exhibits dilated end-sacs called release a flood of Ca²⁺ into the cytosol, where the calcium tubule and the adjacent terminal cisternae constitute a nal cisternae, running alongside it on each side. A T side. Each T tubule is closely associated with two termi-

Let's return to the myofibrils just mentioned—the long MYOFILAMENTS activates the muscle contraction process. The T tubule a muscle fiber is called

Mitochondria Z disc

Inne

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15.2 Clinical Application: Drugs and the INSIGHTS

The significance of chloride pumps becomes especially evident in white children of European descent. CF is usually caused by a cystic fibrosis (CF),

The structural basis for ciliary movement is a core 11 (ACK-so-neem), which consists of dynein, a motor protein, uses energy from ATP to anchors the cilium. In each pair of peripheral micro-

How would the movement of mucus in the respiratory tract be affected if cilia were equally stiff on both their

The movement of cilia is important in maintaining the respiratory tract free of mucus. These hairlike structures, called cilia, are present in the airways of the lungs and help clear mucus and other particles from the respiratory tract. In the respiratory tract, the mucus clogs the cilia and prevents

Cilia could not move in a fluid medium because they are not directly attached to the cell membrane. Instead, they are anchored to a triple microtubule structure called the basal body. The basal body is a cylindrical organelle that is connected to the cell membrane by a triple microtubule. The basal body contains a protein complex called dynein, which is involved in the movement of cilia.

The movement of cilia in the respiratory tract is important for maintaining the health and function of the lungs. For example, cilia play a role in the clearance of mucus and particles from the airways, which helps prevent infections and inflammation. Therefore, the movement of cilia is crucial for maintaining respiratory health.

In addition to the basal body, the actin filament is also involved in the movement of cilia. The actin filament provides a structural framework for the cilia, while the dynein protein provides the force for movement. This complex interaction between the basal body, actin filament, and dynein protein allows cilia to move efficiently and effectively.

The movement of cilia is also important for the function of the respiratory tract. Cilia play a role in the regulation of fluid balance, which is essential for maintaining proper airway function. Additionally, cilia have been implicated in the regulation of immune responses, and their movement is important for the clearance of antigens and other foreign substances from the airways.

Cilia are also involved in the clearance of particulate matter from the respiratory tract. In the airways, cilia beat in a coordinated manner to move debris away from the cell membrane. This movement is important for preventing infections and maintaining airway health.

In summary, the movement of cilia is crucial for maintaining respiratory health. Cilia play a role in the clearance of mucus, particles, and foreign substances from the airways. They are also involved in the regulation of fluid balance and immune responses. Therefore, maintaining the movement of cilia is essential for respiratory health and function.
“McGraw-Hill engaged a team of talented scientific and medical illustrators at Precision Graphics, in Champaign, Illinois, to enhance, revamp, or replace almost every item of line art. The improvements are too numerous to list more than a few, but users of the previous edition will find conspicuous improvements. . . .

The illustrators’ flair for human portraiture has greatly humanized and beautified such figures as wound healing, the paranasal sinuses, the hyoid, the facial nerve, and others. . . . Such changes give the art a stronger sense of action and a clearer sense of relationship among the figure elements.”

—Kenneth Saladin, author