

Differentiation of the plasma metabolite profile detected with $^1\text{H-NMR}$ spectroscopy of obese and normal-weight children and adolescents

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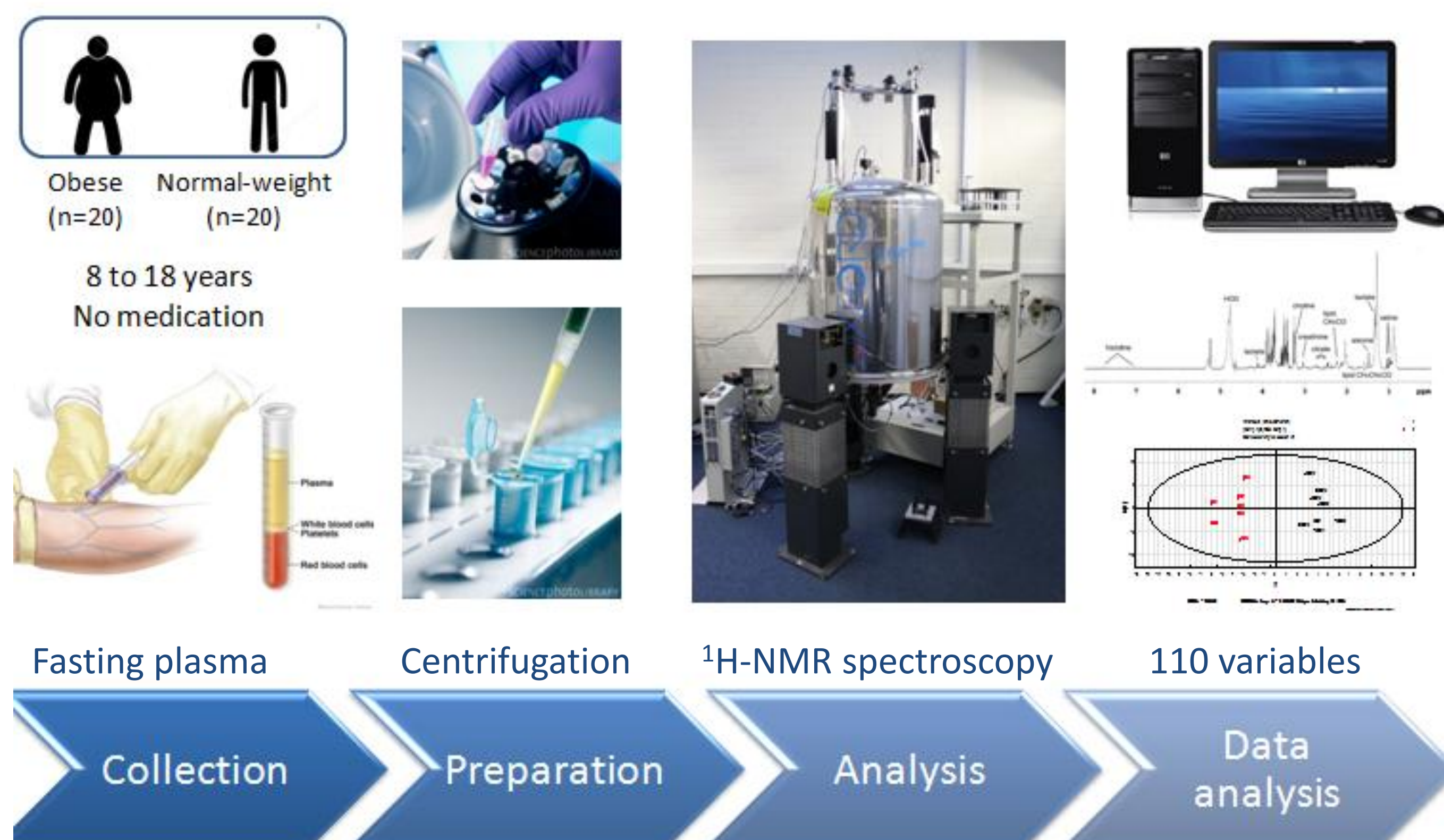
Introduction

Childhood obesity is a major health problem worldwide.¹ Obese children are at high risk to develop co-morbidities such as cardiovascular dysfunction, type 2 diabetes, pulmonary, hepatic and renal complications.² To improve current treatment strategies for childhood obesity, a proper understanding of obesity-related pathophysiological mechanisms is required. Metabolomics is increasingly used as a tool for the study of obesity, since the plasma metabolite profile is reflective of metabolic processes.³

