

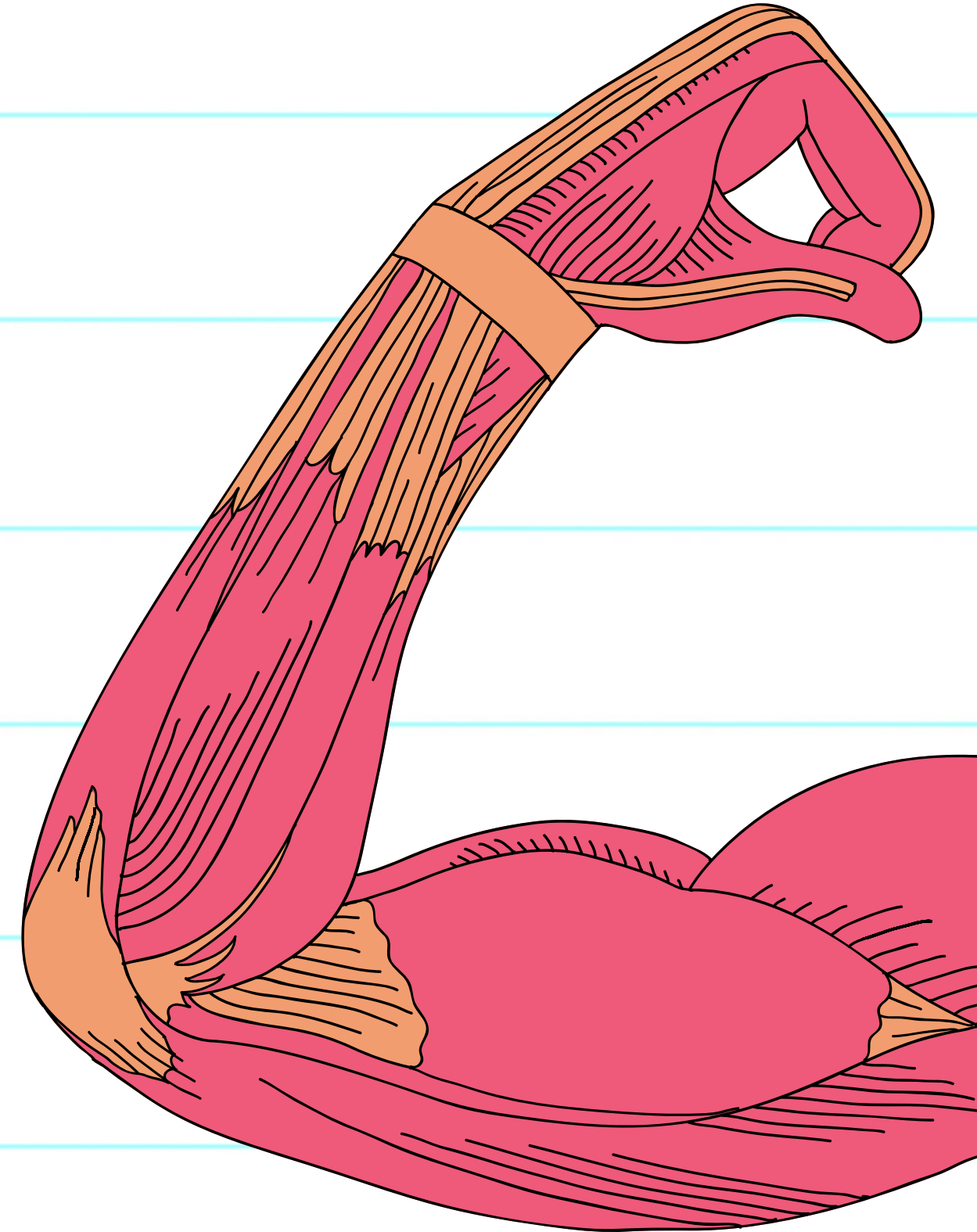


MUSCULAR SYSTEM

OVERVIEW

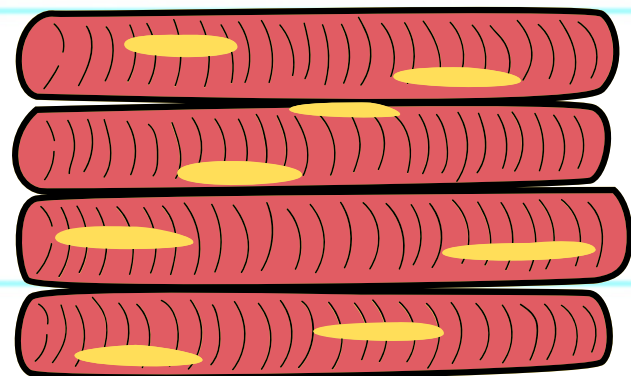
LEARNING OBJECTIVE

- Identify the three main types of muscle tissue.
- Identify the functions of the muscular system.

