

# Arteries, Veins and Capillaries

Arteries take blood out, veins bring it home, and the tiny capillaries in between do the real work of exchange.

| ↗<br>Arteries                                                                        | VS | ↘<br>Veins                                                                            |
|--------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------|
| <b>DIRECTION</b>                                                                     |    |                                                                                       |
| Carry blood away from the heart                                                      |    | Carry blood back to the heart                                                         |
| <b>OXYGEN</b>                                                                        |    |                                                                                       |
| Oxygen-rich, except the pulmonary artery, which takes oxygen-poor blood to the lungs |    | Oxygen-poor, except the pulmonary veins, which bring oxygen-rich blood from the lungs |
| <b>PRESSURE</b>                                                                      |    |                                                                                       |
| High: blood surges in with every beat of the ventricles                              |    | Low: the pressure has dropped after the capillaries                                   |
| <b>WALLS</b>                                                                         |    |                                                                                       |
| Thick, with layers of muscle and elastic fibres that stretch and recoil              |    | Thinner, with less muscle and elastic tissue                                          |
| <b>LUMEN (SPACE INSIDE)</b>                                                          |    |                                                                                       |
| Narrow compared with the thick wall                                                  |    | Wide, so blood flows back easily at low pressure                                      |
| <b>VALVES</b>                                                                        |    |                                                                                       |
| None along their length                                                              |    | Many have valves, especially in the limbs, to stop blood flowing backwards            |



## Capillaries: the link between them

Arteries branch into capillaries only 5–10 micrometres wide, with walls one cell thick. Here oxygen and glucose pass out to the cells and carbon dioxide passes in. Capillaries then join up to form veins.

NEXT IN THE SERIES

*5. Heart Key Terms and Definitions*