Diffusion in the Body

In the body, diffusion takes place in lots of places. It occurs with:

- **Respiration in the lungs** Respiration is an example of diffusing gas molecules that takes places in the lungs. The oxygen we inhale is exchanged for carbon dioxide in tiny air sacs in the lungs. Oxygen-depleted blood goes near the lungs, and carbon dioxide diffuses into the air sacs where it is eventually removed through exhalation. At the same time, oxygen diffuses from the lungs into the bloodstream. After it diffuses into the bloodstream, it is picked up by blood cells. These blood cells move the oxygen across the body where it diffuses into other cells requiring oxygen.
- Neuron communication Neurons, or brain cells, diffuse ions across their membranes as part of a larger communication network in the nervous system. They send electrical signals by the diffusion of ions across their cell membranes. This releases an electric charge that flows from one cell to the next until it reaches the brain. The cell maintains a negative electric charge by controlling which ions go in and out of the membrane. Electric flow between neurons allows the brain to receive and process information about sensations we experience, such as physical pain and touching things in our environment.
- **Kidney membranes** The kidneys help maintain levels of molecules that the blood needs or doesn't need through diffusion with its membranes. For example, the kidney can move sodium into the blood when levels are leve They also take urea, a waste molecule, from the blood into their cells, which have a lower concentration of urea. The urea is eventually removed from the body by urination. Dialysis, which is the artificial regulation of kill eve with a machine, also telies on membranes to regulate the lower of ions and other completions that pass through the kidneys.
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