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### **Environmental toxicants and development in toddlers**

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Deleterious effects of Pb, PCBs and dioxin-like compounds on many aspects of IQ have been reported. Study aims: measuring these effects in an industrialised area (Flanders), detecting gender-specific effects, studying additive/interactive effects and investigating if behaviour is a sensitive bio-effect parameter.

Methods: Umbilical cord blood concentrations of PCB-markers, CALUX-TEQ and Pb were measured. Social behavioural patterns (IBQ, CBCL), and Milestones were determined (12, 24, 36 months). Concentration abilities (CPT), language (RTOS) and mental development (BSID-II-NI), non-verbal intelligence (SON-R2.5-7), and gender-specific behaviour (Observation of Toy Preference) were examined (36 months). Stepwise multiple regression analysis was done (co-variables, e.g. maternal IQ; socio-economic status; HOME; alcohol/drugs/smoking during pregnancy; complications at birth/pregnancy;...).

Main results: The higher the prenatal Pb-concentrations the lower the non-verbal intelligence (SON: Total and Reasoning IQ) (difference lowest-highest exposed: -16,9 points). The effect on Reasoning IQ seems to be even stronger with co-exposures to Pb and PCB. Children with high prenatal PCB-concentrations are crawling and walking significantly later (Milestones) and they are slower in understanding mental constructs (BSID-II-NI). This effect seems to be more pronounced in girls, and may also be worsened by co-exposure. The higher the prenatal PCB-concentrations, the less masculine play behaviour and the more neutral play behaviour is found in boys (Observation of Toy Preference), but not in girls (difference lowest-highest exposed: -55% play with boys-specific toys).

Conclusions: Our data support that the neurobehavioural development of toddlers is negatively influenced by internal (cord blood) concentrations of PCBs and Pb (<10µg/dL), that some effects are sex-linked and that behavioural observations are easy to perform and sensitive tests to detect neurotoxic effects.