

Growth in children prior to diagnosis of juvenile type 1 diabetes: A systematic review.
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Background: Juvenile onset type 1 diabetes (T1D) is one of the most common chronic diseases in childhood and shows a rising incidence over the past decades. The exact pathogenesis is still not completely understood, especially regarding possible environmental factors triggering disease onset. We aimed to systematically review literature on growth in children prior to diagnosis of juvenile type 1 diabetes and to ascertain whether specific patterns of growth prior to diabetes onset, are a consistent phenomenon.

Methods: This systematic review was fulfilled according to the PRISMA Guidelines. In April 2020, three online databases were consulted (PubMed, Embase and Cochrane Library). Studies describing growth in children prior to juvenile type 1 diabetes onset and covering patient populations from birth till age at onset and not older than 20 years were assessed.

Results: 37 studies were included, involving 156,609 T1D cases. Of these, 5065 cases were matched with 462,772 healthy individuals and 1230 non-diabetic siblings. An increased weight gain, expressed as weight SDS from birth till diagnosis, in early childhood was found to be positively associated with the risk of T1D development. Moreover, we were able to ascertain a higher weight SDS in children at diagnosis. High BMI SDS at birth did not show any significant outcome.

Discussion/Conclusion: There appears to be a clear association between the early environmental factor of accelerated weight gain in the first years of life, higher weight at diagnosis on one hand, and the risk for (later) juvenile onset type 1 diabetes, on the other.