Promoting critical thinking through HSC core 2 Factors affecting performance

Duration: 12 lessons (50 to 60 minutes in length)

**Educative purpose**

This teaching and learning activity is designed to support the HSC core 2 content. It aims to increase critical thinking skills and require application of knowledge and understanding.

Students will apply their knowledge and understanding to a case study to examine how reversibility can affect the physiological adaptations for the athlete. The activity is designed to fit within an existing teaching program or be used as a revision exercise on the conclusion of the core.

## Syllabus outcomes

* **H7** explains the relationship between physiology and movement potential
* **H16** devises methods of gathering, interpreting and communicating information about health and physical activity concepts
* **H17** selects appropriate options and formulates strategies based on a critical analysis of the factors that affect performance and safe participation.

All outcomes referred to in this unit come from [PDHPE Stage 6 syllabus](https://educationstandards.nsw.edu.au/wps/portal/nesa/11-12/stage-6-learning-areas/pdhpe/pdhpe-syllabus) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2009

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| Critical question | Syllabus content |
| How does training affect performance?  | * Principles of training
	+ progressive overload
	+ specificity
	+ reversibility
	+ variety
	+ training thresholds
	+ warm up and cool down
* Physiological adaptations in response to training
	+ resting heart rate
	+ stroke volume and cardiac output
	+ oxygen uptake and lung capacity
	+ haemoglobin levels
	+ muscle hypertrophy

effect on fast/ slow twitch muscle fibres |

## Resources/preparation

* Access to the case study and instructions (class blog, Microsoft Teams, OneDrive, Google classroom).

## Learning activity description

Individually, students review the case study on Rob. They apply their knowledge and understanding of the principles of training and physiological adaptations in response to exercise syllabus content.

**Case study**

For the past 12 weeks Rob has been undertaking aerobic training for an Olympic distance triathlon. However, during his last cycling training session he crashed heavily and sustained multiple injuries. Rob was advised by his doctor to rest completely for 4 weeks to let his body heal.

Examine how reversibility can affect the physiological adaptations for the athlete.

Students need to:

1. Read the case study on Rob.
2. Brainstorm the specific content related to reversibility.
3. Using the case study, determine the specific examples related to reversibility.
4. Brainstorm the physiological adaptations in response to training.
5. Using the case study, determine the effect that reversibility would have on these physiological adaptations, for example, increased or decreased, and why this effect would occur.
6. Using the information gathered answer the following question:
	1. Examine how reversibility can affect the physiological adaptations for the athlete.
7. Share your response with a peer or class to view, for example, class blog, Team, OneDrive, Google classroom.
8. If possible, invite some individuals to present and explain the most appropriate physiological adaptations.
9. Within the class, peers are invited to critique and provide feedback another student.