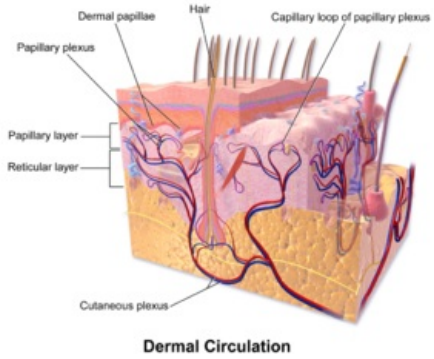
Blood circulation in the skin

The main importance of blood circulation in the skin is its **thermoregulatory activity**. The amount of blood flow through the skin greatly affects the heat loss.

Blood flow through the skin can range physiologically from **150 to 500 ml/min**[1] (1–150ml/100g of the skin). The cutaneous circulation contains "arteriovenous anastomoses", which accelerate the flow and are involved in changes in the blood supply to the skin. The most abundant anastomoses are on the fingers, soles of the feet, earlobes. Circulation control is predominantly neural through adrenergic vasoconstrictive nerve fibers. Bradykinin, which induces vasodilation, is significantly involved in local regulation. Together with blood flow through the splanchnic area, it affects the blood pressure.



Skin layers and its blood circulation

- At **elevated ambient** temperatures, where it is necessary to increase heat output, **dilatation of vessels** in the skin and **greater blood flow** are key. Cardiac output also increases and Sympathetic tone decreases, with mean blood pressure virtually unchanged. During extreme perfusion, the flow in the kidneys and splanchnic area decreases, keeping the arterial pressure constant.
- The response to **reduced temperature** is the opposite and the vessels **contract** as a result of an increased sympathetic tone. Perfusion decreases. Shivering increases energy requirements in the muscles, where vasodilation is maintained.

Links

Related articles

- Blood pressure
- Sympathetic nervous system
- Termoregulation
- Skin

Used literature

- GANONG, William F. *Přehled lékařské fyziologie.* 20. edition. Praha : Galén, 2005. 890 pp. ISBN 80-7262-311-7.
- KITTNAR, Otomar, et al. *Lékařská fyziologie.* 1. edition. Praha : Grada, 2011. 790 pp. ISBN 978-80-247-3068-4.

References

1. KITTNAR, Otomar, et al. *Lékařská fyziologie.* 1. edition. Praha : Grada, 2011. 790 pp. pp. 244. ISBN 978-80-247-3068-4.