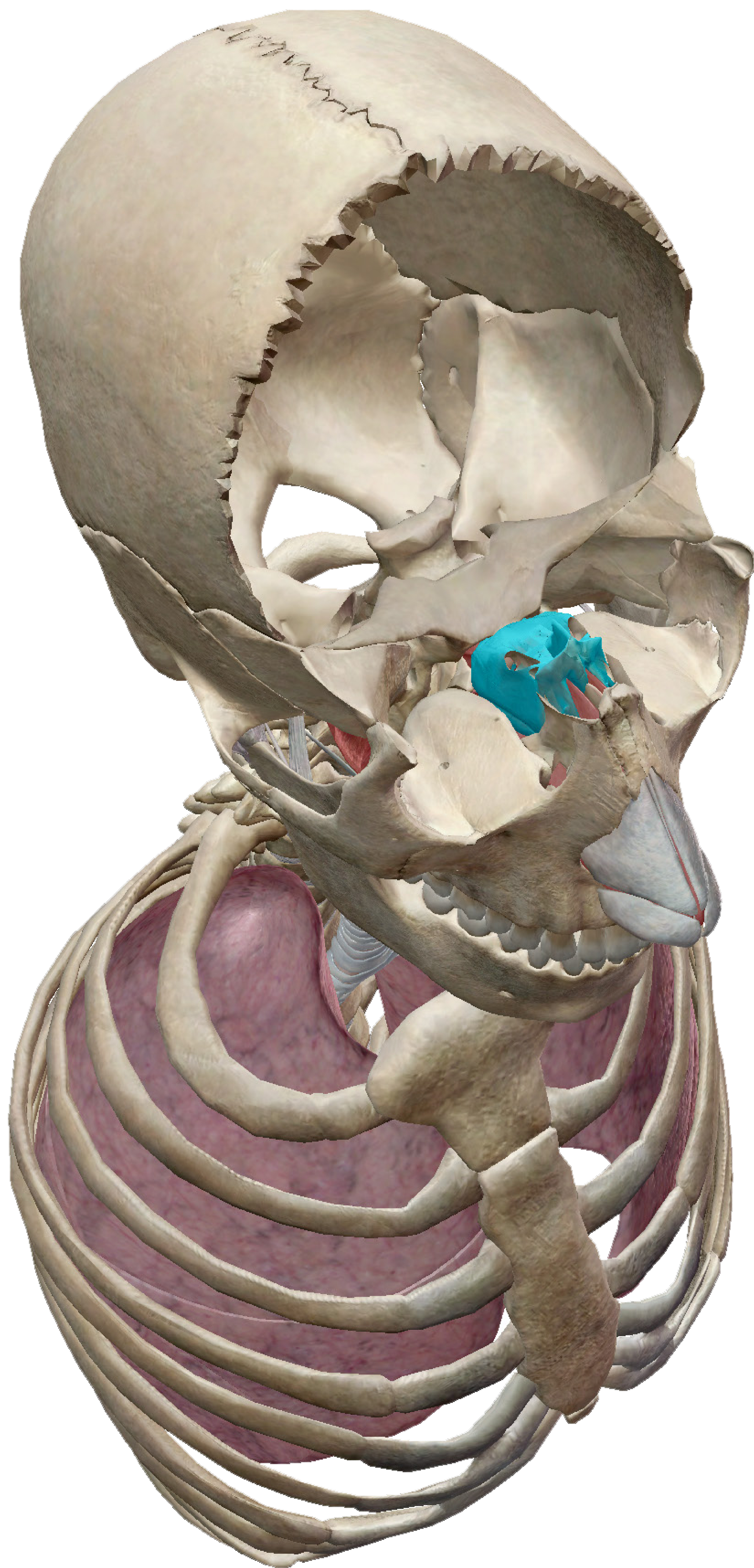


VISIBLE  BODY®

The Respiratory System

Way more than just moving air to the lungs, the structures of this system interact with the skeletal, circulatory, nervous, and muscular systems to help you smell, speak, and move oxygen into your bloodstream and waste out of it.



The **skeletal system** provides structure to soft tissue in the upper respiratory tract.

