Respiratory Anatomy

The respiratory system is the primary source of oxygen inhalation and carbon dioxide exhalation in the body, but also plays a variety of roles in nonspecific immune defense and general homeostasis. Anatomically, it begins with the nasal cavity, which is the primary site of inhalation. Hairs in the nasal cavity filter out dust and particles, which are eventually coated with mucus and expelled. The mucus acts as a filter, but also moistens the nose to prevent dryness and cell damage. Additionally, air is warmed and humidifying, adding to protection of nasal tissues. Capillaries that run near the surface of the nose release heat through convection, which warms air entering the nose. This air travels down the pharynx, which is the part of the throat just behind the mouth and nasal cavity. It connects to the larynx, also known as the voice box. The larynx is full of cilia that expel mucus and dust back through the pharynx and out of the body. The trachea is the windpipe and bottom section of the throat. Air enters the lungs through the bronchi, which become smaller tubes known as bronchioles. Eventually, air reaches the end of the respiratory tract, the alveoli, where gas exchange occurs.



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Characteristics

Nasal Cavity
Nose cave
The nasal cavity is inside the nose and nostrils. It serves as the primary location of air entry into the body.

Hair Filters
Hair-guy stopping Dust-bunnies
Hair in the nasal cavity filters out dust and other particles.

Mucus Filters and Moistens
Mucus-guy Spraying Dust-bunny
Mucus produced in the nasal cavity filters out particles for expulsion and also helps keep the nose moist by humidifying passing air. This helps prevent damage to nasal tissues from dryness.

Capillaries Warm
Caterpillars Warming by Fire
Capillaries that run near the surface of the nose give off heat through convection, which warms air coming into the nose.

Pharynx (Throat)
Pharaoh
The pharynx is the main part of the throat just behind the mouth and nasal cavity. Upon inhalation, air travels down and comes to the larynx.

Larynx (Voice Box)
Larry
The larynx is between the pharynx and trachea, and helps expel any particles that made it past the nose or mouth.

Cilia Expel Mucus and Dust
Celery expelling Dust-bunny
Cilia in the larynx expel mucus and dust back up through the pharynx and out of the body.

Trachea
Trachea
The trachea is the windpipe and connects the larynx with the lungs. It bifurcates into the two primary bronchi.

Bronchi
Broccoli
There are two primary bronchi; one to the left lung and one to the right lung. They divide into bronchioles, which are smaller passages for air.

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Alveoli

Ravioli

The alveoli are the sites of gas exchange in the lungs, where CO2 is absorbed from the blood and oxygen is absorbed into the blood.

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