

# Renal System Physiology



# 9

1. Define each of the following terms:

- nephron \_\_\_\_\_
- renal corpuscle \_\_\_\_\_
- renal tubule \_\_\_\_\_
- afferent arteriole \_\_\_\_\_
- glomerular filtration \_\_\_\_\_
- efferent arteriole \_\_\_\_\_
- aldosterone \_\_\_\_\_
- ADH \_\_\_\_\_
- reabsorption \_\_\_\_\_

2. What are the primary functions of the kidneys?

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3. What are the components of the renal corpuscle?

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4. What are the parts of the renal tubule?

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5. What drives protein-free plasma from the blood into the Bowman's capsule?

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6. How can the glomerular filtration rate be changed?

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7. Is most filtrate reabsorbed into the body or excreted in urine? Explain.

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8. What does the hormone aldosterone regulate?

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9. What does the hormone ADH regulate?

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10. What is the effect of reducing afferent arteriole radius on filtration rate?

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11. What is the effect of reducing efferent arteriole radius on filtration rate?

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12. What effects would increased blood pressure have on nephron function?

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13. What could cause increased blood pressure in the glomerulus?

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14. How could you adjust the afferent or efferent radius to compensate for the effect of reduced blood pressure on glomerular filtration rate?

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15. What common condition is analogous to the valve above the collecting duct being shut off?

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16. Once solutes have been filtered from the plasma into the filtrate, how are they reabsorbed into the blood?

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17. Can the reabsorption of solutes influence water reabsorption in the nephron? Explain.

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18. What happens as the concentration gradient of the interstitial fluid increases?

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19. What type of transport is used during glucose reabsorption?

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20. How could glucose carrier proteins in the kidney become overwhelmed?

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21. What happens to urine volume when water intake is decreased?

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22. What happens to urine volume when water intake is increased?

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23. How does ADH affect the concentration of potassium in urine?

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24. How does aldosterone affect the concentration of potassium in urine?

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25. If ADH were not present, what would be the effect on urine concentration?

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26. What is the principal determinant for the release of aldosterone?

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27. What is the principal determinant for the release of ADH?

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28. What would cause the body to excrete more sodium?

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29. What is the major change seen when both ADH and aldosterone are added to the system? Why?

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