requirements and hydration needs of clients engaged in physical activity.





# vict

Applying the principles of nutrition to a physical activity programme

*LO:* Understand how to collect information relating to nutrition

# Assessment criteria

1. Explain why it is important to obtain clients' informed consent before collecting nutritional information.
2. Describe the information that needs to be collected to offer nutritional advice to clients.
3. Explain the legal and ethical implications of collecting nutritional information.
4. Describe different formats for recording nutritional information.
5. Explain why confidentiality is important when collecting nutritional information.
6. Describe issues that may be sensitive when collecting nutritional information.
7. Explain different methods that can be used to measure body composition and health risk in relation to weight.



# Activity

What information needs to be collected to offer nutritional advice to clients?

Why it is important to obtain clients' informed consent before collecting nutritional information?



Vtct

# Client information

- Personal details
- Medical history and current health status
- Diet history:
  - Food and fluid timings and types
  - Food and fluid portion sizes/amounts
  - Method of cooking or preparation
  - Hunger rating before eating and fullness/satisfaction after eating
  - Food preferences
  - Supplement use
  - Reasons for eating: hunger, emotion, boredom
  - Nutritional knowledge
- Attitudes and motivation
- Stage of readiness to make dietary changes

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish that extends upwards and to the right, looping over the 't's.

# Client information

## Body composition measurements:

- Body mass index (BMI)
- Basal metabolic rate (BMR)
- Hip/waist ratio
- Waist circumference
- Fat and muscle %

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also large and has a similar flourish. The 'c' and 't' are smaller and more standard in style.

# Client information

## Relevant lifestyle factors:

- Smoking
- Alcohol intake
- Physical activity levels
- Time spent sedentary (home and/or work/school)
- Physical activity history - past and current levels of activity, past and current exercise experience and type of activity/exercise programme undertaken
- Physical activity preferences - likes and dislikes

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same font style.

# Client information

- Reasons for seeking advice on eating behaviour:
  - Improved health
  - Weight management
  - Muscle gain
  - Assist with fitness goals – exercise & sports performance
- Barriers to making changes:
  - Intrinsic – self esteem, confidence, fear, lack of motivation
  - Extrinsic - family, work, time, finances

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.



# Informed consent

To give consent, clients need to be fully informed!

- What information will be collected?
- How the information will be collected.
- How the information will be used.
- Signed and dated record.
- Assurance of confidentiality.
- Record of questions asked and answers provided.
- Legal record – ideally, checked by legal professionals.

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Activity

1. What are the legal and ethical implications of collecting nutritional information?
2. What formats can be used for recording nutritional information?
3. Why is confidentiality important when collecting nutritional information?

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Legal and ethical implications

- Purpose of collecting information?
- How information to be used?
- Who has access?
- Maintaining client confidentiality
- Legislation - Data protection, freedom of information, information transfer, equality, health and safety
- Secure storage
- Client modesty and sensitivity
- Client rights to access information
- Legible and factual records
- Standard forms (where appropriate)



# Data protection and confidentiality

- All records must be made accessible to the client (on request)
- Not shared with other parties, unless consent gained
- Only shared for professional purposes, e.g. GP
- Stored securely – locked cabinet or password protected
- Computer records must be saved with date and time
- Keep original copies of all records
- Updates to records should be maintained separately
- Store records for a minimum of 8 years (or for children under 12, maintain records until their 25<sup>th</sup> birthday)

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Methods of collecting information

## Client records detailing:

- **Consultation** – interview, verbal question and answer
- **Written** – food diary, 24 hour recall, questionnaires
- **Body composition assessments** – BMI, BMR, waist circumference, height, weight
- **Other health, functional and physical fitness assessments** – part of overall advice and guidance

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Activity

What issues may be sensitive when collecting nutritional information?



Vtct

# Sensitive issues

- Weight
- Body fat %
- Body mass index – BMI
- Physical measurements, e.g. circumference of waist, hip  
skinfold callipers
- Overweight and obesity
- Eating behaviours
- Food choices
- Eating disorders – disordered eating
- Body image disorders

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Activity

What are the different methods that can be used to measure body composition and health risk in relation to weight?



**Vtct**



# Body composition

- Body mass index (BMI)
- Basal metabolic rate (BMR)
- Hip/waist ratio
- Waist circumference
- Fat and muscle %



Vtct

# Body mass index

- Assess obesity and CVD risk
- Need clients weight and height to calculate
- Refer for GP consent: BMI (above 30)

**Calculation:**      BMI =  $\frac{\text{Weight in kg}}{\text{Height in m}^2}$



# BMI classifications

BMI (kg/m <sup>2</sup> )	Description
<18.5	Underweight
18.5 to 25	Normal
25-30	Overweight
>30	Obese I
> 35	Obese II
>40	Morbidly obese III

**Source:**

World Health Organisation (WHO) 2004.