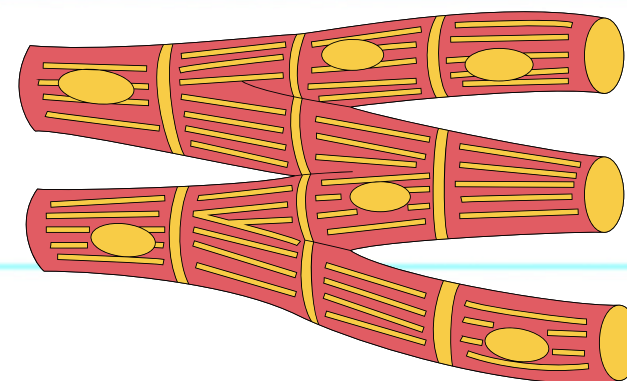


TYPES OF MUSCLES

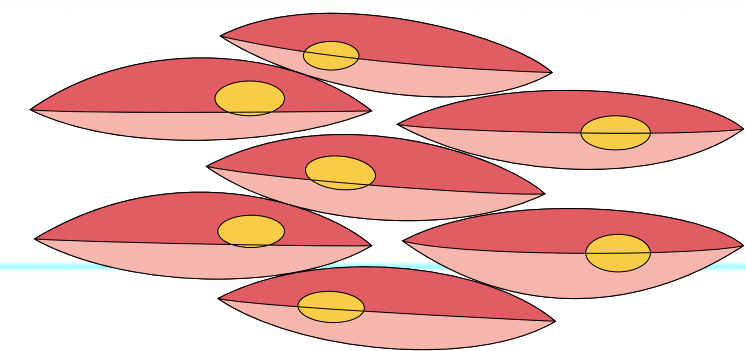
The muscular system is a complex network of tissues responsible for movement, stability, and various bodily functions. It consists of three main types of muscle tissue.



