

# Interstitial Fluid Encyclopedia Article

## Interstitial Fluid

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# Interstitial Fluid

Interstitial fluid is the fluid that surrounds the cells in the various tissues of the body. This fluid provides a path through which nutrients, gases, and wastes can travel between the cells and the small blood-transporting **capillaries**.

The capillaries are the very smallest of the channels through which **blood** is conducted after being pumped from the **heart**. Even within a capillary, blood is still under some considerable pressure. This pressure drives the diffusion of water and some of the blood **plasma** proteins through the capillary wall into the **tissue** space on the other side of the wall. This fluid--blood plasma minus most of the constituent proteins--constitutes the interstitial fluid.

Substances that are in the interstitial fluid can either diffuse into cells or be actively taken up by the cells. Conversely, substances such as carbon dioxide can diffuse out of the cells into the fluid. When the interstitial fluid re-enters the capillaries, as happens because the blood pressure is less than the osmotic pressure resulting from the compositional differences between interstitial fluid and blood, the wastes (e.g., carbon dioxide) are transferred to the blood.

Not all the interstitial fluid re-enters the capillaries. If accumulation of the fluid continued, the increasing volume would cause massive swelling of the space between the cells. This would cause mass destruction of tissues and **death**. The problem of swelling is avoided by the presence of lymphatic vessels. These drain the excess interstitial fluid and return it to the blood bound for the heart.

Interstitial fluid may also be useful in the diagnosis of diseases such as diabetes. Research is underway to perfect devices that can analyze the interstitial fluid of skin cells and ascertain the level of glucose. This could allow an easy and noninvasive means of detecting the development of diabetes.