

ADVISORY COMMITTEE ON THE MICROBIOLOGICAL SAFETY OF FOOD

SCIENTIFIC REPORT OF A DEFRA AND DRINKING WATER INSPECTORATE COMMISSIONED STUDY ON RISK FACTORS ASSOCIATED WITH CROHN'S DISEASE

PURPOSE OF THE PAPER

This covering paper accompanies a report published by Defra of a study into risk factors associated with Crohn's disease.

BACKGROUND

1. There has long been a postulated association between the chronic disease of humans, Crohn's disease (CD), and the organism, *Mycobacterium avium paratuberculosis* (MAP), responsible for an apparently similar disease in cattle and sheep. Despite extensive research and epidemiological studies no causal link has been demonstrated.
2. Since small numbers of MAP organisms have been shown to survive milk pasteurisation, the Agency has developed, in consultation with all relevant stakeholders, a precautionary strategy to reduce human exposure to MAP via the milk supply. This focuses on a combination of initiatives in the milk production and processing chain because a single measure that could be quickly applied to control MAP in milk has not been identified. FSA advice is that there is no need to change dietary habits.
3. The report of an epidemiological study commissioned by Defra and the Drinking Water Inspectorate on the possible role of MAP in the aetiology of CD was published in July 2005. The study examined whether the consumption of drinking water, pasteurised milk and dairy products is associated with a risk of developing CD.
4. The report has a good news story as the conclusion was that no positive association with milk or water was observed.

ISSUE

5. In addition to milk, dairy products and water other dummy groups were included in the study and these included beef meat (roast meat, mince, casseroles) and canned meat (corned beef). The study found an unexpected statistical association between meat consumption and CD. This surprising positive association was found with the combined meat group and also with beef meat. Canned meat was not significantly associated but becomes so once the data is adjusted. Details are not initially apparent but the adjustment is thought to be due to age, social class or some other factor.
6. As the aim of the study was to look at drinking water, milk and dairy products the information on these groups is extremely detailed however as the meat groups were included as dummy variables the data on these groups is limited. The report summary clearly states that it cannot be concluded from the study that meat itself may be a contributing factor and it is possible that any effect if there is one at all may be from the consumption of a high animal protein diet or a related reason.

7. Evidence for the presence or absence of MAP in carcase meat and associated animal products is scant. However, it is reasonable to assume that it can be found in lymph nodes and small numbers may be present in the muscle of clinically and sub-clinically affected cattle and sheep. While the organism is more heat resistant than some bacteria of public health importance, thorough cooking would destroy it.
8. The report concludes that this is the first study to identify a positive association with meat consumption but emphasises that care must be exercised in the interpretation of this subsidiary finding until confirmed by further research. The report notes that this finding could have arisen by chance. The authors suggest a possible link with animal protein consumption; a finding that has been noted previously. An infectious aetiology is not supported by the study's finding of a significant association with consuming canned meats and CD, as MAP would be destroyed by the heat treatment involved in canning.
9. As the analysis of the data has gone beyond the initial hypothesis it is not possible for the Agency to draw any conclusions from the work with respect to meat. Therefore further work, beginning with a consideration of the report within the context of the Agency Advisory Committees, is required.

FSA ADVICE TO CONSUMERS REGARDING CONSUMPTION AND COOKING OF MEAT

10. Agency advice is that all cuts and types of meat (with certain exceptions such as steak which may be seared on all surfaces) should be thoroughly cooked before consumption and that meat properly prepared can form part of a balanced diet. The standard cooking advice given to consumers is detailed at Annex 1.

ACMSF ACTION

11. ACMSF are requested to consider the report and provide a view whether the findings have any implications for current FSA advice on the consumption of meat.
12. ACMSF's views are also sought on whether, in the light of the reference to a possible association between total animal protein consumption and CD, this specific point should be referred to the Scientific Advisory Committee on Nutrition.

The full DWI report is available at http://www.dwi.gov.uk/research/crohns_report.pdf

**Secretariat
September**

FSA's standard advice given to consumers who ask for information on cooking meat

Meat may become contaminated with bacteria during slaughter and processing. For meat products such as steaks, cutlets and joints, any contamination is generally on the outside of the product. Proper cooking destroys this type of contamination, with the meat cooked to preference.

However, for minced products such as hamburgers and sausages (due to the way in which they are made) and for poultry, bacteria can be found throughout the product. It is essential that these types of products are properly handled before, during and after cooking and that they are cooked thoroughly to ensure that the bacteria are destroyed.

These products should be heated to 70°C and held at that temperature for two minutes or an equivalent time/temperature combination such as 65°C for ten minutes or 75°C for thirty seconds. Always ensure that it is served piping hot in the middle with no pinkness remaining and that any juices run clear.