

On “Prehabilitation: The emperor’s new clothes or a new a rena for physical therapists?” Lundberg M, Archer KR, Larsson C, Rydwik E. *Phys Ther.* 2018;12:127–130

With interest, we read the Point of View by Lundberg et al¹ concerning the meaning and importance of prehabilitation for physical therapists. With the enduring shift in health care from a reactive curative to a proactive preventive system, prehabilitation has gained plentiful attention in past years, thereby increasing its evidence base of what to do and what to refrain from. Although prehabilitation programs ideally are personalized and predictive from a multimodal approach on purpose, the role of the physical therapist is significant. Although Lundberg et al mentioned important aspects that physical therapists need to build on to bring this important area forward, the article is lacking some other important aspects. To further elaborate on “where the field is going” and “what is missing within the field of prehabilitation,” we propose to apply Hood’s P4 health philosophy² on prehabilitation and to propagate “P4 perioperative physical therapy.”

To study the effectiveness of prehabilitation programs to improve patient- and hospital-related outcomes following elective major surgery, the perioperative physical therapy program should be *predictive, preventive, personalized, and participatory*. Suitably, Lundberg et al¹ addressed the need to include patients predicted to have an increased risk for poor outcomes in prehabilitation programs. Barberan-Garcia et al³ recently found that prehabilitation in patients who were at high risk (based on age, American Society of Anesthesiologists [ASA] physical status classification score, and the Dukes staging system) undergoing elective major abdominal surgery reduced the number of patients with postoperative complications by half. The selection of patients who were at high risk was not informed by formal exercise testing, such as a cardiopulmonary exercise test; however, it is our less physically fit and sicker patients who will benefit the most from prehabilitation. This underlines the need for perioperative physical therapy to be *predictive* and underscores the importance of formal preoperative risk stratification for adverse surgical outcomes in individual patients (eg, delayed recovery or the permanent loss of physical functioning, morbidity). Next, perioperative physical therapy should be *preventive* and aim to estimate and reduce the risk for morbidity of an individual patient, as well as facilitate a swift postoperative recovery of physical functioning and return to activities and participation. Both low-risk and high-risk patients, their relatives, and their (in)formal caregivers should be sufficiently educated and motivated about the significance of physical fitness before and immediately after surgery.

Patients who are high risk—those with low aerobic fitness, low muscle strength, and/or low functional mobility—should be strongly advised to monitor and increase their preoperative physical fitness in order to be able to better withstand the surgically induced physiological stress and to enable fast-track mobilization and physical activity after surgery to accelerate the recovery of physical functioning up to normal activities and participation.

As mentioned by Lundberg et al,¹ many studies that address the effects of prehabilitation on postoperative morbidity in patients undergoing elective major surgery are inconclusive, opposing, and of low-to-moderate methodological quality. After systematically reviewing the literature, we came up with several additional shortcomings in prehabilitation studies, in terms of low therapeutic validity, because of the inclusion of a high proportion of patients at low risk, inadequate objective monitoring of progression and adjustment of training intensity, and absence of efficient inclusion of prehabilitation in the patient’s preexistent living condition (eg, home, nursing home). A prehabilitation program should be *personalized* to the needs (individual risk factors) and potential of a patient’s short-term (reduce the risk for morbidity and facilitating a swift postoperative recovery of physical functioning) and long-term (return to activities and participation) goals. The program should be *participatory*—meaning planned, structured, executed, and monitored with the patient, relatives, and (in)formal caregivers within his or her own living situation—as patients who high risk are less likely to participate in a clinic-based physical exercise program than they are in a home-based physical exercise program.⁴

Finally, most studies in abdominal surgery used the incidence of postoperative morbidity to determine postoperative outcome as primary outcome for the effectiveness of prehabilitation, without taking the variability in ability of patients to cope with these postoperative *events* into account. Although being fit for surgery might not always prevent postoperative morbidity, the *impact* of any given postoperative event may be reduced in patients with preoperatively optimized physical fitness, as can be observed in the randomized controlled trial of Hulzebos et al⁵ in patients awaiting coronary artery bypass grafting surgery. Investing in adequate prehabilitation programs would, therefore, seem to be an effective way to improve surgical outcomes by reducing the preoperative risks and consequently both the incidence and the impact of events like postoperative morbidity. Additionally, (long-term) patient-centered outcome measures, such as time to recovery of physical functioning and return to activities and participation, should be integrated in future studies evaluating the effectiveness of prehabilitation.

Letters to the Editor

Despite mounting evidence that prehabilitation has the potential to improve preoperative physical fitness and postoperative outcomes, there remains work to be done in order to further optimize the content and context of prehabilitation programs and to select more appropriate outcome measures. Hence, the concept of prehabilitation is not just about ‘new clothes,’ but also about their *purpose and fit*.

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