

## Unexplained Inversion of the Incidence Ratio of Colon and Rectal Cancer among Men in East Germany

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**Background:** It has been observed for a long while that the incidence of colon cancer among men (as opposed to women) in the German Democratic Republic was lower than the rate of rectal cancer. Detailed analyses of this phenomenon have not been done so far. The aim of this study is to provide insights into the incidence time trends of colon and rectal cancers before and after the reunification in East and West Germany with special emphasis on the unusual ratio of colon and rectal cancers among men. In addition, we wanted to study the current worldwide association between the ratio of colon and rectal cancers and the overall level of colorectal cancer incidence based on population-based cancer registry data.

**Methods:** We extracted all primary malignant tumours of the colon, rectosigmoid junction, rectum for the period 1961 through 1989 from the data of the GDR and for the period 1996-2002 of the three new federal states that provide cancer incidence data. The Saarland Cancer Registry provided corresponding data for the period 1970-2002. Corresponding mortality data were also obtained. From Cancer Incidence in Five Continents, volumes 5-8, we extracted the corresponding incidence data and calculated the ratio of colon : rectal cancer incidence and mortality ratios of the age-standardized rates (European standard population).

**Results:** The overall incidence of colorectal cancer in the former GDR was considerably lower than that of the Saarland. With the incidence increase of colorectal cancers in the former GDR from 1961 to 1989, the ratio of colon to rectal cancer incidence became larger (1961-65: men 0.84, women 1.25; 1985-89: men 0.99, women 1.38; 1996-2002: men 1.40, women 1.91). The current relation of the colon and rectal cancer incidence among men in East Germany resembles that of West Germany and the vast majority of other populations.

**Conclusions:** There are several noncausal factors that could explain our findings. However, the majority of them can be rejected or are highly implausible. Job-related physical activity, a preventive factor especially for colon cancer, and its gradual decrease over time may have contributed to the unusual pattern of colon and rectal cancer in East Germany.