

# PRENATAL EXPOSURE TO PCBS AND RISK OF WHEEZING IN CHILDREN: A RELATIONSHIP MODIFIED BY DIET DURING PREGNANCY?

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**Background and aims:** Prenatal exposure to organochlorine compounds (OCs) has been related to immune function and adverse effects on respiratory health. For polychlorinated biphenyls (PCB), associations with respiratory outcomes have been heterogeneous. Given the hypothesis that effects of PCBs may be influenced by dietary factors, we aimed to assess whether maternal diet in pregnancy may modify associations between PCBs and infant wheezing.

**Methods:** 657 mother-child pairs participated in the INMA (Environment and Childhood) population-based birth cohort study in Sabadell (Spain). Wheezing was defined based on maternal reports at age 6 and 14 months. First trimester diet, assessed by a validated questionnaire, was used to derive diet patterns using factor analysis. A "healthy" pattern was identified which discriminated mothers with higher fruit/vegetable and fresh fish intakes, and lower intakes of pastries; scores were dichotomized at the median. PCB exposure ( $\sum$ PCBs) in first trimester maternal serum was calculated as the sum of lipid-adjusted congeners 118, 138, 153 and 180 and log-transformed. Poisson regression was used to estimate relative risks (RRs) for associations between wheezing and PCBs, adjusting for confounders including other OCs.

**Results:** Wheezing was present in 34% of the children. Overall, no association between  $\sum$ PCBs and wheezing was observed. Interaction between  $\sum$ PCBs and a healthy diet pattern was significant ( $p < 0.05$ ). In women with less healthy diets,  $\sum$ PCBs were positively associated with wheezing (RR=1.89, 1.13-3.15). However, in women with high healthy diet scores,  $\sum$ PCBs were not significantly associated with wheezing (RR=0.83, 0.52-1.32). No such interaction with individual food groups, including fruits, vegetables and fish, was observed.

## **Conclusions:**

Results suggest prenatal PCB exposure may increase risk of infant wheezing among women with less healthy diets. The absence of interaction by food groups suggest that global dietary patterns, rather than specific food groups, plays a role. Replication should be performed to confirm these findings.

## **References:**

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