Is a child’s growth pattern early in life related to serum adipokines at the age of 10 years?

Growth parameters during infancy and early childhood might predict adipokine levels later in life. This study investigates the association between peak growth velocities, body mass index (BMI) and age at adiposity rebound (AR), with leptin and adiponectin levels at age 10 years. Peak height (PHV) and weight (PWV) velocities were calculated from height and weight measurements obtained between birth and age 2 years from 2880 children participating in the GINIplus (German Infant Nutritional Intervention plus environmental and genetic influences on allergy development) and LISApplus (Influences of Lifestyle-Related Factors on the Immune System and the Development of Allergies in Childhood plus Air Pollution and
Genetics) birth cohorts. BMI and age at AR were calculated using BMI measurements between age 1.5 and 12 years. Blood samples were collected during a physical examination at age 10. Adiponectin and leptin levels were measured by radioimmunoassay. Linear regression models were fitted after adjustment for potential confounding factors and results are presented per interquartile range increase in the exposure. Age at AR was negatively associated with leptin in males and females (percent difference \( ?^* \): -41.71%; 95% confidence interval: (-44.34; -38.96) and \( ?^* \): -43.22%; (-45.59; -40.75), respectively). For both males and females PWV (\( ?^* \): 14.23%; (7.60; 21.26) and \( ?^* \): 18.54%; (10.76; 26.87), respectively) and BMI at AR (\( ?^* \): 63.08%; (55.04; 71.53) and \( ?^* \): 67.02%; (59.30; 75.10), respectively) were positively associated with leptin levels. PHV showed a positive effect on leptin in females only (\( ?^* \): 10.75%; (3.73; 18.25)). Growth parameters were not significantly associated with adiponectin except for age at AR among females (\( ?^* \): 0.75 ng/ml; (0.42; 1.09)) and PWV among males (\( ?^* \): 0.45 ng/ml; (0.11; 0.79)). Growth patterns in early life may be associated with leptin levels at age 10 years.