National Institute for Health and Care Excellence (NICE) 2007.

The logo for vtct, featuring the letters 'vtct' in a stylized, purple, serif font. The 'v' is lowercase and has a decorative flourish extending from its top right. The 't's are lowercase and have a similar flourish. The 'c's are lowercase and have a similar flourish.

# Calculating BMR

Quick method:

- **Women:** Weight in Kg x 2 x 11 = BMR
- **Men:** Weight in Kg x 2 x 12 = BMR

**Example:** 60kg x 2 x 11 = 1,320kcal

To estimate your energy requirements based on physical activity levels and other relevant factors.

**BMR x PAL = daily energy requirements**

Individuals with higher than average muscle mass add 150 calories.

**Source:** Food for Fitness – Anita Bean

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right.

# Physical activity level

Activity level	Value
Mostly inactive or sedentary (mainly sitting)	1.2
Fairly active (walking and exercise 1-2 days weekly)	1.3
Moderately active (exercise 2-3 x a week)	1.4
Active (exercise hard more than 3 x a week)	1.5
Very active (exercise hard every day)	1.7

**Source:** Food for Fitness – Anita Bean

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right.

# Weight loss or weight gain

**To lose weight** reduce your calorie intake by 15 per cent or multiply (BMR X PAL total) by 0.85. to produce a fat loss of 0.5kg per week.

**To gain weight** increase your calorie intake by 20% or multiply (BMR X PAL total) by 1.2. in conjunction with resistance training, expect a weight gain of 0.25- 0.5kg per month.

**Source:** Food for Fitness – Anita Bean

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also large and has a similar flourish. The 'c' and 't' are smaller and more standard in style.

# Waist circumference

## Waist circumference and health risk

Waist (men)	Waist (Asian men)	Waist (women)	Waist (Asian women)	Health risk
94cm (37 inches)		80cm (32 inches)		Increased health risk
102cm (40 inches)	> 90 cm (36 inches)	88cm (35 inches)	> 80cm (32 inches)	High health risk

Table In Lawrence, D (2013) Complete guide to exercise referral. Adapted from: Prodigy (2003), Diabetes UK (2004), NICE (2006), International Diabetes Association recommendations in NOO (2009)

The logo for vtct, featuring the lowercase letters 'vtct' in a purple, serif font. The 'v' is stylized with a thin purple line arching over the top of the 't's.

# Learning check

1. Explain why it is important to obtain clients' informed consent before collecting nutritional information.
2. Describe the information that needs to be collected to offer nutritional advice to clients.
3. Explain the legal and ethical implications of collecting nutritional information.
4. Describe different formats for recording nutritional information.
5. Explain why confidentiality is important when collecting nutritional information.
6. Describe issues that may be sensitive when collecting nutritional information.
7. Explain different methods that can be used to measure body composition and health risk in relation to weight.





A large, faint watermark of a university crest is visible on the left side of the slide. The crest features a shield with a cross, topped by a crown and surrounded by ornate flourishes. Below the shield, a banner contains the Latin motto "ET VENUSTAS PER SCIENTIAM".

# vict

Applying the principles of nutrition to a physical activity programme

*LO:* Understand how to use nutritional information

# Assessment criteria

1. Describe basic dietary assessment methods.
2. Explain how to analyse and interpret collected information so that clients' needs and nutritional goals can be identified with reference to the national food model/guide recommendations.
3. Describe how to interpret information gained from methods used to assess body composition and health risk in relation to weight.
4. Explain how to divulge collected information and 'results' sensitively to clients.

(continued)

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same font style.

# Assessment criteria

*Continued....*

5. Explain how to recognise the signs and symptoms of disordered eating and healthy eating patterns.
6. Describe the key features of the industry guidance note on 'Managing users with suspected eating disorders'.
7. Explain the circumstances in which a client should be recommended to visit their GP about the possibility of referral to a registered dietician.

The logo for vtct, featuring the letters 'vtct' in a stylized, purple, serif font. The 'v' is lowercase and has a decorative flourish that extends upwards and to the right, crossing over the 't's.

# Activity

**Pair or trio task:** Using information from previous sessions, prepare a 10 minute presentation to cover one of the following:

- Discuss the basic dietary assessment methods that can be used
- Discuss how would you analyse and interpret collected information so that clients' needs and nutritional goals can be identified
- Discuss how would you interpret information gained from methods used to assess body composition and health risk in relation to weight?
- Discuss how to divulge collected information and 'results' sensitively to clients

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Summary

Basic dietary assessment methods – food diary, 24 hour recall.

Analyse and interpret information - reference to the eatwell guide.

Interpret information – BMI and waist circumference.