Skeletal Muscles



Cardiac Muscles



Smooth Muscles

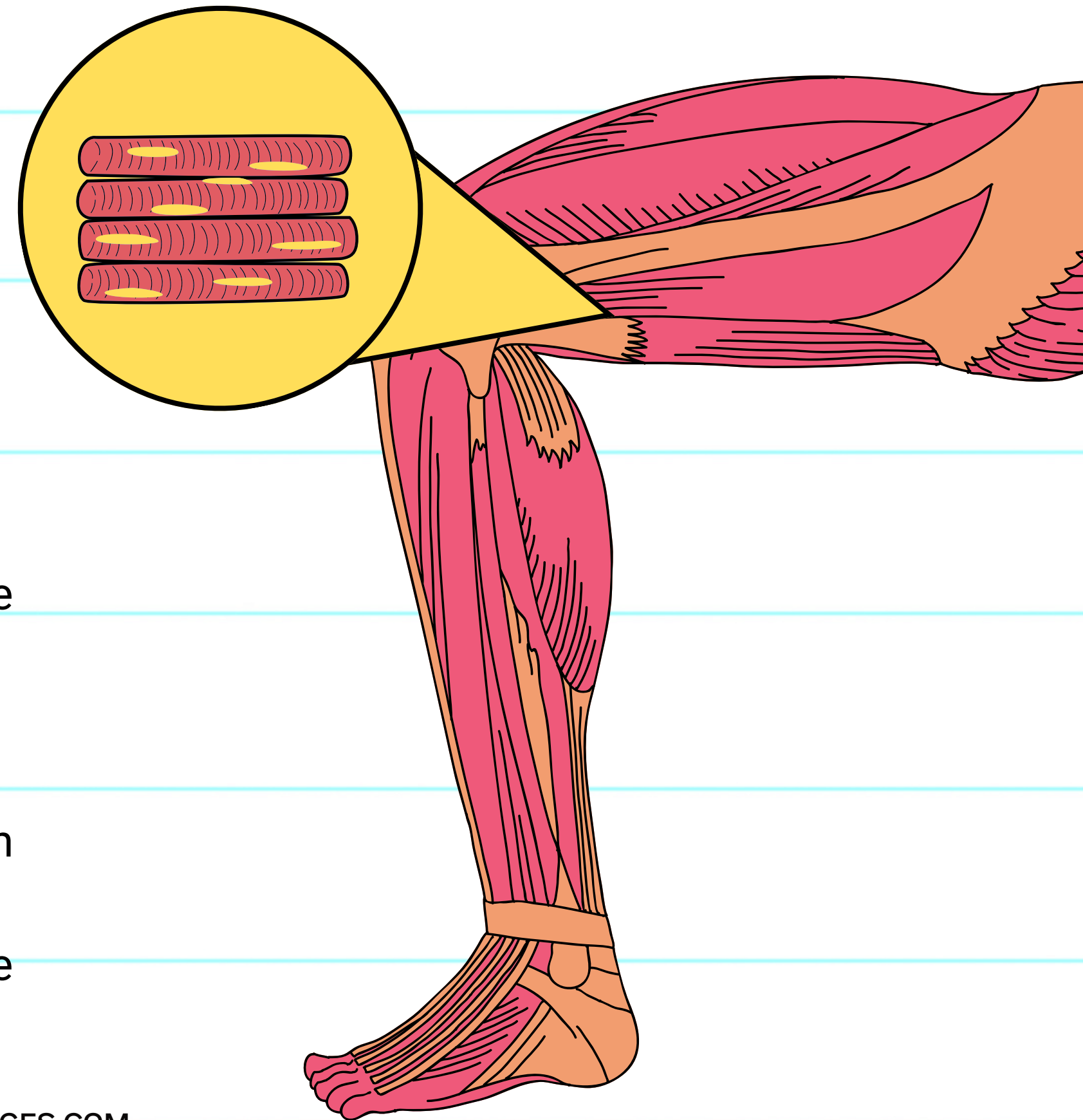
SKELETAL MUSCLES

Structure: Skeletal muscles consist of elongated, cylindrical fibers that are multinucleated and display a striped appearance known as striations. These muscles are connected to bones through tendons.

Control: These muscles are under voluntary control, meaning that movements are consciously regulated by the nervous system.

Function: Skeletal muscles play a crucial role in body movements like walking, lifting, and maintaining posture. Additionally, they produce heat when contracting, aiding in regulating body temperature.

Examples: Some examples of skeletal muscles include the biceps brachii, quadriceps, and pectoralis major.



