

# Chapter 11

## CARDIOVASCULAR DRIFT AND EXERCISE

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### INTRODUCTION

Today, overcoming the effects of hypobaric hypoxic environments on human life constitutes one of the most important issues within the strategic plans of countries. The nature of life-threatening factors according to the absolute altitude level varies in journeys from sea level to the atmosphere. Gas pressure decreases, and hypoxia is experienced as one climbs high. The physiological and pathological responses of the human body to different altitudes are different. Therefore, it is important to recognize the physiological and pathological changes and clinical results that may occur in high altitudes.

The barometric pressure decreases as the altitude increases. As a result, partial oxygen pressure (PO<sub>2</sub>) and the use of oxygen by tissues decrease as well (Rimoldia, 2010). This hypoxia state is called hypobaric hypoxia. The approximate values of barometric pressure, partial oxygen pressure and alveolar oxygen partial pressure at different altitudes can be seen in the Table 1.

**Table 1. Gas pressure, PO<sub>2</sub> pressures in the atmosphere and alveoli and arterial oxygen saturation values at various altitudes. (Yalçın, Kardeşoğlu & Işılak 2011).**

Altitude (m)	Barometric Pressure (mmHg)	PO <sub>2</sub> in the atmosphere (mmHg)	Alveolar PO <sub>2</sub> (mmHg)	Arterial Oxygen Saturation (%)
0	760	159	104 (104)*	97 (97)*
3000	523	110	67 (77)*	90 (92)*
6000	349	73	40 (53)*	73 (85)*
9000	226	47	18 (30)*	24 (38)*
15000	87	18		

(\*) : values for acclimatized persons.

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