

Changes in Waist-to-Height Ratio during preschool years differ between children being obese or overweight at five years of age compared with normal-weight children

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Background

Growth patterns in early childhood are important for predicting adult overweight or obesity. Body mass index (BMI) does not reveal much regarding the distribution of fat. In adults, the visceral fat is highly correlated with metabolic risk. Waist-to-height ratio (WHtR) seems to be a better measure for visceral fat. Studies indicate that the same applies to children.

Aims and objectives

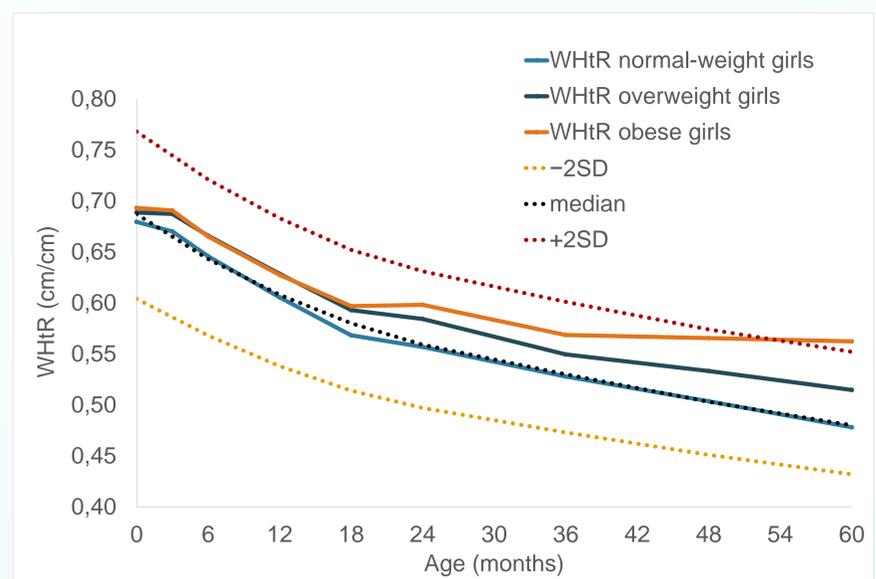
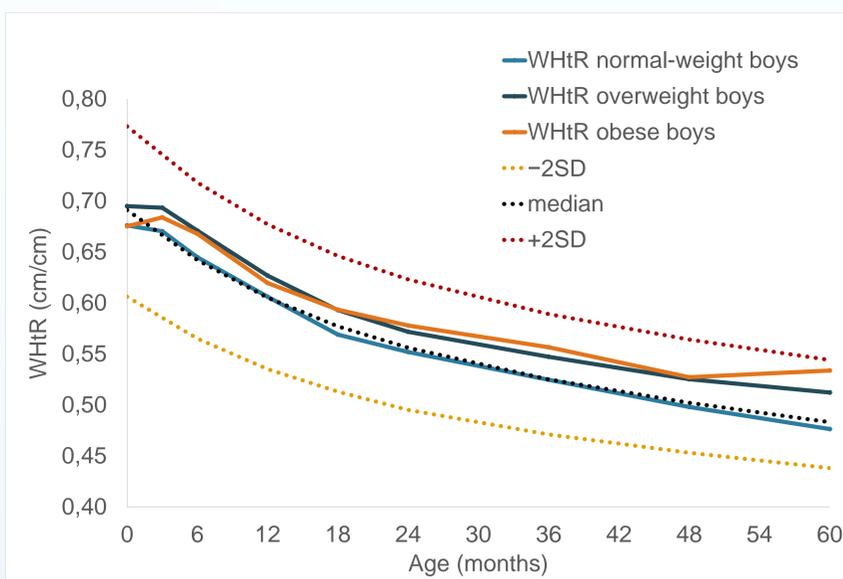
To study changes in WHtR during preschool years in children being obese, overweight or normal-weight at five years of age.

Conclusion

Children that are obese or overweight at five years of age can be identified by high waist-to-height ratio already during infancy.

Results

Overweight boys had higher WHtRs at every measure point compared with normal-weight boys ($p < 0.001$) and overweight girls had higher WHtRs, except at birth ($p < 0.001$). The same pattern was seen in obese girls ($p < 0.05$), except at birth. Obese boys had higher WHtRs except at birth, significant ($p < 0.05$) at 18, 24, 36 and 60 months. For details see figures.



Figures Left shows growth trajectories of mean WHtR-values for boys aged 0-60 months, classified by BMI cut-off-values by IOTF at 60 months of age (1) and with +2SD, median and -2SD reference values from a Swedish cross sectional study (2). Right shows growth trajectories of mean WHtR-values for girls aged 0-60 months, classified by BMI cut-off-values by IOTF at 60 months of age (1) and with +2SD, median and -2SD reference values from a Swedish cross sectional study (2).

Methods

Longitudinal study of 2666 children participating in the Halland Health and Growth Study (H²GS) followed from 0-60 months. Measurements of weight, waist circumference and height were made at 0, 3, 6, 12, 18, 24, 36, 48 and 60 months. Children were classified as obese, overweight or normal-weight (including underweight) at 60 months according to BMI cut-off values by IOTF(1).

References

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No conflicts of interests

