

School performance, body constitution and the augmentation index in young adolescents

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Childhood obesity



School performance and obesity

- [Alison K. Cohen](#), [Manisha Rai](#), [David H. Rehkopf](#) **Educational attainment and obesity: A systematic review.** [Obes Rev. Dec 2013; 14\(12\): 989–1005.](#)
- [Booth JN¹](#), [Tompsonski PD²](#), [Boyle JM³](#), [Ness AR⁴](#), [Joinson C⁴](#), [Leary SD⁴](#), [Reilly JJ.](#) **Obesity impairs academic attainment in adolescence: findings from ALSPAC, a UK cohort.** [Int J Obes \(Lond\).](#) 2014 Oct;38(10):1335-42.

Obesity and CVD

- 20-30% of children in developed countries are overweight or obese
- Obesity is the leading cause of atherosclerosis and CVD
- Atherosclerosis starts in the early childhood
- 10 -20 % of extremely obese people never get CVD

Atherosclerosis

- Completely reversible in early stages (minimal intima damage, stage of inflammation, foamy cells stage).
- Irreversible in the stage of fibroatheroma and thrombosis.
- Atherosclerosis increases arterial stiffness.

Study hypothesis

- An early atherosclerosis affects school performance in children.



Study design

participants

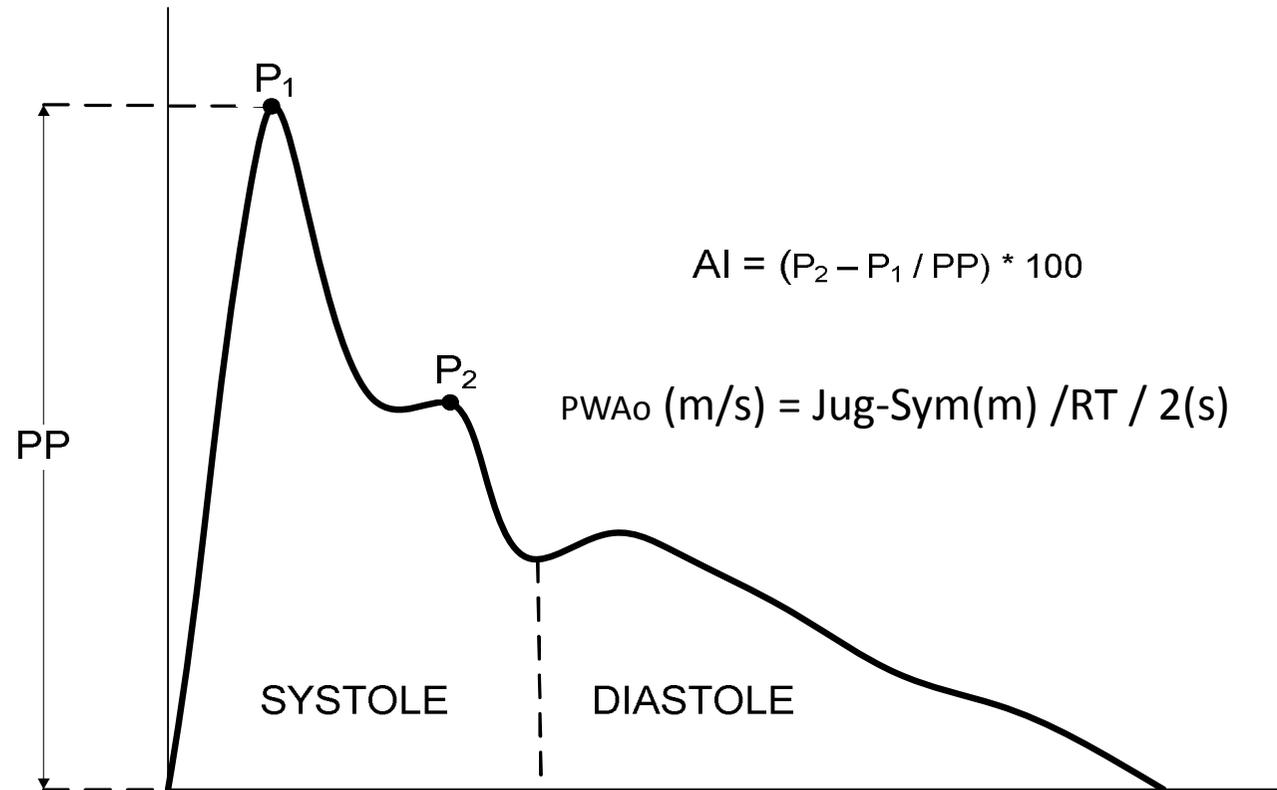
- 81 healthy school children aged 11-16 years
- Part of periodic health checks

methods

- Body weight, height, waist circumference
- BMI, SDS BMI
- Tanner puberty score
- Time of menarche (girls)
- Aix (Arteriograph)
- General school performance

