**How does sports medicine address the demands of specific athletes?**

Insert school logo or image instead of this box.

**Flipped Learning Booklet**

**Write your name here.**

2016-17

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# Key Term Definitions

Complete the table below as you progress through this critical question.

|  |  |
| --- | --- |
| **Term** | **Definition** |
| Asthma |  |
| Diabetes |  |
| Epilepsy |  |
| Thermoregulation |  |
| Heart conditions |  |
| Bone Mineral Density |  |
| Female triad |  |
|  |  |

# Children and Young Athletes

|  |  |
| --- | --- |
| **Students learn about:** | **Students learn to:** |
| * children and young athletes
* medical conditions (asthma, diabetes, epilepsy)
* overuse injuries (stress fractures)
* thermoregulation
* appropriateness of resistance training
 | * **analyse** the implications of each of these considerations for the ways young people engage in sport and how each is managed.
 |

## Content

**Video** *Children and Young Athletes – Medical Conditions* [here](https://youtu.be/kqZYQr9wkMY?list=PLesvqngPCeVM83T9yIZXK3la6P4i6fxFy).

*Children and Young Athletes – Part 2*[here](https://youtu.be/vKqNCvjLDsg?list=PLesvqngPCeVM83T9yIZXK3la6P4i6fxFy).

**Reading** [pdhpe.net](https://www.pdhpe.net/sports-medicine/how-does-sports-medicine-address-the-demands-of-specific-athletes/children-and-young-athletes/)

 Relevant section of your textbook (Cambridge, Outcomes, etc)

## Cornell Note Taking Method

*These notes can be done in the booklet or in a separate exercise book (replace the words in the scaffold).*

|  |
| --- |
| Name, Date, Topic, Class |
| **CUES**Written after the video and classMain ideasQuestions that connect pointsVocabulary wordsUsed for review and study | **NOTES**Taken During the video* Main points
* Bullet points
* Diagrams/charts
* Abbreviate
* Paraphrase
* Outlines

Leave space between topicsAny Questions you still have. |
| **SUMMARY**Written straight after the video. (Checked in class)Brief summary highlighting the main points on the page.Used to find info later. |

## Description-Implication-Management-Question

Complete the table below from your video and/or readings. You should have each square filled in, including questions.

|  |  |  |
| --- | --- | --- |
| **Description** | **Implications** | **Management** |
| Asthma |  |  |
| Diabetes |  |  |
| Epilepsy |  |  |
| Overuse injuries |  |  |
| Thermoregulation |  |  |
| Resistance Training |  |  |
| **Questions** |

## Pairs

Work with a partner to answer each other’s questions, and pose the hardest ones to other pairs, or your teacher.

**Answers to questions here.**

## Learn to Activity

Use the following links to research resistance training for children and young athletes.

<https://www.acsm.org/public-information/articles/2012/01/13/youth-strength-training-facts-and-fallacies>

<http://www.strengthandconditioning.org/news/83-resistance-training-for-children-adolescents.html>

1. What fallacies are debunked?
2. What facts are provided?
3. What guidelines are provided?

### BOSTES Key Word – Analyse

The BOSTES key word ***analyse*** is the most frequently occurring key word in the HSC PDHPE syllabus and so is very important to understand. This term requires you to *break down an issue into its component parts, discuss them and show how the interrelate*

Click the [link](https://www.pdhpe.net/key-word-analyse/) and read through the content on the key term ***analyse***.

1. Define the term analyse
2. Which words/phrases should be used when answering an *analyse* questions?
3. Use the scaffold below to plan out an answer for the question: ***Analyse*** *the implications of thermoregulation for the ways young people engage in sport and how it is managed.* **12 marks**

|  |  |  |  |
| --- | --- | --- | --- |
| Issues | Issue | Issue | Issue |
| *Underdeveloped thermoregulation**- poor sweat response to help cool down (evaporation)**- relies more on vasodilation at skin (convection/ conduction)**Implications:**-overheating**Managed by:**-avoiding hot humid conditions**- breathable clothing**-first aid trained available**-treat hyperthermia* |  |  |  |

Relationship between implications:

## Sample Answer

Below is a sample answer to the following question. Colour code the answer to identify SEAL/SEXY/PEEL within (See the [link](https://www.pdhpe.net/structuring-extended-response/) if you forgot what these stand for).

