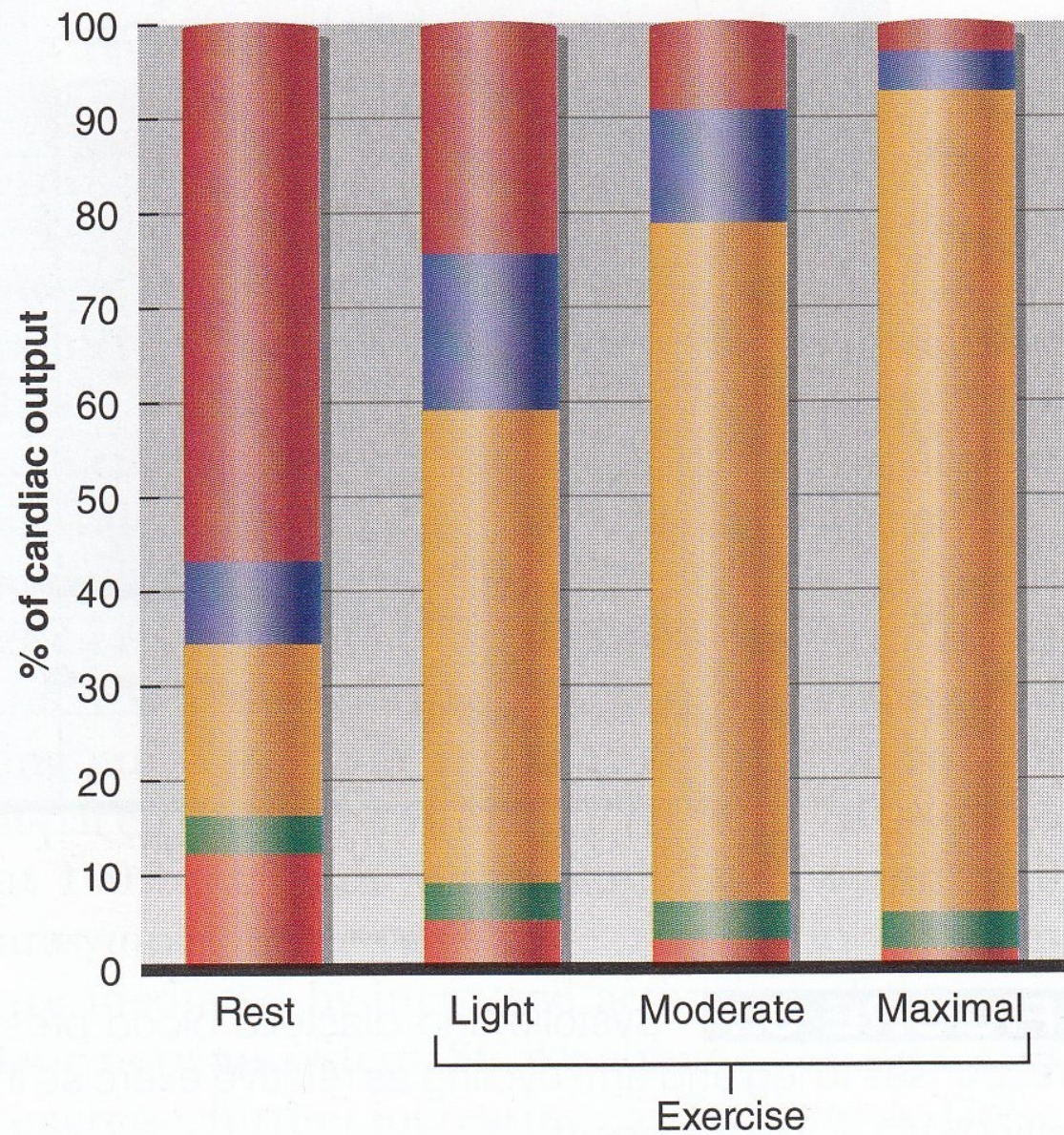
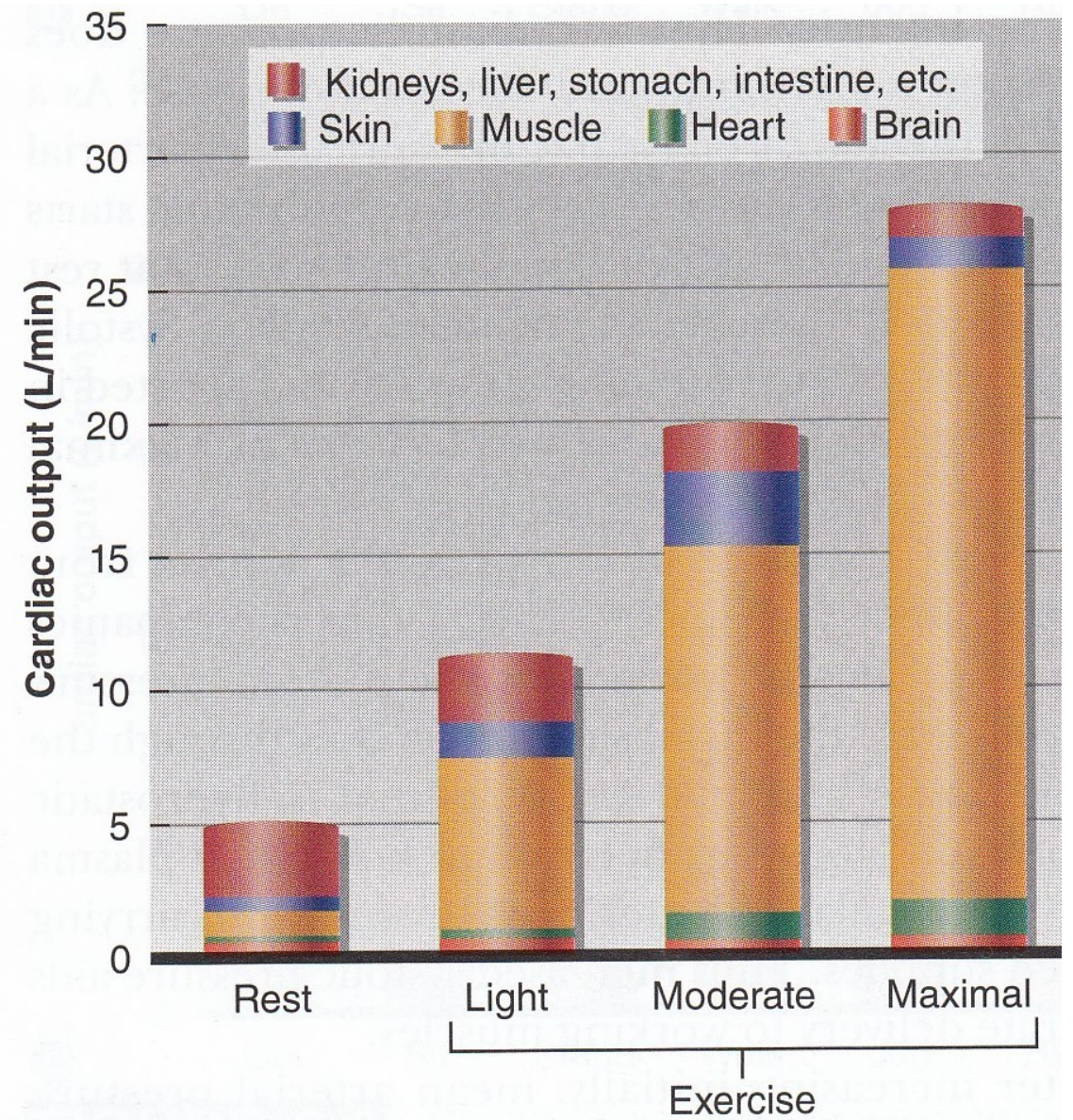


**FIGURE 6.12** Distribution of cardiac output at rest and maximal exercise. \*Depends on ambient and body temperatures.

Reprinted, by permission, from P.O. Åstrand et al., 2003, *Textbook of work physiology: Physiological bases of exercise*, 4th ed. (Champaign, IL: Human Kinetics), 143.



