

Abstract

The Ramathibodi nasal filter in a simulated human airway: evaluated with laser smoke particles and a laser diode dust portable monitor.

Tanpowpong K, Chirathiti C. *The Ramathibodi nasal filter in a simulated human airway: evaluated with laser smoke particles and a laser diode dust portable monitor.* J Med Assoc Thai. 2001 Dec;84(12):1667-73. Department of Otolaryngology, Faculty of Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand.

The Ramathibodi nasal filter was specially designed as a personal respiratory protective device. It was attached to a simulated human airway composed of a nasal and pharyngeal model, airway passage and lung model machine. The system was run in a laser smoke particles environment. The laser smoke particles with suspended particulate matter size of less than 15, 10 and 2.5 microns (PM15, PM10 and PM2.5) were selected. The amount of each particle size in the simulated human airway with and without the Ramathibodi nasal filter was measured continuously by a laser diode portable dust monitor. One hundred sample sizes were analyzed by a descriptive statistical method at the Department of Otolaryngology, Ramathibodi Hospital from January to November 1999. The graphic distribution patterns of each residual particle size in the simulated human airway with and without the Ramathibodi nasal filter were compared. The filtration efficacy of the Ramathibodi nasal filter should be tested further by this experimental model. The device could be applied intermittently in adult nasal vestibules.