Your notes

GCSE Food Preparation and Nutrition: revision notes

Protein

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Functions of protein

- Growth, especially in children and pregnant women.
- Repair of body tissues after illness or injury, and maintenance of the body.
- A secondary source of energy: 1 g of protein provides 4 kcal.

Protein quality

- Proteins are made of **amino acids**. Essential (indispensable) **amino acids** can't be made by the body, so they must come from food.
- High biological value (HBV) proteins contain all the **essential amino acids**: meat, fish, eggs, milk, soya and quinoa.
- Low biological value (LBV) proteins lack one or more **essential amino acids**: most plant foods, such as beans, lentils, nuts, grains and seeds.
- **Protein complementation**: eating two **LBV proteins** together gives all the **essential amino acids**, such as beans on toast or hummus with pitta bread.

Too little or too much

- Deficiency: poor growth in children, poor healing, muscle wasting, and **kwashiorkor** (in severe cases, mostly in developing countries, causing a swollen belly and oedema).
- Excess: extra protein is used for energy or stored as fat, and can strain the liver and kidneys.

Alternative proteins

- Vegetarians and vegans can use tofu (from soya), textured vegetable protein (TVP), **mycoprotein** (Quorn) and tempeh.

Key terms

Amino acids	The building blocks of protein.
Essential amino acids	Amino acids the body can't make, so they must come from food.
HBV protein	High biological value protein, containing all the essential amino acids.
LBV protein	Low biological value protein, missing one or more essential amino acids.
Protein complementation	Combining LBV proteins to get all the essential amino acids.
Kwashiorkor	A serious protein deficiency disease in children.
Mycoprotein	A protein made from fungi, sold as Quorn.

Quick questions

Cover the answers and test yourself: remembering is what makes it stick.

1. What is the main function of protein?
2. How many kcal does 1 g of protein provide?
3. Which food is a high biological value protein?
4. Which plant food is an HBV protein?
5. What is protein complementation?
6. Which meal is an example of protein complementation?
7. What is kwashiorkor?
8. What happens to excess protein?

Answers

1. Growth and repair
2. 4 kcal
3. Eggs
4. Soya
5. Combining LBV proteins to get all the essential amino acids
6. Hummus and pitta bread
7. A severe protein deficiency disease in children
8. It is used for energy or stored as fat

What to do next

Practise 11 questions on this topic

Try 4 exam questions, with mark schemes

Read the lesson, one step at a time

Free revision for GCSE and KS3 at lycolearn.co.uk. Some notes are for one exam board only, and say so in brackets.

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