Title
BRONCHOALVEOLAR PERMEABILITY CHANGES IN RATS INHALING GAS PARTICLE COMBINATIONS DURING REST OR EXERCISE

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Bronchoalveolar (BA) injury in rats exposed at rest or exercise to air pollutants was studied by changes in epithelial permeability. Rats exposed to air, single gases or pollutant combinations were anesthetized, tracheostomized, and placed on an incline. 99mTc-DTPA was delivered directly to a major bronchus. Radioactivity measurements were made on blood samples collected during first 10 min. Exposure of resting rats to 0.6 ppm O<sub>3</sub> increased BA permeability just after exposure, but it was normal 24 hrs later; in exercising rats the increase was greater than in rats exposed at rest, and it persisted up to 24 hrs. NO<sub>2</sub> at 6 ppm did not affect permeability.

Exposure of resting rats to 2.5 ppm NO<sub>2</sub> + 0.6 ppm O<sub>3</sub> only increased permeability right after the exposure, but in exercising rats this exposure resulted in a greater permeability which remained elevated up to 24 hrs. Exposure of exercising rats to 0.8 ppm O<sub>3</sub> + 10 ppm HCHO increased permeability. Exposure of resting rats to an atmosphere of 0.6 ppm O<sub>3</sub> + 2.5 ppm NO<sub>2</sub> + 5 ppm SO<sub>2</sub> + 1 mg/m<sup>3</sup> sulfates of ferric, ammonium and manganese also produced an increase in permeability that persisted up to 24 hrs. The results suggest potentiation of the pollutant effects by exercise, but there is no indication of synergistic effect of pollutant combinations on BA permeability. Supported by HEI #63-21-2; NIEHS #1 R01 ES03521-01 and EPRI #RP1962-1.