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## Postoperative Aerobic and Resistance Exercise Training in Patients with Colorectal Liver Metastases –A Randomized Controlled Trial

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Approximately 50-75% of the patients with colorectal cancer and liver metastases (mCRC) who undergo surgery with curative intent, experience disease recurrence within two years<sup>1</sup>. Repeated rounds of surgery and chemotherapy result in severe physical deconditioning. Exercise has been shown to improve disease-free survival in colorectal cancer, and early post-operative aerobic exercise is associated with fewer adverse events, earlier initiation of chemotherapy, and increases in cardiorespiratory fitness and physical function. However, the effects of a combined aerobic and resistance exercise program, applied in a dose-response manner during the early postoperative period and throughout adjuvant chemotherapy in mCRC patients remains unknown.

This randomized controlled trial investigates the effects of supervised exercise training on peak oxygen consumption (VO<sub>2</sub>peak), skeletal muscle strength and function, and quality of life in patients with mCRC. Fifty-seven mCRC patients were randomized 1:1:1 to either 150 or 300 min/week of supervised exercise, or standard care. The intervention consisted of 24 weeks of supervised combined aerobic and resistance training, initiated two weeks following hospital discharge after surgical treatment of liver metastases.

VO<sub>2</sub>peak was the primary outcome. Secondary outcomes included skeletal muscle strength, physical function, and quality of life. Assessments were conducted preoperatively and at 12 and 24 weeks after initiation of the exercise intervention. The final participant completed the 24-week follow-up assessment in December 2025, and data analyses are currently ongoing. Results will be available for presentation at the ISEO Conference in July 2025.

### Keywords

colorectal liver metastases, supervised exercise training, peak oxygen consumption, liver surgery

### Conflict of Interest & Ethical Approval

yes

### Abstract submitters declaration

yes

**Authors:** YFANTI, Christina (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Dr THOMSEN, Simon N (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Dr KRABEK, Rikke (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Dr KNØFLER, Lucas A (Department of Digestive Diseases, Transplantation and General Surgery, Centre for Cancer and Organ Diseases, Rigshospitalet, Denmark); Mrs SJOBERG, Stine (Centre for Physical Activity Research, Rigshospitalet, University

of Copenhagen); Mrs RASMUSSEN, Line NE (Sjællands Universitetshospital, Næstved, Klinisk Onkologisk Afdeling og Palliative enheder Dansk Forskningscenter for Lighed i Kræft (COMPAS), Denmark); Mr BARSAKIS, Ilias C (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Ms BERIATOU, Ioanna C (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Mr KARAMAOUNAS, Fragkoulis A (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Mr ANTONIOU, Nikolas (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Mr KAZANTZIDIS, Konstantinos (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Ms STYLOU, Stella (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Ms KAISI, Anastasia (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Mr ZAROGLIANNIS, Konstantinos (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Prof. MAU-SØRENSEN, Morten (Department of Oncology, Rigshospitalet, Denmark); Prof. LARSEN, Peter N (Department of Digestive Diseases, Transplantation and General Surgery, Centre for Cancer and Organ Diseases, Rigshospitalet, Denmark); Prof. SILLESEN, Martin H (Department of Surgical Gastroenterology and Transplantation, Rigshospitalet, Denmark); Prof. SCHULTZ, Nicolai A (Department of Digestive Diseases, Transplantation and General Surgery, Centre for Cancer and Organ Diseases, Rigshospitalet, Denmark); Prof. POMMERGAARD, Hans-Christian (Department of Digestive Diseases, Transplantation and General Surgery, Centre for Cancer and Organ Diseases, Rigshospitalet, Denmark); Prof. PEDERSEN, Bente Klarlund (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen); Dr SIMONSEN, Casper (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen)

**Presenter:** YFANTI, Christina (Centre for Physical Activity Research, Rigshospitalet, University of Copenhagen)

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