

## **Air Pollution and IQ**

When many doctors downplay the role of toxicity in the body and underestimate the damage it causes, it's nice to see research pointing to these effects. Researchers recently found that mothers who breathe in more polluted air during their pregnancy were more apt to have children with lower IQs. Two hundred and forty nine children were studied and the IQ difference between the high pollution group and the low pollution group was about four to five points. Four to five points doesn't sound like much, but when you understand that only thirty points marks the difference between genius and average, you can understand the significance. Patrick Breyse, an environmental health specialist at Johns Hopkins' school of public health, thinks that air quality might be part of the reason that wealthier children tend to do better in school than children from poorer neighborhoods, as poorer families tend to live in more polluted areas. It's interesting though that only air pollution was accounted for in this study. It'd be curious to see the results if they accounted for things like: eating organic, natural foods versus pesticide-laced, processed foods or like drinking nutrient-rich fruit and vegetable juices instead of coffee or coke. While few are immune from such habits, the latter are also more likely to be consumed regularly in low income areas. The larger picture implication is that the chemical toxins that pollute our environment also pollute our bodies, and make us at least a little mentally slower. Pesticides and chemicals in processed foods and soft drinks also qualify as chemical toxins. Wouldn't it be interesting if most of the population would actually rank at or near the genius level, if not for the consistent exposure to chemicals and toxins of all sorts while in the womb and throughout life? If air pollution accounts for four to five points, it'd be easy to see where the lack of pesticides and chemical-ridden processed foods would easily add on another five or possibly ten points. The absence of mercury, a toxin known to affect the brain and found in vaccines and teeth fillings, could easily tack on another five points too. The list of known poisons that today's humans regularly put in and on their bodies is astounding and reducing them would be fairly simple if we made some concerted efforts. Even physicians are catching on and understanding that what they thought was harmless, really is not. Dr. Michael Msall, a University of Chicago pediatrician, said, "We are learning more and more about low-dose exposure and how things we take for granted may not be a free ride." A lower IQ wasn't the only thing researchers found connected with air pollution. In previous research, the same researchers found that exposure to air pollution while in the womb was associated with genetic abnormalities that may increase the risk for cancer, a smaller newborn head size and even reduced birth weight. The researchers also linked air pollution with developmental delays at age three and asthma in children.

## **Indoor Air Pollution**

According to the EPA, air pollution indoors is often two to five times worse than it is outside. In extreme cases, air pollution inside can be a hundred times worse than outside. The reason is partly because numerous chemicals, like cleaning supplies, hair sprays and perfumes, are used inside the home. Another part of the problem is that many items inside our homes and materials used in home construction are notorious for letting off poisonous gasses - for years. Carpets, shower curtains, paints, upholstery, plywood, particle board, cabinets, computers, and synthetic materials all let off poisonous gasses and chemicals. Because most homes are well insulated, it leaves those poisons trapped inside for us to breathe. However, there's a solution and as with most problems, the solution comes from nature - and not from a chemical company. NASA studies show that having ample plants indoors can detoxify up to 85 percent of indoor air pollution. Acting like a filter for the air, some plants mop up formaldehyde.

Others remove benzene, carbon monoxide, and trichloroethylene. Unfortunately, all of these chemicals are common in the air of most homes. If you're wondering how the air inside your home became quite so toxic, have a look at some sources of common chemicals. Formaldehyde is used in plywood, particle board and glues; it's found in most cabinets, carpets and walls. Formaldehyde is regularly brought into homes in grocery bags; it's even in some tissues and paper towels. Formaldehyde is also released in cigarette smoke and from fuel burning appliances. In the garage and into homes with attached garages, formaldehyde is released from tailpipe emissions.

Formaldehyde is classified by the International Agency for Research on Cancer as a human carcinogen, meaning that it causes cancer. Benzene is a petrochemical; it's used in detergents, latex paints, oils, foams, dyes and rubber.

It's common in building materials, exhaust fumes, and especially in cigarette smoke. Benzene is even found in some pharmaceuticals and it's known to induce leukemia. Trichloroethylene is found in paints, lacquers, carpet shampoos, spot removers and adhesives. It's also used in dry cleaning, although this is becoming less so. Since trichloroethylene has contaminated some of the water supply, it can also enter the air of your home from shower vapors. Trichloroethylene is a central nervous system depressant. Carbon monoxide is found in homes with gas stoves, and it's regularly found in high concentrations with worn or poorly maintained furnaces. Carbon monoxide also enters homes with attached garages from car exhaust. In high levels, carbon monoxide can cause sudden death. Some of the best plants to remove these dangerous chemicals from the air in your home include: palms, ferns, english ivy, peace lily, and mums/daisies. It's also important to open the windows and doors of your home, daily if possible, to allow fresh air to circulate in. As a bonus, having plants inside adds oxygen to the air you're breathing, and having plants inside is even known to decrease the stress levels of the inhabitants.

### **Better Air Quality Leads to Longer Life Expectancy**

According to environmental epidemiologist Joel Schwartz from the Harvard School of Public Health, who was not part of the study team, it is a well-known fact that particulate air pollution has an adverse impact on life expectancy. But he said that decision makers in the government would really want to know "[i]f I spend the money to reduce pollution, what really happens?" That is where this study helps a great deal. It not only showed a positive correlation between clean air and longer life, it managed to provide a quantifiable estimation of the association, too. Its findings revealed that the average life expectancy across the 51 cities rose by 2.72 years over the two-decade period of the study, and about 5 months of this increase, or about 15%, can be attributed to decreased air pollution. Further, in cities which had started out being the most polluted, for example Buffalo and Pittsburgh, the average improvement to life expectancy stretched up to about 10 months. But there was good news for the "cleaner" cities too - even these cities experienced life expectancy gains with further reduction in air pollution. Delving deeper into more technical details, the study's findings had revealed that every reduction of 10 micrograms per cubic meter of particulate pollution affected a resultant average increase in life expectancy of over 7 months. This is roughly consistent with what previous smaller studies had found. The particulates mentioned here are called fine particulates, as their diameter is less than 2.5 microns. Their minute size allows them to get into the small air passages of the lungs, and these tiny particles have been shown many times to negatively affect cardiovascular and pulmonary health. For example, a very recently published German study had found that people who lived near traffic had an elevated risk of developing atherosclerosis (hardening of the arteries), which in turn increases the risk of heart disease. These small particulates are typically produced by cigarettes, engines, coal power plants, as well as other urban activities. Bigger particulates have a more significant impact on visibility, but cause less health problems because the body is able to filter them out.

"Such a significant increase in life expectancy attributable to reducing air pollution is remarkable. We find that we're getting a substantial return on our investments in improving our air quality. Not only are we getting cleaner air that improves our environment, but it is improving our public health," said C Arden Pope III, an epidemiologist at Brigham Young University and the leader of the study.

"There is an important positive message here that the efforts to reduce particulate air pollution concentrations in the United States over the past 20 years have led to substantial and measurable improvements in life expectancy," said Douglas Dockery, chair of the Department of Environmental Health at Harvard School of Public Health, a member of the research team.