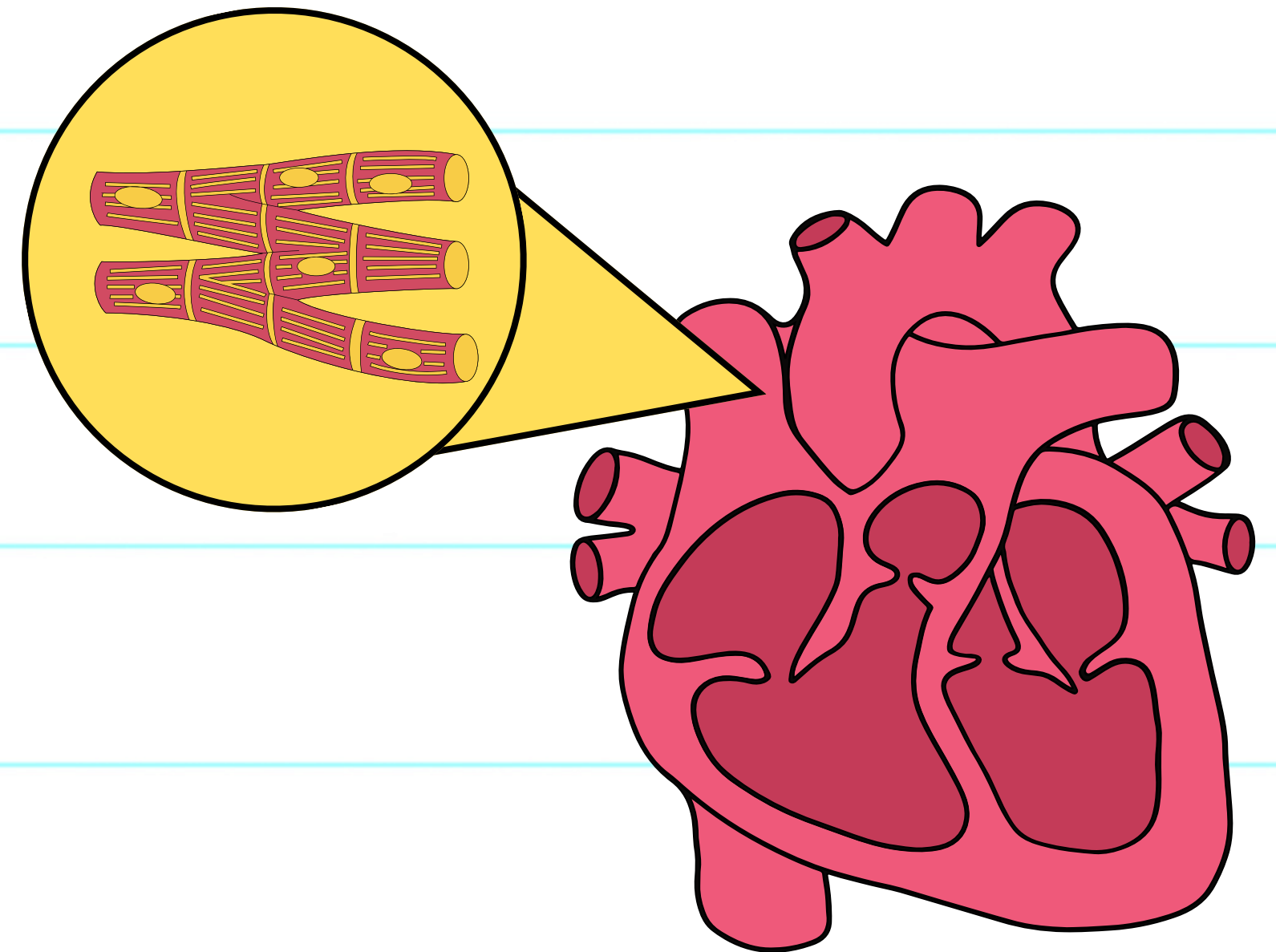
CARDIAC MUSCLE

Structure: Cardiac muscle fibers are striated, branched, and interconnected by intercalated discs which facilitate synchronized contraction. They are usually mononucleated.

Control: Involuntary control, regulated by the autonomic nervous system and hormones.

Function: Pumps blood throughout the body by contracting the heart.

Location: Found exclusively in the walls of the heart.