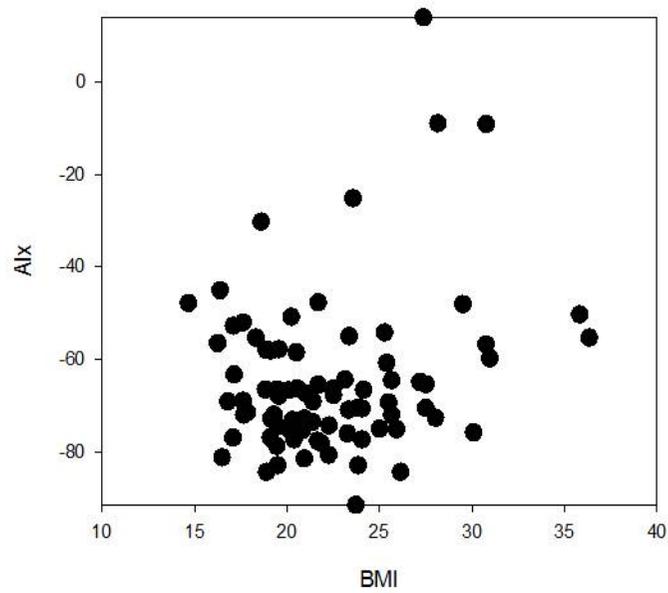


Augmentation index

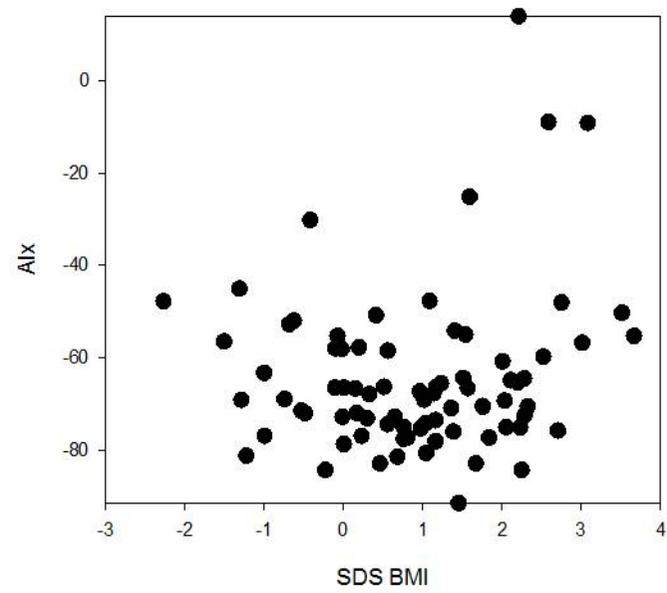


Results

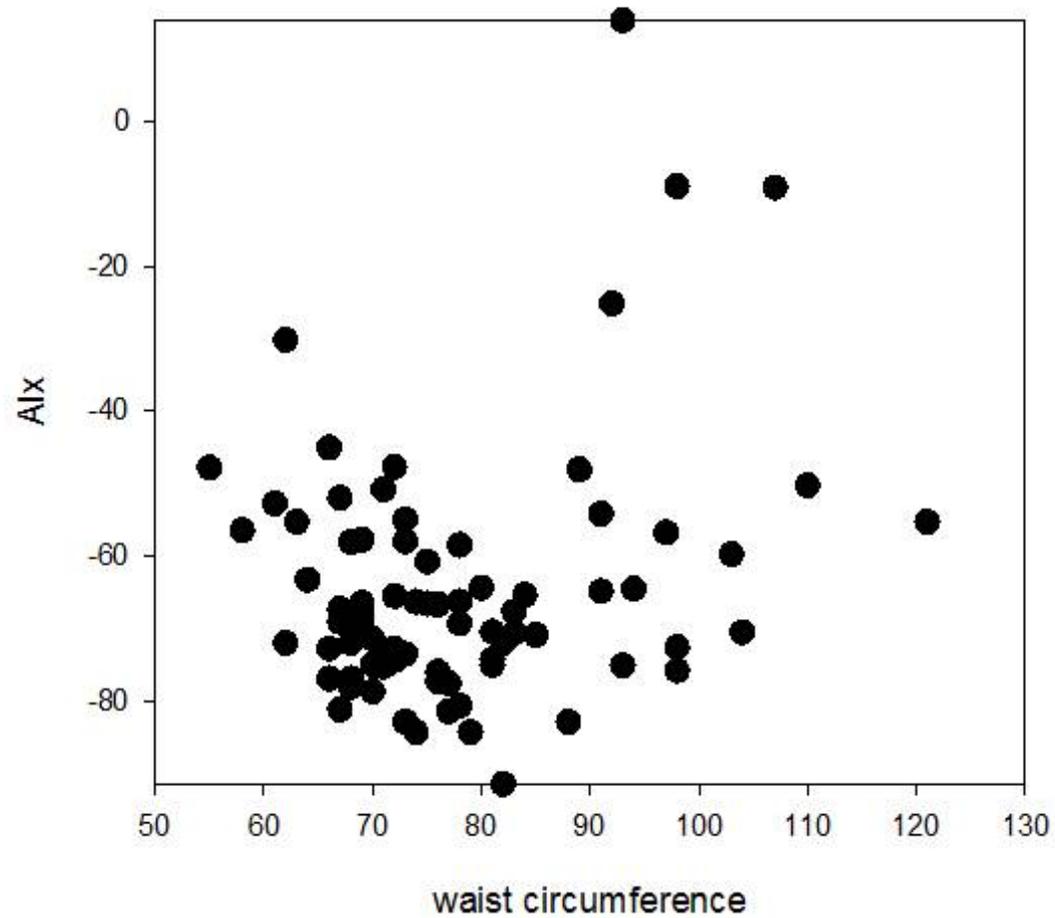
Aix - BMI



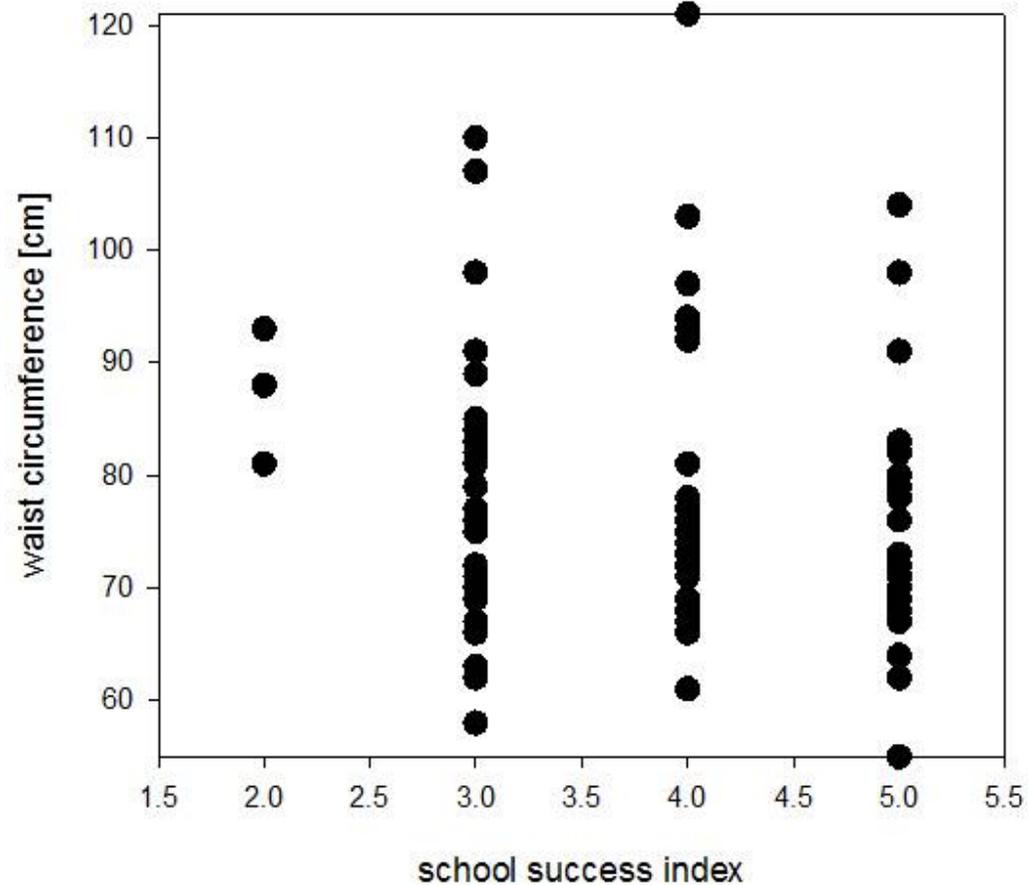