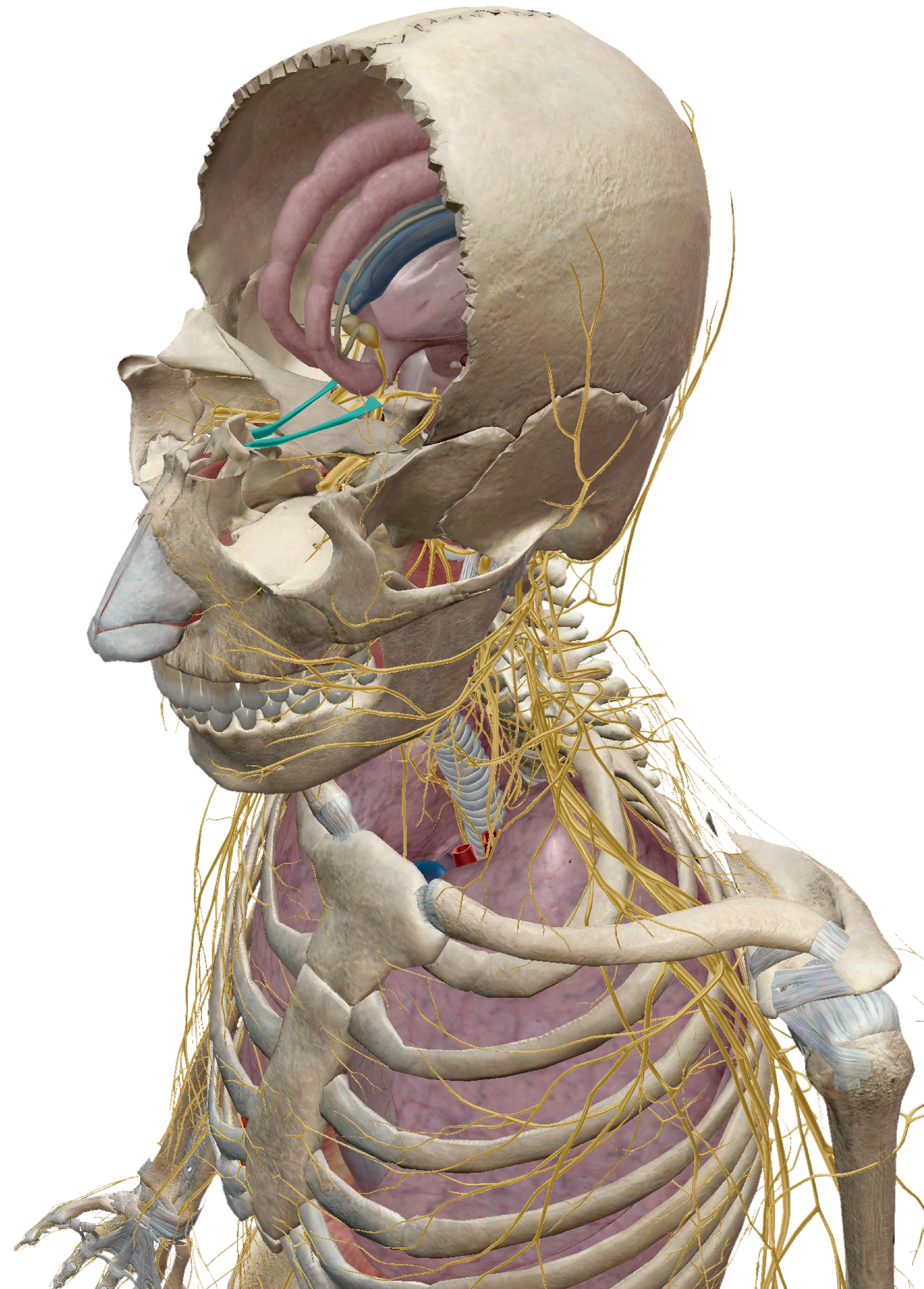
The **perpendicular plate** of the **ethmoid** (the long section, shown in blue) separates the nasal cavity into sides.

The perpendicular plate is one of the structures that help form the **nasal septum**.

