**Review Worksheet Answers: Hypothalamus and Pituitary**

1: Where is the hypothalamus located?

(2 marks)

*The hypothalamus is located in the base of the brain (1), between the thalamus and the pituitary (1).*

2: Where is the pituitary gland located?

(2 marks)

*The pituitary gland is located beneath the hypothalamus (1) in a pocket of bone and is attached to it by a stalk called the infundibulum (1)*

3: The hypothalamus produces releasing factors that travel to the anterior pituitary. How do these releasing factors get to the anterior pituitary from the hypothalamus?

(2 marks)

*Releasing factors from the hypothalamus travel via the blood vessels (1) of the infundibulum (1) to the anterior pituitary.*

4: Fill in the table below to describe the communication between the hypothalamus and anterior pituitary. The first example is done for you.

(9 marks)

|  |  |  |
| --- | --- | --- |
| **Abbreviation** | **Name** | **Effect on the Anterior Pituitary** |
| PRF | *Prolactin Releasing Factor* | *Stimulates cells of the Anterior Pituitary to produce Prolactin and release it into the systemic circulation.* |
| TRF | *Thyrotropin Releasing Factor (1)* | *Stimulates cells of the Anterior Pituitary (0.5) to produce Thyroid Stimulating Hormone (TSH) (1) and release it into the systemic circulation. (0.5)* |
| CRF | *Corticotropin Releasing Factor (1)* | *Stimulates cells of the Anterior Pituitary (0.5) to produce Adrenocorticotrophic Hormone (ACTH) (1) and release it into the systemic circulation. (0.5)* |
| GHRF | *Growth Hormone Releasing Factor (1)* | *Stimulates cells of the Anterior Pituitary (0.5) to produce Growth Hormone (1) and release it into the systemic circulation.(0.5)* |

5: Which tissues/organs are targeted by each of the following hormones produced by the anterior pituitary, and how do those tissues/organs respond?

(3 marks)

|  |  |  |
| --- | --- | --- |
| **Hormone Produced** | **Target tissue/organ** | **Tissue/organ response** |
| TSH (Thyroid Stimulating Hormone) | *Thyroid (0.5)* | *Produces Thyroxine (0.5)* |
| ACTH (Adrenocorticotrophic hormone) | *Adrenal Cortex (0.5)* | *Produces cortisol (0.5)* |
| GH (Growth Hormone) | *Bones and Muscles (0.5)* | *Bone and muscle growth is stimulated (0.5)* |

6: How does the hypothalamus communicate with the Posterior Pituitary?

(5 marks)

*The hypothalamus produces hormones (1) which then travel down axons (1) in the infundibulum (1) to the posterior pituitary (1), and are released into the blood stream in response to nerve impulses (1).*

7: List the two hormones released by the posterior pituitary and the effects of each.

(6 marks)

|  |  |
| --- | --- |
| **Hormone Released by Posterior Pituitary** | **Effects in the body** |
| *Antidiuretic Hormone (ADH) (1)* | *Kidneys cause reabsorption of water back into bloodstream (1), can cause vasoconstriction (1)* |
| *Oxytocin (1)* | *Stimulates uterine contractions (1) Stimulates milk ejection from mammary glands during lactation (1)* |

8: Describe the difference between how Oxytocin and ADH are regulated.

(8 marks)

*ADH is regulated by negative feedback (1) . As ADH levels rise, and as fluid levels in the blood rise back to homeostatic levels (1), this is detected by the hypothalamus (1), which ceases production of ADH (1).*

*Oxytocin is regulated by positive feedback (1). As oxytocin causes uterine contractions, the contractions trigger the production of more oxytocin (1), to produce more contractions (1), so that birth can occur (1).*

Go back and mark your work using the marking key provided. What score did you get? /37

*I included enough detail in my answers.*



*I was able to find information in the text/powerpoint presentation.*

*I was able to reason and infer where the information wasn’t directly in the text (questions with \*).*

*I marked my work and wrote down any answers where I missed marks.*