Sensitive approaches – Empathy, positive regard, congruence – honesty with respect.

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Disordered eating or eating disorders

- What are the signs and symptoms of disordered eating and healthy eating patterns?
- What are the key features of the industry guidance note on 'Managing users with suspected eating disorders'?
- In what circumstances should a client be recommended to visit their GP about the possibility of referral to a registered dietician?

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same font style.

# Disordered eating or eating disorders

- **Disordered eating** is term used to describe various abnormal or unhealthy eating behaviours which may be used to lose or control weight
- **Eating disorders** are clinical conditions defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) and include:
  - Anorexia nervosa
  - Bulimia nervosa
  - Binge eating disorder



# Context

- 1.6 million people affected by eating disorders
- 23% of female aerobic instructors had history of Bulimia & 17% had history of Anorexia
- 16% of elite middle and long distance runners have eating disorder
- 25% of persons with eating disorders are male
- Usually begin during teens, but cases are identified in children aged 6 and women aged 70

## Sources:

- NICE 2004
- B-eat website
- Anita Bean Sports Nutrition for Women 2007





# Warning signs

- Obsession with weight loss (or gain)
- Strict calorie counting
- Over-exercising
- Use of laxatives and/or vomiting to manage weight
- Preoccupation with food and weight
- Menstruation ceases (anorexia) or irregular (Bulimia)
- Constant self criticism and expressions of dissatisfaction with body and being fat
- Obsessive weighing, measuring, and mirror checking
- Feel cold all the time
- Eating alone or lying about food eaten
- Going to the bathroom immediately after meals

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Anorexia nervosa

- **Anorexia** = Loss of appetite
- **Nervosa** = for emotional reasons
- Least common of eating disorders but most publicised (10% of population)
- Most do not lose appetite
- Preoccupied with food and calories

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Anorexia nervosa

## Clinical diagnosis

- Refusal to maintain a “normal” body weight
- Weigh less than 85% of what is considered normal for height
- Weight loss via dieting, laxatives, purging & excessive exercise
- Distorted body image, never thin enough – excessive measuring
- Self esteem links to thinness
- Amenorrhea – loss of menstrual cycle

The logo for Vtct (The Eating Disorder Association) is displayed in a purple serif font. The letters 'V', 't', and 'c' are connected, and the 't' has a distinctive flourish.

