

Respiratory System

As mentioned above, the respiratory system plays a key role in regulating the body's pH due to its ability to alter the levels of carbon dioxide in the blood and excrete volatile acids. Like buffers, the respiratory system reacts quickly to changes in pH and can bring about a response within a few minutes. Its limitation is that it cannot restore the components of the system to their normal values. For example, suppose the concentration of non-volatile acids increased, causing the pH to go down. Bicarbonate ions would combine with the excess hydrogen ions to buffer the pH change resulting in the production of more carbon dioxide. The extra carbon dioxide would then be excreted via the respiratory system and the pH change would be minimized. However, the respiratory system cannot replace the bicarbonate that was used to buffer the acid. Even though the pH may have been maintained within the normal range, bicarbonate levels are now low. The only way to restore all parameters to their normal levels is through the third component of our defenses, the kidneys.



This content is provided to you freely by BYU-I Books.

Access it online or download it at

https://books.byui.edu/bio_265_anatomy_phy_II/742__respiratory_sy.

