Personal Development, Health and Physical Education HSC Core 2:

Factors affecting performance

Three focus questions:

1. How can nutritional and recovery strategies affect performance?
2. How does the acquisition of skill affect performance?
3. How does training affect performance?

<table>
<thead>
<tr>
<th>Focus Question</th>
<th>Linked Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition and recovery strategies</td>
<td>• Preliminary Core Units:</td>
</tr>
<tr>
<td></td>
<td>o What influences the health of individuals?</td>
</tr>
<tr>
<td></td>
<td>• HSC Option Units:</td>
</tr>
<tr>
<td></td>
<td>o What is good health for young people?</td>
</tr>
<tr>
<td></td>
<td>o How does the mass media contribute to people’s understanding, values and beliefs about sport?</td>
</tr>
<tr>
<td></td>
<td>o How does sports medicine address the demands of specific athletes?</td>
</tr>
<tr>
<td></td>
<td>o What ethical issues are related to improving performance?</td>
</tr>
<tr>
<td></td>
<td>• Preliminary Core 1: Better Health for Individuals</td>
</tr>
<tr>
<td></td>
<td>• HSC Option 1: The health of young people</td>
</tr>
<tr>
<td></td>
<td>• HSC Option 2: Sport and Physical Activity in Australian Society</td>
</tr>
<tr>
<td></td>
<td>• HSC Option 3: Sports Medicine</td>
</tr>
<tr>
<td></td>
<td>• HSC Option 4: Improving Performance</td>
</tr>
<tr>
<td>Skill acquisition</td>
<td>• Preliminary Option 4: Improving performance</td>
</tr>
<tr>
<td></td>
<td>• Factors affecting performance</td>
</tr>
<tr>
<td></td>
<td>o How does training affect performance?</td>
</tr>
<tr>
<td></td>
<td>o How can psychology affect performance?</td>
</tr>
<tr>
<td></td>
<td>o How can nutritional and recovery strategies affect performance?</td>
</tr>
<tr>
<td>Training</td>
<td>• Stage 4-5 PDHPE Syllabus</td>
</tr>
<tr>
<td></td>
<td>o Outcome 5.4 A student adapts, transfers and improvises movement skills and concepts to improve performance</td>
</tr>
<tr>
<td></td>
<td>o Outcome 5.6 A student analyses attitudes, behaviours and consequences related to health issues affecting young people.</td>
</tr>
<tr>
<td></td>
<td>• Factors affecting performance</td>
</tr>
<tr>
<td></td>
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<td></td>
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<tr>
<td></td>
<td>o How can psychology affect performance?</td>
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</tbody>
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Possible assessment and evaluation strategies:

The aim of assessment and evaluation strategies is to understand student’s knowledge of HSC Core 2:

1. Students prepare and present a training program on a chosen sport. The program should display an understanding of the concepts of nutrition, recovery, training and skill acquisition.
2. Students write a critical analysis of a training program provided by the teacher and make justified recommendations on how it could be modified to improve the athletes’ performance.
3. As a class, assign students a “simple” but unfamiliar skill and form groups that initially assess the performance of the skill and then break into smaller groups that are allowed only to practice the skill in certain ways. After an adequate number of “sessions” (six?) the students reassess the skills and try to determine which method of practice worked best and why.
<table>
<thead>
<tr>
<th>Focus Questions</th>
<th>Terms</th>
<th>Concepts</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Nutrition &amp; Recovery</strong></td>
<td>Caffeine</td>
<td>Carbohydrate Loading</td>
<td>Focus questions online:</td>
</tr>
<tr>
<td></td>
<td>Compression</td>
<td>Hydration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>garments</td>
<td>Hydrotherapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Creatine</td>
<td>Cryotherapy</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fat</td>
<td>Compression</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Iron</td>
<td>Supplementation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mineral</td>
<td>Energy equation</td>
<td></td>
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<tr>
<td></td>
<td>Protein</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Vitamin</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Skill Acquisition</strong></td>
<td>Cognitive</td>
<td>Stages of skill</td>
<td>Focus questions online:</td>
</tr>
<tr>
<td></td>
<td>Associative</td>
<td>Learner characteristics</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PE CHAP</td>
<td>Learning environment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Objective &amp; Subjective</td>
<td>Performance measures</td>
<td>Skill acquisition blog with YouTube clips:</td>
</tr>
<tr>
<td></td>
<td>Skilled performer</td>
<td>Practice methods</td>
<td><a href="http://stagesofskillacquisition.blogspot.com/">http://stagesofskillacquisition.blogspot.com/</a></td>
</tr>
<tr>
<td></td>
<td>Learning environment</td>
<td>Feedback</td>
<td>Skill acquisition and proficiency article:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Performance elements</td>
<td><a href="http://www.exrx.net/Psychology/Skill.html">http://www.exrx.net/Psychology/Skill.html</a></td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td>Aerobic</td>
<td>Energy systems</td>
<td>Energy system summary notes:</td>
</tr>
<tr>
<td></td>
<td>Anaerobic</td>
<td>Training programs</td>
<td><a href="http://www.brianmac.co.uk/energy.htm">http://www.brianmac.co.uk/energy.htm</a></td>
</tr>
<tr>
<td></td>
<td>Lactic</td>
<td>Aerobic capacity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fatigue</td>
<td>Contribution of energy</td>
<td>Focus questions online:</td>
</tr>
<tr>
<td></td>
<td>Kilojoule Energy</td>
<td></td>
<td><a href="http://hsc.csu.edu.au/pdhpe/core2/focus2/focus1/4007/2-1-1/fac2_1_1.htm">http://hsc.csu.edu.au/pdhpe/core2/focus2/focus1/4007/2-1-1/fac2_1_1.htm</a></td>
</tr>
</tbody>
</table>
Focus Questions

Three focus questions covered today:

1. How can nutritional and recovery strategies affect performance?
2. How does the acquisition of skill affect performance?
3. How does training affect performance?

Introduction to content

- Increases in energy output requires increases in energy input
- Supplementation is the process of taking extra nutrients or chemicals with the goal of improving performance.
  - E.g. athletes taking vitamins and minerals to reduce fatigue, infections, illnesses and improve recovery time from injury.
- Other types of supplementation include:
  - Protein
  - Caffeine
  - Creatine products.
- Recovery strategies are methods of repairing your body
  - Physiological
  - Neural
  - Tissue damage
  - Psychological strategies

Activities

**DISCUSSION**

- Students are divided into groups of 4 (pairs), then given an athlete and a role/person. Students will face one (1) minute to discuss the issue of supplementation based on the character they have been given.

**View of supplementation**

- Athletes taking supplements, an athlete not taking supplements, coach for supplementation, concerned family (parent) that suspects their child of taking supplements, and a health worker against supplementation.

- Students in groups will discuss the character view that each person is playing. Students will then be asked if they agree or disagree and why.

**GROUP ACTIVITY**

- Students are divided into groups of 4 (pairs), then given an athlete and a brief description. Students will identify nutritional requirements of the athlete for pre, post, and during performance.

- Students need to include a stage of recovery strategy for the athlete and their sport.

- Students will then discuss their answers.

- Students will then be asked if they agree or disagree and why.

**Cadel Evans (Cyclist), Dirk Nowitzki (Basketball), Ian Thorpe (100m-400m swimmer), Usain Bolt (100m sprinter), Steve Monogetti (Marathon runner), Lauren Mitchell (Artistic Gymnast), Dani Samuels (Discus), Keiran Jack (AFL), Darren Lockyer (NRL), Ky Hurst (Ironman)**

Stages of skill acquisition

1. Cognitive stage
2. Associative stage
3. Autonomous stage

**Cognitive stage**

The learner is faced with a problem. The learner must organise a solution. The road to the solution incurs many mistakes.

**Associative stage**

As learners become more practiced at a skill, they begin to recognize solutions without thinking through the problem. Minimal mistakes are made in this stage.

