

Veterinary Bioscience: Metabolism



WEEK 5 – THE HEALTHY URINARY TRACT

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INTENDED LEARNING OUTCOMES

At the end of this lecture, you should be able to:

- describe the sequence of events and mechanisms involved for the kidneys to produce either dilute or concentrated urine
- explain the role of the loop of Henle, countercurrent exchange multiplication and vasa recta in the production of dilute or concentrated urine
- describe the role of antidiuretic hormone (ADH) and urea in making concentrated urine.

KEYWORDS

urine, dilute, concentrated, loop of Henle, countercurrent multiplication, countercurrent exchange, vasa recta, medullary interstitium, collecting tubule, antidiuretic hormone (ADH, vasopressin), aquaporins

LECTURE 20 – STRUCTURE AND FUNCTION OF THE KIDNEYS 3 – DILUTION AND CONCENTRATION OF URINE AND ANTIDIURETIC HORMONE

This lecture will cover how urine is diluted and concentrated by the kidneys, and the main mechanisms by which this happens – most notably the role of antidiuretic hormone (ADH, also called vasopressin), and the countercurrent multiplication/countercurrent exchange mechanism.

FURTHER READING

Hall JE. *Guyton and Hall Textbook of Medical Physiology*. 14th ed., Elsevier (2021)

Klein BG. *Cunningham's Textbook of Veterinary Physiology*. 6th ed., Elsevier (2020)