

POST-WAR TRENDS IN BOWEL CANCER IN TWELVE COUNTRIES  
IN RELATION TO WAR TIME CHANGES IN FLOUR MILLING,

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On the hypothesis that the pentose-rich non-starch-polysaccharide (N.S.P.) of cereal fibre inhibits carcinogenesis in the bowel it was predicted that post-war trends in bowel cancer mortality would be related to the war-time increases in pentose and N.S.P. consumption produced by raised extraction rates for flour.

Quantitative and temporal relationships were examined in England and Wales, Ireland, Switzerland, Norway, New Zealand, United States, Australia. The experience of Scotland, Northern Ireland, Netherlands, Denmark and Canada was reviewed for temporal consistency.

The independent variable was the estimated increase in N.S.P. from flour during the first 5 years after year 0 (the year in which extraction rates were first raised significantly) compared to the mid to late 1930's.

The dependent variable was the ratio of the observed to expected death rate in years 11 to 15. The expected death rate was obtained by extrapolation of the trend in the age standardised death rate for 1931 to year 3 on to year 13.

The prediction was generally upheld with the greatest drops in bowel cancer in Ireland (about 25% greater than in the country with the least change), England and Wales and Switzerland - countries where the war-time increases in estimated N.S.P. consumption were greatest (about 15, 12 and 10 g/person/day respectively). (In Norway, however, where dietary change and deprivation was marked the observed drop in mortality was much less than predicted from the increase in N.S.P. consumption.)

The temporal pattern was for the death rate to fall about 5 years after the increase in N.S.P. consumption. Death rates often showed only a partial tendency to later recover towards the trend line - beginning 5 to 10 years after the removal in the post-war period of the extra war-time 'dose' of N.S.P.

The association between N.S.P. consumption and bowel cancer mortality was judged to be independent of the confounding changes in survival rates for bowel cancer and fat, meat, vegetable and beer consumption.

The results are consistent with a definite role for pentose-rich N.S.P. in the inhibition of large bowel carcinogenesis and with the emerging consensus that no one factor predominates in determining the frequency of these cancers.

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