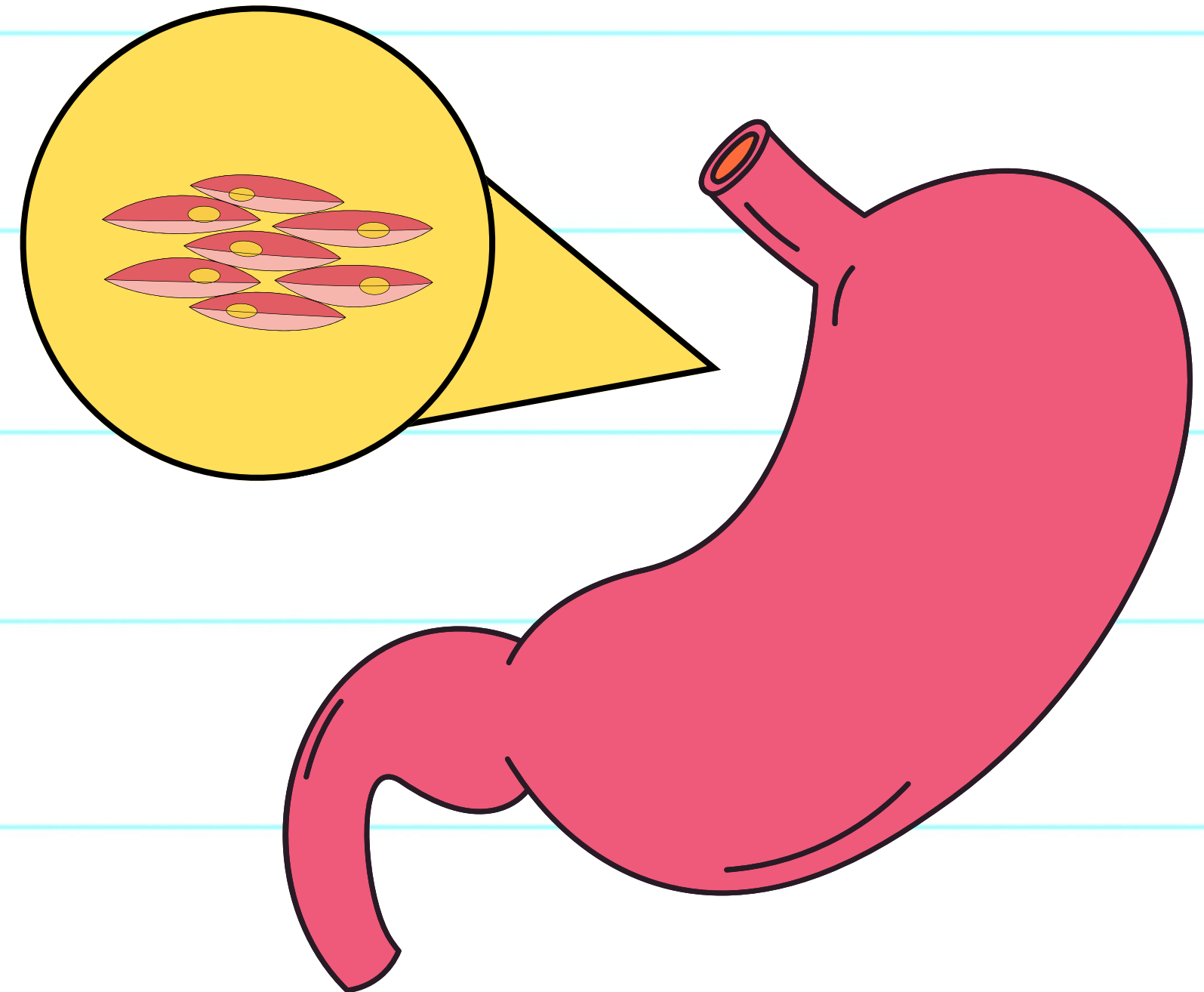
SMOOTH MUSCLES

Structure: Smooth muscle fibers are non-striated, spindle-shaped, and contain a single nucleus.

