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# Normal Weight Is Associated with Significant Reductions in Cardiovascular Risk for Adults, Even in Those Who Were Overweight or Obese as Children

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## Implications for practice and research

- There is hope for adults who were obese as children that they still can avoid serious health consequences by losing weight. Nurses can use these findings to help overweight and obese adults to see real benefits for losing weight.
- The fact that 64% of those overweight or obese (and 82% of those who were obese) as children were obese as adults, whereas less than 15% who were normal weight as children became obese as adults, provides compelling impetus for childhood obesity prevention and treatment. Since the damage to health was found to occur in overweight and obese adults, regardless of

their childhood weight status, obesity prevention and treatment is needed throughout the lifespan.

- Further research is needed to determine the most efficacious, feasible and cost-effective interventions that sustain a healthy body weight throughout the lifespan. Do those who were overweight or obese as children have more difficulty losing weight as compared with those with adult onset obesity? Do interventions directed toward parents and children sustain weight loss longer than those for one age cohort?

## Context

Childhood obesity is increasing. It was not known whether childhood or adult overweight/obesity (alone, or in combination) was associated with risks of cardiovascular disease.

## Methods

Juonala *et al* conducted a meta-analysis of four prospective cohort studies conducted in the USA, Australia and Finland. The study sample included 6328 subjects who were followed for an average of 23 years. Subjects were placed into four groups for analysis: (A) not overweight or obese either as a child or adult; (B) overweight or obese as a child, but not as an adult; (C) overweight or obese both in childhood and in adulthood; and (D) normal weight in childhood and obese in adulthood. Body mass percentiles were calculated for children and body mass index (BMI) was collected in the same subjects as adults. Outcome variables included carotid intima-media thickness, and risks for cardiovascular disease such as type 2 diabetes, hypertension and dyslipidemia. Comparisons of cohort data were conducted using analysis of variance or  $\chi^2$ . Poisson regression was used to determine associations between childhood adiposity and adult outcomes as well as between cohort groups and adult outcomes.

## Findings

Risks for cardiovascular disease were similar for those who were normal weight as adults, even if they had been overweight or obese as children. The risks for adults who were obese were similar, whether they had been overweight or obese as children. The findings were similar for men and women, though obese women had a higher risk of a high level of high-density lipoprotein cholesterol and hypertension than obese males. The increase in risk was predominately in adults with BMI greater than 30, regardless of childhood weight. There was no interaction between race and adiposity group. Reduced risk factors were found regardless of the age at which normal weight was attained. Childhood obesity was associated with a risk of hypertension, after adjustment for adult obesity status.

## Commentary

Although the authors found that normalisation of BMI was associated with risk factors similar to those who were never overweight or obese, their analysis documents the difficulty of weight normalisation. There were only 274 subjects (4%) of the total who were overweight or obese as children and of normal weight as adults. And those overweight as children still had a higher risk of hypertension, even at a normal adult weight.

The overwhelming predominance of Caucasian subjects included in the studies used for this meta-analysis is an acknowledged limitation, even though no interaction was found between race and adiposity groups. Obesity rates are highest in racial minorities.<sup>1</sup> However, cardiovascular disease for both Caucasian and African–American subjects was related to the number of risk factors (similar to those measured in the present study), in a meta-analysis including 67 890 subjects from 17 studies.<sup>2</sup>

The authors concurred that there is a relationship between weight status tracked from childhood to adulthood and the risk of cardiovascular disease. This study was important because it showed that in subjects who were able to normalise their weight, the associated cardiovascular risk factors were almost completely ameliorated.

## References

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