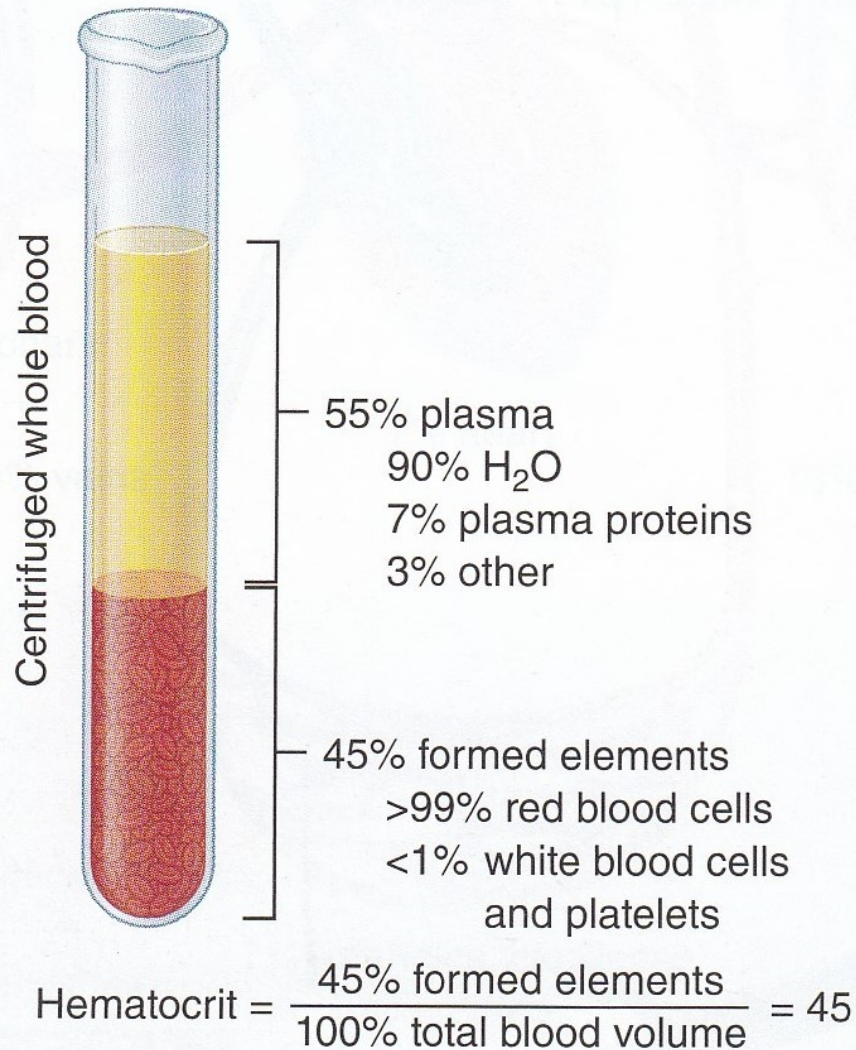
**a** Relative to total blood