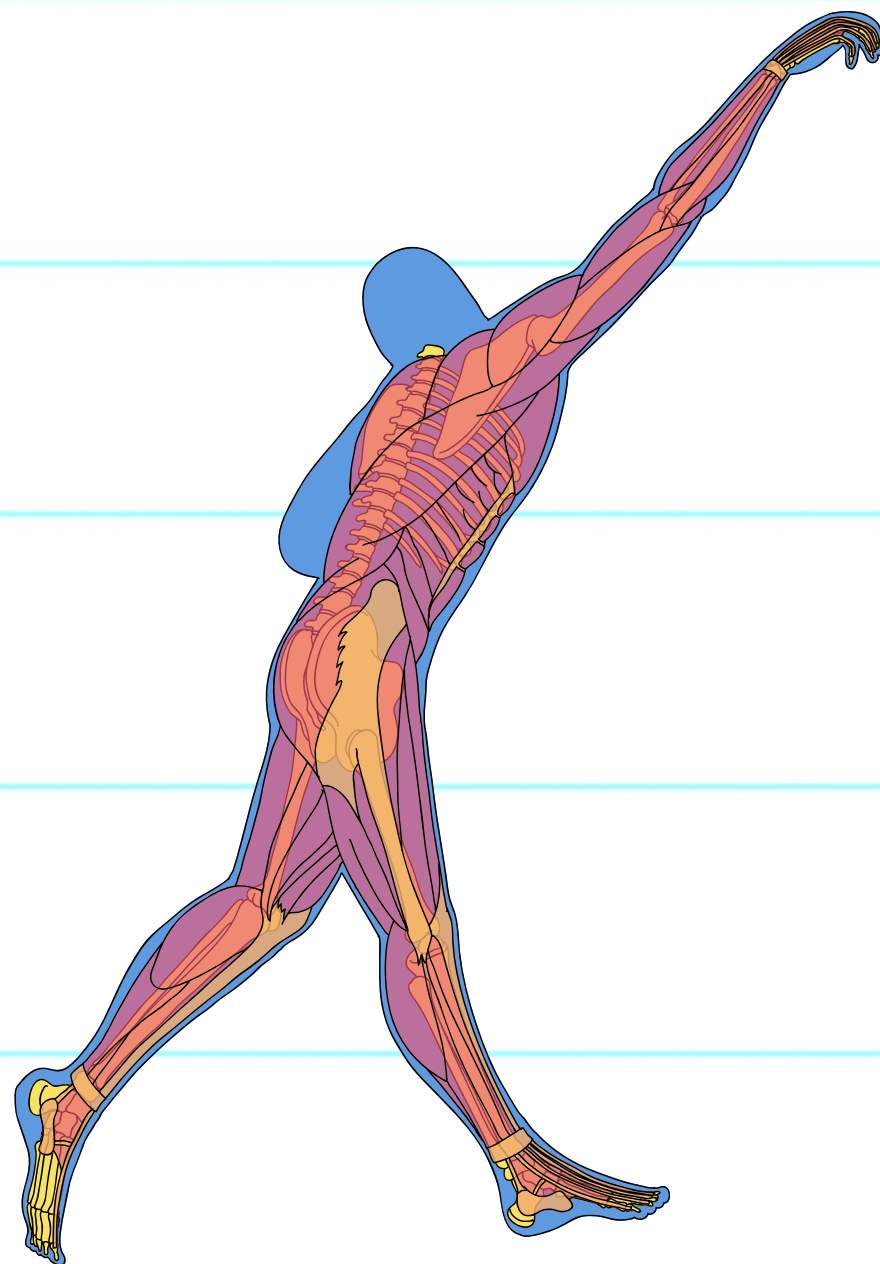
Control: Involuntary control, regulated by the autonomic nervous system, hormones, and local factors.

Function: Moves substances through the body's internal passageways, regulates the diameter of blood vessels, and controls the contraction of organs such as the stomach, intestines, and bladder.

Examples: Muscles in the walls of the digestive tract, blood vessels, and urinary bladder.



FUNCTIONS OF THE MUSCULAR SYSTEM



Movement

Skeletal muscles collaborate with the skeletal system to generate voluntary movements.

Heat Production

Muscle contractions generate heat, crucial for regulating body temperature

Posture and Stability

Muscles aid in sustaining posture and stabilizing joints.

Respiration

The diaphragm and intercostal muscles are pivotal for breathing.

Digestion

Smooth muscles in the digestive tract facilitate the movement of food through the digestive system

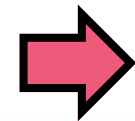
Circulation

Cardiac muscles propel blood, while smooth muscles in blood vessels regulate blood flow and pressure.

HOW DO MUSCLES WORK?

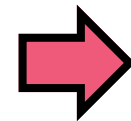
Excitement

Signals from your brain prompt muscle activation.



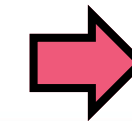
Action

Muscles respond by contracting upon receiving the signals.



