

Reported Respiratory Symptom Intensity in Asthmatics During Exposure to Aerosolized Florida Red Tide Toxins

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Abstract

Florida red tides are naturally occurring blooms of the marine dinoflagellate, *Karenia brevis*. *K. brevis* produces natural toxins called brevetoxins. Brevetoxins become part of the marine aerosol as the fragile, unarmored cells are broken up by wave action. Inhalation of the aerosolized toxin results in upper and lower airway irritation. Symptoms of brevetoxin inhalation include: eye, nose, and throat irritation, coughing, wheezing, chest tightness, and shortness of breath. Asthmatics appear to be more sensitive to the effects of inhaled brevetoxin. This study examined data from 97 asthmatics exposed at the beach for one-hour during *K. brevis* blooms, and on separate occasions when no bloom was present. In conjunction with extensive environmental monitoring, participants were evaluated utilizing questionnaires and pulmonary function testing before and after a one-hour beach walk. A modified Likert scale was incorporated into the questionnaire to create respiratory symptom intensity scores for each individual pre- and post-beach walk. Exposure to Florida red tide significantly increased the reported intensity of respiratory symptoms; no significant changes were seen during an unexposed period. This is the first study to examine the intensity of reported respiratory symptoms in asthmatics after a one hour exposure to Florida red tide. *Journal of Asthma* 44:583-587 (2007).