volume



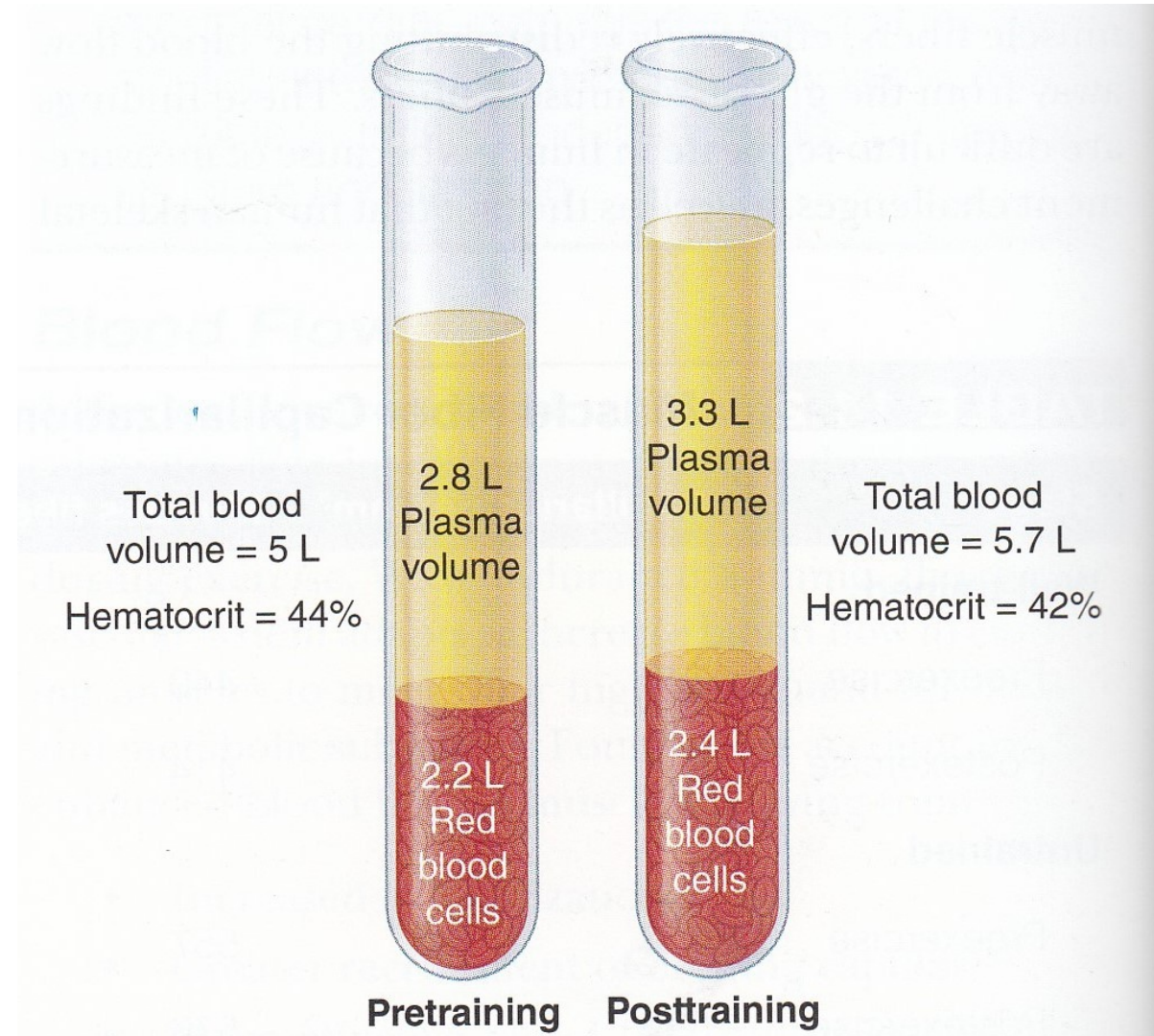
**b** Absolute values

