



UMEÅ UNIVERSITY

Umeå University Medical Dissertations New Series no. 2410

# Colon cancer

The role of geography, social network and  
physical activity

Niillas Blind

## Academic dissertation

Which, with the due permission of the Vice-Chancellor of Umeå University for  
the examination for the Degree of Doctor of Medical Science, is presented for public defence in

Hörsal B, Hus 1D, målpunkt T9 NUS on Friday, 27 March, 2026 at 09:00.

Link to participate via Zoom: [681 8728 6719](https://umea.se/zoom/68187286719), password: 189495.

The thesis will be defended in Swedish.

Faculty opponent:

Docent Marie-Louise Lydrup, Institutionen för kliniska vetenskaper, Lunds universitet.

**Organisation**

Umeå University  
Department of Diagnostics and  
Intervention

**Document type**

Doctoral thesis

**Date of publication**

6 March 2026

**Author**

Niillas Blind

**Title**

Colon cancer: The role of geography, social network and physical activity

**Abstract****Background:**

Colon cancer is a common disease. The symptoms are often diffuse, and twenty percent are operated as emergencies. These have worse prognosis in short and long term. To find these cancers before they debut as emergencies are important. Delay of diagnosis may lie in the patients or the health care. Geographical and social factors could have an effect on this. Colon cancer surgery is also a major surgical procedure where postoperative complications are common. The patient's physical activity varies and could affect the complications rate and the recovery after surgery. With objective measurements we will enable more accurate analyses on which management advice can be based.

**Aims**

The aims for this thesis is to study if emergency surgery of colon cancer is affected by distance hospital or the patient's social network. The role of the patients' physical activity and its effect on postoperative complications and long-term recovery are also evaluated with an objective test battery.

**Results**

Study I: Rate of emergency surgery differed between hospitals, but this was not associated with distance travelled by patients.

Study II: Emergency surgery for colon cancer was higher among divorced patients and males. Social network quality and quantity, assessed by questionnaire, did not differ in their impact on risk for emergency surgery.

Study III: Postoperative complication rate was higher among patients with low physical activity. When adjusting for age and ASA group, however, this was not significant. Patients with higher muscle mass had a lower complication rate. Significance remained in multivariable analysis.

Study IV: Muscle mass and results of physical tests improved six and twelve months after surgery. Physical activity levels, on the other hand, decreased over the same period.

**Conclusions**

Emergency surgery rate was not related to distance to hospital. Emergency surgery rate differed between catchment areas of the hospitals included. This suggests other factors than distance to hospital determine the risk for emergency surgery.

Social network had a limited impact on emergency surgery rate, though a trend towards a lower emergency surgery rate in patients with a strong social network and close relationships was seen, but this was not significant.

Greater preoperative muscle mass and higher level of physical activity were associated with a lower postoperative complication rate.

Patients usually recover well after colon cancer surgery, with improvement in muscle mass and physical function one year after surgery despite lower activity levels.

**Keywords:** Colon cancer; Physical activity; Emergency surgery; Social network

**Language**

English

**ISBN**

978-91-8070-927-9 (print)  
978-91-8070-928-6 (pdf)

**ISSN**

0346-6612

**Number of pages**

79 + 4 delarbeten/papers