**Question** How does sports medicine address diabetes in children and young athletes?

Diabetes is a medical condition relating to the management of blood glucose levels. There are two types of diabetes: type 1 where the pancreas does not produce adequate level of insulin, and type 2 where the insulin produced no longer works properly in reducing blood glucose levels. The main type of diabetes in children and young athletes is type 1, though type 2 is on the rise. If diabetes is not properly managed around sport then hyper- and hypo- glycaemia are more likely.

Sports medicine recommends that people involved in the sport with the child with diabetes be aware of his condition. This means the coach, parents, and officials are aware in case something needs to be done to care for the individual. For example, a diabetic playing soccer, would tell his coach and the umpire in case he needs to eat food during the game.

Sports medicine also recommends that the athlete’s take food breaks before, during and after physical activity. This is because physical activity reduces blood glucose levels. The athlete will need to monitor these levels to determine if they need food breaks and when. For example, our soccer player may eat rice 1 hour before the game in order to increase his BGL, and then check his BGL at half time to determine if further sugar/food is required before completing the match. He would then eat food after the game to ensure his BGL are safe. This will help to promote the athlete’s wellbeing and avoid hypo- and hyper- glycaemia.

Finally it is recommended that the individual have sugar readily available in case of hypoglycaemia. Having sugar available means if the athlete’s BGL begin to fall too low, they can quickly eat or drink the sugar in order to raise these levels again. For example, a netball player may begin to feel dizzy, or have blurred vision. She can then signal her coach and take a break to drink some juice to restore her BGL. This promotes player safety by preventing hypoglycaemia.

By people being aware of the athlete with diabetes, the athlete monitoring their blood glucose levels, the provision of food breaks before during and after physical activity and by having sugars available, the safety and wellbeing of the child or young athlete with diabetes is promoted enabling them to participate in sport safely.

## Past/Practice HSC Questions

1. 2010 Questions 29 a) (ii) How does sports medicine address the medical conditions of children and young athletes?  **5 marks**

**BOSTES** provide the following ideas to include in your answer. You don’t have to use all of them, just a selection for each condition. Each condition should have their won paragraph.

*Answers could include:*

*Asthma*

 *–  Ensure adequate, gradual warm up*

 *–  Use medication before exercise*

 *–  Recognise environmental factors*

 *–  Ensure adequate water available*

 *–  Know athlete’s limits – provide opportunities for rest*

 *–  Personal asthma management plan*

 *–  Swimming is encouraged*

*Diabetes*

 *–  Be aware of individual’s condition*

 *–  Monitor blood glucose levels*

 *–  Take food breaks before, during and after physical activity*

 *–  Have glucose available (lollies/drinks)*

 *–  Monitor throughout training sessions*

*Epilepsy*

 *–  Awareness of individuals/medications*

 *–  Avoid collision/water sports*

* *Ensure athlete’s safety during seizure*
* *seek medical attention if >5 min*

|  |
| --- |
| **Introduction:**Medical conditions that are addressed by sports medicine amongst children and young athletes incude:…  |
| **Topic** | **Paragraph** |
| Asthma | Statement: |
| Expand/Explain:  |
| Apply/Example: |
| Link/Why: |
| Diabetes | Statement: |
| Expand/Explain:  |
| Apply/Example: |
| Link/Why: |
| Epilepsy | Statement: |
| Expand/Explain:  |
| Apply/Example: |
| Link/Why: |
| **Conclusion:** |

1. [***Describe***](https://www.pdhpe.net/key-word-describe/) *the implications and management of resistance training among children and young athletes.* **8 marks**

