

Consumption of diets rich in animal protein, saturated fat, or sodium, and low in fibre are associated with increased risk of acute appendicitis

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Acute appendicitis (AA) is an inflammatory disorder of the vermiform appendix with a poorly understood aetiology. Dietary behaviour has been suggested as a risk factor for AA, but there has not yet been a systematic investigation into the relationship between diet and AA.⁽¹⁾ Thus, the objective of this research was to assess the dietary patterns and nutrient intake associated with the risk of developing AA. We hypothesised that the incidence of AA was positively associated with a Western Dietary Pattern (WDP) including low dietary fibre and high energy, saturated fat, and sodium foods. The investigation of dietary factors relative to AA was conducted on the UK Biobank involving a prospective cohort study population of 500,000 participants. A subset of the population with AA was defined based on the diagnosis codes from the International Classification of Diseases-10 (ICD-10). The assessed dietary factors belonged to six broad categories: Beverages and Liquids, Cereals and Grains, Fats and Milk, Fish and Meats, Fruits and Vegetables, Dietary Behaviours. R studio software was used to perform binomial regression analysis on each of the dietary parameters with AA. The statistical outputs included the *p*-value that assessed the statistical significance of association between dietary factors with AA and the odds ratio (OR), which measured the likelihood of an appendicitis outcome arising from each of the examined dietary components. The statistically significant results (*p* < 0.05) from the analysis showed that absence of both dried and fresh fruit intake increased the respective AA risk by 12% and 16%, whilst insufficient cooked vegetable and cereal intake raised the likelihood by 8% and 11%, respectively. Additionally, the presence of refined carbohydrate enriched foods such as white bread and biscuit cereal also raised the respective odds of AA by 8% and 11%. This identified that the UK Biobank population with AA had diets that were poor in fibre and rich in simple sugars. The frequent consumption of cheese, poultry, and processed meat, rich in protein and saturated fat, increased the AA odds accordingly by 7%, 9% and 40%, but infrequent oily fish intake raised the risk of AA by 10%. Therefore, a dietary intake high in animal protein and saturated fat seemed to significantly increase the risk to develop AA. The regular addition of salt to food alone, also raised the likelihood of AA by 12%. In summary, the UK Biobank AA population demonstrated dietary behaviour corresponding to a WDP. This was characterised by insufficient fibre intake in breads, cereals, fruits, and vegetables along with surplus sodium, animal fat and protein intake in butter, poultry, and red meat. Future research should focus on ethnic differences on the role of dietary intake behaviours on AA outcomes.

Reference

1. Carvalho N, Borges F, Costa B, *et al.* (2022) *Rev Port Cir* 52, 1–10.