# Veterinary Bioscience: Metabolism

## WEEK 5 – THE HEALTHY URINARY TRACT

**LECTURER: DR JENNI BAUQUIER**

Jenni graduated from Murdoch University, then headed to the US to do an internship in equine practice followed by a residency in large animal medicine, before becoming a specialist in equine internal medicine. She then returned to Australia to do a PhD in equine systemic inflammation at the University of Melbourne and was an equine medicine clinician in the U-Vet Equine Centre until mid-2021. She is now a Senior Lecturer in Veterinary Biosciences (a position that allows the full unleashing of her inner physiology nerd!) and continues to undertake research in equine sepsis.

**Email:** jennifer.bauquier@unimelb.edu.au

### INTENDED LEARNING OUTCOMES

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

- define the main functions of the kidneys
- describe the functional anatomy of the nephron
- broadly explain how glomerular filtration occurs, why it is important and the factors that regulate it
- broadly explain tubular processes involved in producing and modifying urine.

### KEYWORDS

kidneys, nephron, glomerulus, afferent and efferent arterioles, glomerular filtration, macula densa, juxtaglomerular apparatus, tubules

### LECTURE 18 – STRUCTURE AND FUNCTION OF THE KIDNEYS 1 – MAIN FUNCTIONS AND FUNCTIONAL ANATOMY

This lecture will provide an introduction to the structure and functions of the kidneys, providing a basic understanding of the nephron, glomerular filtration, tubular reabsorption and secretion, and physiological control of these functions which we will build on in the following lecture.

### 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)