**Scaffold for Describe**

*Describe* – Provide characteristics and features

|  |  |
| --- | --- |
| Topic to be described:  | **Tips for writing**Statement of issue. Preview of each characteristic or feature.  |
| Characteristic or feature statement:Description:Example:Link: | Topic sentence at the beginning of each paragraph that states characteristic or feature followed by a description and examples to illustrate point. Use linking words such as: *for instance, for example, including* to introduce your examples.  |
| Characteristic or feature statement:Description:Example:Link: |
| Characteristic or feature statement:Description:Example:Link: |
| Characteristic or feature statement:Description:Example:Link: |
| Conclusion  | Brief summary of main characteristics and features. Not necessary if you have given a thorough description in the body of your answer.  |

1. [***Analyse***](https://www.pdhpe.net/key-word-analyse/) *the implications of medical conditions for the ways young people engage in sport and how it is managed.* **12 marks**

**Scaffold for analyse**

*Analyse*– identify components and the relationship between them; draw out and relate implications.

|  |  |
| --- | --- |
| Topic to be analysed:  | **Tips for writing**Statement of topic which reflects how deeply you have thought about the question. Preview of components and the relationships.  |
| Component:Elaborate:Support with examples:Component :Elaborate:Support with examples: | Topic sentence at the beginning of each paragraph followed by explanations and examples to illustrate each component Identifying and explaining the relationship between the various components is essential in answering these questions. Use linking words between each point such as *therefore, thus, as a result, leading to*, in order to illustrate the relationship between each of the components.  |
| Relationship between the components above:PointElaborate:Support with examples: |
| Component:Elaborate:Support with examples:Component :Elaborate:Support with examples: |
| Relationship between the components above:PointElaborate:Support with examples: |
| Implications of the relationship between each of these components:  | The implications of the relationship (what happens, what effect it has) can be dealt with in each of the paragraphs or as a concluding paragraph.  |

1. [***Explain***](https://www.pdhpe.net/key-word-explain/) *why overuse injuries are more prevalent in children and young people who engage in sport.* **8 marks**

**Scaffold for explain**

*Explain* – relate cause and effect; make the relationships between things evident.

|  |  |
| --- | --- |
| Topic to be explained:  | **Tips for writing**Statement of topic. Preview of causes and effects.  |
| Causes and effectsCause:Effect:Elaborate:Example/s:Link: | Topic sentence at the beginning of each point on causes followed by explanation and examples to illustrate each cause. Topic sentence at the beginning of each point on effects followed by explanation and examples to illustrate the link to cause. Use linking words between each point (such as: therefore, thus, as a result, leading to), to illustrate the relationship. |
| Causes and effectsCause:Effect:Elaborate:Example/s:Link: |
| Causes and effectsCause:Effect:Elaborate:Example/s:Link: |
| RelationshipPointElaborate:Example/s: | Topic sentence that shows the direct link between cause and effect. Examples essential to further show the link.  |
| Why and/or how causes relate to effect. | The why and/or how can be illustrated within the previous paragraphs or separately at the end  |

# Adult and Aged Athletes

|  |  |
| --- | --- |
| **Students learn about:** | **Students learn to:** |
| * adult and aged athletes
* heart conditions
* fractures/bone density
* flexibility/joint mobility
 | * explain the sports participation options available for aged people with medical conditions
 |

## Content

**Video** *Adult and Aged Athletes* [here](https://youtu.be/TV6V1Lk06-k?list=PLesvqngPCeVM83T9yIZXK3la6P4i6fxFy).

**Reading** [pdhpe.net](https://www.pdhpe.net/sports-medicine/how-does-sports-medicine-address-the-demands-of-specific-athletes/adult-aged-athletes/)

 Relevant section of your textbook (Cambridge, Outcomes, etc)

