

## Meat eating and risk of arthritis in the UK Women’s Cohort Study

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It is estimated that about one in five people in the UK have arthritis, with osteoarthritis being the most common form<sup>(1,2)</sup>. With arthritis being the largest single cause of physical disability in the UK, an understanding of whether diet plays any role in its aetiology is important<sup>(3)</sup>. The UK Women Cohort’s Study<sup>(4)</sup> is a population-based prospective cohort study of middle-aged women used here to explore the relationship between meat-eating dietary patterns, and meat consumption (total, red, processed and poultry meat) in relation to risk of arthritis.

Of 35,372 women who completed a 217-item food frequency questionnaire (FFQ) between 1996–1999, approximately 45 % also completed a follow-up questionnaire after an average of 4 years. At follow-up, the women reported whether they had ever received a doctor’s diagnosis of arthritis and when this had occurred. This was used to classify the women as either being free of arthritis at any time, being a prevalent case of arthritis, or being an incident case of arthritis (arthritis diagnosis *after* cohort entry). A further group was identified that reported a positive diagnosis, but who did not provide a diagnosis date and could therefore neither be described as prevalent nor incident cases. The women were further classified as adhering to the following meat-eating patterns: vegetarians (meat and fish consumed <once per month), fish-eater (meat <once per month and fish >once per month) and vegetarian (meat and fish <once per month). Meat-eating was also described as grams per day of total meat, red meats, processed meats and poultry using intake frequency data from the FFQ, combined with standard portion sizes.

Using data from 10,838 women identified as incident cases or non-cases, logistic regression was used to explore the relationship between meat eating patterns and meat intakes at baseline and having a subsequent definition of arthritis at follow-up. Two models were used, an age-adjusted and a multivariable-adjusted model.

	Cases/Total	Model <sup>a</sup>			Model <sup>b</sup>		
		OR	95 % CI	P	OR	95 % CI	P
Meat eater	567/8823	1			1		
Fish eater	110/1967	0.92	0.74–1.14	0.43	0.95	0.75–1.19	0.65
Vegetarian	120/2424	0.84	0.68–1.03	0.09	0.91	0.73–1.14	0.40
Total meat	per 50g/day	1.11	1.05–1.18	<0.01	1.08	1.01–1.15	0.03
Red meat	per 50g/day	1.13	1.03–1.23	<0.01	1.09	0.98–1.21	0.09
Processed meats	per 50g/day	1.49	1.17–1.91	<0.01	1.34	1.03–1.79	0.03
Poultry	per 50g/day	1.18	0.97–1.43	0.09	1.18	0.97–1.45	0.09

\*Values are odds ratios (OR) and 95 % confidence intervals (95 % CI) <sup>a</sup>Age-adjusted model <sup>b</sup>Model adjusted for age, body mass index, family history of arthritis, socioeconomic status, exercise level, smoking status, and energy intake

In this cohort of health conscious women, compared with meat-eaters, the fish eaters and vegetarians experienced some reduction in the odds of being an incident case of arthritis, although these odds ratios were not statistically lower. Increasing consumption of total, and processed meats, was associated with significantly increased odds of arthritis in both the age and multivariable adjusted models. These findings are worthy of further investigation using more robust methods of confirmatory diagnoses, but support recommendations to limit the consumption of meats and meat products suggested by the World Cancer Research Fund and UK advisory bodies such as the Scientific Advisory Committee on Nutrition.

1. Arthritis Care. 1 in 5 – The prevalence and impact of arthritis in the UK (Research report). February 2002.
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