

NSA Concurrent Oral Session 2: Energy and Metabolism

Girls undergoing early adiposity rebound gain fat at a faster rate than girls with a later rebound

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Background - Although several studies have shown that an early adiposity rebound (AR) is associated with an increased risk of adult obesity, it is not clear whether the rebound in body mass index (BMI) is actually attributable to changes in body fat.

Objective - To determine the changes in body composition occurring in girls during AR.

Design - Body composition was measured using dual-energy x-ray absorptiometry (DXA) at baseline, year one, year two and year four in 40 girls aged 3-6 years at baseline. Dietary intake was estimated by four-day diet records and physical activity by questionnaire. Age at AR was determined by modelling. The velocity of change (% per year) in height, weight and fat and lean tissues was estimated for each subject using random coefficient models. Early AR was defined as less than five years of age and late AR as five or more years of age.

Outcomes - Early and late rebounders did not differ in age, height, weight, body composition, dietary protein intake or physical activity participation at baseline. Although height velocity was similar, weight velocity was significantly higher in early compared with late rebounders (13.5% vs 10.7, $P < 0.001$). Differences in weight velocity were entirely due to change in body fat stores; early rebounders gained body fat at more than twice the rate of late rebounders (17.1 vs 6.5%, $P < 0.001$) whereas no differences were observed in lean mass velocity. By the age of 9 years, girls with an early AR were more than 4 kg heavier than girls with a late AR, with considerably more body fat and a greater percentage classified as overweight.

Conclusions - Our study demonstrates that the differences in BMI during AR are due specifically to alterations in body fat and not to alterations in lean mass or height.

A randomised trial of three non-dieting programs for overweight women

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Background - Since traditional treatments for overweight/obesity that focus on energy restriction show poor long-term maintenance of weight loss, 'non-dieting' approaches are increasingly advocated. Non-dieting approaches encourage the adoption of eating in response to physiological hunger and satiety cues, rather than cognitive control of eating. Few randomised trials of non-dieting programs have been reported.

Objective - To evaluate the effects of non-dieting programs in overweight and obese women at high risk of coronary heart disease.

Design - 225 obese/overweight women (BMI > 28 ; 25-65 years) with at least one other cardiovascular risk factor took part in a randomised trial of three different non-dieting programs (P1, P2, P3). P1: ten weeks of weekly group intervention focusing on training in eliciting the relaxation response and cognitive restructuring. The other two programs (P2: ten week group intervention; P3: mail-delivered intervention) focused on healthy eating and activity patterns.

Outcomes - Measures were obtained at baseline, 10 weeks and 4 months. For participants in all three non-dieting programs, depression, anxiety and other psychological distress, perceived barriers to physical activity and to reducing dietary fat, self-reported medical symptoms, and diastolic blood pressure showed significant reductions at 10 weeks and 4 months; while stage of readiness for regular exercise, eating self-efficacy, dietary quality scores and "Health-Promoting Lifestyle Profile" scores all improved significantly ($P < 0.01$). At four months, 44% of all participants had lost weight, 22% had maintained weight and 34% had gained weight. P1 participants showed significantly greater improvements in stress management ($P < 0.0001$).

Conclusions - Findings suggest that non-dieting interventions can enhance psychological wellbeing and lifestyle habits for overweight/obese women.