## Cornell Note Taking Method

*These notes can be done in the booklet or in a separate exercise book (replace the words in the scaffold).*

|  |
| --- |
| Name, Date, Topic, Class |
| **CUES**Written after the video and classMain ideasQuestions that connect pointsVocabulary wordsUsed for review and study | **NOTES**Taken During the video* Main points
* Bullet points
* Diagrams/charts
* Abbreviate
* Paraphrase
* Outlines

Leave space between topicsAny Questions you still have. |
| **SUMMARY**Written straight after the video. (Checked in class)Brief summary highlighting the main points on the page.Used to find info later. |

## Summary

Complete the table using your notes above.

|  |  |  |
| --- | --- | --- |
|  | **Sports participation options** | **Why?** |
| *Heart conditions* |  |  |
| *Fractures/ bone density* |  |  |
| *Flexibility/ joint mobility* |  |  |

## Scenario

Dave has recently had heart surgery to fix his angina. He still takes medication for the condition, but has been told by his specialist that he should start to do exercise. Dave comes to you for advice on which sports he can participate in. you need to provide Dave with a range of activities he can and cannot participate in and tell him **why**?

Use the following resources to help:

* <https://www.acsm.org/public-information/articles/2012/01/19/exercising-with-coronary-heart-disease>
* [http://www6.health.gov.au/internet/main/publishing.nsf/Content/3244D38BBBEBD284CA257BF0001FA1A7/$File/choosehealth-brochure.pdf](http://www6.health.gov.au/internet/main/publishing.nsf/Content/3244D38BBBEBD284CA257BF0001FA1A7/%24File/choosehealth-brochure.pdf)

**Answer here**

## Learn to Activity

### BOSTES Key Word – Explain

Click the [link](https://www.pdhpe.net/key-word-explain/) and read through the content on the key term ***explain***.

1. Define the term explain
2. Which words/phrases should be used when answering an *explain* questions?
3. Use the scaffold below to plan out an answer for the question: ***Explain***sports participation options available for aged people with heart conditions*.* **8 marks**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cause (what?):  |  | Effect (how/why?):  | OR | Clearly identify the relationship between things:  |

AND

|  |
| --- |
| Why (*because*…) and/or how (in *time* or *cause*)? |

## Past/Practice HSC Questions

1. What sports participation options exist for aged athletes with poor bone density? Why is it limited in this way? **8 marks**
2. Explain why sports participation options are limited for aged people with heart conditions. **– 8 marks** (use the scaffold if you need to)

**Scaffold for explain**

*Explain* – relate cause and effect; make the relationships between things evident.

|  |  |
| --- | --- |
| Topic to be explained:  | **Tips for writing**Statement of topic. Preview of causes and effects.  |
| Causes and effectsCause:Effect:Elaborate:Example/s:Link: | Topic sentence at the beginning of each point on causes followed by explanation and examples to illustrate each cause. Topic sentence at the beginning of each point on effects followed by explanation and examples to illustrate the link to cause. Use linking words between each point (such as: therefore, thus, as a result, leading to), to illustrate the relationship. |
| Causes and effectsCause:Effect:Elaborate:Example/s:Link: |
| Causes and effectsCause:Effect:Elaborate:Example/s:Link: |
| RelationshipPointElaborate:Example/s: | Topic sentence that shows the direct link between cause and effect. Examples essential to further show the link.  |
| Why and/or how causes relate to effect. | The why and/or how can be illustrated within the previous paragraphs or separately at the end  |

1. [Describe](https://www.pdhpe.net/key-word-describe/) how sports participation is affected by flexibility. **4 marks** (use the scaffold for describe if you need to)

**Scaffold for Describe**

*Describe* – Provide characteristics and features

|  |  |
| --- | --- |
| Topic to be described:  | **Tips for writing**Statement of issue. Preview of each characteristic or feature.  |
| Characteristic or featureDescriptionExampleLink | Topic sentence at the beginning of each paragraph that states characteristic or feature followed by a description and examples to illustrate point. Use linking words such as: *for instance, for example, including* to introduce your examples.  |
| Characteristic or featureDescriptionExampleLink |
| Characteristic or featureDescriptionExampleLink |
| Characteristic or featureDescriptionExampleLink |
| Conclusion  | Brief summary of main characteristics and features. Not necessary if you have given a thorough description in the body of your answer.  |