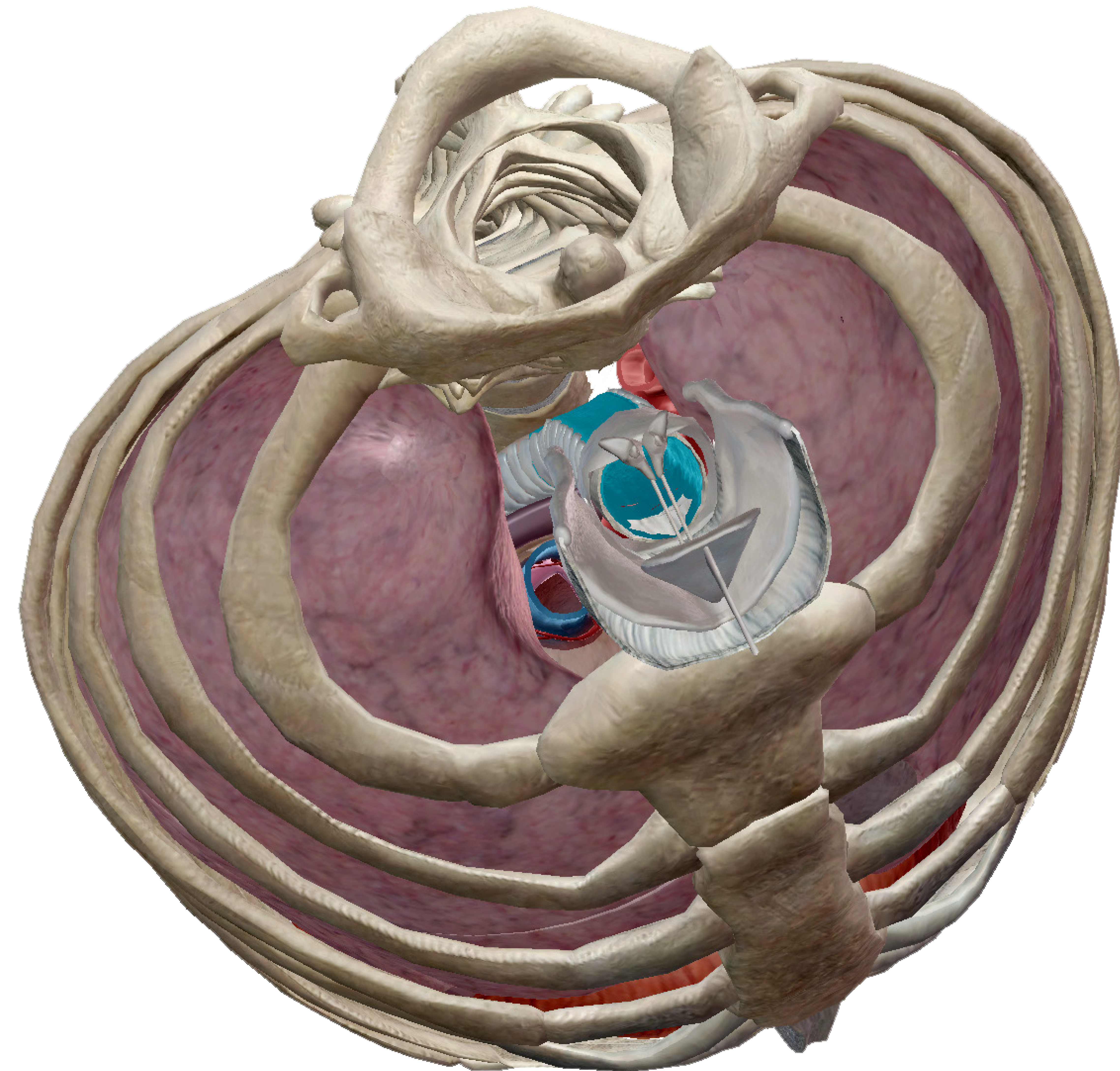
The respiratory and nervous systems work together to identify odors in your environment.

The respiratory system communicates with the nervous system through foramina in the ethmoid bone.

The **olfactory bulbs** (pink structures above the olfactory nerves) receive input from the **olfactory nerves** and pass it along to the brain, which processes and determines the odor.



The structures highlighted in blue and supported by the laryngeal skeleton are the **true vocal folds** (or vocal cords).