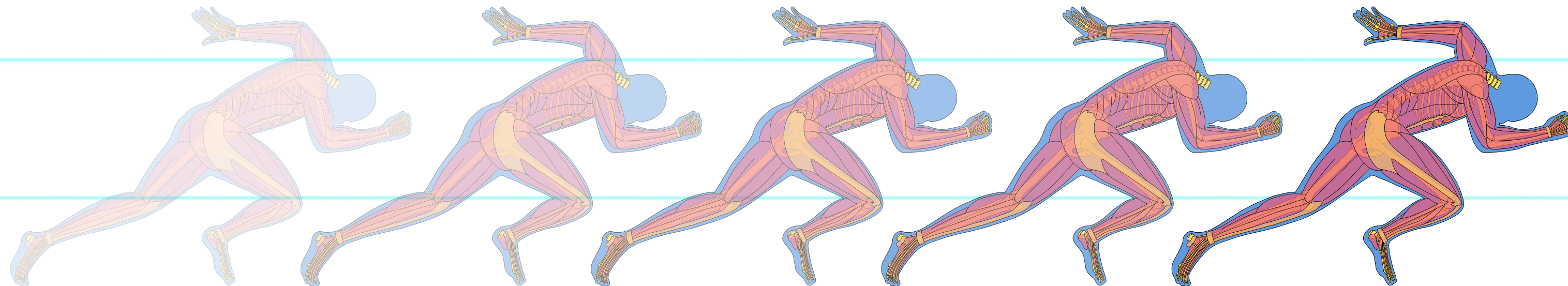
Movement

The contraction of muscles applies force on bones, leading to movement.



Relaxation

Following contraction, muscles relax to prepare for the next action.



MUSCLE ANATOMY

Muscle Fiber

The basic unit of a muscle, a single cell containing multiple nuclei.

Epimysium

The outer layer of connective tissue surrounding the entire muscle

Fascicle

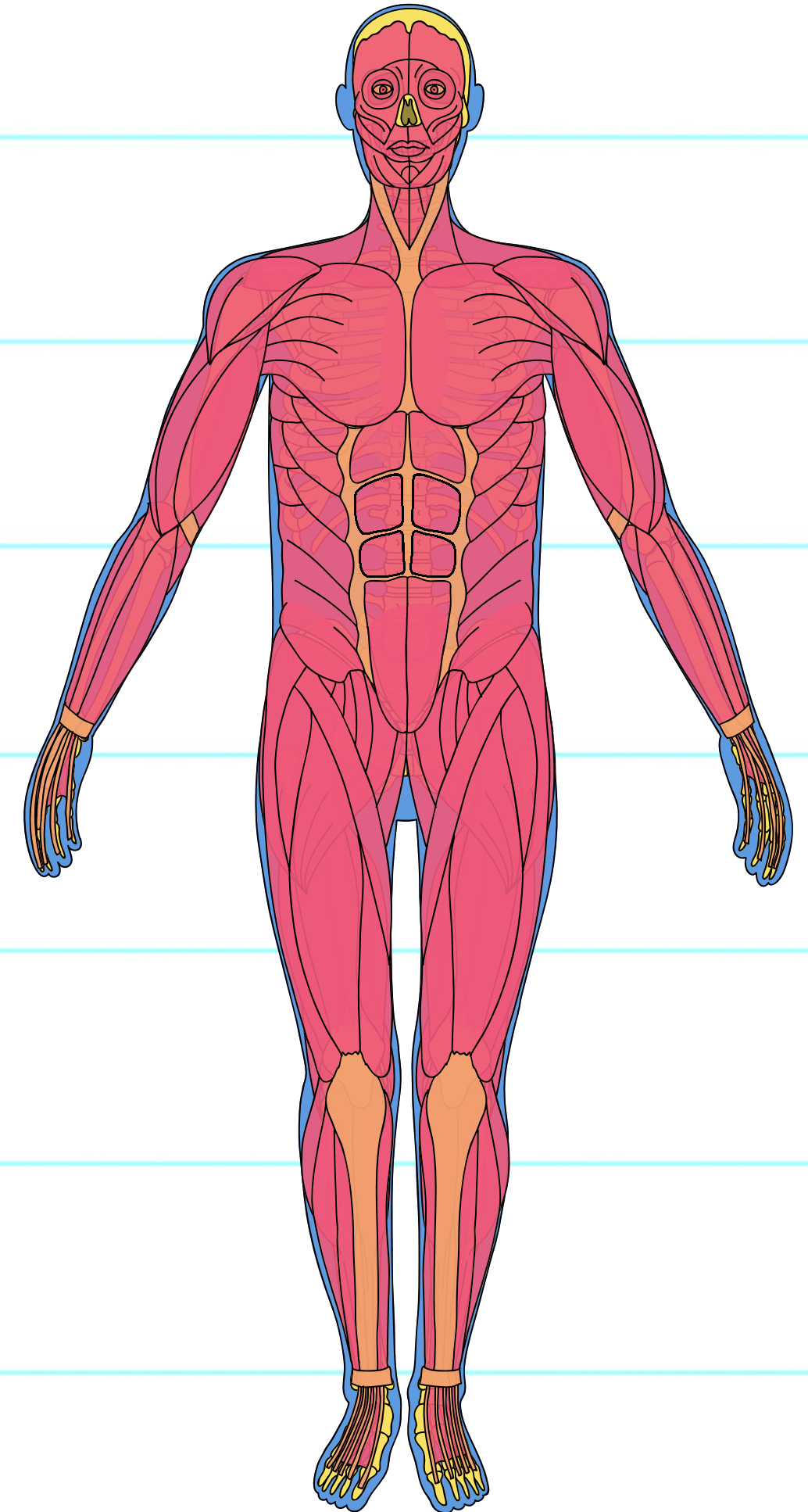
A bundle of muscle fibers.

