Title:
Mechanisms behind the effects of perioperative interventions on postoperative functional recuperation in elderly patients undergoing major elective surgery: insight in the success of the “Better in, Better out” (BiBo) concept

Collaborators:
Maastricht University / Maastricht University Medical Center (UM/MUMC+), CAPHRI / NUTRIM research schools*
- Physical therapy: Prof. N.L.U. van Meeteren PhD PT (PI), Prof. R.A. de Bie PhD PT, I.M. Punt PhD PT, A.F. Lenssen PhD, PT
- Exercise physiology: B.C. Bongers PhD
- Nutrition: J. Isautier APD, MSc (PhD-student)
* In close collaboration with the MUMC+ departments of Physical Therapy, Surgery, and Anesthesiology

Marie Curie PANINI consortium of 11 EU University Medical Centers (UMCs):
- TNO: V. Kallen PhD
- Birmingham University: Prof. A. Philips PhD

Proposal (250 words)

Introduction:
Surgery is a major life event with the risk of negative consequences, like peri- and postoperative complications, prolonged hospitalization, and delayed and long lasting deterioration of daily functioning, especially in frail elderly people. A preoperative allied health professional intervention of physical therapists, dietitians, and psychologists in these patients improve their preoperative status and reduce the aforementioned negative postoperative consequences (BiBo concept; to be implemented in de MUMC+ in 2017-2019). The psychobiological mechanisms behind these effects are largely unknown and profound insight is essential to sharpen these interventions and thereby improve their cost-effectiveness.

Objectives:
1. Design a validated, integrated, and standardized clinical assessment battery (CAB) to monitor frail elderly’s perioperative functional health status (including exercise tolerance, nutritional, and psychological status) and underlying biological components (immune, sympathetic, and neuroendocrine status).
2. Estimate the impact of allied health professional’s interventions (exercise training, nutrition, and psychology) using the CAB on perioperative functional health status and biological components.
3. Validate the outcome under 1 and 2 in the targeted intervention(s) of allied health professionals in the perioperative phase of a specific population of frail elderly patients, most likely oncology patients.

Setting and Methods:
Step 1 and 2: UM/MUMC+ (in coalition with PANINI-UMCs); systematic review and prognostic modelling
Step 3: UM/MUMC+ and 2-4 PANINI UMCs abroad; stepped-wedged cluster design to elucidate efficacy.

Impact:
Professional: Optimal perioperative CAB and an effect-optimized preoperative training program.
Societal: Improved functional health status and decreased morbidity and mortality during and after the perioperative phase in elderly patients.
Economic: Further increase of cost reduction of Allied Health professional interventions in the perioperative course of frail elderly.
Scientific: 4-5 SCI-papers and a CAB used in likewise studies in the Dutch- and EU-context.

Requirements candidate:
- MSc (preferably a research MSc) in Biomedical and/or Allied health Sciences.
- High professional and scientific standards.
- Team player in an interdisciplinary team, nationally (the Netherlands; BiBo-coalition of 9 hospitals) and internationally (EU Marie Curie “PANINI-Project”; 11 UMCs).
- Strong communication skills, preferably fluent in English, willing to learn Dutch (basic skills).

Keywords:
Physical therapy, exercise physiology, nutrition, psychology, surgery, psychobiology.

Selected publications: