

Teaching ideas for Option B, *Physiology of exercise*

Students who take this option are often very engaged with the benefits of exercise and training. It is also easy to make links to Option A, *Human nutrition and health*, and discuss healthy diet and exercise together. Students can investigate fitness if a suitable gym or exercise area is available.

Practical activities

- Dissection of a pig's trotter or chicken's foot is a good method of introducing the relationship between muscles, bones, tendons and ligaments.
- Video sources can be used to observe and analyse the various joints and muscles during movement. For example:
<http://www.bbc.co.uk/learningzone/clips/the-skeleton-and-movement/4191.html>
Search for relevant clips using key terms at:
<http://www.sciencephoto.com/motionindex.html>
- Student can assess components of their own fitness using standard measures such as vertical jumps to test power of extensor muscles or trunk hyper-extension to measure the flexibility of the back. Grip strength can be tested using a dynamometer.
- If suitable gym facilities are available, students can investigate the increase in heart and/or breathing rate with different intensities or time periods of exercise. Individual or class data can be considered and the results discussed in relation to the activity levels of different individuals. A student-designed investigation can be used for assessment.
- Students can research the principles, planning and training used by an elite athlete of their choice and consider the specificity, frequency and intensity of training that is required. Suitable information can be found at various websites, including:
http://breakthrough.org.uk/running_club/training_zone
<http://expertfootball.com/training>
- Ask students to collect newspaper and other reports on the abuse of performance-enhancing substances, including anabolic steroids and EPO. These can be used to discuss the ethics as well as risks and benefits of such substances. The World Anti-Doping Agency (www.wada-ama.org) publishes the Prohibited List, which details these substances.

Links to TOK

- Students can discuss the ethics of using illegal substances and consider the viewpoints of various participants such as medical practitioners, sports people, scientists and sponsors. Are the risks associated with performance enhancement worth taking? Has the locker room become a dispensary?

Links to ICT

- Data logging can be used in spirometry (if this is used in a practical assessment).
- Grip sensors can be used to study strength and stamina.
- Pulse rate monitors can be used in gym activities.

Aspects of internationalism

- Students can consider the benefit of international sport to political cooperation and international understanding.
- The commercial aspects of international sport provide an interesting opportunity to consider the effect of sponsorship on sportsmanship and the changes that occur when a non-professional sport becomes a commercial commodity all over the world.