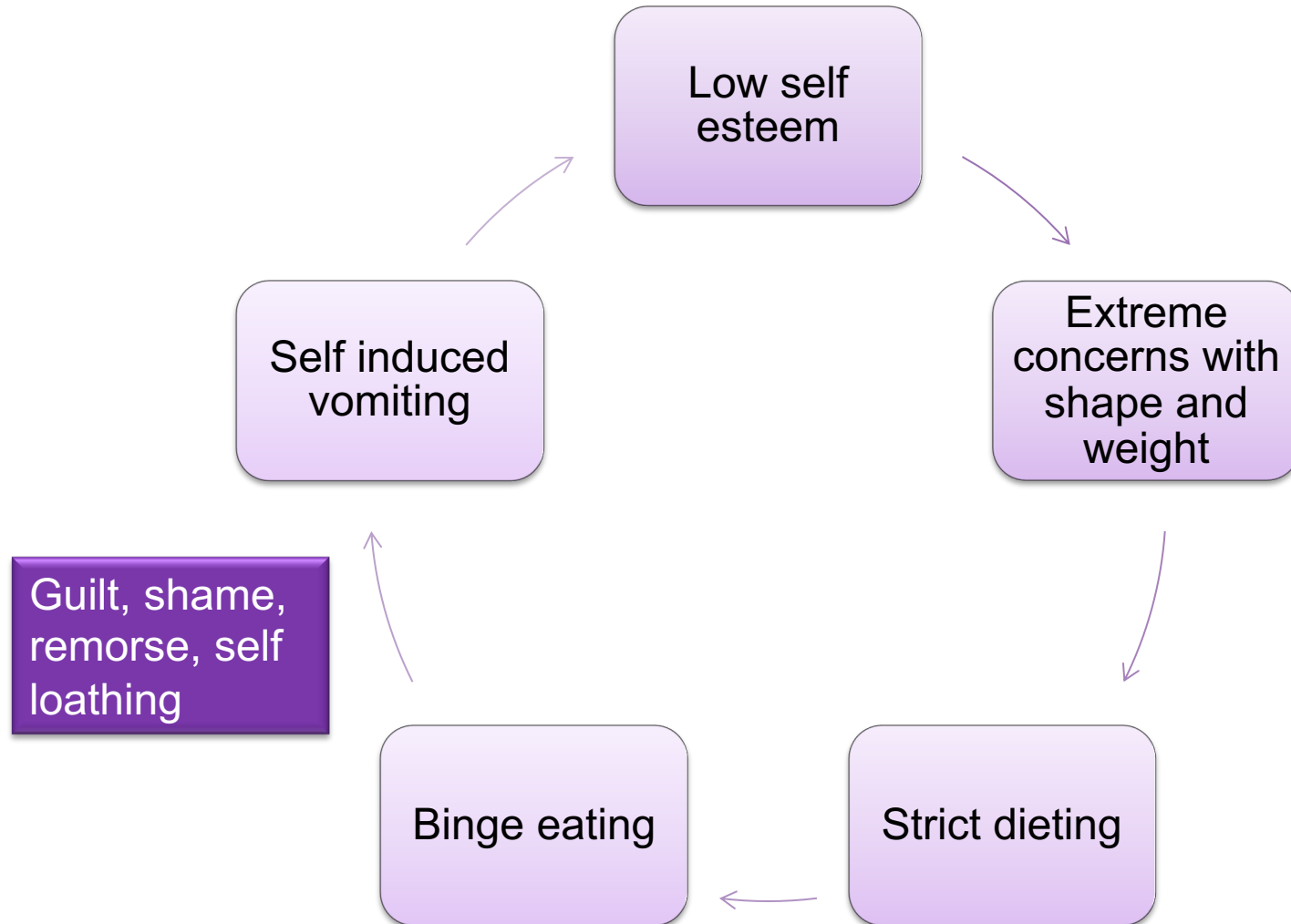
# Bulimia nervosa

- **Bulimia** = Ox hunger
- **Nervosa** = for emotional reasons
- Rapid consumption (binge) of large quantities of food (within 2 hours) followed by vomiting, fasting, excessive exercise
- MOST common eating disorder but least visible and often no weight loss
- Occurs in late adolescence and early adulthood (up to early 30's)
- Usually overweight before onset of disorder
- 70% recover – 10% remain fully symptomatic

The logo for VTCT (The Eating Disorder Association) is displayed in a purple serif font. The letters 'V', 't', and 'c' are lowercase, while 't' and 't' are uppercase, creating a stylized 'Vtct'.

# Bulimia cycle

(Powell, 2009. Mental Health Handbook)



# Symptoms

- Love hate relationship with food
- Binges and purging occur in secret
- Shame attached to bingeing
- Binges triggered by negative emotions
- Powerful desire to be thin

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same font style.

# Physical effects

Vomiting and use of laxatives may cause:

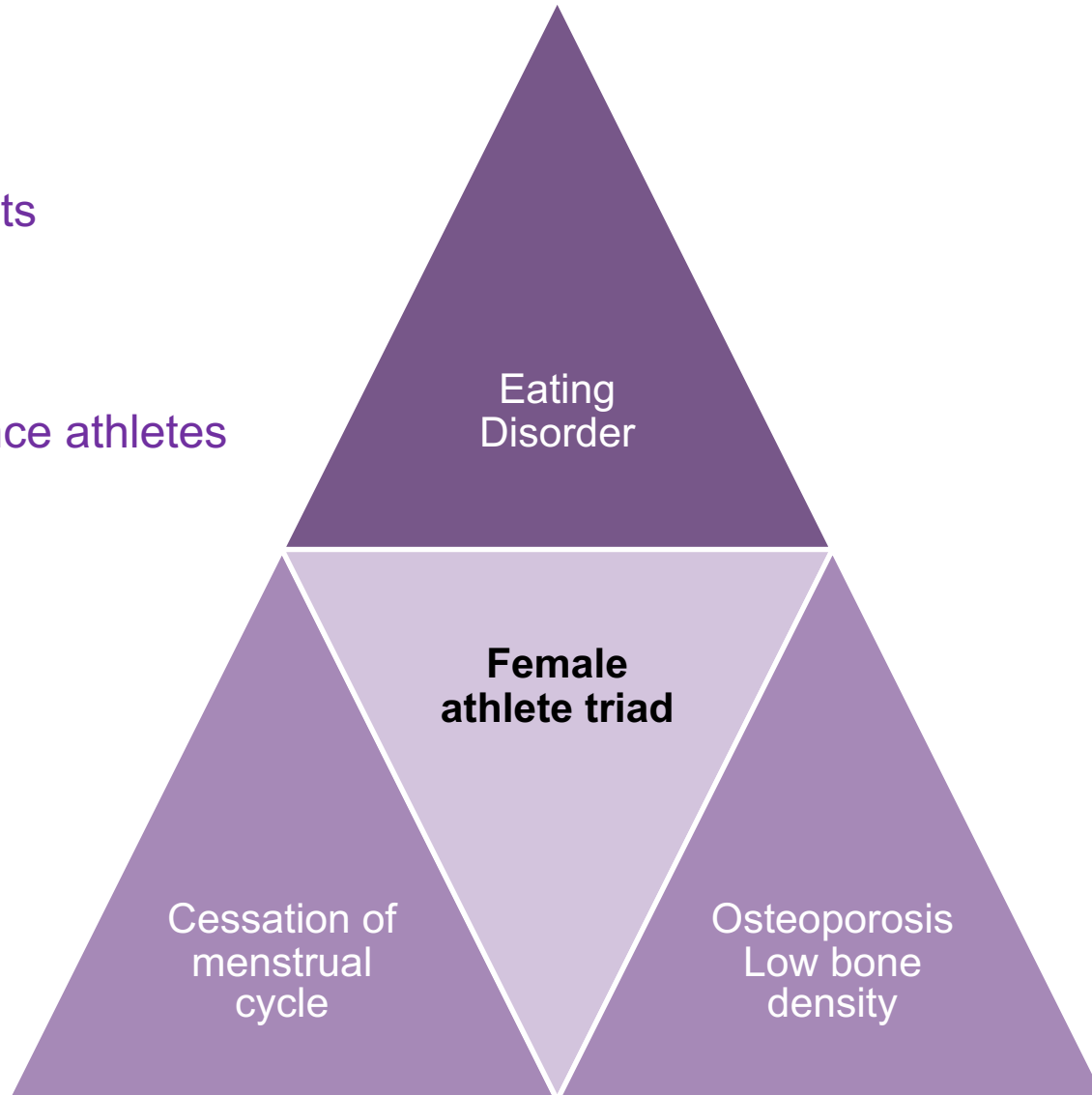
- Damage to throat
- Tooth decay
- Burst blood vessels around eye
- Swelling of glands around face
- Loss of potassium
- Dehydration
- Damage to muscles lining bowels
- Fluid and salt abnormalities
- Chronic diarrhoea
- Digestive problems
- Menstrual problems

