

Publication**Air pollution during pregnancy and neonatal outcome : a review****JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)****ID** 1776455**Author(s)** Proietti, Elena; Röösl, Martin; Frey, Urs; Latzin, Philipp**Author(s) at UniBasel** [Röösl, Martin](#) ;**Year** 2013**Title** Air pollution during pregnancy and neonatal outcome : a review**Journal** Journal of aerosol medicine and pulmonary drug delivery**Volume** 26**Number** 1**Pages / Article-Number** 9-23**Keywords** air pollution, pregnancy, neonatal outcome, placental barrier, birth weight, infant mortality, lung function, development

Abstract There is increasing evidence of the adverse impact of prenatal exposure to air pollution. This is of particular interest, as exposure during pregnancy-a crucial time span of important biological development-may have long-term implications. The aims of this review are to show current epidemiological evidence of known effects of prenatal exposure to air pollution and present possible mechanisms behind this process. Harmful effects of exposure to air pollution during pregnancy have been shown for different birth outcomes: higher infant mortality, lower birth weight, impaired lung development, increased later respiratory morbidity, and early alterations in immune development. Although results on lower birth weight are somewhat controversial, evidence for higher infant mortality is consistent in studies published worldwide. Possible mechanisms include direct toxicity of particles due to particle translocation across tissue barriers or particle penetration across cellular membranes. The induction of specific processes or interaction with immune cells in either the pregnant mother or the fetus may be possible consequences. Indirect effects could be oxidative stress and inflammation with consequent hemodynamic alterations resulting in decreased placental blood flow and reduced transfer of nutrients to the fetus. The early developmental phase of pregnancy is thought to be very important in determining long-term growth and overall health. So-called "tracking" of somatic growth and lung function is believed to have a huge impact on long-term morbidity, especially from a public health perspective. This is particularly important in areas with high levels of outdoor pollution, where it is practically impossible for an individual to avoid exposure. Especially in these areas, good evidence for the association between prenatal exposure to air pollution and infant mortality exists, clearly indicating the need for more stringent measures to reduce exposure to air pollution

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