** Autonomous stage**

The skill is entirely automatic and can be carried out without conscious thought.

Characteristics of the learner

- **Key concept:** Numerous characteristics that learners bring to the learning environment. These affect the speed of skill acquisition.

- **Key terms:**
  - Use this acronym to remember learner characteristics: PE CHAP
    - Prior
    - Experience
    - Confidence
    - Heredity
    - Ability
    - Personality
Assessment of skill and performance

- Characteristics of skilled performers:
  - Kinesthetic sense
  - Anticipation
  - Consistency
  - Technique
  - Mental Approach

- Validity and reliability:
  - Validity: ability to measure what it should
  - Reliability: ability to produce similar results when implemented in the same conditions with different athletes

- Objective and subjective performance measures:
  - Objective: recorded with stopwatches or electronic timing equipment e.g. sprinting
  - Subjective: scored by judges e.g. gymnastics

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The learning environment

- Nature of skill
  - Open
  - Closed
  - Gross
  - Fine
  - Discrete
  - Serial
  - Continuous
  - Self-paced
  - Externally-paced

- Practice methods
  - Massed or Distributed
  - Whole or Part

- Feedback
  - Internal or External
  - Concurrent or Delayed
  - Knowledge of Results
  - Knowledge of Performance

- Performance elements
  - Decision-making
  - Strategy and Tactics

Activity 1

Video clip followed by group activity

Teaching

- Continuation
- Class discussion (check understanding)
- Adaptations
  - Individual work
  - SMART Board
  - Backup of video clip on DVD

Evaluation

- Students complete activity
- Participation in class discussion
- Correct terminology

Syllabus links

- Prior Knowledge: Stage 4-5 PDHPE Syllabus
  - Outcome 5.4 A student adopts, transfers and improves movement skills and concepts to improve performance
  - Outcome 5.6 A student analyses attitudes, behaviours and consequences related to health issues affecting young people

- Current Content: Stage 6 HSC Course
  - Factors affecting performance
  - How does training affect performance?

- Future Learning: Stage 6 HSC Course
  - Factors affecting performance
  - How can psychology affect performance?
Activity 2

Fitness Circuit

Teaching

- Continuation
  - Developing a fitness program in groups or individually
  - Groups to teach the rest of the class their fitness program
- Adaptations
  - Film fitness programs
  - Look up YouTube clips of fitness programs
  - Focus on one type of training method
- Evaluation
  - Participation in circuit
  - Peer evaluation of fitness programs
  - Creative contribution to group

Syllabus links

- Prior Knowledge
  - Stage 4, PDHPE Syllabus
    - Outcome 5.4 A student adapts, transfers and improvises movement skills and concepts to improve performance
    - Outcome 5.6 A student analyses attitudes, behaviours and consequences related to health issues affecting young people
- Current Content
  - Factors affecting performance
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References

Learning Activity Details – How can nutritional and recovery strategies affect performance?

Activity 1: Supplementation Discussion

1. Five (5) students to volunteer and come to stage
2. Each student will be given a card with a role/person they have to discuss as
3. Students have one (1) minute discuss the issue of supplementation based on the views of the character they have been given
4. Students remaining in the audience will guess the character view that each person is playing
5. Students will then be asked if they agree or disagree and should justify their argument

Possible Roles/Views:

a. athlete using supplementation
b. an athlete not using supplementation
c. coach in favour of using supplementation
d. concerned family member (parent) that suspects their child of using supplementation
e. health care worker against the use of supplementation

Activity 2: Nutritional Considerations

1. Students are arranged into groups of 4 (approx.)
2. Students are given an athlete card including a brief description of their sport
3. Students will identify and describe nutritional requirements of the athlete
   a. Including information for pre-, post- and during performance nutrition
4. Students will also include a recovery strategy for the athlete and their sport.
   a. Students will talk about their answers. Compare and contrast responses.