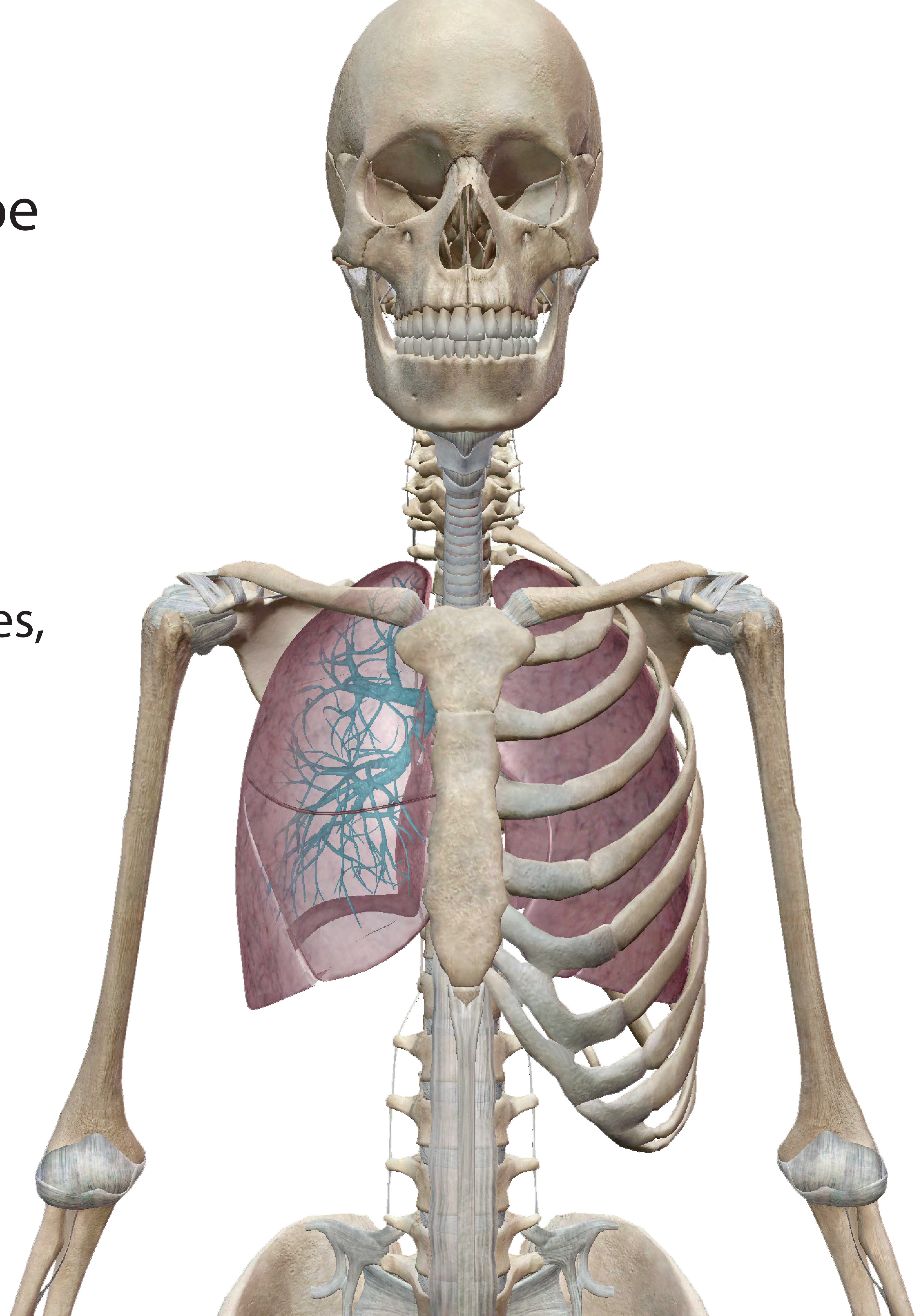
The vocal folds vibrate when air is passed over them, producing sound.

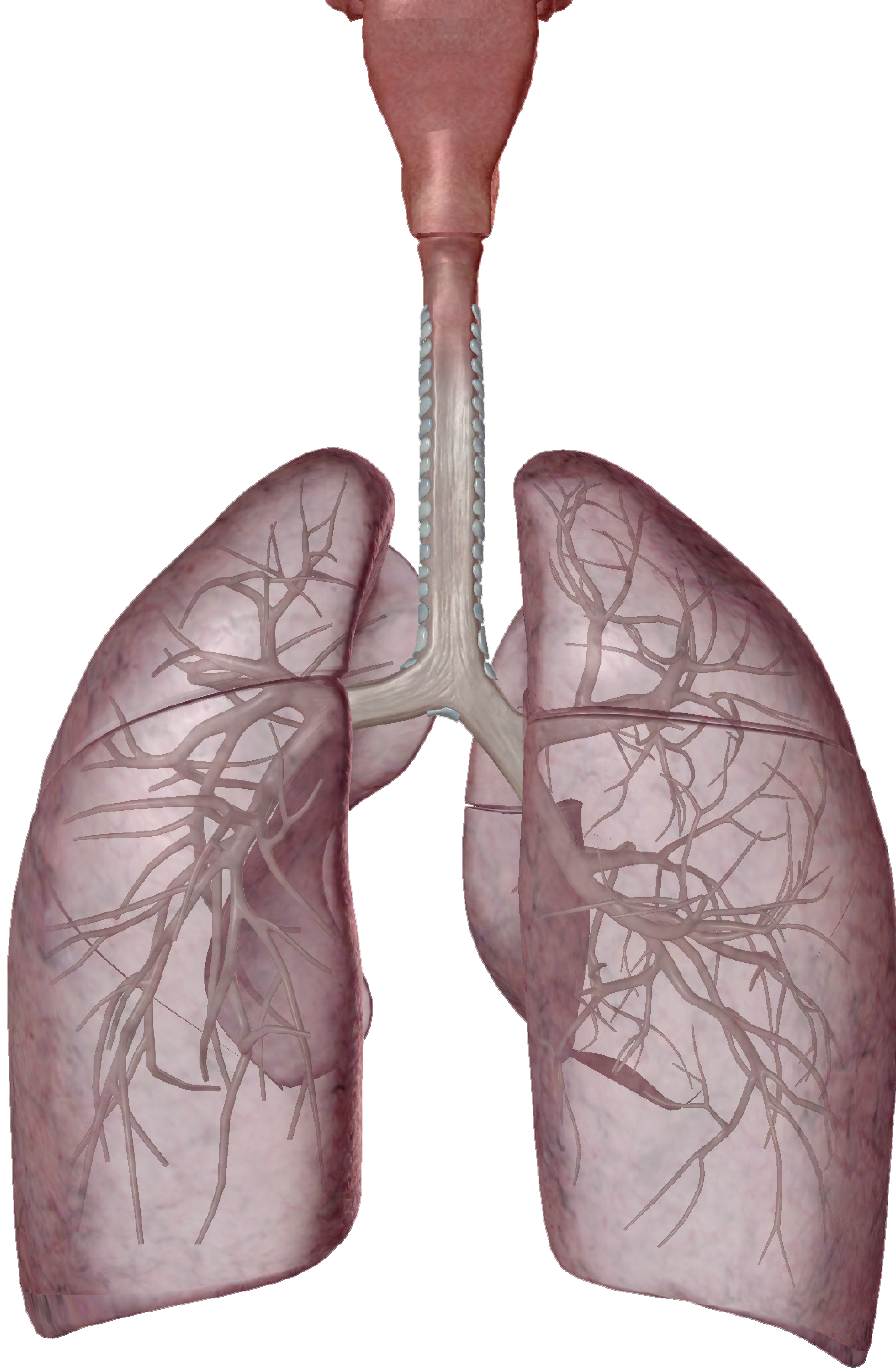
Factoid. The sinuses in the skull, the thickness of the vocal folds, and the resonance area of the throat give each person's voice its own character.

