Anne Waugh • Allison Grant

Fifth Edition

ROSS & WILSON

Anatomy *and* Physiology

Colouring and Workbook

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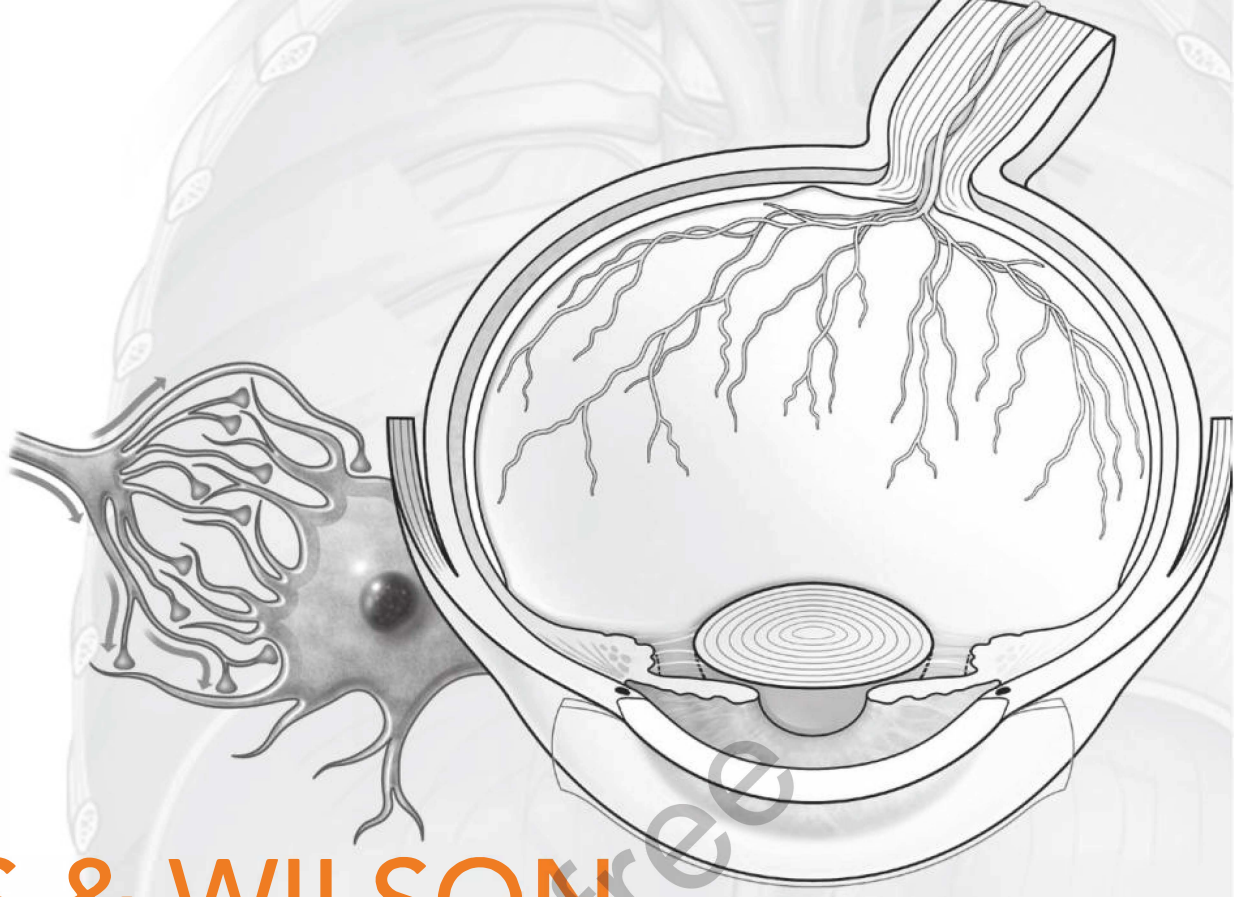

