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# Dietary fat intake and blood pressure in UK adolescents: a longitudinal study

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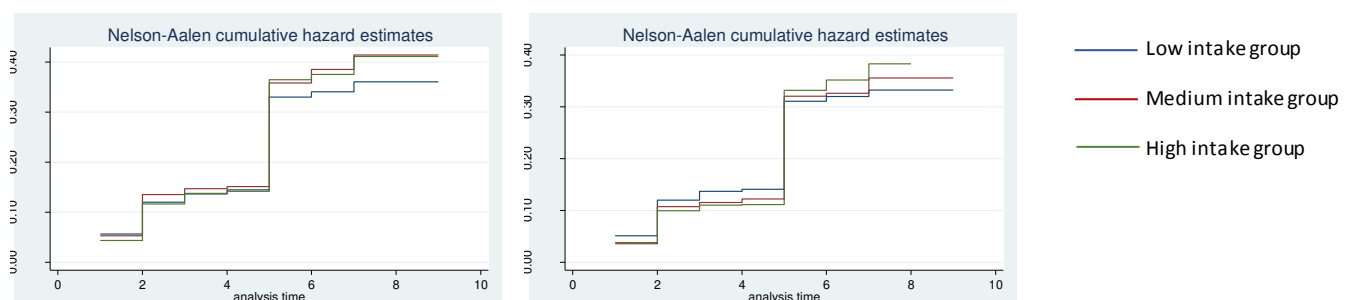
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Studies suggested that higher dietary fat intake was associated with higher blood pressure levels<sup>1,2</sup>, but relevant studies in adolescents, especially longitudinal studies are lacking. The aim of this study is to determine the longitudinal relationship between dietary fat intake and blood pressure in UK adolescents.

A sample of 6282 participants was selected from the Avon Longitudinal Study of Parents and Children (ALSPAC), in which sample was drawn randomly. General information and blood pressure data were collected at age 10, 11, 12, 13, 15 and 17. Diet was assessed using a four-day food record at age 10 and 13. BP data was transformed to systolic/diastolic BP Z-scores (SBPZ/DBPZ). Multivariable linear regression was undertaken to explore the relationships between fat intake and future BPZ. Participants were grouped into low/medium/high fat intake group according to their total fat intake. Incidence rate and mean survival time was calculated in each group. Cox regression was used to explore the longitudinal relationship between fat intake and the risk of hypertension. Gender, ethnicity, BMI, alcohol intake, smoking status, sodium intake, energy intake excluded fat, parents hypertension history and household income were adjusted in each model.

In fully adjusted linear models, every 1mg increase in fat intake at age 10 was associated with 0.017 (95%CI: 0.001 to 0.034) higher DBP at age 17. Every 1mg increase in fat intake at age 13 was associated with 0.026 (95%CI: 0.06 to 0.48) higher SBP at age 15. The incidence rate in low fat group (5.5%) was lower than medium(6.2%)/high intake (6.1%) group, and the mean survival time of low intake group (7.3 years) was higher than medium(7.1 years) and high intake (7.2 years) group. In cox regression models, no relationship between fat intake and hazard ratio of hypertension was found.

In conclusion,, in ALSPAC population, positive association was found between dietary fat intake at 10 and DBP at 17, also between fat intake at 13 and SBP at 15. Low fat intake group tended to have lower incidence rate and higher survival time compared to medium/high intake group, but no significant association was found in the fully adjusted Cox regression.



## References:

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2. Mirza, N.M., et al., Effects of a low glycemic load or a low-fat dietary intervention on body weight in obese Hispanic American children and adolescents: a randomized controlled trial. *Am J Clin Nutr*, 2013. **97**(2): p. 276-85.