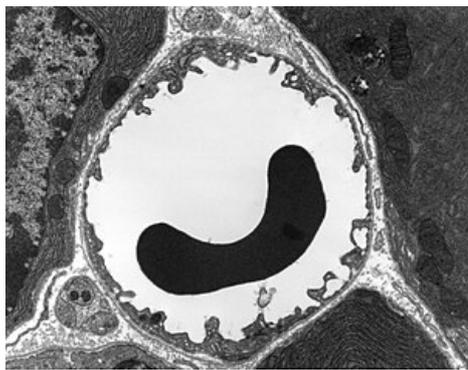


Blood Capillaries; their function and management

Basic Information



Fenestrated blood capillary of the pancreas. Inside is an erythrocyte. (electron microscope image)

Capillaries

Veličina	Hodnota	Značka / Vzorec
Length	750 μm	l
Diameter	3 μm	r
Surface area	14 000 μm^2	$2 \times \pi \times r \times l$
Surface area including venules involved in substance exchange	25 000 μm^2	
Total number	40×10^9	
Total area	1000 m^2	

The capillary wall is formed of an endothelial layer, the basement membrane, and isolated pericytes that wrap around endothelial cells.

Pericytes can regulate the lumen of the blood vessel. At rest, only 25-35% of the capillaries are active. The capillaries are not evenly distributed throughout the body (from 300-400 per mm^3 in transverse striated muscles to 2500 - 3000 per mm^3 in the myocardium).

Substance and gas exchange occurs at the level of the capillaries. The degree of permeability is affected by the distribution of the endothelium. There are three different types of layouts:

- **Continuous endothelium lining**,
- **Fenestrated endothelium** - permeable to water and small hydrophilic molecules,
- **Discontinuous endothelium** - fully permeable to all plasma components

By filtering the plasma through the capillary wall, tissue fluid is formed.

Links

Related Articles

- Tissue Fluid

Reference

- TROJAN, Stanislav, et al. *Lékařská fyziologie*. 4., přeprac. a uprav. vydání. Praha : Grada Publishing, a.s, 2003. 772 s. ISBN 80-247-0512-5.
- LÜLLMANN-RAUCH, Renate. *Histologie*. 1. vydání. Praha : Grada, 2012. 576 s. ISBN 978-80-247-3729-4.