



Non-Ionizing Radiation & Children's Health

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PLATFORM PRESENTATION ☒

Non-Cancer Effects Of Chemical And Physical Agents On Children's Health

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Children are prenatally and postnatally exposed to a variety of chemical and physical agents. Thereof several are of concern for children's health. Already in the 1970s epidemiological studies provided evidence on the effects of low level lead intoxication on cognitive functions and behaviour in children. In the meanwhile a growing body of literature addresses the effects of chemical and physical agents on children's health.

In relation to prenatal exposure, methylmercury exposure was consistently found to delay neurodevelopment and to impair cognitive and motor functions. Prenatal exposure to polychlorinated biphenyls (PCB) and related toxicants results in cognitive and motor deficits in the childhood. Maternal active smoking is a risk factor for preterm birth, fetal growth deficit, and sudden infant death syndrome (SIDS).

Postnatal exposure to secondhand smoke also increases the risk for SIDS. In addition, it causes acute respiratory infections, ear problems, respiratory symptoms, more severe asthma and slows lung growth of children. Such effects are also observed for postnatal exposure to ambient and indoor air pollution. The latter is a particular problem in developing countries.

Numerous studies investigated cognitive effects of road, railway or aircraft noise in children. These studies found fairly consistent effects on reading, attention, problem solving and memory.

In summary, with respect to exposure of children to chemical and physical agents, reproductive outcomes, cognitive effects and respiratory diseases are of most concern. Furthermore, the life course-approach is also relevant in this context. Some effects such as reduced development of lung or cognitive functions may not yet be detrimental in the childhood but are expected to result in health consequences in the old age because of the natural decline of such functions. If not fully developed in the childhood, the disease threshold will be undercut earlier in the old age.