

pO₂ (mmHg)

100mmHg in alveoli

40mmHg in resting
Muscles

- because it utilizes O₂

20mmHg in working muscle

- more working means more utilization of O₂ means even less PO₂

10mmHg in vigorous
exercising muscle

Muscles are working fully means greater amount of oxygen is needed due to Great utilization of O₂

% saturation of Hb

98% saturation level

75% saturation level

After leaving the capillaries
(Venous blood)
(O₂ has been delivered)

20% saturation level

After leaving the capillaries
(Venous blood)
(O₂ has been delivered)

10% saturation level

After leaving the
capillaries (Venous blood)
(O₂ has been delivered)
(needs huge amount of oxygen
to keep exercising)

Notes

This means the the Hb is nearly filled with O₂ , this happen before any transporting of O₂ to the body occurs in:

- 1- systemic arterial blood
- 2- in the lungs

First the PO₂ on the resting muscles is less than the one of the systemic arterial blood which means it will go from high pressure to lower pressure After it releases its O₂ to the resting muscles the saturation level will be 75% which means that 23% of the saturation has been delivered to the resting muscles.

Even less PO₂ which means more oxygen is needed for the muscles and that approximately 98%-20%= 78% of the saturation level has been delivered to the working muscles

The least PO₂ more oxygen is needed for the muscles to exercise 98%-10%= 88% of the saturation level to the exercising muscle

More work means more utilization of resources (glucose / oxygen, ...) means less oxygen Therefore means more oxygen needed to maintain the work