# Human Biology – General Year 12

## Task 1 – Unit 3

**Assessment type:** Extended response

**Conditions**

Period allowed for completion of Part I: one week; Part II: 60 minutes

**Task weighting**

10% of the school mark for this pair of units

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**Task 1: Conditions relating to sporting injuries or damage to the nervous system (research and validation) (30 marks)**

This task is presented in two parts.

**Part A: Research phase** (8 marks)

Research and take notes on a number of conditions relating to sporting injuries or damage to the nervous system.

**Part B: In-class validation**  (22 marks)

Write responses to short answer style questions. You will not see these questions prior to sitting the in-class validation. This part is to be completed under test conditions. You may bring your   
note-taking sheet with you.

**Part A – Research**

1. (a) Research and take notes on the following conditions: elbow dislocation, elbow sprain, torn anterior cruciate ligament, fracture of the lower leg (including stress fractures), paraplegia and quadriplegia. Research should include:

* the injury/condition
* the symptoms/signs of the injury/condition
* diagnosis
* treatment of the injury/condition. (6 marks)

(b) Reference your research using a standard referencing format of your choice; for example, APA, MLA, Harvard or Chicago. Hand this in as a separate sheet attached to your note-taking sheet. You must include at least four references. (2 marks)

# Marking key Task 1 – Unit 3

1. (a) Research and take notes on the following conditions: elbow dislocation, elbow sprain, torn anterior cruciate ligament, fracture of the lower leg (including stress fractures), paraplegia and quadriplegia. Research should include:

* the injury/condition
* the symptoms/signs of the injury/condition
* diagnosis
* treatment of the injury/condition.

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Research presented in a note-taking format | 1 |
| Notes are concise and do not include irrelevant information | 3 |
| Notes cover all recommended research areas | 2 |
| **Total** | **/6** |

(b) Reference your research using a standard referencing format of your choice; for example, APA, MLA, Harvard or Chicago. Hand this in as a separate sheet attached to your note-taking sheet. You must include at least four references.

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Minimum of four references | 1 |
| Correct format used for selected referencing style | 1 |
| **Total** | **/2** |

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

**Part B – In-class validation questions (27 marks)**

This section consists of three questions. Answer ALL of the parts to each question on the lined paper provided.

You may illustrate your answers with diagrams where appropriate.

1. You are waiting in a doctor’s surgery and see a teenager come in with a suspected dislocation of his elbow.
2. Describe **four** symptoms that could be similar for both a dislocation and a sprain of his elbow. (4 marks)
3. How would the doctor determine if the injury is a dislocation or a sprain? (2 marks)
4. Describe the medical treatment of a dislocation and explain how it is different from the treatment of an elbow strain. (4 marks)
5. You are playing basketball with some friends at the local basketball court and one of your friends falls to the ground in pain.

(a) List **four** symptoms or signs you could use to determine if the injury had resulted from a torn anterior cruciate ligament (ACL)? (4 marks)

(b) Describe the treatment you could offer her on the court. (4 marks)

(c) Your friend had been complaining of soreness in her foot for some time, especially when playing and training frequently. If this pain was a result of a stress fracture of a bone in her foot, how would a doctor diagnose and treat this condition? (2 marks)

1. You read a newspaper article about a serious motor-cross accident. It describes the prospect of the accident victim becoming a paraplegic or a quadriplegic.

# What are **two** differences between paraplegia and quadriplegia? (2 marks)

# Marking key Task 1 – Unit 3

1. (a) Research and take notes on the following conditions: elbow dislocation, elbow sprain, torn anterior cruciate ligament, fracture of the lower leg (including stress fractures), paraplegia and quadriplegia. Research should include:

* the injury/condition
* the symptoms/signs of the injury/condition
* diagnosis
* treatment of the injury/condition.

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Research presented in a note-taking format | 1 |
| Notes are concise and do not include irrelevant information | 3 |
| Notes cover all recommended research areas | 2 |
| **Total** | **/6** |

(b) Reference your research using a standard referencing format of your choice; for example, APA, MLA, Harvard or Chicago. Hand this in as a separate sheet attached to your note-taking sheet. You must include at least four references.

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Minimum of four references | 1 |
| Correct format used for selected referencing style | 1 |
| **Total** | **/2** |

1. You are waiting in a doctor’s surgery and see a teenager come in with a suspected dislocation of his elbow.

(a) Describe **four** symptoms that could be similar for both dislocation and a sprain of his elbow.

