

**EFFECTS OF GENETIC STRAIN ON STRESS-INDUCED WEIGHT AND BODY FAT LOSS IN RATS:
APPLICATION TO AIR POLLUTION RESEARCH**

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Exposure to some air pollutants is suspected of contributing to obesity. Hazelton chambers are commonly used in air pollution studies but we found unexpected reductions in body weight and body fat of rats housed in Hazelton chambers under control conditions. We suspect that stress from housing in Hazelton chambers could compromise data from a study on air pollutant-induced obesity. Male Long Evan (LE), Sprague Dawley (SD), Brown Norway (BN) and Fisher (F344) rats were housed individually in Hazelton chambers for 6 h, 1 day/wk for 3 wks. Using a Bruker NMR system, % body fat was measured before and after exposure and compared to cage controls. Housing in the chambers led to strain-dependent decreases in %body weight and body fat. Weight loss was greatest in LE and SD ($4.4 \pm 0.3\%$ and $4.0 \pm 0.2\%$, respectively, on wk 1). BN and F344 were less affected ($3.2 \pm 0.2\%$ and $3.8 \pm 0.3\%$, respectively, on wk 1). Body fat was reduced by 0.6% in BN and LE rats at 5 d after exposure in the Hazelton Chambers. Overall, housing in Hazelton chambers appears to be a stressor leading to significant weight loss and lipolysis that is strain-dependent. BN and LE rats may not be the best model to use to study possible links of air pollutants to obesity. *This abstract does not necessarily reflect US EPA policy.*