Perimysium

The connective tissue surrounding each fascicle.

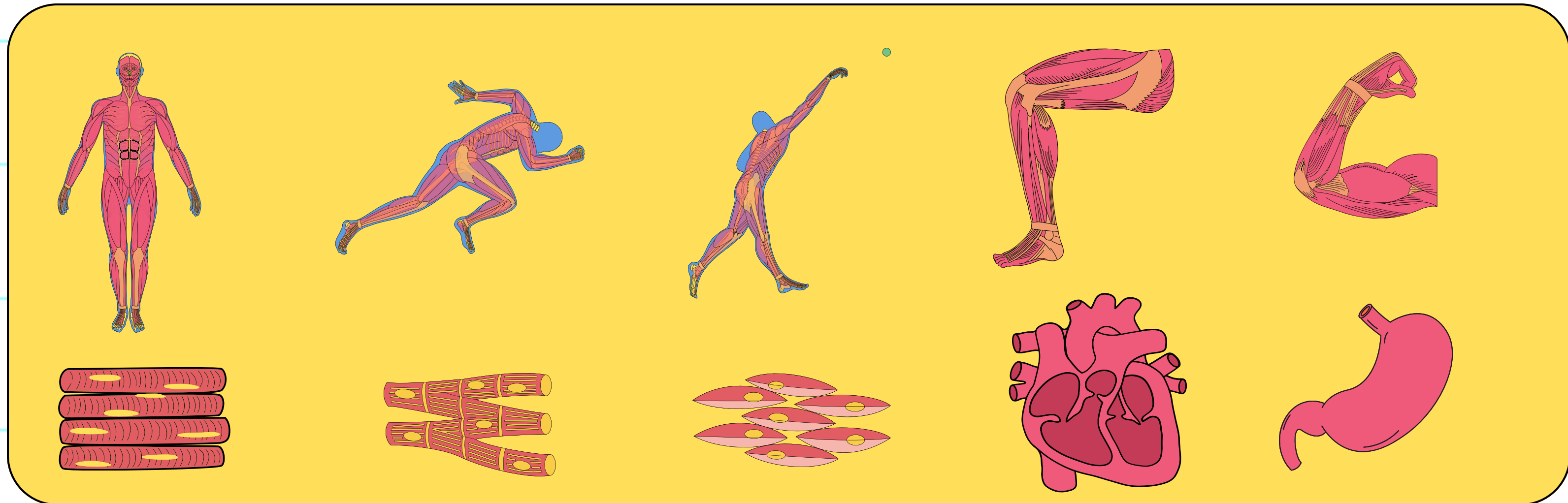
Endomysium

The connective tissue surrounding each muscle fiber.



RESOURCE PAGE

Incorporate these elements and visuals into your presentation. Enjoy the design process!



Thank You

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