

NAME \_\_\_\_\_

LAB TIME/DATE \_\_\_\_\_

# Endocrine System Physiology

1. Match each of the hormones in the left hand column with its source.

- |       |                                   |                    |
|-------|-----------------------------------|--------------------|
| _____ | thyroxine                         | a. ovary           |
| _____ | estrogen                          | b. thyroid gland   |
| _____ | thyroid stimulating hormone (TSH) | c. pancreas        |
| _____ | insulin                           | d. pituitary gland |

2. Each hormone is known to have a specific target tissue. For each of the following hormones, list its target tissue and describe its specific action.

- thyroxine \_\_\_\_\_  
 \_\_\_\_\_
- estrogen \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- thyroid stimulating hormone (TSH) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- insulin \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_
- follicle stimulating hormone (FSH) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

3. What is the role of the hypothalamus in the production of thyroxine and TSH?

\_\_\_\_\_  
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4. How does thyrotropin releasing hormone (TRH) travel from the hypothalamus to the pituitary gland?

\_\_\_\_\_  
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5. What are *tropic* hormones?

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6. In the metabolism experiment, what was the effect of thyroxine on the overall metabolic rate of the animals?

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7. Using the respirometer-manometer, you observed the amount of oxygen being used by animals in a closed chamber. What happened to the carbon dioxide the animals produced while in the chamber?

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8. (a) If the experimental animals in the chamber were engaged in physical activity (such as running in a wheel), how would this change the results of the metabolism experiment?

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(b) What changes would you expect to see in fluid levels of the manometer?

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9. Why didn't the administration of thyroid stimulating hormone (TSH) have any effect on the metabolic rate of the thyroidectomized rat?

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10. Why didn't the administration of propylthiouracil have any effect on the metabolic rate of either the thyroidectomized rat or the hypophysectomized rat?

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11. Explain why ovariectomized rats were used in this experiment and correlate this to their baseline T score.

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12. Recap your predictions regarding the effects of calcitonin and estrogen on bone density and explain why you made those predictions.

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13. Why was one of the ovariectomized rats injected with saline?

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14. What effect did the administration of estrogen injections have on the estrogen-treated rat?

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15. What effect did the administration of calcitonin injections have on the calcitonin-treated rat?

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16. How did your results compare to your predictions?

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17. What is a glucose standard curve, and why did you need to obtain one for this experiment?

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18. Which patient(s) had glucose reading(s) in the normal range?

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19. Which patient(s) had glucose reading(s) in the diabetic range?

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20. Which patient(s) had glucose reading(s) in the impaired range?

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21. Describe the diagnosis for Patient 3.

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22. Which patient would most likely be diagnosed with Cushing's disease? Why?

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23. Which two patients have hormone levels characteristic of Cushing's syndrome?

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24. Patient 2 is being treated for rheumatoid arthritis with prednisone. How does this change the diagnosis?

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25. Which patient would most likely be diagnosed with Addison's disease? Why?

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