

Relationship between breathlessness during exercise and oxygenation of respiratory muscles

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2000 Fiscal Year Final Research Report Summary

Relationship between breathlessness during exercise and oxygenation of respiratory muscles

Research Project

Project/Area Number

11670060

Research Category

Grant-in-Aid for Scientific Research (C)

Allocation Type

Single-year Grants

Section

一般

Research Field

Environmental physiology (including Physical medicine and Nutritional physiology)

Research Institution

Kanazawa University

Principal Investigator

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Project Period (FY)

1999 - 2000

Keywords

Exercise / Breathlessness / Near infrared spectroscopy / Pulmonary ventilation / Doxyhemoglobin / myoglobin of inspiratory muscles

Research Abstract

In healthy humans, the breathlessness intensity (BS) during exercise is related to pulmonary ventilation (V_E), stimulation to respiratory chemoreceptors and various sensory receptors existing at tracheae, lungs and respiratory muscles. The present study examined how metaboreceptor in the respiratory muscles is involved in breathlessness during exercise. Subjects performed light to heavy exercise on a cycle ergometer, during which BS, V_E , and Oxy and DeoxyHb/Mb contents (Hb : hemoglobin, Mb : myoglobin) of each of the parasternal internal intercostal muscle, the serratus anterior muscle (both inspiratory muscles) and the external abdominal oblique muscle (expiratory muscle). The subject breathed under 4 conditions with varying metabolic rates of the respiratory muscles : (1) breathing air through a respiratory mask or (2) through the mask plus a tubing with 500-ml dead space, and (3) breathing air or (4) 40% O_2 , each through an one-way respiratory valve. Under any conditions of brea ... More