Fifth Edition

ROSS & WILSON Anatomy *and* Physiology

Colouring and Workbook

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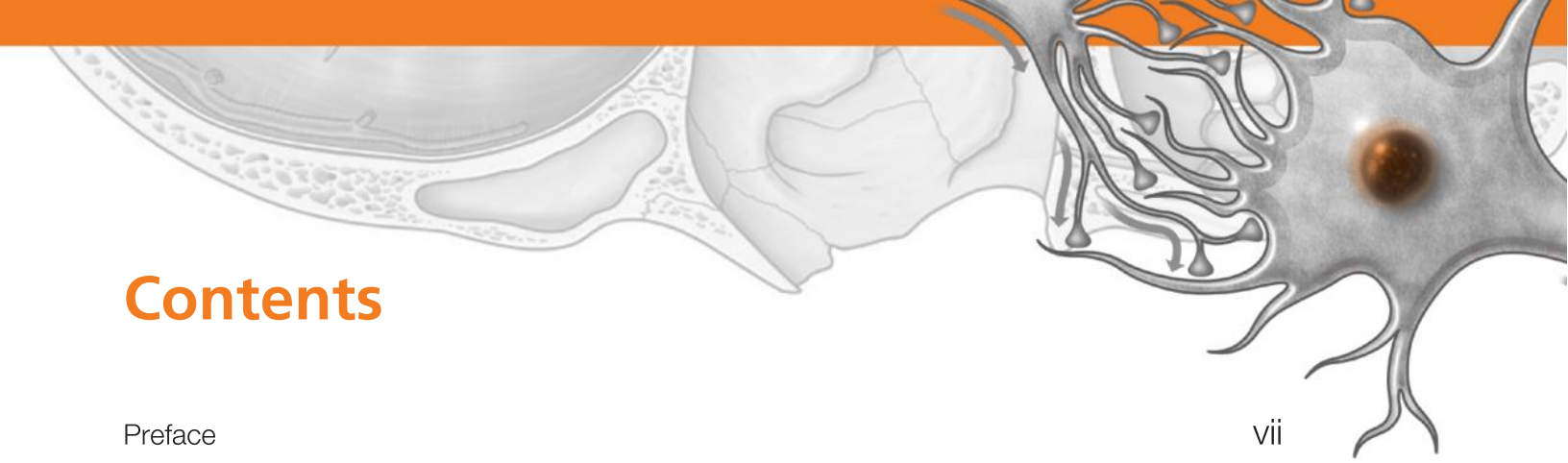

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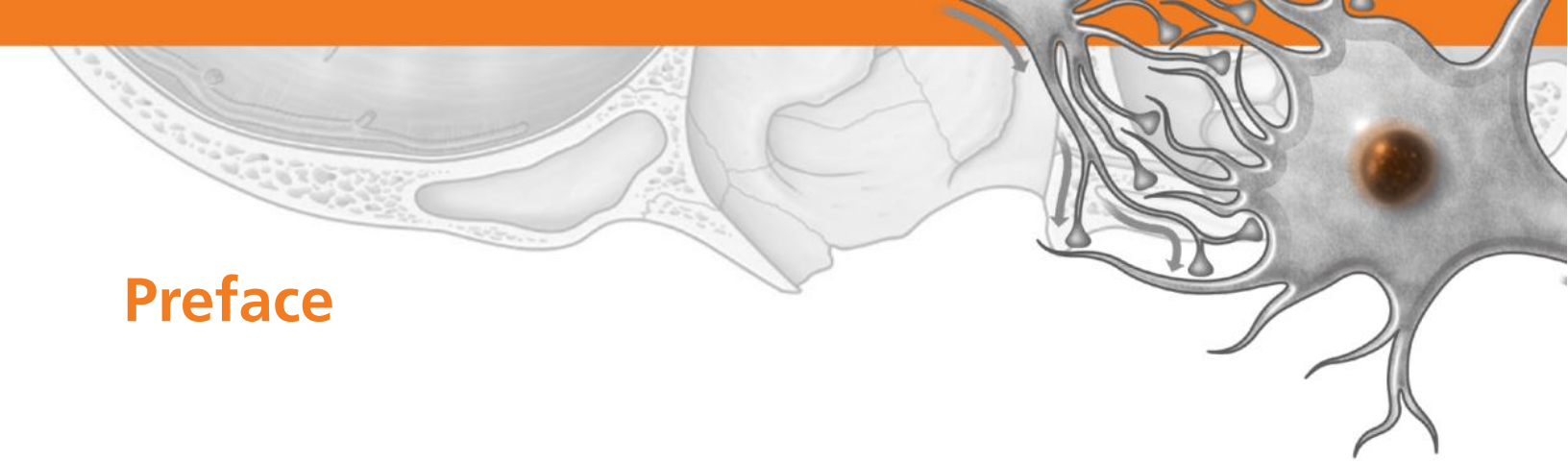