The **lungs** are conical in shape and have a spongy texture.

The branching structure is the **respiratory tree**; bronchi branch into smaller and smaller bronchioles, each ending in millions of air sacs known as **alveoli**, where gas exchange occurs.

Factoid. The surface area of one lung is 750 sq feet. That is the size of a singles tennis court!



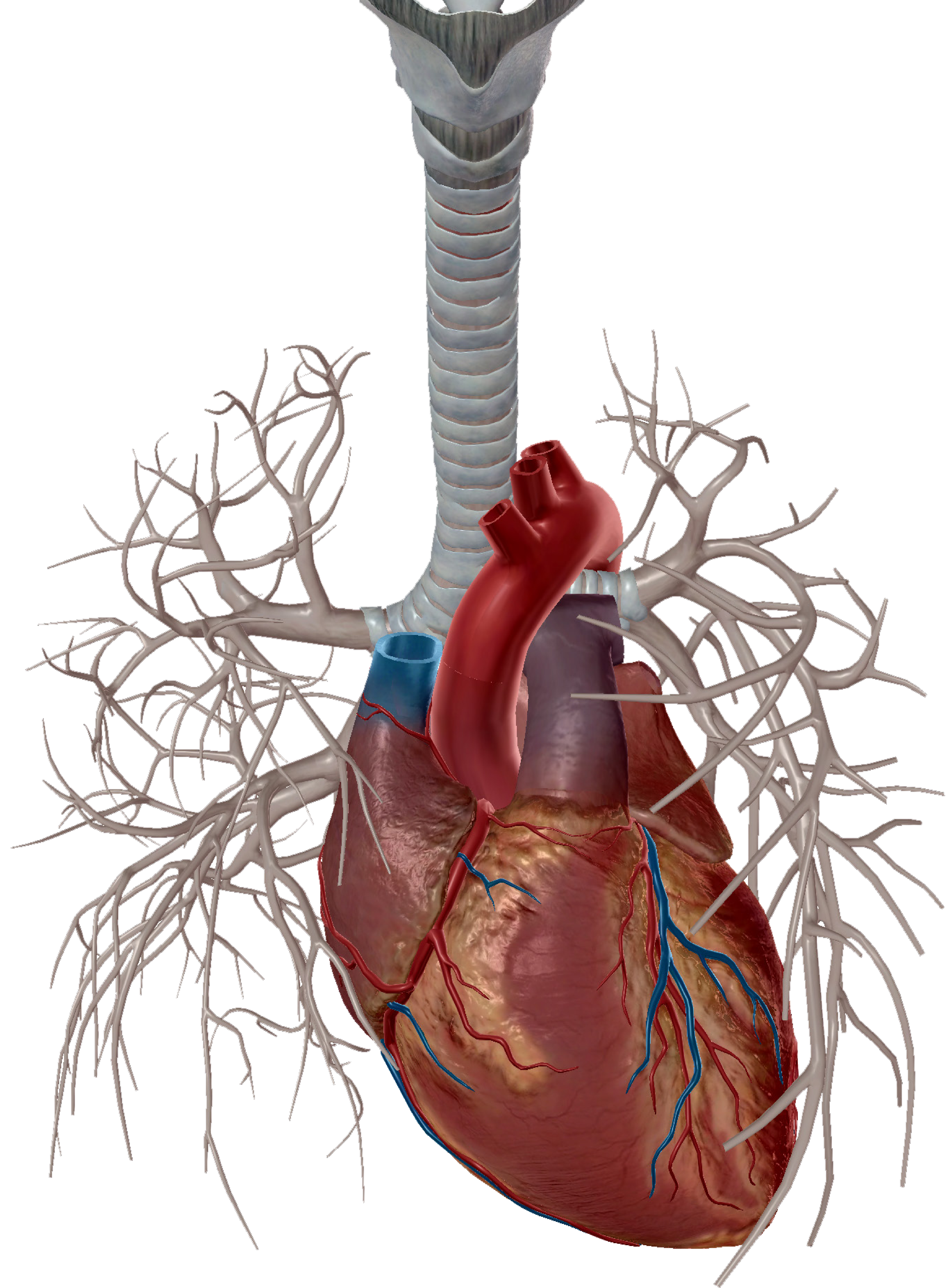


Air flows from the trachea into the bronchi, and from there into the **bronchioles** of the lungs.