**FIGURE 8.8** The distribution of cardiac output at rest and during exercise.

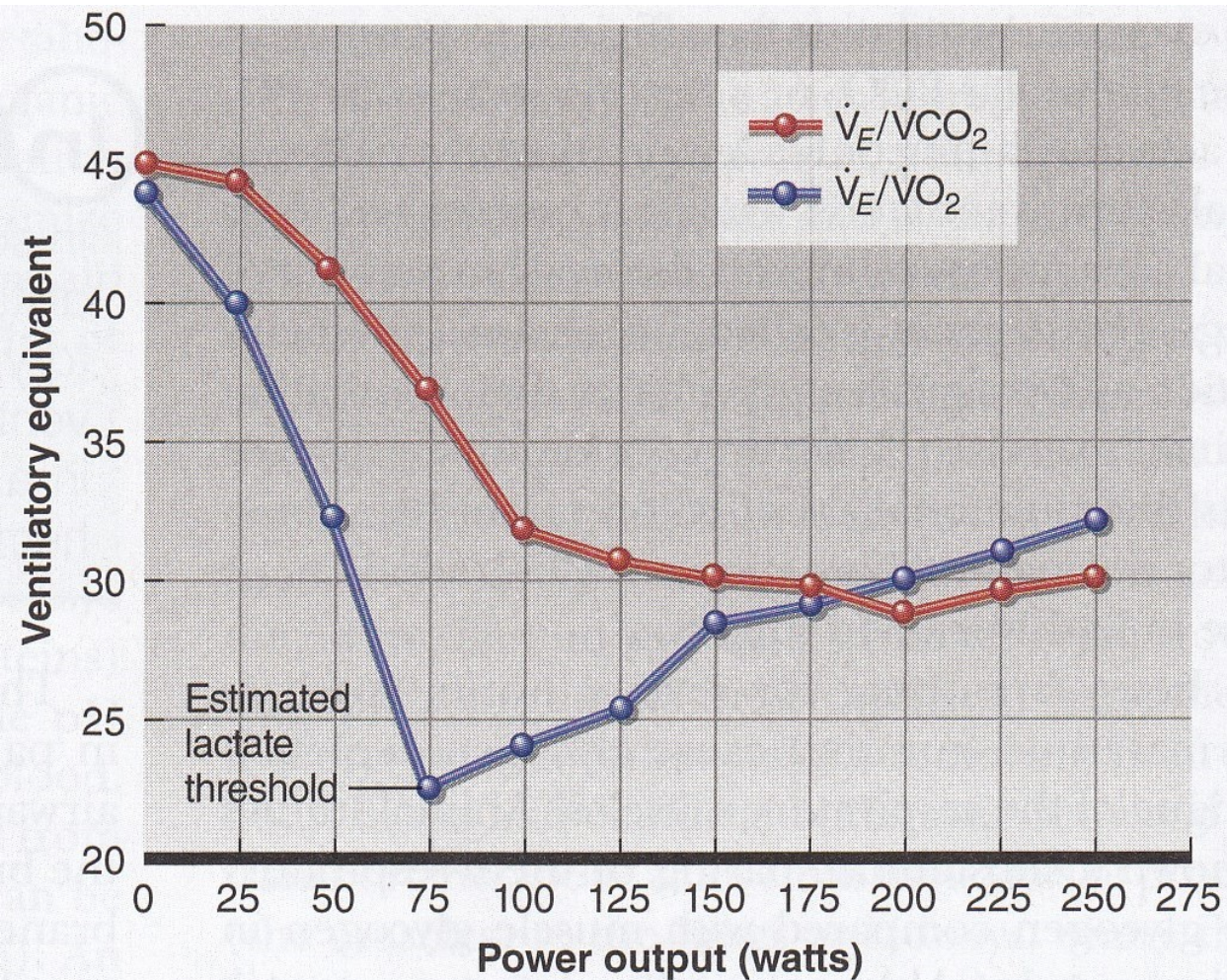
Data from A.J. Vander, J.H. Sherman, & D.S. Luciano, 1985, *Human physiology: The mechanisms of body function*, 4th ed. (New York: McGraw-Hill).



