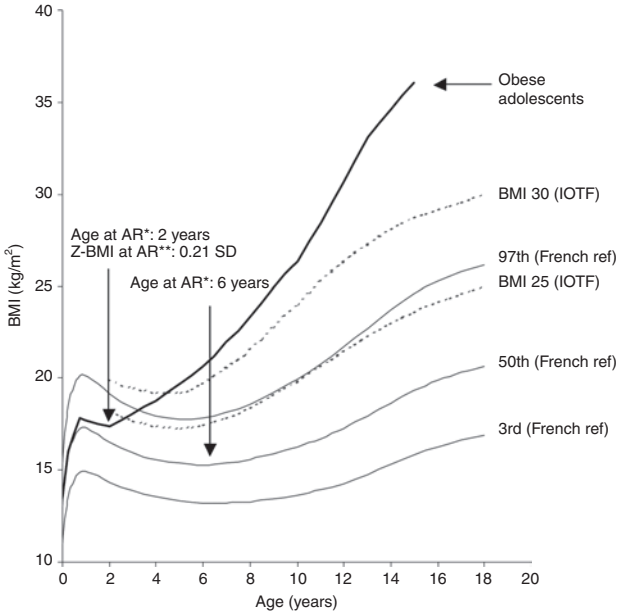

Figure 1 BMI growth curve of 76 massively obese adolescents plotted against the French BMI reference charts (3rd, 50th, 97th percentiles) and Cole *et al.*'s IOTF cut-off percentiles. *Median age at AR. **Median Z-BMI score at AR according to French references. AR, adiposity rebound; IOTF, International Obesity Task Force.

Obesity Task Force cutoffs. In average, obesity started at the age of 5 years, while AR started 3 years earlier (**Figure 1**). The very early AR recorded in obese subjects suggests that determinants of future risks have operated early in life.

In conclusion, BMI growth trajectories of obese individuals do not generally follow an elevated percentile throughout childhood but rather indicate normal or even low BMI values at young age followed by high values later on. This particular trajectory and early AR should be looked at because of their association with later metabolic risk (2,5).

DISCLOSURE

The authors declared no conflict of interest.

REFERENCES

1. Williams S, Goulding A. Patterns of growth associated with the timing of adiposity rebound. *Obesity (Silver Spring)* 2009;17:335–341.
2. Rolland-Cachera MF, Deheeger M, Maillot M, Bellisle F. Early adiposity rebound: causes and consequences for obesity in children and adults. *Int J Obes (Lond)* 2006;30:S11–S17.
3. Péneau S, Thibault H, Meless D *et al*. Anthropometric and behavioral patterns associated with weight maintenance after an obesity treatment in adolescents. *J Pediatr* 2008;152:678–684.
4. Power C, Lake JK, Cole TJ. Measurement and long-term health risks of child and adolescent fatness. *Int J Obes Relat Metab Disord* 1997; 21:507–526.
5. Barker DJ, Osmond C, Forsen TJ, Kajantie E, Eriksson JG. Trajectories of growth among children who have coronary events as adults. *N Engl J Med* 2005;353:1802–1809.

[1]INSERM, U557, Bobigny, France; [2]INRA, U1125, Bobigny, France; [3]CNAM, Bobigny, France; [4]Univ Paris13, Bobigny, France; [5]CRNH IdF, Bobigny, France; [6]INSERM, U897, Bordeaux, France; [7]Univ Victor Segalen Bordeaux 2, Bordeaux, France; [8]Unité de Surveillance et d'Epidémiologie Nutritionnelle, InVS, Bobigny, France. Correspondence: M.-F. Rolland-Cachera (mf.cachera@uren.smbh.univ-paris13.fr)

doi:10.1038/oby.2009.93

Early Adiposity Rebound Is an Important Predictor of Later Obesity

Sheila M. Williams[1] and Ailsa Goulding[2]

TO THE EDITOR: We thank Péneau and colleagues (1) for their interest and comments regarding our article entitled "Patterns of Growth Associated With the Timing of Adiposity Rebound" (2). The new information they present showing that 97% of a sample of 76 severely obese French adolescents had exhibited an early adiposity rebound (AR) (median age 2 years) provides further support for the view that early age of AR is an important predictor of later obesity in adolescence or young adulthood. Interestingly, in their study, as in ours, the majority of children showing an early AR was not overweight, at the time they underwent AR. Presumably aberrant controls of energy balance favoring weight gain develop in preschool years in children with an early AR changing their trajectory of growth (3). Such children certainly gain body fat faster than those who undergo AR at a later age (4), demonstrating that it is the rapid accumulation of excessive adipose tissue which largely explains their elevated BMI values. Lagstrom *et al.* (5) showed that children who were overweight at 13 years of age had gained excessive weight in early childhood while Nader *et al.* (6) reported that children maintaining BMI values ≤50th percentile throughout their preschool years were less likely to be overweight by adolescence than those who had BMI values ≥85th percentile.

DISCLOSURE

The authors declared no conflict of interest.

REFERENCES

1. Péneau S, Thibault H, Rolland-Cachera MF. Massively obese adolescents were of normal weight at the age of adiposity rebound. *Obesity*, this issue.
2. Williams SM, Goulding A. Patterns of growth associated with the timing of adiposity rebound. *Obesity (Silver Spring)* 2009;17: 335–341.
3. Williams SM. Weight and height growth rate and the timing of adiposity rebound. *Obes Res* 2005;13:1123–1130.
4. Taylor RW, Goulding A, Lewis-Barned NJ, Williams SM. Rate of fat gain is faster in girls undergoing early adiposity rebound. *Obes Res* 2004;12:1228–1230.
5. Lagstrom H, Hakanen M, Niinikoski H *et al*. Growth patterns and obesity development in overweight or normal-weight 13-year-old adolescents: the STRIP study. *Pediatrics* 2008;122:e876–e883.
6. Nader PR, O'Brien M, Houts R *et al*. Identifying risk for obesity in early childhood. *Pediatrics* 2006;118:e594–e601.

[1]Department of Preventive and Social Medicine, Dunedin School of Medicine, University of Otago, Dunedin, New Zealand; [2]Department of Medical and Surgical Science, Dunedin School of Medicine, University of Otago, Dunedin, New Zealand. Correspondence: Sheila M. Williams (sheila.williams@stonebow.otago.ac.nz)

doi:10.1038/oby.2009.104