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| **http://www.civicsandcitizenship.edu.au/verve/_resources/narrogin_logo.gif** | **Narrogin Senior High School**  PHYSICAL EDUCATION STUDIES – ATAR  Laboratory – Exercise Physiology |

##### Laboratory Instructions

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

### Structure of this paper

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| --- | --- | --- | --- |
| **Section** |  |  |  |
| **A** | **Participation in laboratory activity**  **Distribution of questions and discussion** | | |

|  |  |  |  |
| --- | --- | --- | --- |
| **Section** | **No. of questions available** | **No. of questions to be attempted** | **Marks Available** |
| **B** | **4** | **4** | **/18** |
|  |  | **Total** | **/18** |

### Instructions to candidates

1. Write your answers in the spaces provided in this Question/Answer Booklet. A blue or black ballpoint or ink pen should be used. Wherever appropriate, fully labelled diagrams, tables and examples should be used to illustrate and support your answers.
2. Section A is completed in a lesson prior to the formal in class test and no notes are to be taken in to the test.

**Laboratory 1:** Exercise Physiology

**The Beep Test**

*Purpose:*

The purpose of this task is to apply exercise physiology principles to a selected athletic event.

*Design:*

* All students are to complete the Beep Test.
* It will be done in 4 groups as you will be recording your partner’s results.
* Students perform a thorough warm-up which includes at least 5 minutes of aerobic activity.
* Participating students are instructed to try and get the best score possible.
* Subjects complete the race.
* One partner will record how many 20m intervals the subject completes and the time/duration of the activity.
* One partner will write observations about how easy or hard the subject is finding the race.
* Allow for class discussion on questions.

*Equipment:*

Beep test instrument

*Data Collection:*

The students should record notes on the following:

* Subjects’ descriptions of feelings of fatigue against levels.
* One partner will record how many 20m intervals the subject completes and the time/duration of the activity.

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| --- | --- |
| **Beep Test Level** | **Observations/Comments** |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
| Finish Level |  |

**Questions**

1. The candidate would have continued to breathe heavily after the race. With the aid of a diagram, Identify and discuss the concept that explains this. (4 Marks)
2. If the candidate wanted to improve their score over time, they could complete the beep test regularly. Discuss the overriding Principle that this adheres too, why it would be appropriate to do the test and three other variables that would have to be met to improve the score.

(5 Marks)

1. Discuss the utilisation of carbohydrates, fats and proteins in the Beep Test. (3 Marks)

1. Discuss the ideal state of the 3 energy systems prior to the test (after warm-up) and post-race. (6 Marks)

**Marking Key**

1. The candidate would have continued to breathe heavily after the race. With the aid of a diagram, Identify and discuss the concept that explains this (4 marks)

|  |  |
| --- | --- |
| **Concept** | **Mark** |
| Identifies Oxygen Debt or Excess Post O2 Consumption | 1 |
|  | 2 |
| Gets the body back to resting state, replenish CP system | 1 |

2. If the candidate wanted to improve their score over time, they could complete the beep test regularly. Discuss the overriding Principle that this adheres too, why it would be appropriate to do the test and three other variables that would have to be met to improve the score. (5 marks)

|  |  |
| --- | --- |
| **Concept** | **Mark** |
| Overload Principle Id- adequate definition | 1 |
| Specificity Id- you get what you train for | 1 |
| Variable 1 Id (Frequency, Intensity, Duration) defined | 1 |
| Variable 2 Id | 1 |
| Variable 3Id | 1 |

3. Discuss the utilisation of carbohydrates, fats and proteins in the Beep Test. (3 marks)

|  |  |
| --- | --- |
| **Concept** | **Mark** |
| Only Carbohydrates Used- as only they can provide fuel quick enough | 1 |
| Fats not used- cannot be broken down quick enough to be used. Or only at the start line prior to race | 1 |
| Proteins not used- cannot be broken down quick enough to be used. | 1 |

4. Discuss the ideal state of the 3 energy systems prior to the test (after warm-up) and post-race. (6 marks)

|  |  |  |
| --- | --- | --- |
|  | **Concept** | **Mark** |
| **After W-up** | CP System – fully charged at max level | 1 |
| Lactic Acid System – some activation, minimal production of Lactic Acid | 1 |
| Aerobic System- activated | 1 |
| **Post** | CP System – exhausted | 1 |
| Lactic Acid System – Threshold reached | 1 |
| Aerobic System- producing ATP to restore systems to pre exercise levels | 1 |