1. 2012 Question 31 (b) How are the needs of adult and aged athletes with medical conditions addressed to enable their continued participation in sport? **12 Marks**
2. **Before attempting this question** please read through this [article](https://www.pdhpe.net/marking-rubric-sports-medicine/) on using the marking rubric for extended response.
3. Read through the **BOSTES** sample answer below and identify the 4 parts of the rubric by colour coding it:
* **Demonstrate knowledge and understanding** of the health and physical activity concepts relevant to questions
* Apply the skills of **critical thinking and analysis**
* Communicate ideas and information using **relevant** **examples**
* Present a **logical** **and cohesive** response

**Sample Answer**

For adult and aged athletes who suffer from medical conditions such as heart conditions, fractures and bone density, lack of flexibility and joint mobility, there are measures that can be taken to maintain their participation in sport.

People with heart conditions such as high blood pressure should be required to obtain a medical clearance from their doctor before commencing an exercise program. These individuals should then begin their chosen sport gradually and choose suitable activities to match personal capabilities. Aerobic-type exercises such as walking, cycling, swimming and modified strength training programs (30 minutes, three times a week) present some of the best options for people with heart conditions.

Physical activity increases bone mass and makes bones stronger. Exercise assists in the delay of post-menopausal bone-density loss in older women in particular, thus reducing the onset of osteoporosis. Types of sports options available are walking, cycling, swimming, low-impact aerobics and modified strength training programs. These sport options assist in the areas of balance, strength, coordination and flexibility that result in improved bone strength, thus avoiding further fractures.

Low-impact sport options such as walking, cycling, swimming, tai-chi and aqua aerobics all have a positive effect on the flexibility and joint mobility in adult and aged athletes. Programs that focus on safe stretching and improving range of movement in joints increase the balance and stability of adult and aged athletes. Therefore, there is a reduction of fractures caused by falls.

It is important for adults and aged athletes to be able to continue their participation in their chosen sport. Many sporting organisations are recognising this and now provide modified competition arrangements for such athletes. Examples of these include over 35 competitions, ‘Golden Oldies’ tournaments and Masters games. While these activities encourage and facilitate greater participation for adult/aged athletes in sport, medical conditions such as heart conditions, bone density and joint health/flexibility need to be incorporated into the design of these competitions. Many of these therefore have modified equipment, rules and reduced physical contact.

1. **Write your answer below. Remember to use SEAL/SEXY/PEEL as you write.** If you are struggling create a similar scaffold (or copy and paste) to the ones you have already used. This is an “**analyse**” question.

# Female Athletes

|  |  |
| --- | --- |
| **Students learn about:** | **Students learn to:** |
| * female athletes
* eating disorders
* iron deficiency
* bone density
* pregnancy.
 | * assess the degree to which iron deficiency and bone density affect participation in sport.
 |

## Content

**Video** *Female Athletes* [here](https://youtu.be/LwyR6SJSfG0?list=PLesvqngPCeVM83T9yIZXK3la6P4i6fxFy).

**Reading** [pdhpe.net](https://www.pdhpe.net/sports-medicine/how-does-sports-medicine-address-the-demands-of-specific-athletes/female-athletes/)

 Relevant section of your textbook (Cambridge, Outcomes, etc)

## Cornell Note Taking Method

*These notes can be done in the booklet or in a separate exercise book (replace the words in the scaffold).*

|  |
| --- |
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* Bullet points
* Diagrams/charts
* Abbreviate
* Paraphrase
* Outlines

Leave space between topicsAny Questions you still have. |
| **SUMMARY**Written straight after the video. (Checked in class)Brief summary highlighting the main points on the page.Used to find info later. |

## Female Triad

1. Use the table below to explain how the female triad (Eating disorders, Menstruation, Bone Density) affects sports participation.

