

HEALTH EFFECTS OF SMAL PARTICULATE MATTER

I have testified in the past about health effects of power plants in relation to noise and to small particulate matter. As an update the newest study out Sept 12 2016 finds that exposure to air pollution ups the risk of insulin resistance. German researchers found 14.5% higher insulin levels and a 15% increase in in insulin resistance along with abnormal beta cell function markers for every 7.9 microgram/m³ elevation in particulate matter. This study was done on 3000 individuals in southern Germany and the results were more pronounced among those with pre diabetes than type 2. Closer to home earlier this month scientist from the University of Massachusetts Amherst suggested that early pollution exposure could predispose people to diabetes also. Researchers are now considering outdoor air pollution as a more serious environmental factor causing diabetes and call for new government policies on pollution control.

We know there is a link between obesity and Type II Diabetes and in China a study was done showing exposure to air pollution increases the risk of obesity. March of 2016 Chinese scientist found laboratory rats who breathed Beijing's highly polluted air gained weight after 3- 8 weeks exposure. Some rats breathed air from outside and the control had filtered air. After only 19 days the lungs and livers of pregnant rats exposed to the pollution were heavier (despite the identical diet) and showed increased inflammatory markers.. The rats had 50% higher LDL (bad cholesterol): 46% higher triglycerides: and 97% higher total cholesterol. Bottom line is air pollution results in metabolic dysfunction which is the precursor to obesity. The dysfunction increased more after 8 weeks' time. After 3 weeks the rats were 10% heavier and after 8 weeks up to 18% heavier.

As science continues to discover more and more causes for obesity and ultimately diabetes and insulin resistance which is a known cardiovascular risk factor for heart disease we as a society must try to rein in the causes of this progression . Some things we can control. Choosing renewable energy as opposed to fossil fuels will decrease exposure to pollutants significantly. I ask the EFSB to help the Rhode island population stay health and avoid the known small particulate matter in all power plants and before you now let's start with CREC.

Ebene Watson

Reference

AANP Smart Journal, Diabetes news, Friday Sept 9th, 2016. Long term Exposure to air pollution may be a diabetes risk factor

American Diabetes Association, Wolf et al, Aug 2016, Association Between Long Term Exposure to Air Pollution and Biomarkers Related to Insulin Resistance

Exposure to air pollution increases the risk of obesity, Duke Today Staff,

<https://today.duke.edu/2016/02airfat> as printed from review of Journal of the Federation of American Societies for Experimental Biology.