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Description of four symptoms | 1–4 |
| **Total** | **/4** |
| **Answer could include, but is not limited to:** | |
| * pain in the injured area * swelling in the injured area * difficulty using or moving the injured area in a normal manner * bruising or redness (heat) in the injured area * joint pain when bearing weight * reduced joint mobility | |

(b) How would the doctor determine if the injury is a dislocation or a sprain?

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Identification of suitable methods of distinguishing between a dislocation and a sprain | 1–2 |
| **Total** | **/2** |
| **Answer could include, but is not limited to:** | |
| * the doctor would ask how the injury occurred * the doctor would order an X-ray or magnetic resonance imaging (MRI) * the doctor would check for a deformity of the painful area which would indicate a dislocation | |

(c) Describe the medical treatment of a dislocation and explain how it is different from the treatment of an elbow strain.

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Description of elbow dislocation medical treatment | 1–2 |
| **Subtotal** | **/2** |
| **Answer could include, but is not limited to:** |  |
| * bones in an elbow dislocation need to be realigned so the elbow joint is placed back into its proper position * realignment requires a force to be applied to the bones either by traction or by manipulation of the bones of the arm by the doctor. * doctor will give the patient an anaesthetic before realigning the bones of the joint | |
| Differences between dislocation and sprain | 1–2 |
| **Subtotal** | **/2** |
| **Answer could include, but is not limited to:** |  |
| * no realignment of the elbow is necessary * no force is applied to the elbow * the doctor may prescribe an analgesic | |
| **Final total** | **/4** |

1. You are playing basketball with some friends at the local basketball court and one of your friends falls to the ground in pain.

(a) List **four** symptoms or signs you could use to determine if the injury had resulted from a torn anterior cruciate ligament (ACL)?

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Four symptoms or signs used to determine an ALC injury | 1–4 |
| **Total** | **/4** |
| **Answer could include, but is not limited to:** |  |
| * the knee may give out suddenly when the ACL is torn, and there may be a popping sound upon injury * torn ACL could result in knee pain * torn ACL could result in swelling * torn ACL could result in stiffness * torn ACL could result in bruising * walking is painful and the knee feels unstable caused by the bones in knee joint sliding too far (this can result in damage to the cartilage). | |

(b) Describe the treatment you could offer her on the court.

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Rest from any activity that increases your pain. Ideally lie down in a comfortable position to minimise bleeding, swelling and further damage | 1 |
| Ice the injured area for 20 minutes every two hours. Do not place ice directly on the skin, wrap it in a hand towel | 1 |
| Compress the injured area with a [compression bandage](http://www.physioadvisor.com.au/14193998/tubigrip-compression-bandages-physioadvisor-sh.htm) to minimise swelling | 1 |
| Elevate the injured area above the level of your heart (provided this does not cause an increase in pain) for as long as possible, to minimise bleeding and swelling | 1 |
| **Total** | **/4** |

# (c) Your friend had been complaining of soreness in her foot for some time, especially when playing and training frequently. If this pain was a result of a stress fracture of a bone in her foot, how would a doctor diagnose and treat this condition?

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Diagnosis  The doctor would recommend a bone scan or a MRI scan  (MRI is more sensitive than an X-ray and may be used to detect stress fractures early). | 1 |
| **Subtotal** | **/1** |
| Treatment depends on the severity of the stress fracture | 1 |
| **Subtotal** | **/1** |
| **Final total** | **/2** |
| **Answer could include, but is not limited to:** |  |
| * rest: it takes from six to eight weeks to allow a stress fracture to heal * cast: a cast may be required to keep the bones of the foot in a fixed position which should reduce the stress on the foot * surgery: pins, screws or plates could be inserted to hold the foot bones together when it is healing | |

1. You read a newspaper article about a serious motor-cross accident. It describes the prospect of the accident victim becoming a paraplegic or a quadriplegic.

# What are **two** differences between paraplegia and quadriplegia?

|  |  |
| --- | --- |
| **Description** | **Marks** |
| Differences betweenparaplegia and quadriplegia | 1–2 |
| **Total** | **/2** |
| **Answer could include, but is not limited to:** |  |
| * paraplegia results when the spine is injured below the level of the neck * quadriplegia is caused by an injury in the neck of the cervical cord segments * paraplegia causes paralysis and loss of feeling in the legs, abdomen, bladder, bowel and sex organs * in addition to this, quadriplegia causes a loss of feeling in the arms as well and may require a ventilator   Note: The severity of the paralysis depends on whether the injury is complete (total loss of feeling below the injury) or incomplete (some messages are getting through). | |