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# FEMALE ATHLETE TRIAD

Most common:

- Gymnasts
- Dancers
- Endurance athletes





# Industry guidance

- Institute of Sport and Recreation Management (ISRM) guidance note
- Ukactive
- REPs

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is also stylized with a small loop at the top.

# Industry guidelines

## Duty of care:

- Responsibility for all members and clients
- Sensitively approach the person to discuss
- Reinforce their self-worth
- Let them know you are there to support them
- Encourage them to contact their GP or to contact one of the eating disorder agencies, e.g. BEAT
- Do not try to take on the role of a therapist or counsellor
- If the individual is in serious danger then it may be permissible to suspend membership and only return it with a doctor's approval

The logo for vtct, featuring the letters 'vtct' in a stylized, purple, serif font. The 'v' is lowercase and the 't's are lowercase. The logo is positioned in the bottom right corner of the slide.

# Industry guidelines

## Responsible advertising and promotion

- Real body images and advertising
- Realistic goals and promotions

## Education and training

- Ideally, have a member of staff specifically trained to be able to work with people who have an eating disorder (Level 4)
- Staff delivering 'weight loss' programmes should be appropriately qualified and aware of how to spot potential signs of eating disorders and the resources available to support them

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same font style.

# When to signpost to a GP

- Suspected eating disorders
- Malnutrition
- Excessively underweight
- Medical conditions e.g. obesity or CHD

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same font style.

# Learning check

1. Describe basic dietary assessment methods.
2. Explain how to analyse and interpret collected information so that clients' needs and nutritional goals can be identified with reference to the national food model/guide recommendations.
3. Describe how to interpret information gained from methods used to assess body composition and health risk in relation to weight.
4. Explain how to divulge collected information and 'results' sensitively to clients.

(continued)

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't' is smaller and has a similar flourish. The 'c' and 't' are also in the same style.

# Learning check

*Continued....*

5. Explain how to recognise the signs and symptoms of disordered eating and healthy eating patterns.
6. Describe the key features of the industry guidance note on 'Managing users with suspected eating disorders'.
7. Explain the circumstances in which a client should be recommended to visit their GP about the possibility of referral to a registered dietician.

The logo for vtct, featuring the letters 'vtct' in a stylized, purple, serif font. The 'v' is lowercase and has a decorative flourish that extends upwards and to the right, crossing over the 't's.



# vict

Applying the principles of nutrition to a physical activity programme

*LO:* Understand the principles of nutritional goal setting with clients

# Assessment criteria

1. Explain how to apply the principles of goal setting when offering nutritional advice
2. Explain how to translate nutritional goals into basic healthy eating advice that reflects current national guidelines
3. Explain when people other than the client should be involved in nutritional goal setting
4. Define which other people could be involved in nutritional goal setting
5. Identify the barriers which may prevent clients achieving their nutritional goals
6. Explain how to apply basic motivational strategies to encourage healthy eating and prevent non-compliance or relapse
7. Explain the need for reappraisal of clients' body composition and other relevant health parameters at agreed stages of the programme

The logo for vtct, featuring the letters 'vtct' in a stylized, purple, serif font. The 'v' is lowercase and the 'tct' are lowercase, with a decorative flourish above the 't'.