Possible athletes and their sports:

a. Cadel Evans (Cyclist)
b. Dirk Nowitzki (Basketball)
c. Ian Thorpe (100m-400m swimmer)
d. Usain Bolt (100m sprinter)
e. Steve Monogetti (marathon runner)
f. Lauren Mitchell (Artistic Gymnast)
g. Dani Samuels (Discus)
h. Keiran Jack (AFL)
i. Darren Lockyer (NRL)
j. Ky Hurst (Ironman)
Learning Activity Details – How does the acquisition of skill affect performance?

Activity 1: Are you smarter than a 5th grader?

1. Students watch video stimulus of a variety of skills and performances
2. Students then play interactive PowerPoint game: Are you smarter than a 5th grader?
   a. There are 10 questions that all pertain to the focus question
   b. Each correct answer achieves more points for the class
   c. The game ends when all points are achieved or all questions are answered
3. This is a good task for the following:
   a. Checking knowledge and understanding
   b. Integrating theoretical knowledge and application
   c. Correcting alternate conceptions

Activity 2: Athlete profiles

1. Students are given a card containing athlete characteristics
2. Using the PE CHAP acronym as a model students systematically group themselves into group based on criteria on cards
3. Students will find themselves in groups of Elite, Competitive and Recreational athletes based on these criteria
4. Discussion and exploration of what characteristics make a difference in a variety of athlete types can be undertaken as small groups then clarified through larger discussion and questioning.
### Learning Activity Details – How does training affect performance?

#### Activity 1: Video & group activity

**VARK**
- **Visual:** Students are watching a video clip. They then have to work together and fill in the missing boxes on a cardboard work sheet.
- **Audio:** The Video clip visuals are accompanied by audio explaining what is happening. Also when working on the second part of the activity students will be discussing potential answers.
- **Reading:** The video clip has worded expressions throughout as a visual aid. The second part of the activity involves reading what is on the poster and potential answers.
- **Kinaesthetic:** During the second part of the activity students are to fill in gaps on the poster.

**Blooms Taxonomy**
- **Remembering:** Students are asked to recall information from the video clip when completing the second part of the activity.
- **Understanding:** Students are asked to explain answers and why they believe the answer chosen is correct.
- **Apply:** Students have to apply the information they learnt from the video clip on the fill in the blank cardboard.

**Quality Teaching Framework**
- **Intellectual Quality:** This activity involves deep understanding and knowledge; it focuses on one concept (energy systems) and involved the transfer of knowledge from what is learnt in the video to the fill in the blank cardboard.
- **Quality Learning Environment:** The video clip is engaging and rich with information. The criteria and boundary of the tasks is stated in the explanation at the beginning.
- **Significance:** This activity is inclusive and builds on knowledge covered in stage 4-5 PDHPE.

#### Activity 2: Fitness circuit

**VARK**
- **Visual:** Students are watching each other complete a circuit. They then have to work together to develop a training program.
- **Audio:** A discussion/debate will take place when deciding what will be in the training program.
- **Reading:** The Training program they have developed.
- **Kinaesthetic:** The students will be participating in the circuit and also in developing the training program.

**Blooms Taxonomy**
- **Remembering:** Students are asked to recall information from the circuit when completing the second part of the activity.
- **Understanding:** Students are asked to explain answers and why they believe the type of training will be most beneficial for the athlete.
- **Apply:** Students have to apply the information they learnt from the circuit to the training program.
- **Analysing:** students have to compare different types of training and decide which will be more beneficial to include in the training program.

**Quality Teaching Framework**
- **Intellectual Quality:** This activity involves deep understanding and knowledge; it focuses on one concept (training methods) and involved the transfer of knowledge from what is learnt in the circuit to developing a sport specific training program.
- **Quality Learning Environment:** The circuit is engaging and involved the students trying out the different types of training methods before applying them to a training program. The criteria and boundary of the tasks is stated in the explanation at the beginning.
- **Significance:** The activity is inclusive and builds on previous knowledge in stage 4-5 PDHPE.