

Summary

Topic 3.2 Carbohydrate and Fat Metabolism

Subject	Year	Start date	Duration
Sports, exercise and health science	IB1	Week 1, February	1 week 2 hours

Course Part

Topic 3 - Nutrition and Energy Systems

Description

Students will develop an understanding of the different carbohydrates - mono, di, oligo-and polysaccharides and the different fats - saturated, unsaturated, monounsaturated, polyunsaturated, Omega-3, Omega-6. They will also develop an in-depth knowledge of how each macronutrient is metabolised.

Inquiry & Purpose

? Inquiry / Higher Order Questions

Type

Inquiry Questions

Skills-based

What macronutrients are utilised by different athletes?

Curriculum

⊕ Aims

Appreciate scientific study and creativity within a global context through stimulating and challenging opportunities

Acquire a body of knowledge, methods and techniques that characterize science and technology

Apply and use a body of knowledge, methods and techniques that characterize science and technology

Develop an ability to analyse, evaluate and synthesize scientific information

Develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities

Develop experimental and investigative scientific skills including the use of current technologies

Develop and apply 21st-century information and communication skills in the study of science

Become critically aware, as global citizens, of the ethical implications of using science and technology

Develop an appreciation of the possibilities and limitations of science and technology

Develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge

◇ Objectives

Demonstrate knowledge and understanding of

- facts, concepts and terminology
- methodologies and techniques
- communicating scientific information

Apply

- facts, concepts and terminology
- methodologies and techniques
- methods of communicating scientific information

📖 Syllabus Content

Core

Topic 3: Energy systems

3.2 Carbohydrate and fat metabolism

- 3.2.1 Outline metabolism, anabolism, aerobic catabolism and anaerobic catabolism.
- 3.2.2 State what glycogen is and its major storage sites.
- 3.2.3 State the major sites of triglyceride storage.
- 3.2.4 Explain the role of insulin in the formation of glycogen and the accumulation of body fat.
- 3.2.5 Outline glycogenolysis and lipolysis.
- 3.2.6 Outline the functions of glucagon and adrenaline during fasting and exercise.
- 3.2.7 Explain the role of insulin and muscle contraction on glucose uptake during exercise.

ATL Skills

Approaches to Learning

Thinking

- In this unit, we will

ask students to formulate a reasoned argument to support their opinion or conclusion

give students time to think through their answers before asking them for a response

reward a new personal understanding, solution or approach to an issue

ask open questions

set students a task which required higher-order thinking skills (such as analysis or evaluation)

build on a specific prior task

help students to make their thinking more visible (for example, by using a strategy such as a thinking routine)

make a link to TOK

Communication

Research