The shallower angle of the right primary bronchus is important, because when food accidentally moves down the trachea instead of the esophagus, it's much more likely to end up in the right lung.

The circulatory and respiratory systems work together to circulate blood and oxygen throughout the body.

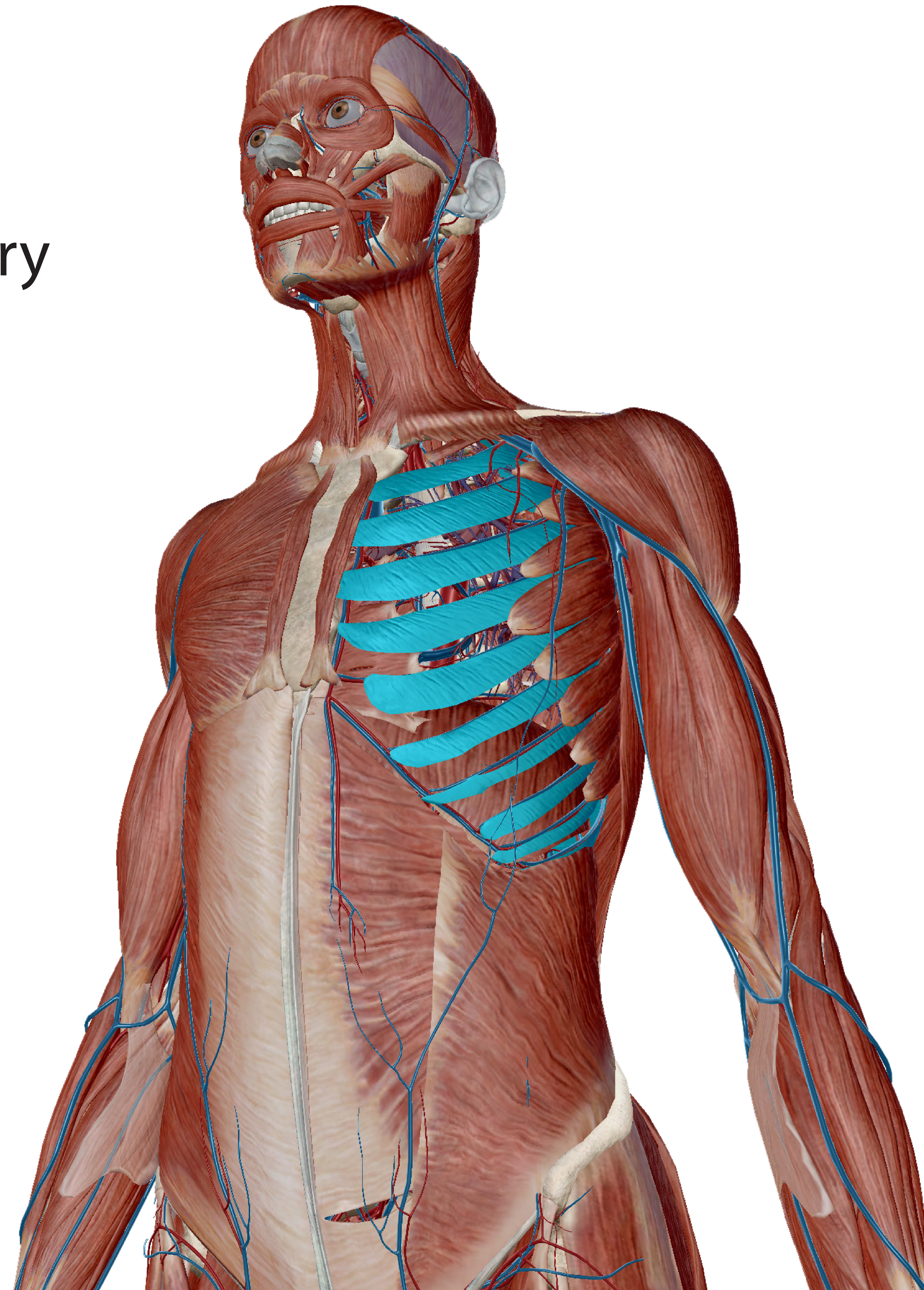
Air moves in and out of the lungs through the trachea, bronchi, and bronchioles. Blood moves in and out of the lungs through the **pulmonary arteries and veins** that connect to the heart.



