

How is Respirator Comfort Affected by Individual Respiratory Resistance?

Arthur T. Johnson

University of Maryland, Biological Resources Engineering
College Park, MD 20742-5711, USA
Tel: +1-301-405-1184 Fax: +1-301-314-9023
e-mail: aj16@umail.umd.edu

ABSTRACT

There is evidence in the literature that suggests that detection of added resistance depends on the level of resistance already present in the breathing path. There is also evidence that shows that wearers with obstructive pulmonary diseases are less affected by respirator filter resistance than are healthy wearers.

We used the Airflow Perturbation Device (APD) to measure respiratory resistance of 33 subjects. The APD gives a noninvasive measurement of the resistance to airflow inside the respiratory systems of the volunteers. Subjects were asked to rate the comfort of respirators they were wearing, and the resistances of the respirators were varied with five different levels.

Breathing apparatus comfort seems to be weakly affected by respiratory resistance. The effect is not as strong as expected. This is good news for manufacturers because respirators can be accepted equally by the young and old, firm and infirm.