

Reduced fetal size linked to increased asthma risk and reduced lung function in children

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Research presented today at this year's European Respiratory Society (ERS) International Congress in London shows that reduced fetal size is linked to increased asthma risk and reduced lung function in children aged 5 to 15 years.

The study, by Dr Stephen Turner, University of Aberdeen, UK and colleagues, suggests that antenatal factors in the pregnant mother contribute to the life-long respiratory wellbeing of the child.

Previous work by Turner and colleagues has linked reduced first (T1) and second (T2) trimester fetal size and increased risk for asthma to age ten years. In this new study, the authors tested the hypothesis that reduced fetal size would be associated with reduced lung function and [persistent asthma](#) from ages 5 to 15 years.

A total of 2000 mothers were recruited from the antenatal clinic in Aberdeen between 1997 and 1999. Fetal size in the T1 and T2 was ascertained by routine ultrasound scan. Asthma status and lung function were determined at ages 5, 10 and 15 years. Various modelling and statistically techniques were then applied to the data.

The authors found that larger fetuses were at reduced risk for asthma and had better lung function. In the study fetal size was expressed as a z score, which is a statistical method of expressing difference from normal; four z scores covers the range from abnormally small to abnormally large. Each z score increase in T1 size was associated with an

overall 22% reduced risk for asthma between ages 5, 10 and 15 (OR 0.78), a result which applied even after adjustment for confounding factors.

Increased fetal size was also associated with increased [lung function](#), again independent of confounding factors. Persistent [asthma](#) was associated with reductions in T1 and T2 size and FEV1 at ages 5, 10 and 15 compared to the two other groups.

Dr Turner concludes: "First trimester fetal size - a surrogate for fetal lung size - is relevant to symptoms and respiratory physiology through to 15 years of age. These findings suggest that antenatal factors contribute to life-long respiratory wellbeing."

He adds: "What we need to do now is first replicate these findings in other cohorts and then work out whether it is fetuses which start off small and stay small who have the worst outcomes or whether it is those that start off normal size (before 10 weeks) and then become small who are in trouble. Ultimately, any intervention is going to boil down to mothers not smoking or drinking, having a balanced diet and taking regular exercise - but this is good incentive for a healthy maternal lifestyle!"

Provided by European Lung Foundation

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