The **muscular and nervous systems** enable the involuntary breathing mechanism.

The main muscles in inhalation and exhalation are the **diaphragm** and the **intercostals** (shown in blue), as well as other muscles.

Exhalation is a passive action, as the lungs recoil and shrink when the muscles relax.

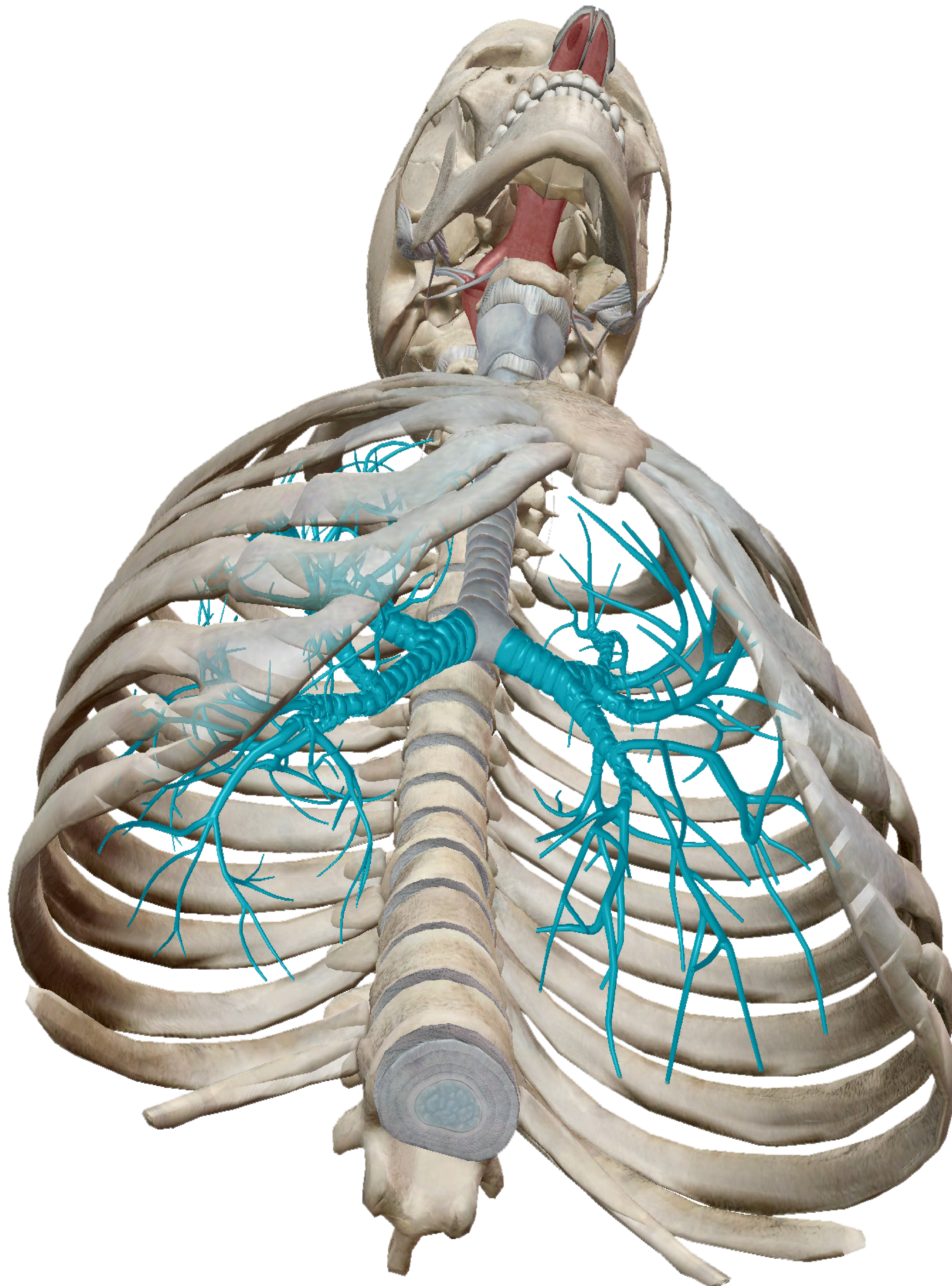


Quiz Time!

