One of the main goals of practitioners caring for children is the prevention of disease in adulthood. Because obesity is the most prevalent nutritional disorder in the United States, identifying the harbingers of adult obesity during childhood is an essential task. In this issue of the Journal, Stettler et al (1) present data from a longitudinally followed cohort suggesting that the rate of an infant’s weight gain during the first 4 mo of life can help to predict the likelihood of developing obesity (body mass index [BMI; in kg/m²] ≥ 25) or overweight-overfatness (BMI ≥ 25 and skinfold thickness ≥ 85th percentile) in early adulthood (age 18–22.9 y). Stettler et al studied 300 subjects who were originally evaluated for the National Collaborative Perinatal Project, a study of 9020 singletons born to African American women. These 300 children were the available subjects remaining from 446 African American children enrolled in the follow-up Philadelphia Blood Pressure Project and were selected for study because they were believed to be representative of the original National Collaborative Perinatal Project cohort. Stettler et al defined rapid weight gain as an increase of ≥ 1 SD in weight-for-age z score (determined by the LMS method) from birth to the age of 4 mo. By this criterion, 29% of the infants had a rapid weight gain during the first 4 mo, and 28 of the 300 (9.3%) subjects became overweight-overfat or obese in early adulthood. Stettler et al’s analysis took into account factors that were expected to affect body weight in adulthood, such as maternal BMI. Infants with a rapid weight gain were found to have a relative risk of obesity in young adulthood that was 5.22-fold that of infants without a rapid weight gain and an attributable risk of obesity of ≈ 30%. These findings confirm and extend previous data suggesting a relation between weight gain during the first year of life and BMI in childhood (2–7) or adulthood (8).

Stettler et al’s data would appear to indicate that weight gain during the first year is an important predictor of adult obesity and that we should add infant weight change to the list of pediatric predictors of adult obesity, a list that currently includes factors that alter prenatal (in utero) weight gain to make it either too great or too small (9, 10), the degree of parental obesity (11), and the age at which a child’s “adiposity rebound” begins (12). However, this study has some important limitations. First, the children who participated were born between 1959 and 1966, before the start of the massive increase in the prevalence of pediatric and adult obesity; thus, only 9.3% of the cohort were obese or overweight when measured as adults. It is difficult to predict whether weight gain during the first year of life will have the same relation to adult obesity in children growing up today. Second, the study population consisted of only 300 African American subjects. The relative risk values are therefore based on results from a group of only 28 overweight-overfat and obese adults. As the authors point out, the small sample size leads to relatively unstable estimates of the odds ratios. When the presence of overweight at the age of 7 y was included in the analysis, infant weight gain was no longer significantly associated with adult body weight. Thus, these data need replication in larger, more diverse samples.

Unlike the other factors proposed for use as predictors of adult obesity, a large 4-mo change in weight-for-age z score (determined by the LMS method) is challenging to calculate by hand and is thus unlikely to be used anywhere but in a research setting. The change-in-weight z score for a given increase in weight over the first 4 mo of life varies substantially, depending on whether the infant starts at a low or a high birth weight. No change-in-weight z score may be seen with infants gaining from 2.9 kg (for an infant with a z score of ≈ 2 SD) to 3.6 kg (for an infant with a z score of +2 SD). Depending on the starting weight z score, a 3.3–4.0-kg weight gain over this time interval causes a < 1 SD change-in-weight z score, whereas a 4.25-kg weight change may be seen with a 2-SD change (from −1 to +1 SD). It may be of value to determine whether simpler criteria for weight change could be developed that are equally good predictors of adult obesity.

These data are important because they may ultimately help us to identify children at unusual risk of adult obesity. Should these results be replicated, the first 4 mo of infancy may be considered a critical time period during which it would be appropriate to study efforts aimed at preventing adult obesity.

**REFERENCES**


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