# Activity

Give some examples of client nutritional goals?



Vtct

# Client goals and objectives

Can be vague, broad and non-specific:

- Lose weight
- Eat healthier
- Fat loss
- Weight gain
- Muscle gain
- Muscle definition
- Improve health
- More energy
- Meet needs of specific sport



Vtct

# How to identify goals

Consultation.

- Active listening
- Observe body language and facial expressions when client is speaking to identify things that may excite them
- Read between the lines
- Use reflective statements – repeat words and phrases you hear the client say e.g. *‘So, something you may like to achieve would be...’*

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Activity

How can the principles of goal setting be applied when offering nutritional advice?

Give some examples of how nutritional goals can be translated into basic healthy eating advice that reflects current national guidelines.



Vtct

S

M

A

R

T

# Goal setting

- Specific - use an active verb
- Measurable - an observable action performed at a frequency or volume that can be monitored e.g. walking for a certain number of minutes/steps/miles
- Achievable - is it realistically within the clients ability? Is it physiologically realistic? e.g. weight loss up to 1lb/wk, muscle gain up to 1lb/month
- Relevant - matches client objectives? Motivating?
- Time-bound - date of achievement stated

Vtct

# Goals

Short-term	One day to one month.
Medium-term	One month to six months.
Long-term	Six months to several years.

Vtct

# Goals

Translate technical terminology into recognised terminology:

- Timings of food intake
- Quantities and portion sizes
- Appropriate food choices
- Balance on the plate
- Servings of fruit and vegetables

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.



# How to use goals

- Targets
- Motivation
- Adaptation
- Regular reviews
- Consult clients
- Monitor progress
- Revise to meet needs:
  - Goal completed early
  - Goal not completed
- Manage lapse or relapse



Vtct



# Activity

Discuss whether the following goals meet all the SMART criteria.

If they do not meet the criteria – can you revise them?

- Go on a diet
- Eat less fat
- Eat more fruit
- Eat breakfast every morning for the next week
- Drink more water
- Eat one portion of oily fish as part of a main meal on Friday night every week this month
- Lose 10kg.
- Eat 5 pieces of fruit and vegetables today

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish that extends upwards and to the right, looping over the 't's.

# Activity

When would it be necessary to involve others with client goals?



Vtct

# Involving others

- Medical conditions, eating disorders, specific dietary needs, e.g. Signpost to GP for referral to specialist
- Specific fitness targets, e.g. sports nutritionist/dietician
- Additional motivation e.g. family, friends, training partner



Vtct

# Activity

What are some of the barriers which may prevent clients achieving their nutritional goals?



Vtct

# Barriers

- Personal motivation
- Availability of specific foods – in the home or when out
- Budget
- Body type and physiological factors
- Specific goals – e.g. are they realistic?
- Time
- Lack of knowledge
- Lifestyle and occupation
- Work and other commitments, e.g. eat on the run
- Attitudes and beliefs of family and peers
- Culture and religion
- Support available or lack of support



# Activity

How would you apply basic motivational strategies to encourage healthy eating and prevent non-compliance or relapse?



Vtct

# Strategies to build motivation

- Food logs and diaries
- Rewards – praise, encouragement or a gift to self
- Incentives
- Social support
- SMART goal setting
- Positive affirmations and self-talk
- Relapse prevention

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Psychological readiness scale

How ready do you feel to ..... ?