**Explain** – relate cause and effect (use terms such as: results in, causes, leads to, is a result of etc)

|  |
| --- |
| **Introduction:**The female triad refers to… which has many effects on sports participation, including: … |
| **Topic** | **Paragraph** |
| Eating Disorders | Statement:e.g Eating disorders in female athletes lead the athlete to being more likely to be malnourished. |
| Expand/Explain: (not enough energy, iron and calcium in diet) |
| Apply/Example: |
| Link/Why:e.g eating disorders result in female athletes having less energy, which reduces their performance. The athlete is also more likely to be iron deficient. |
| Menstruation and Iron Deficiency | Statement:Iron levels are effected by… and result in… |
| Expand/Explain: (how/why) |
| Apply/Example: |
| Link/Why:A female athlete who is iron deficient… in relation to sports participation. |
| Bone Density | Statement: |
| Expand/Explain: |
| Apply/Example: |
| Link/Why: |
| **Conclude:**The female triad refers to… which affects sports participation by… |

## Pregnancy

1. How does pregnancy affect sports participation? (use the scaffold)

Use the following resource:

* <http://sma.org.au/wp-content/uploads/2009/10/WIS-ExPreg.pdf>

|  |  |
| --- | --- |
| **Topic** | **Paragraph** |
|  | Statement: |
| Expand/Explain: |
| Apply/Example: |
| Link/Why: |
|  | Statement: |
| Expand/Explain: |
| Apply/Example: |
| Link/Why: |
|  | Statement: |
| Expand/Explain: |
| Apply/Example: |
| Link/Why: |
| **Conclude:** |

## Learn to Activity

### BOSTES Key Word – Assess

Click the [link](https://www.pdhpe.net/key-word-assess/) and read through the content on the key term ***assess***.

1. Define the term assess
2. Which words/phrases should be used when answering an *assess* questions?
3. Use the scaffold below to plan out an answer for the question: ***Assess***the degree to which pregnancy affects participation in sport*.* **6 marks**

***Assess*** *– Consider the value or importance of something, paying due attention to positive, negative and disputable aspects (UNSW, 2014). How relevant or valuable after acknowledging points for and against it (QUT, 2014).*

Negatives/disadvantages

Positives/advantages

and

Judgement statements such as:

This positively affects/impacts/relates
This negatively affects/impacts/relates
As a result of

In relation to
An affect of this is
Therefore
This in turn
Leading to
This results in

## Past/Practice HSC Questions

1. 2010 Question 29 (a) (i) Outline how problems associated with iron deficiency and bone density  can affect female participation in sport.  **3 Marks**
2. 2015 Question 31 (a)  Why do iron deficiency and lower bone density affect female athletes? **8**  **Marks**
3. **Assess** the degree to which iron deficiency and bone density affect participation in sport. **12 marks**

**Scaffold for Assess**

***Assess*** – Make a judgement of value, quality, outcomes, results or size.

|  |  |
| --- | --- |
| Issue to be assessed:  | **Tips for writing**Statement of topic to be assessed which reflects your view point or judgement. Preview of points for and against and concluding judgement.  |
| **Either**Point for (advantages): Elaboration:Support with examples: Link: | Topic sentence at the beginning of each paragraph followed by explanation and examples to illustrate point. Elaboration and support needs to include information about the value, quality or outcomes of the point being discussed. This can also refer to negative criticism about the point. Use linking words such as: *therefore, because, however, for instance, for example, as a result*. Information used to make a judgement needs to be explained in your elaboration and then examples given to support it.  |
| Point for (advantages): Elaboration:Support with examples: Link: |
| **Or**Point against (disadvantages): Elaboration:Support with examples: Link: |
| Point against (disadvantages): Elaboration:Support with examples: Link: |
| Conclusion and **judgement** | Must make a judgement at the end either for OR against the argument based on the value, quality or outcomes of the topic.  |