

EDEMA

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Edema is a local or general accumulation of fluid in the interstitial tissue spaces.

Edema is the result of altered physiological function in the body. It is not in itself a disease. Edema may result from a local release of histamine following an injury. It may be a result of a systemic disease such as heart failure or it may occur after an obstruction of the lymphatic vessels. It is, therefore, important to determine the cause of edema before developing a treatment plan (*Harris, 1994*), since it may not be appropriate to reduce the edema.

In order to understand how to treat edema, it is necessary to understand the function and anatomy of the lymphatic system. Blood is largely composed of red and white blood cells and various proteins suspended in fluid. In the circulatory capillaries, slightly more fluid is pumped through the arterial ends into the interstitial spaces than is absorbed at the venous ends. The excess clear, watery interstitial fluid is collected, filtered and returned to the circulation by the lymphatic system. Once in the lymphatic system, the fluid is called lymph. The lymphatic system returns between one per cent and 10 per cent (*Guyton, 1986*) of the total interstitial fluid to circulation. The average volume of lymphatic fluid returned to the circulatory system is 2.4 litres per day (*Guyton, 1986*). The lymph also contains white blood cells, plasma proteins, fats and debris such as cell fragments, bacteria and viruses. An equilibrium is maintained as long as the fluid entering the interstitial tissues via the arterioles equals the fluid leaving through the venules and the lymphatics. Edema results if this equilibrium is upset.

Although the lymphatic system is often called passive compared to the circulatory system, the lymphatic vessels have a minor contractile capability and a pulse of one to 30 beats per minute (*Wittlinger, Wittlinger, 1990; Immen, 1995*). This minor contraction is stimulated by stretching the vessels, either internally, by the vessels filling, or externally, by light massage.