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The gaseous exchange in man during short exposures to a low barometric pressure.

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In four series of experiments conducted under a reduced barometric pressure in a low pressure chamber consistent results have shown that the gaseous metabolism may be for a time reduced by a decrease in available oxygen. In many cases the decrease was not evident until a correction was made for the additional use of oxygen that resulted from the further muscular effort of increased respiration.

The reduction in oxidation was present in one case at a barometric pressure of 530 mm., partial pressure of oxygen 110 mm.; in others at 443 mm., partial pressure 92 mm.; while in one case it began at 317 mm., partial pressure 66 mm.

Observations on the gaseous content of the blood showed that less oxygen was withdrawn from 100 cc. of blood as it flowed through the arm when the individual was under a barometric pressure of 350 mm. than when under 760 mm. The rate of blood flow through the arm was not increased under the low barometric pressure and, in some instances, was somewhat below normal.

With a prolonged exposure to a pressure of 400 mm., the oxidations of the body were at first reduced; but, after a period of several hours, tended to return to or even rise above normal. The increased rate of metabolism appeared to be associated with the onset of "mountain sickness" symptoms.