BTEC Unit 5 – Homeostasis

For the next assignment topic – “Homeostasis and how the body responds to activity” you need to be able to clearly explain homeostasis.

In order to do this effectively you need to:

* be able to define the terms internal environment & homeostasis.
* be able to explain the concept of homeostasis.
* be able to describe the homeostatic mechanisms for the regulation of the heart rate, the breathing rate, body temperature & blood glucose levels
* be able to discuss the probable homeostatic responses to changes in the internal environment during exercise.

You need to develop a set of notes using at least the following resources. **Before you start making any notes ensure you have read these resources.**

1. Stretch & Whitehouse (2010) pages 217 -226
2. Waugh & Grant (2001) Ross & Wilson Anatomy & Physiology in Health & Illness. Pages 4-7
3. <http://www.bbc.co.uk/schools/gcsebitesize/science/ocr_gateway_pre_2011/ourselves/5_staying_in_balance1.shtml>
4. <http://www.bbc.co.uk/schools/gcsebitesize/science/add_aqa_pre_2011/homeo/homeostasis1.shtml>
5. <http://www.s-cool.co.uk/gcse/biology/homeostasis/revise-it/what-is-homeostasis>
6. <http://www.think-bank.com/iwb/flash/homeostasis.html>
7. <http://www.biology-innovation.co.uk/pages/human-biology/homeostasis/>
8. <http://www.biologymad.com/resources/A2%20Homeostasis.pdf>

After reading the resources you need to:

**Lesson 1:**

Write a definition of homeostasis

Explain what is meant by ‘the internal environment’

Describe negative feedback and its role as a regulatory as a regulatory mechanism. *These notes should be appropriately file in your everyday file*

*This learning will be checked in the next lesson*

**Lesson 2**

Make a set of notes about how the heart is regulated. *These notes should be appropriately file in your everyday file*

Write a referenced description of how the heart is regulated.

Include the following in your description –

* The sympathetic and parasympathetic nerve supply to the heart.
* The role of the Sino atrial node
* The role of the cardiac centre of the brain
* Internal baroreceptors and chemoreceptors
* The effect of raised body temperature on the heart rate
* The effect of adrenaline on the heart rate

***This work should be printed off and submitted at the start of the next lesson***

**Lesson 3:**

Make a set of notes about how breathing is regulated. *These notes should be appropriately file in your everyday file*

Write a referenced description of how breathing is regulated

Include the following in your description –

* The sympathetic and parasympathetic nerve supply to the lungs.
* The role of the respiratory centre of the brain
* Internal chemoreceptors in the arteries
* The role of the diaphragm and intercostals muscles in changing the breathing rates.

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**Lesson 4**

Make a set of notes about how the body temperature is regulated *These notes should be appropriately file in your everyday file*

Write a referenced description of how body temperature is regulated

Include descriptions of the following –

* How heat is produced by the body
* How heat is lost from the body by – Radiation, Conduction, Convection, Evaporation
* The role of the hypothalamus
* The role of arterioles and sweat glands in the skin
* The effects of shivering
* The role of surface area to volume ratio in the care of babies
* The fever mechanism

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**Lesson 5**

Make a set of notes about how the blood glucose levels are regulated *These notes should be appropriately file in your everyday file*

Write a referenced description of how the blood glucose levels are regulated. You should include

* The role of the pancreas
* The role of insulin
* The role glucagon
* The role of the liver

***This work should be printed off and submitted at the start of the next lesson***