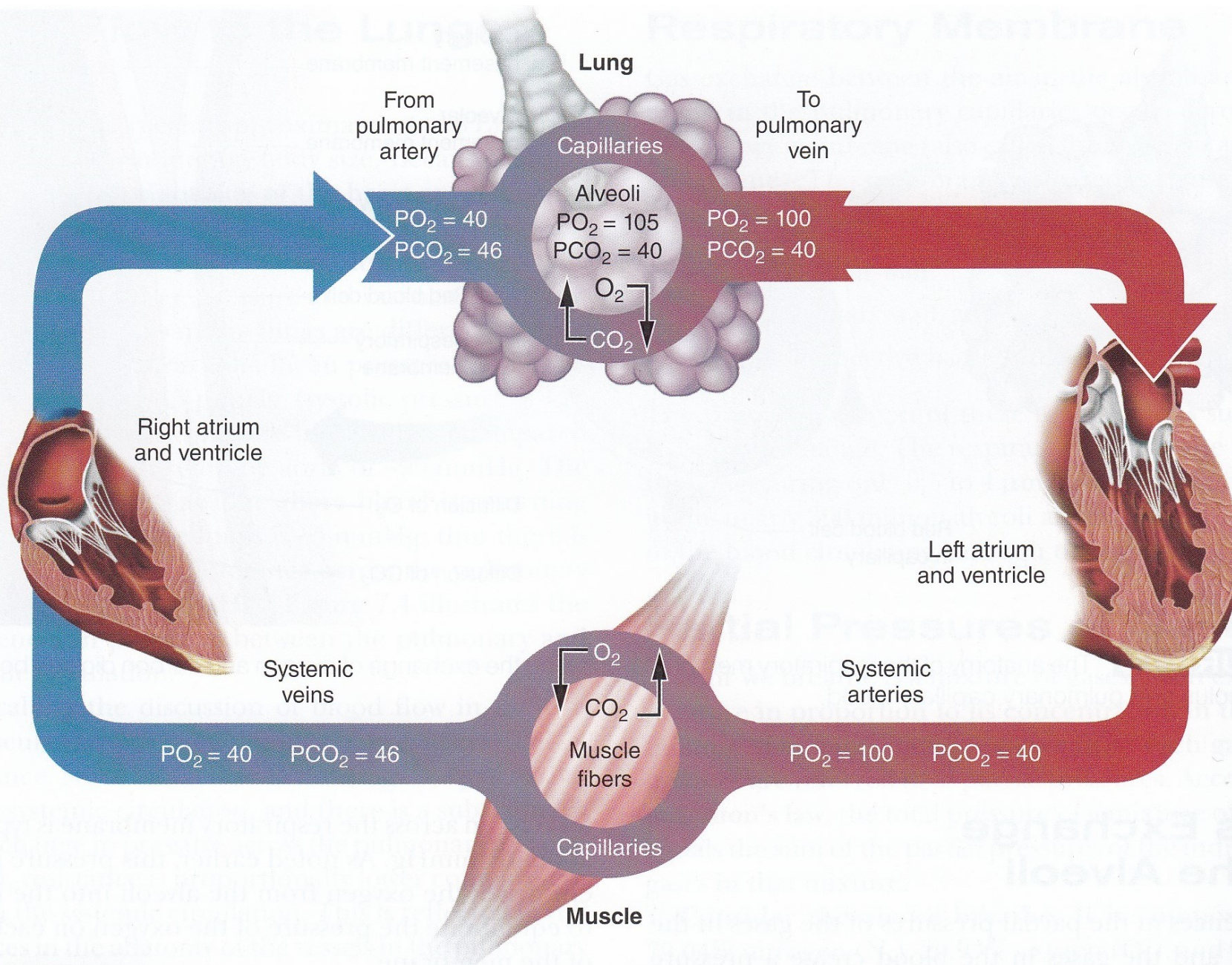
**FIGURE 6.16** The composition of whole blood, illustrating the plasma volume (fluid portion) and the cellular volume (red cells, white cells, and platelets) after the blood sample has been centrifuged. A centrifuge is shown at right.



**FIGURE 11.7** Increases in total blood volume and plasma volume occur with endurance training. Note that although the hematocrit (percentage of red blood cells) decreased from 44% to 42%, the total volume of red blood cells increased by 10%.



Changes in the ventilatory equivalent for carbon dioxide ( $\dot{V}_E/\dot{V}CO_2$ ) and the ventilatory equivalent for oxygen ( $\dot{V}_E/\dot{V}O_2$ ) during increasing intensities of exercise on a cycle ergometer. Note that the breakpoint of the estimated lactate threshold at a running velocity of 14.4 km/h (8.9 mph) is evident only in the  $\dot{V}_E/\dot{V}O_2$  ratio.



**FIGURE 7.6** Partial pressure of oxygen ( $PO_2$ ) and carbon dioxide ( $PCO_2$ ) in blood as a result of gas exchange in the lungs and gas exchange between the capillary blood and tissues.