

## **NCU – Summative report for 2014**

**Report submission date:**  
**2015-02-19**

**Principal investigator:**  
**Karin Nordin**

**Project title:**  
**Physical training and cancer (Phys-Can) - effects and understanding of mechanisms for prevent and minimizing cancer related fatigue, improve quality of life and disease outcome**  
**-a Nordic multicenter clinical trial within a multidisciplinary consortium**

**NCU grant received (€):**  
**30 000**

**Project commencement and completion dates:**  
**2013 - ongoing**

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### **1. Briefly describe the project in a language understandable to non-scientists (max. 100 words)**

The main aim is to determine the effects of physical training with different intensity in combination with, or without, individually motivational support strategies. The effect of this will be measured in the patients reported cancer related fatigue (CRF) and health related quality of life. We will also investigate the effects in disease outcome and to better understand the underlying biological mechanism in the development and maintenance of CRF, as well as to increase knowledge with respect to cost-effectiveness of rehabilitation programs. This will be evaluated in 600 newly diagnosed breast-, colorectal and prostate cancer patients during adjuvant therapy at three different University hospitals.

### **2. Summarize the major findings of the project (max. 400 words)**

A feasibility study has been carried out in 2013-2014. The feasibility study had three aims a) to identify most proper measures of PROs for fatigue, emotional wellbeing and Quality of Life and to identify the most important factors that determine physical activity behaviours, b) to explore patients undergoing adjuvant treatment views on physical exercise during treatment and c) to test the feasibility of the fitness tests as well as training programs, both with and without BM.

- a) A systematic literature review has been performed to identify most proper measures of CRF and other relevant patient reported outcomes. The result has contributed to the basis for the intervention and the out-come measures in the project.
- b) Five semi-structured focus group interviews (n=24) before training and eleven individual semi-structured interviews after 6 weeks training in four different training programs has been performed.
- c) Two training groups were conducted during November-December 2013 and three groups started January 2014. A total of 24 patients with breast, colorectal and prostate cancer were training for 6 weeks. Patients performed maximal oxygen uptake test before and after the training period. The implementation of the tests worked correctly. Training structure, logistics, inclusion procedures, etc. was tested and has been slightly modified prior to the start of the main study. No adverse advents from testing or the physical training were reported.

**3. Describe how the project has increased our knowledge of the prevention, cause and/or cure for cancer (max. 150 words)**

The project is ongoing. The first results from the randomised intervention study are expected 2017.

**4. Outline how Nordic cooperation has added value to this project (max. 100 words)**

This project requires profound knowledge and experience in exercise training and physiology, behavioral medicine, biomedicine and oncology. Thus, our research group comprises researchers from both Sweden, Denmark and Norway specialized in these domains;

- Physical training, testing and intervention (Sveinung Berntsen; Kristiansand, Norway)
- Exercise physiology and cytokines (Truls Raastad; Oslo, Norway)
- Inflammatory markers and cytokines (Pernille Hojman; Copenhagen, Denmark)
- Behavioral medicine interventions, physical activity interventions (Pernilla Åsenlöf, Sweden)

Among others.

**5. Publications resulting from the NCU research grant**

Analysing of data from the feasibility study is ongoing and has been presented at several congresses;

- Igelström H, Berntsen S, Johansson B, Nordin K. (2014): It is safe to perform resistance training while having a PICC. Results from Phys-Can feasibility study. Paper presented at: The European Cancer Rehabilitation & Survivorship Symposium (ECRS); 2014 September 8-9. Copenhagen, Denmark.

- Berntsen S, Igelström H, Hetlelid K.J, Henriksson A, Nordin K. (2014): Do cancer patients reach common end criteria for reaching maximal oxygen uptake? Paper presented at: The European Cancer Rehabilitation & Survivorship Symposium (ECRS); 2014 September 8-9. Copenhagen, Denmark.
- Nordin K, Johansson B, Aaronson, N., Arving, C., Berntsen, S., Buffart, L., Börjesson, S., Demmelmaier, I., Hellbom, M., Höjman, P., Igelström, H., Lundqvist, J., Mella, O., Nygren, P., Raastad, T., Ring, L., Sprangers, M., Velikova G., Åsenlöf, P. (2014): Physical training and Cancer (Phys-Can) – design and description of a multicentre clinical trial within a multidisciplinary consortium. The European Cancer Rehabilitation & Survivorship Symposium (ECRS); 2014 September 8-9. Copenhagen, Denmark.
- Hetlelid K.J., Berntsen S, Igelström H, Nordin K. (2014): Measured peak heart rate versus two common prediction formulas – a comparison in cancer patients. Paper presented at: European College of Sport Science; 2014 July 2-6. Amsterdam, Netherlands.
- Igelström H, Berntsen S, Hetlelid K. J, Åsenlöf P, Demmelmaier I, Henriksson A, Arving C, Johansson B, Nordin K. (2014): Phys-Can feasibility study: Preparing for Physical training and behavioral medicine strategies. Paper presented at: International Psycho-Oncology Society (IPOS), 16<sup>th</sup> World Congress of Psycho-Oncology, 2014 October 21-24. Lisbon, Portugal.
- Henriksson A, Arving C, Johansson B, Igelström H, Nordin K. (2014): Phys-Can feasibility study: Perceived barriers and facilities to exercise during adjuvant cancer treatment. Paper presented at: International Psycho-Oncology Society (IPOS), 16<sup>th</sup> World Congress of Psycho-Oncology, 2014 October 21-24. Lisbon, Portugal.
- Berntsen S, Igelström H, Hetlelid K.J, Henriksson A, Nordin K. (2014) Phys-Can feasibility study: Objectively recorded physical activity in cancer patients. Paper presented at: International Psycho-Oncology Society (IPOS), 16<sup>th</sup> World Congress of Psycho-Oncology, 2014 October 21-24. Lisbon, Portugal.
- Berghammer A, Nordin K, Igelström H. Tampa Scale for Kinesiophobia-fatigue (TSK-F): Translation, Reliability and Validity. Paper presented at: 14<sup>th</sup> World Congress of the European Association for Palliative Care (EAPC), 2015 May 8-10, Copenhagen, Denmark.