**Low readiness**

**High readiness**

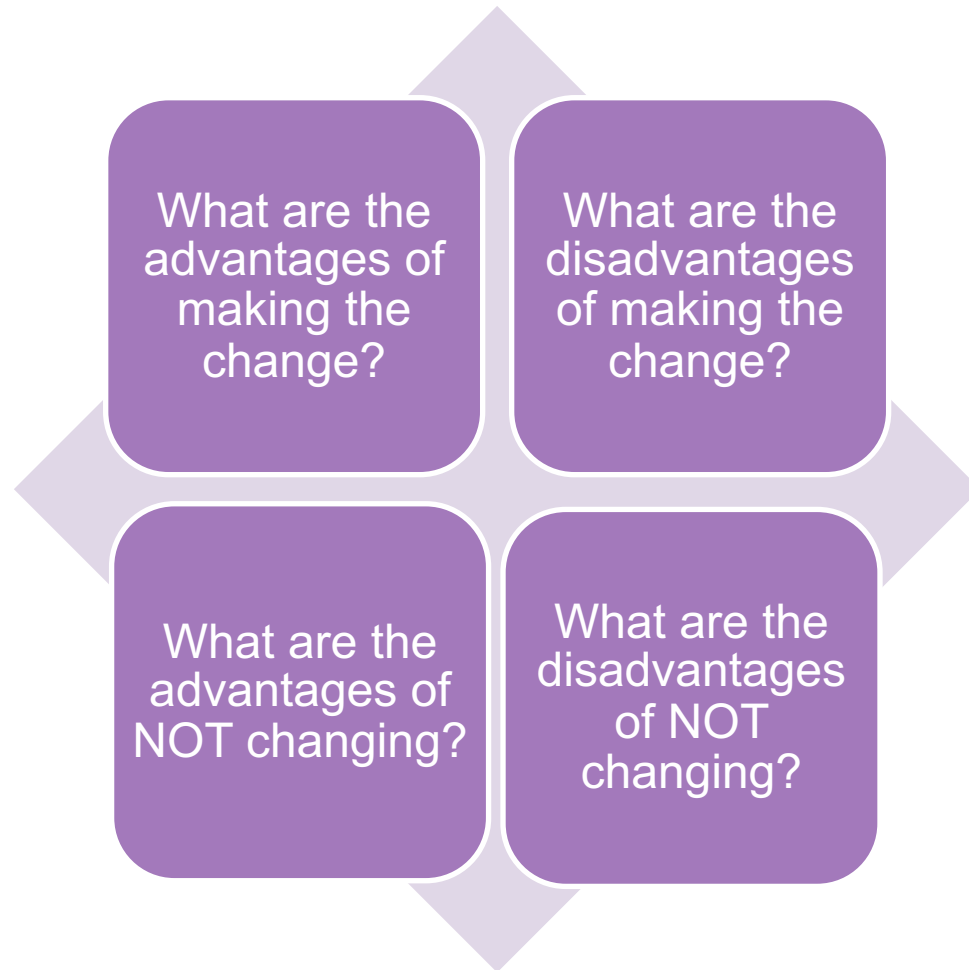
Example questions:

- What would make you feel more ready?
- What support would you need to move to a higher level of readiness?