Aim

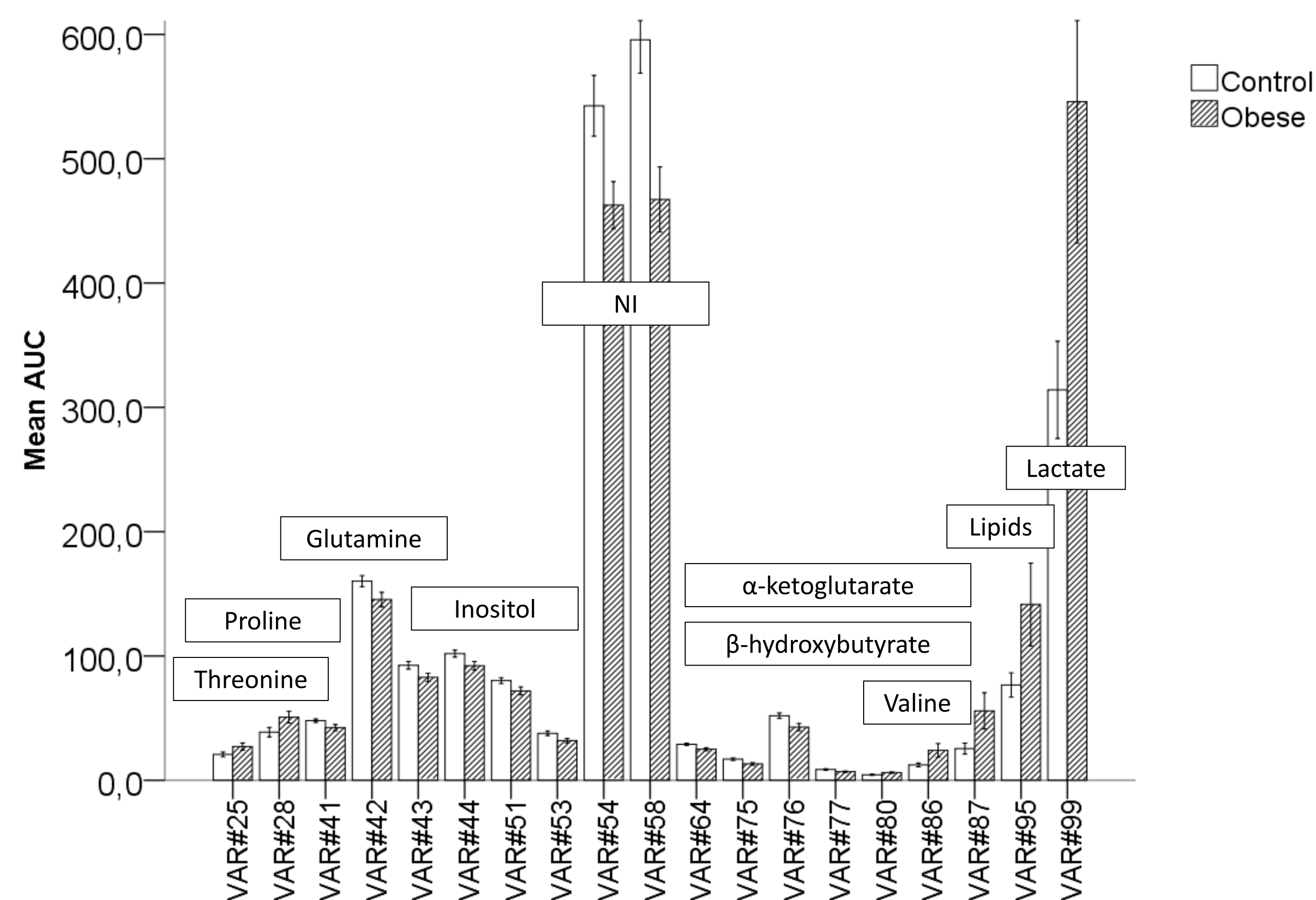
To investigate and compare the metabolite profile of obese and normal-weight children detected with $^1\text{H-NMR}$ spectroscopy.

