Improving Performance
Elite Athlete Case Studies

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For Teachers

Introduction

Improving Performance – Elite Athlete Case Studies delves into the areas of training that have a significant impact on performance. Different types of training are discussed such as aerobic, anaerobic, flexibility, strength and skills training, as well as some psychological and ethical considerations to be considered when designing a training program. Elite athletes give an insight into the various elements of training that must be considered in order for athletes to excel in their sport.

Timeline

00:00:00 Introduction
00:00:50 Types of training
00:05:45 Planning training sessions
00:09:41 Psychological preparation
00:14:13 Pushing the boundaries
00:19:38 Conclusion
00:20:11 Credits
00:20:48 End program

Related Titles

Skill Acquisition for Sports Performance
Sports Injuries – Classification and Management
Achieve a Healthy Lifestyle
Evaluating a Training Program
Anatomy – Functional Body Systems

Recommended Resources

http://www.brianmac.co.uk/index.htm
http://www.pponline.co.uk/
http://www.hsc.csu.edu.au/
Student Worksheet

Initiate Prior Learning

1. Brainstorm using a mind map the different types of training you or someone you know has undertaken.

2. List three different sports/activities and discuss which types of training you think would be most beneficial for the athlete.

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3. Do you think athletes should incorporate more than one type of training into their program? Why? Why not?

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4. An elite marathon runner has just begun training again after an extended period of absence due to injury. Which type/s of training do you think should be the predominant type/s he/she should focus on? Why?

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Active Viewing Guide

1. Identify an activity/sport that requires strength training as the predominant type of training.

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2. Describe why strength training is important for athletes.

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3. Identify an activity/sport that requires aerobic training as the predominant type of training.

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4. If you were a long distance runner describe how you would incorporate aerobic training in your training program.

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5. Describe how aerobic training differs from aerobic training.

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6. Explain why flexibility training should be undertaken by all athletes.

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_________________________________________________________________________________
7. Describe progressive overload.

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8. Describe how an athlete could use the progressive overload principle to improve performance.

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9. Identify the three different seasons in a training year.

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10. Describe how these seasons are divided up.

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11. Identify some key signs of an over-trained athlete.

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12. Explain how an athlete can ensure that their goals are adequate for improving performance.

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13. List three commonly used banned substances.
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15. Using an example, describe how technology is used to improve performance
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Extension Activities

1. Select an elite athlete and research the different elements of their training programs. Include aspects such as types of training, how they avoid overtraining and how they break up their training year.

2. Overtraining can lead to loss of motivation and injuries. Create a mind map to demonstrate the different strategies an athlete can use to reduce the risk of overtraining. Include physical aspects such as training loads as well as psychological strategies.

3. Debate the use of technology in athletic performance. This could be done in the form of a class debate either debating the use of one particular technological advance or a number of them.

4. Investigate the implications of different cultural groups and training requirements for different sports. eg: Athletes fasting for Ramadan.
Suggested Student Responses

Initiate Prior Learning

1. Brainstorm using a mind map the different types of training you or someone you know has undertaken.  
   **Answers will vary but should include aerobic, anaerobic, strength, flexibility and skills training.**

2. List three different sports/activities and discuss which types of training you think would be most beneficial for the athlete.  
   **Answers will vary but should demonstrate a link between types of training and relevant sports. I.e.: Marathon running and aerobic training.**

3. Do you think athletes should incorporate more than one type of training into their program? Why? Why not?  
   **Answers will vary but the overwhelming response should be yes, athletes do require more than one type of training.**

4. An elite marathon runner has just begun training again after an extended period of absence due to injury. Which type/s of training do you think should be the predominant type/s he/she should focus on? Why?  
   **Strength to rebuild strength that has been lost and reduce the risk of further injury; flexibility to reduce the risk of further injury; aerobic to regain cardio-respiratory fitness losses.**
Active Viewing Guide

1. Identify an activity/sport that requires strength training as the predominant type of training. 
   *Answers will vary but may include weightlifting, wrestling and boxing.*

2. Describe why strength training is important for athletes. 
   *Strength training can involve strength endurance or explosive strength. Depending on the activity/sport, strength training is important because it enables the athlete to perform a particular movement repeatedly or in one powerful movement such as weightlifting.*

3. Identify an activity/sport that requires aerobic training as the predominant type of training. 
   *Answers will vary but may include, long distance running, long distance swimming and cross country running.*

4. If you were a long distance runner describe how you would incorporate aerobic training in your training program. 
   *Answers will vary but may include activities such as swimming, running or cycling. Students may also include different types of aerobic training such as continuous, interval or fartlek training. Progressive overload can also be identified as important in aerobic training.*

5. Describe how anaerobic training differs from aerobic training. 
   *Aerobic training targets the aerobic energy system (with oxygen) and anaerobic training targets the anaerobic energy systems - ATP-PC and Lactic Acid (without oxygen).*

6. Explain why flexibility training should be undertaken by all athletes. 
   *Flexibility training is important as it prepares soft tissues such as muscles, ligaments and tendons for performance. It is an important element of training as it reduces the risk of injury in athletes.*

7. Describe progressive overload. 
   *Progressive overload is the principle of training that describes the body’s adaptation to training and the need to increase the training intensity or duration for further improvements.*

8. Describe how an athlete could use the progressive overload principle to improve performance. 
   *Answers will vary but the focus should be on increasing training intensity or duration when adaptations occur.*

9. Identify the three different seasons in a training year. 
   *Pre-season  
   In-season  
   Off-season*

10. Describe how these seasons are divided. 
    *Macro  
    Micro cycles*

11. Identify some key signs of an over-trained athlete. 
    *Loss of motivation, boredom and injuries, insomnia, headaches, weight loss, depression, difficulty concentrating are some of the main signs.*
12. Explain how an athlete can ensure that their goals are adequate for improving performance.
   Using the SMART acronym will ensure that goals are adequate for performance. The SMART acronym refers to goals being Specific, Measurable, Achievable, Realistic and Timely.

13. List three commonly used banned substances.
   - Steroids
   - EPO
   - Diuretics

   Answers will vary but may include:
   - Depression
   - Anxiety
   - Heart failure
   - Insomnia
   - Death

15. Using an example, describe how technology is used to improve performance.
   Answers will vary but may include responses related to the measuring, analyzing or improving of performance. Technological advances in areas such as shoes, equipment or clothing are ideal.
Extension Activities

1. Select an elite athlete and research the different elements of their training programs. Include aspects such as types of training, how they avoid overtraining and how they break up their training year.
   **Answers will vary**

2. Overtraining can lead to loss of motivation and injuries. Create a mind map to demonstrate the different strategies an athlete can use to reduce the risk of overtraining. Include physical aspects such as training loads as well as psychological strategies.
   **Answers will vary but may include goal setting, visualization, mental rehearsal, adequate training load/intensities.**

3. Debate the use of technology in athletic performance. This could be done in the form of a class debate either debating the use of one particular technological advance or a number of them.
   **Answers will vary**

4. Investigate the implications of different cultural groups and training requirements for different sports. eg Athletes fasting for Ramadam.
   **Answers will vary but may include suggestions related to the dietary requirements of athletes and/or motivation levels.**