**Vtct**



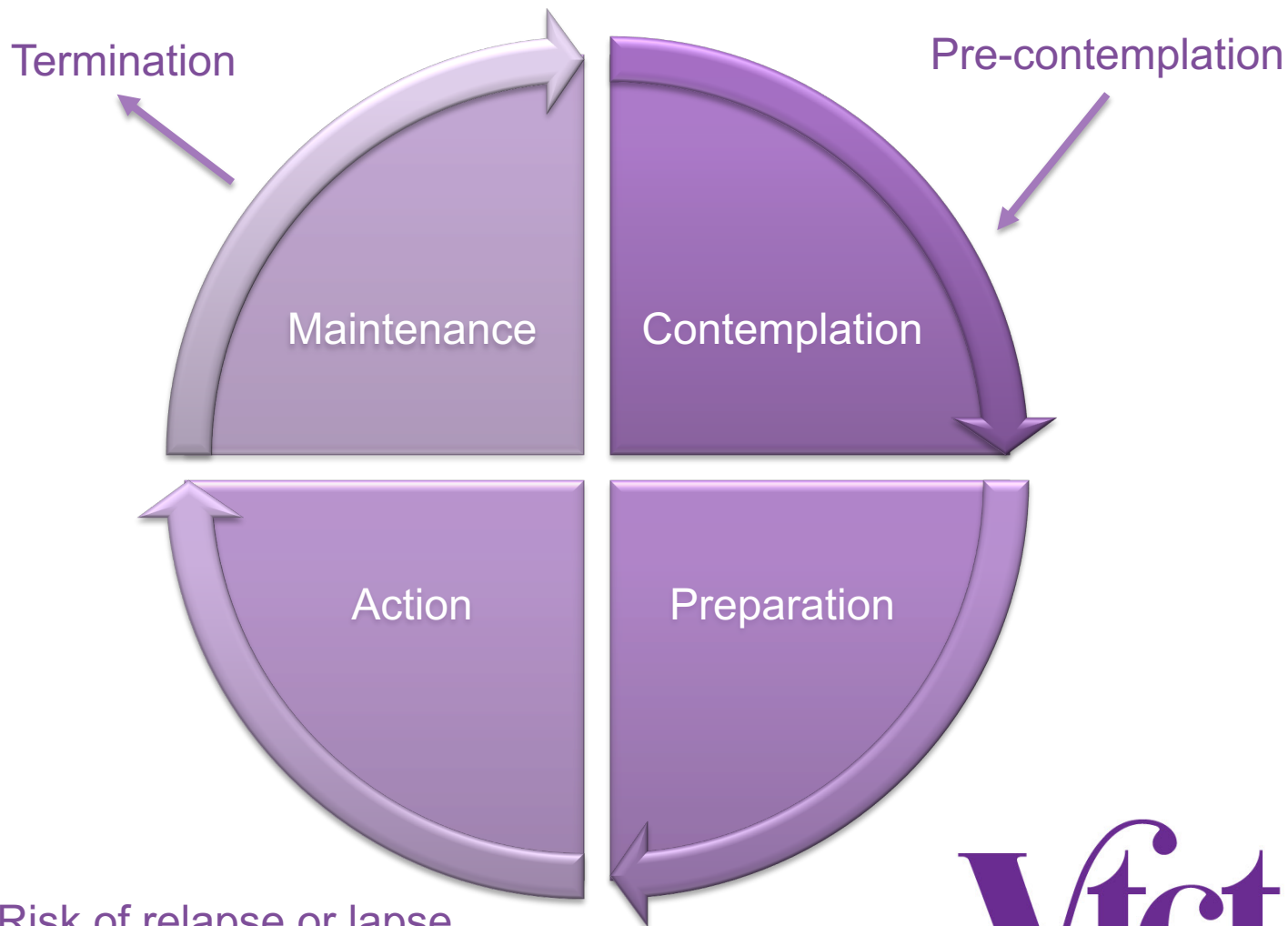
# Decisional balance



Vtct

S  
T  
A  
G  
E  
S

# Trans theoretical model



Risk of relapse or lapse  
at any stage

Vtct

# Behaviour change approaches

**Pre-contemplation** – not considering change.

**Contemplation** – thinking about making a change (next six months).

**Preparation** – already preparing to make changes.

**Action** – changes started and sustained for up to six months.

**Maintenance** – changes made and sustained for beyond six months.

**Termination** – permanent change achieved.

**Lapse** – a minor lapse back to old behaviour, can happen anytime.

**Relapse** – return to old behaviour, can happen anytime.

The logo for Vtct, featuring the letters 'Vtct' in a stylized, purple, serif font. The 'V' is large and has a decorative flourish extending from its top right. The 't's are smaller and also have decorative flourishes.

# Strategies

## Cognitive

- To reframe thinking
- Early stages

## Behavioural

- To take action
- Once decision made



Vtct

# Activity

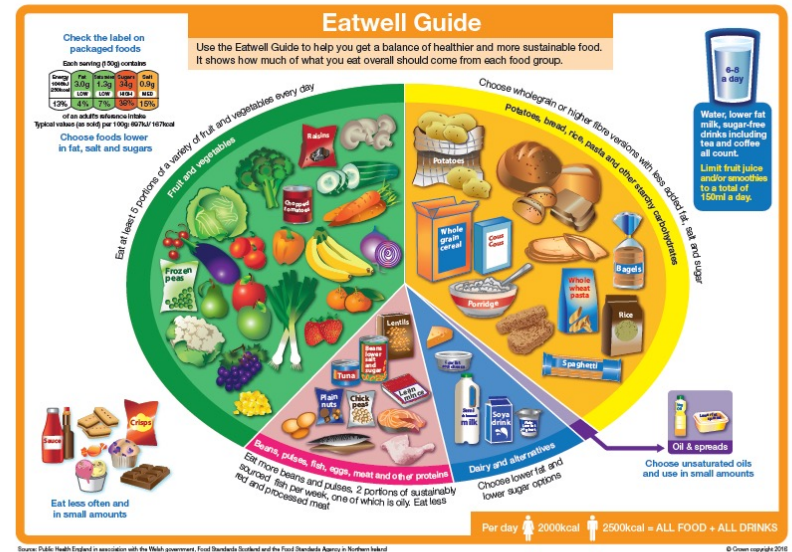
Why is it important to reappraise clients' body composition and other relevant health parameters at agreed stages of the programme?



Vtct

# Reappraise to:

- Review targets set
- Maintain motivation
- Monitor progress
- Revise to meet needs:
  - Goal completed early
  - Goal not completed
- Manage lapse or relapse
- Identify ways to support



Vtct

# Learning check

1. Explain how to apply the principles of goal setting when offering nutritional advice
2. Explain how to translate nutritional goals into basic healthy eating advice that reflects current national guidelines
3. Explain when people other than the client should be involved in nutritional goal setting
4. Define which other people could be involved in nutritional goal setting
5. Identify the barriers which may prevent clients achieving their nutritional goals
6. Explain how to apply basic motivational strategies to encourage healthy eating and prevent non-compliance or relapse
7. Explain the need for reappraisal of clients' body composition and other relevant health parameters at agreed stages of the programme

The logo for vtct, featuring the letters 'vtct' in a stylized, purple, serif font. The 'v' is lowercase and the 'tct' are lowercase, with a decorative flourish above the 't'.