Methods

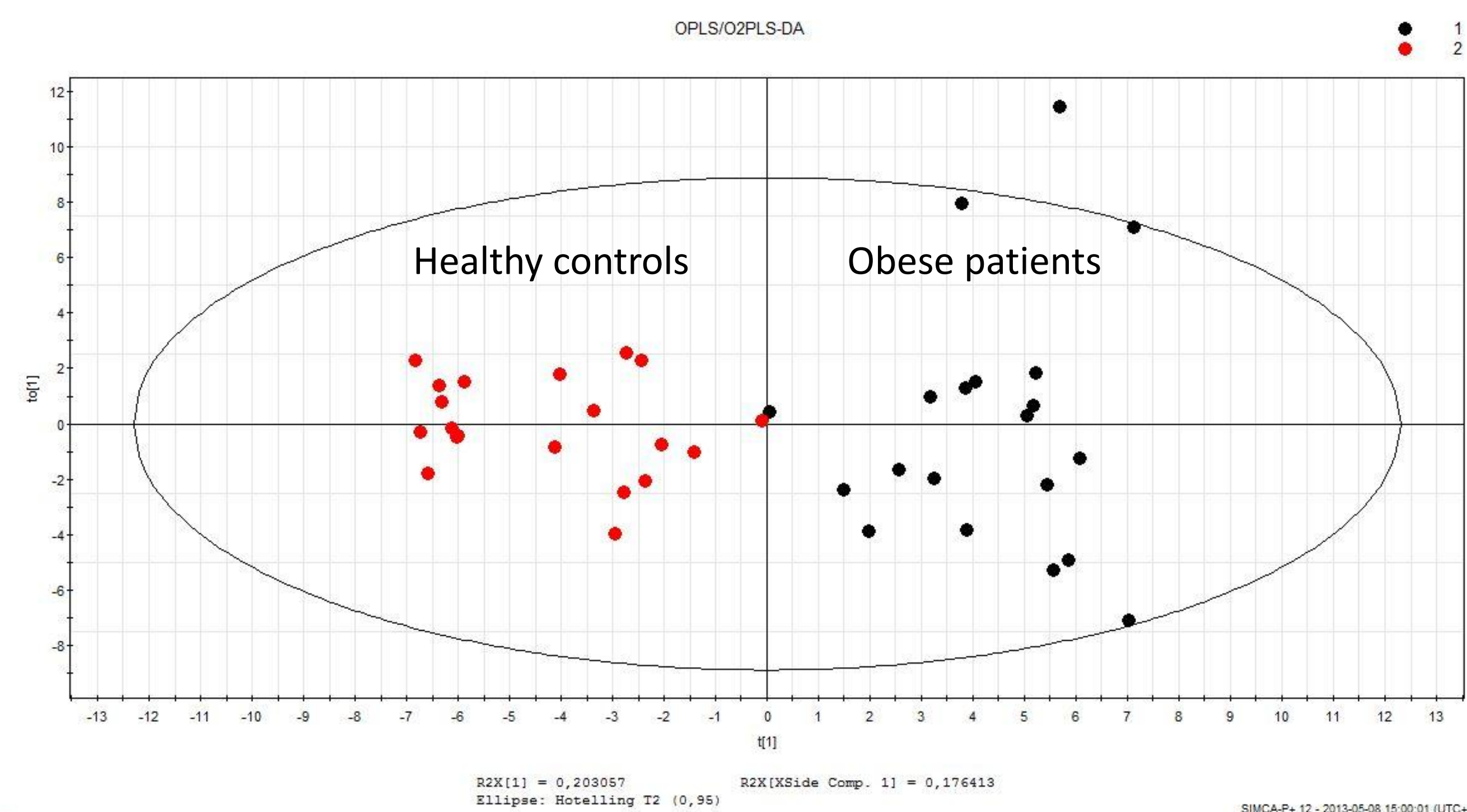


Results

After correction for multiple testing, 19 spectral regions were significantly different in obese compared with normal-weight children (p value $< 4.545 \times 10^{-4}$).



The plasma metabolite profiles of obese children could be clearly distinguished from those of normal-weight children.



Conclusion

Our findings show a clear differentiation between the plasma metabolite profile of obese and normal-weight children. However, additional research is needed in a larger sample population in order to translate current findings into a clinically meaningful outcome.

References

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2. Daniels SR. Complications of obesity in children and adolescents. *Int J Obes (Lond)* 2009; 33 (suppl 1): S60–65
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