

PowerPoint® Lecture Slide Presentation  
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**The Human Body:  
An Orientation**

11th EDITION

**ESSENTIALS OF  
HUMAN ANATOMY  
& PHYSIOLOGY**

ELAINE N. MARIEB

1 PART A

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## The Human Body—An Orientation

### Anatomy

- Study of the structure and shape of the body and its parts
- Gross anatomy

### Physiology

- Study of how the body and its parts work or function

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## Anatomy—Levels of Study

- Gross anatomy
  - Large structures
  - Easily observable

Figure 14.1

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## Anatomy—Levels of Study

- Microscopic Anatomy
  - Very small structures
  - Can only be viewed with a microscope

Figure 14.4c-d

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## Levels of Structural Organization

Figure 1.1

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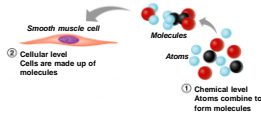
## Levels of Structural Organization

Atoms - building blocks of matter → combine to form molecules

Figure 1.1, step 1

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## Levels of Structural Organization

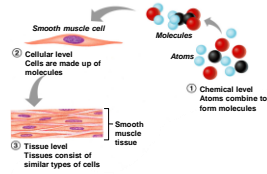


Molecules → associate to form **CELLS** - smallest units of life

Figure 1.1, step 2

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## Levels of Structural Organization

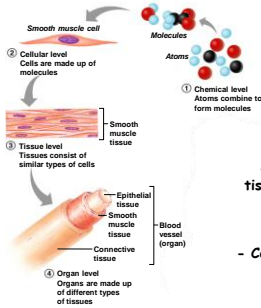


Groups of similar cells that have a common function

Figure 1.1, step 3

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## Levels of Structural Organization



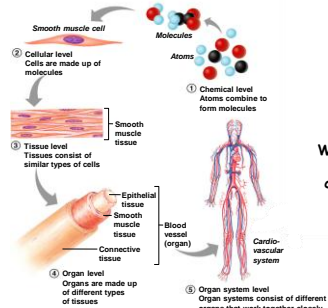
- Groups of two or more tissue types that performs a specific function

- Complex functions become possible

Figure 1.1, step 4

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## Levels of Structural Organization

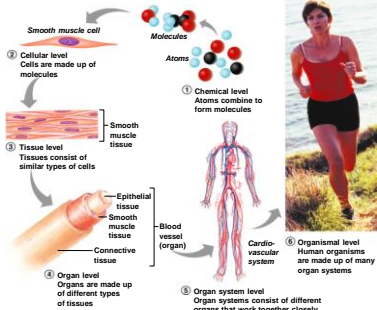


Work together to accomplish a common purpose.  
Each organ has its own job.

Figure 1.1, step 5

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## Levels of Structural Organization



Highest level of structural organization.

Figure 1.1, step 6

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## Organ System Overview

- Integumentary
  - Forms the external body covering
  - Protects deeper tissue from injury
  - Helps regulate body temperature
  - Location of cutaneous nerve receptors



Figure 1.2a

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## Organ System Overview

- **Skeletal**
  - Protects and supports body organs
  - Provides muscle attachment for movement
  - Site of blood cell formation
  - Stores minerals

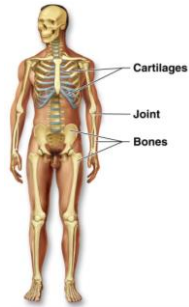


Figure 1.2b

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## Organ System Overview

- **Muscular**
  - Produces movement by contraction
  - Maintains posture
  - Produces heat



Figure 1.2c

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## Organ System Overview

- **Nervous**
  - Fast-acting control system
  - Responds to internal and external change
  - Activates muscles and glands

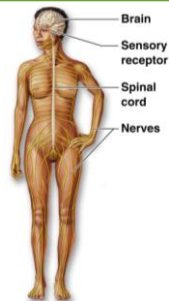


Figure 1.2d

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## Organ System Overview

- **Endocrine**
  - Secretes regulatory hormones
    - Growth
    - Reproduction
    - Metabolism

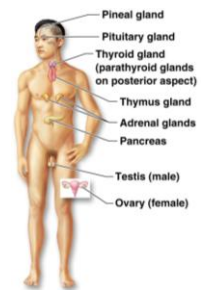


Figure 1.2e

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