The effects of indoor air quality on symptoms, perceptions, task performance, cerebral blood flow, fatigue, and mental effort of individuals working in an office were investigated. Twenty-four right-handed Danish female subjects in an office were exposed in groups of two at a time to two air pollution levels created by placing or removing a pollution source (i.e. a used carpet) behind a screen. During the exposure, the subjects performed four different office tasks presented on a computer monitor. The tasks were performed at two paces: normal and maximum. When the pollution source was present, the air quality was perceived to be worse and more errors were made when subjects typed text at the maximum pace. No other changes in subjective responses, performance, or physiological measurements were associated with different exposures. Although cerebral blood flow and voice analysis did not detect any effects caused by modifying pollution exposure, they were well correlated with increased mental effort when the tasks were performed at maximum pace and subjectively reported fatigue, which increased during the course of exposure, respectively.