The bronchi and bronchioles are part of an overall structure called the _____.

- a. bronchus
- b. branches
- c. lung tree
- d. respiratory tree

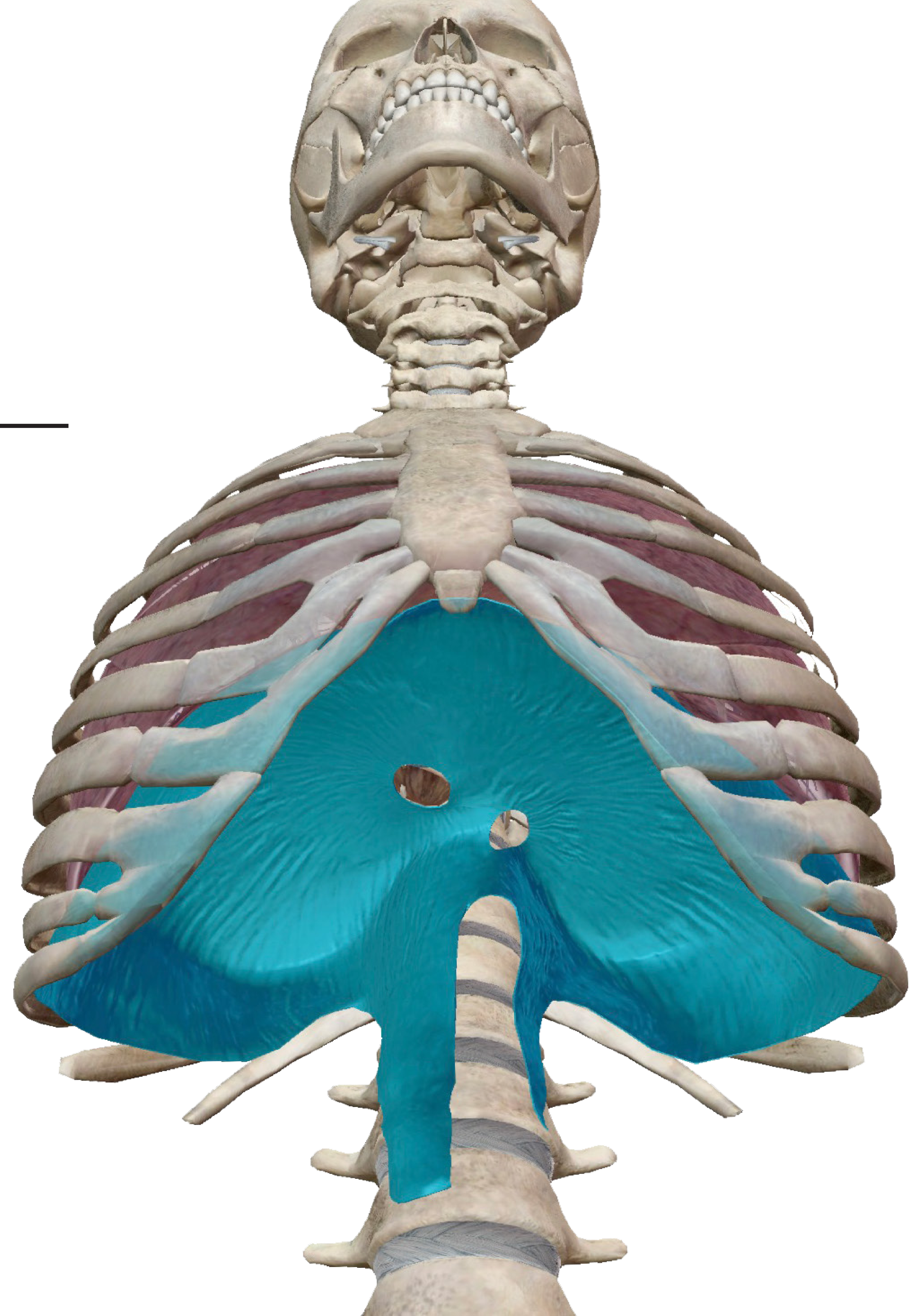
answer: d



**This muscle is the _____
and it is involved in
breathing.**

- a. external intercostal
- b. diaphragm
- c. internal intercostal
- d. thoracic cage

answer: b





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