

## **Establishment of the Realistic Breathing Patterns in Different Exercise Conditions by Experimental Measurement**

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### **Summary**

The aim of this paper was to establish the realistic breathing patterns in different exercise conditions by experimental measurement. Generally, the human inhalation rate varies from 15 L/min at rest to 135 L/min for intense exercise and the breathing cycles are varied with different exercise conditions. Previous author have used symmetric Weibel configuration to establish three realistic breathing patterns, i. e., resting (inhalation rate, 15 L/min), light activity (inhalation rate, 30 L/min), and moderate exercise (inhalation rate, 60 L/min). In this study, in addition to reconstructing the three realistic breathing patterns of above mention, we expand the establishment of the realistic breathing patterns including march exercise (inhalation rate, 80 L/min), forced march exercise (inhalation rate, 110 L/min), and creeping exercise (inhalation rate, 135 L/min).

About the experimental measurement, we used the Qubit system, a human respirometry package, combined the hyperbolic ergometry system to establish the realistic breathing patterns in different exercise conditions. The results of this study provide a valuable reference for respiratory physiology in different exercise conditions, and will be helpful in building the data base of military medicine. The analysis of the physiological features under different exercise conditions, such as the pulse rate and blood pressure of working people in this paper, is also studied.

**keywords:** realistic breathing patterns, respiratory physiology, ergometry system, military medicine

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