Associations between dietary patterns and age at natural menopause in the UK Women's Cohort Study

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Background

Age at natural menopause → an indicator of ageing could be linked to health outcomes postmenopausally.

An earlier menopause:

- a higher risk for cardiovascular diseases, osteoporosis and depression
- a lower risk of breast, endometrial and ovarian cancer[1]

Diet can influence onset of natural menopause[2].

Aim

To investigate the prospective association between dietary patterns derived from two different methods and age at natural menopause

Methods

Baseline 1995 – 1998
- 35,372 women aged 39-65 years
- Diet (exposure) measured using a 217-item FFQ
- Principal component analysis & reduced ranked regression were used to derive dietary patterns

Follow-up 1999 – 2000
- Natural menopause was defined as the permanent cessation of the menstrual periods for at least 12 consecutive months without any surgical interventions/ HRT use
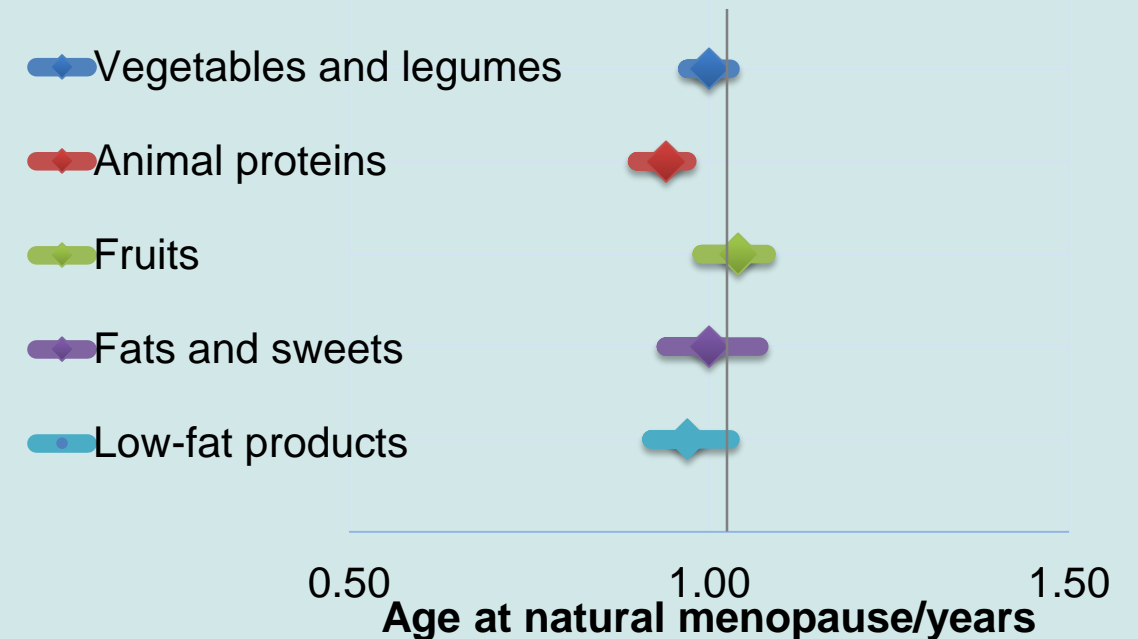
Statistical analysis

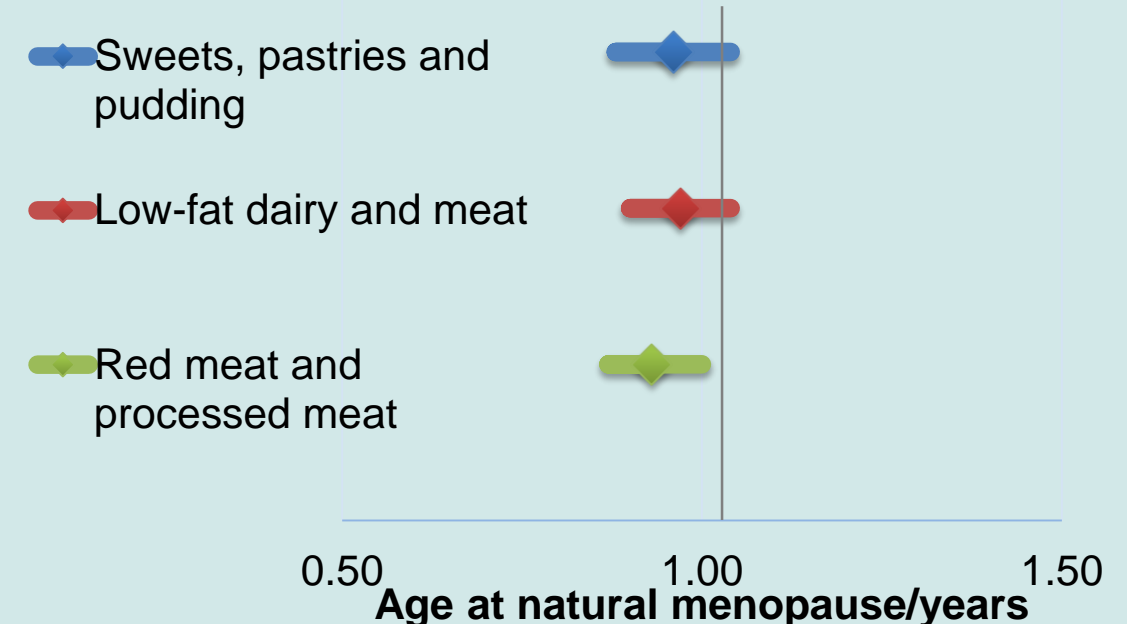➤ Cox proportional hazard regression models; $p < 0.05$

Findings

Associations between dietary patterns and onset of natural menopause

Principal component analysis

Vegetables and legumes
Animal proteins
Fruits
Fats and sweets
Low-fat products

Age at natural menopause/years

Reduced rank regression

Sweets, pastries and pudding
Low-fat dairy and meat
Red meat and processed meat

Age at natural menopause/years

Principal component analysis					Reduced rank regression		
Vegetables & legumes	Animal proteins	Fruits	Fats & sweets	Low-fat products	Sweets, pastries & puddings	Low-fat dairy & meat	Red meat & processed meat
Refined pasta & rice; Pulses; Vegetable dishes; TVP; Allium; Fresh legumes; Mediterranean vegetables; Salad vegetables; Mushrooms	Fish & fish dishes; Shell fish; Red meat; Processed meat; Poultry; Offal	Stone fruits; Orange & yellow fruits; Grapes; Citrus fruits; Rhubarb; Berries; Pomes	Potatoes with added fat; Margarine; Confectionary & spreads; Tea; Biscuits; Cakes; Pastries & Puddings	Low-fat dairy products; Low-fat spreads; Low-fat dressing	Confectionary & spreads; Pastries & Puddings	Low-fat dairy products; Low-fat dressing; Low-calorie soft drinks; Red meat; Processed meat; Poultry	Red meat; Processed meat

Conclusion

➤ These findings show evidence of an association between dietary patterns and timing of natural menopause.

➤ First study ever investigating the associations between dietary patterns and age at natural menopause.

➤ Both PCA and RRR are useful in deriving dietary patterns which can influence the onset of natural menopause.

References

1. Gold EB (2011) *Obstet Gynecol Clin North Am* **38**, 425-440.
2. Nagata C, Takatsuka N, Inaba S *et al.* (1998) *Maturitas* **29**, 105-113.