

**“The Consequences of High Inhalation AIR Flow”  
A Follow up on “Peak Inhalation Air Flow and Minute Volumes  
Measured in a Bicycle Ergometer Test”**

**Goran Berndtsson**

SEA Group, Safety Equipment America, Inc.  
1001 Avenida Pico PMB #626, San Clemente, California, USA  
Tel: +1-949-3023332 Fax :+1-714-8449137 e-mail:goran@sea.com.au

**ABSTRACT**

The efficiency, performance and often life span of a filter respirator are affected by the velocity and volume of the air flowing through the filter. Duration plays another important role. These factors are often best expressed in the form of a breathing curve. However, different breathing curves show different things. A good understanding of breathing curves is essential to the respiratory protection professional and makes it possible to glean more from the curve than seems possible at a first glance. This paper demonstrates the basic principles of breathing curves and some of the major pitfalls in their interpretation. It presents various types of curves and how to read what they show. The paper explains the fundamental differences between volume and flow, and sets out to form a basis for understanding data derived from breathing curves, especially in relation to the velocity of the air traveling through a filter. The differences between continuous flow, as used in many standards tests, and fluctuating flow, as occurring in normal human breathing, are discussed, along with the effects of speech on the way we breathe. Many factors of great significance to respirator performance are directly discernible from a careful look at the breathing curve.