Preface

Ross & Wilson has been a core text for students of anatomy and physiology for over 50 years. Although this companion text has been extensively revised to match the 13th edition of the main text, providing varied revision activities to facilitate and consolidate your learning, it can also be used to support any general anatomy and physiology course. Readers who own the new 13th edition of *Ross & Wilson* will also find many more online activities to support their studies.

The systems approach used in the main text forms the framework for the exercises, many of which are based on entirely new, clear illustrations of body structure and functions. A variety of exercises is included to maintain interest and provide choice, recognising that students study, learn and revise in different ways. The section on 'How to use this book', p. ix, explains how the icons and exercises are used in the text.

We hope that you will find this book a stimulating and useful companion to your anatomy and physiology studies, particularly when you need to test your learning or are preparing for assessments. We are always delighted to receive feedback, especially from students, so please continue to send your comments to us via the publishers.

We would have been unable to prepare the new edition without the help and support of many others, including Richard Tibbitts, who created all the new artwork for this edition. Several people at Elsevier have also provided encouragement and support in preparation of the new edition and, in particular, we would like to thank Alison Taylor, Sheila Black, Louisa Talbott and Kirsty Guest.

We would also like to thank our families, Andy, Seona and Struan, for their continuing help and support with this venture.

Anne Waugh
Allison Grant

August 2018

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How to use this book

ICONS AND EXERCISES

Colouring: identify and colour structures on diagrams.

Labelling: identify and label structures on diagrams.

Matching: match statements with reasons; structures with functions; key choices with blanks in a paragraph; and organs on diagrams.

Multiple-choice questions (MCQs): identify the correct option from a list of four. Where there is more than one correct option, this is indicated in the question.

Completion: identify the missing words to complete paragraphs explaining body structure and functions.

Definitions: explain the meaning of a common anatomical or physiological term.

Pot luck: a variety of other exercises is also used to facilitate learning. Simple guidance about completion is provided.

Applying what you know: indicates revision exercises to apply what you have learned.

Combinations of these activities are also used to provide variety in the text.

A/P: anterior/posterior
S/I: superior/inferior
L/R: left/right
L/M: lateral/medial
P/D: proximal/distal

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1 Anatomy and organisation of the body

The human body is complex, like a highly technical and sophisticated machine. Although it operates as a single entity, it is made up of several parts that work interdependently. This chapter will help you learn about the major systems and control mechanisms that maintain integrated body functioning. The last sections consider the organisation of the body, including anatomical terminology, the skeleton and body cavities, and an introduction to illness.

LEVELS OF STRUCTURAL COMPLEXITY

Matching

1. Match the key choices below with the labels on Fig. 1.1.

Key choices:
System level
Cellular level
Organ level
The human being
Chemical level
Tissue level