Aix - SDS BMI



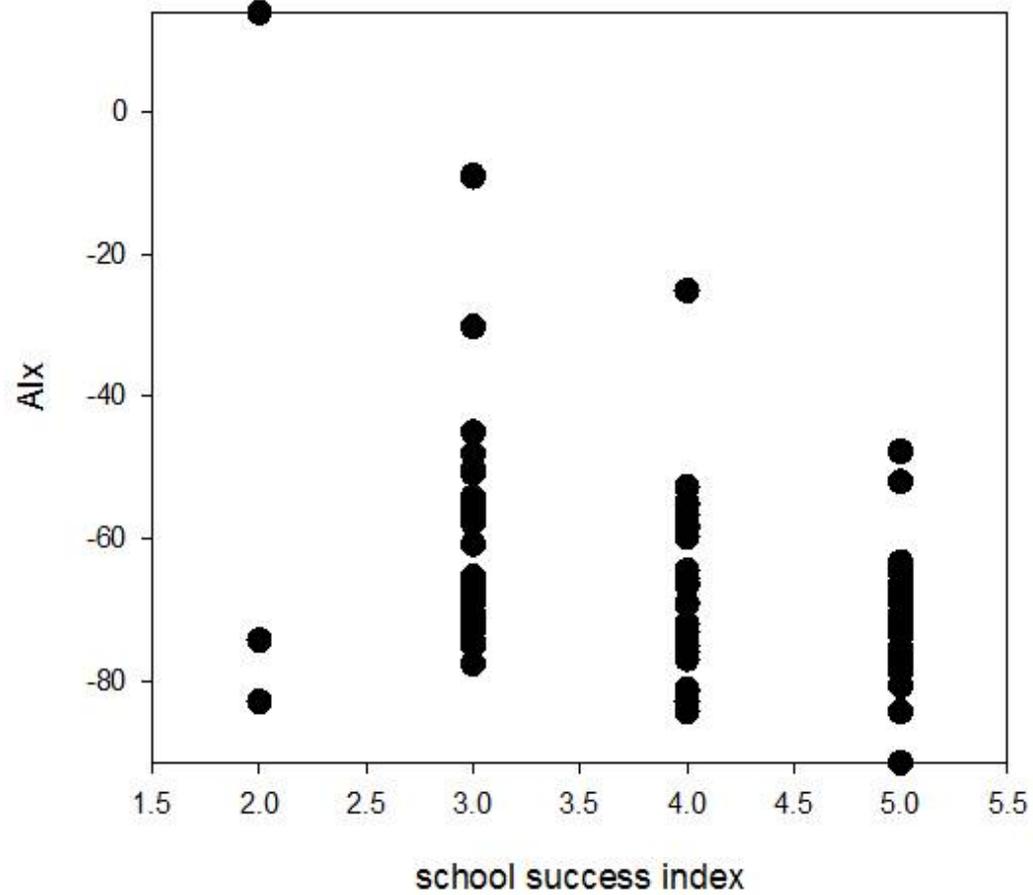
Aix – Waist circumference



Waist circumference – school success



Aix – school success



Conclusions

- Body constitution (obesity) has no significant effect on school performance
- Aix is highly influenced by body constitution
- Higher Aix suggests increased arterial stiffness in a group of children with lower school performance.

Thank you