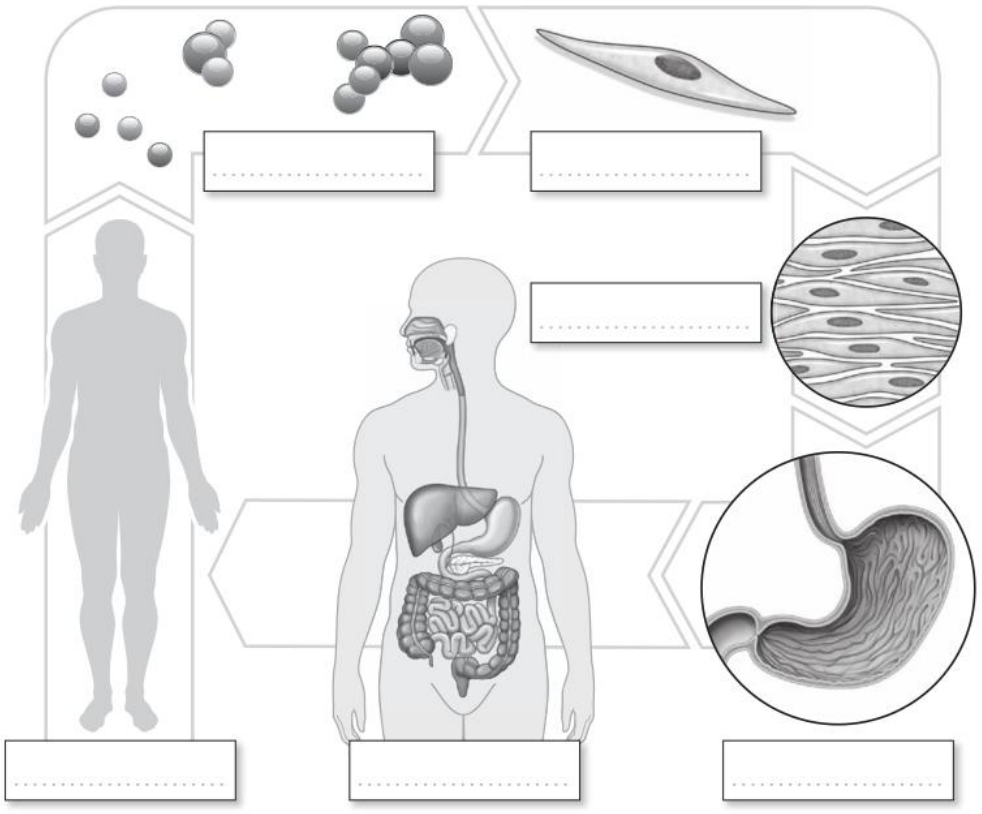

Figure 1.1 The levels of structural complexity

2. Using the list of key choices in Question 1 (see p. 1), complete Table 1.1.

Table 1.1 Levels of structural complexity and their characteristics

Level of structural complexity	Characteristics
	Comprises many systems that work interdependently to maintain health
	Carries out a specific function and is composed of different types of tissue
	Smallest independent units of living matter
	Consists of one or more organs and contributes to one or more survival needs of the body
	Atoms and molecules that form the building blocks of larger substances
	Group of cells with similar structures and functions

MCQs

3. The study of body structure and the physical relationships between body parts is: _____

a. Anatomy **b.** Physiology **c.** Pathology **d.** Pathophysiology

4. The study of how body systems work is: _____

a. Anatomy **b.** Physiology **c.** Pathology **d.** Pathophysiology

5. Cell structures can be seen by: _____ (Choose all that apply.)

a. The naked eye
b. Using a magnifying glass
c. Using a light microscope
d. Using an electron microscope

SURVIVAL NEEDS OF THE BODY

Pot luck

6. Which system is concerned with:

a. Intake of oxygen? _____
b. Intake of nutrients? _____
c. Protection against the external environment? _____
d. Rapid internal communication? _____
e. Slower and more precise internal communication? _____
f. Transmission of inherited characteristics? _____
g. Elimination of faeces? _____

7. Which system excretes each of the following waste products?

a. Faeces: _____

b. Urine: _____

c. Carbon dioxide: _____

8. Briefly outline the difference between specific and nonspecific defence mechanisms.

_____

_____

_____

_____

9. TRUE or FALSE? Circle the correct answer for each statement.

a. Most body movement is not under conscious control. **(T/F)**

b. Skeletal muscles move the joints. **(T/F)**

c. Skeletal muscles are attached to bones by tendons. **(T/F)**

d. Blood cells are suspended in fluid called lymph. **(T/F)**

e. Red blood cells are also known as leukocytes. **(T/F)**

f. The smallest blood vessels are capillaries and have very thin walls. **(T/F)**

g. Lymphocytes are cells formed within the lymphatic system. **(T/F)**

h. The central nervous system consists of the brain and spinal cord. **(T/F)**

Completion

10. Complete the paragraph below describing the function of the female reproductive system.

The childbearing years begin at _____ and end at the _____. During this time, an _____ matures in the ovary about every _____ days. If _____ takes place, the zygote embeds itself in the _____ and grows to maturity during pregnancy, or _____, in about _____ weeks. If fertilisation does not occur, it is expelled from the body along with the _____ _____, accompanied by bleeding, called _____.

Definitions

Define the following terms:

11. Afferent _____

12. Efferent _____

13. Antigen _____

14. Allergic reaction _____