



EDITORIALS

Prehabilitation: preparing patients for surgery

Major surgery is like running a marathon—and both require training

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The impact of surgery leads to significant homeostatic disturbance.¹ The surgical stress response is characterised by catabolism and increased oxygen demand. The extent and duration of the stress response is proportionate to the magnitude of surgery and the associated risk of developing postoperative complications.²

Patients who experience postoperative complications within 30 days of surgery have a reduced long term survival rate.³ Even in the absence of complications there is a 20–40% reduction in postoperative physical function and a significant deterioration in quality of life after major surgery.⁴

The demand for surgical services is increasing as a result of an expanding, ageing population. Added to which, patients are becoming more “high risk” as they are often elderly, frail, and obese. These factors are not only associated with adverse postoperative outcomes but may negatively impact on decision making and, consequently, fair access to surgery.⁵

To date, efforts to improve outcomes and access have predominantly focused on improving surgical and anaesthetic techniques. Enhanced recovery protocols have contributed to early recovery, but their focus is largely on in-hospital care in the immediate postoperative period. Current approaches fail to acknowledge the role of the patient in optimising their eligibility for surgery and improving surgical outcomes.

Prehabilitation represents a shift away from the impairment driven, reactive model of care towards a proactive approach that enables patients to become active participants in their care. The concept of prehabilitation is analogous to marathon training: it is based on the principle that structured and sustained exercise over a period of weeks leads to improved cardiovascular, respiratory, and muscular conditioning.⁶ Exercise in preparation for surgery is associated with a lower postoperative complication rate⁷ and earlier restoration of functional status.⁸ While the precise mechanism of action is unclear, it seems logical that preconditioning enables patients to better withstand the postoperative stress response.

Restoring function and getting back to normal daily life is a priority for most patients having major surgery. Efforts to improve recovery through rehabilitation are focused on the postoperative period. This may not, however, be the best time

to promote lifestyle changes, such as exercise. Prehabilitation is a strategy to begin the rehabilitation process before surgery, and an opportunity to tackle the management of a number of risk factors such as anaemia and malnutrition which may have an adverse effect on functional capacity and ultimately on postoperative outcomes, including recovery (fig 1).

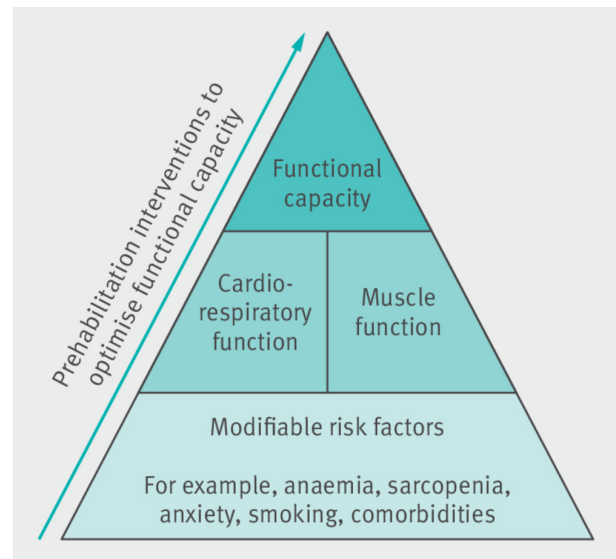


Fig 1 Prehabilitation triangle

Exercise, when prescribed in a healthcare setting, is a complex intervention. Initiation and adherence is determined by behavioural, psychological, physiological, environmental, and social factors. A thorough understanding of all these factors is critical to the success of exercise based prehabilitation programmes.

Extending the marathon analogy, training for sport includes mental preparation and confidence building to maintain a positive attitude and self motivation. Similarly, prehabilitation programmes acknowledge the multidimensional aspects of preoperative preparation to include nutritional, psychological, and behavioural interventions in addition to exercise.⁹

Prehabilitation is offered at many institutions internationally, demonstrating that it is feasible to integrate into perioperative pathways in diverse settings. However, delivery is variable according to specialty, patient risk profile, and the availability of resources and expertise. Ongoing clinical trials may help identify the best prehabilitation models and delivery options to optimise outcomes including recovery and cost effectiveness.

While a majority of programmes are based in hospitals or health facilities, this may not be ideal as commuting and cost can be barriers for those high risk patients most in need of prehabilitation. Research suggests that home based exercise is also feasible and safe, with comparable outcomes to supervised programmes.¹⁰

However, success hinges on two key factors: firstly, programmes should be personalised. Secondly, they should include regular support or contact—through weekly telephone calls, for example—from the healthcare team or specialist centre to help maintain motivation, provide feedback, and modify the programme when needed.

Just as athletes are unlikely to abandon exercise following completion of a marathon, prehabilitation before surgery is an opportunity for long term changes in lifestyle. The preoperative period can be a “teachable moment” since deteriorating health, which is ordinarily perceived as a barrier to exercise, can be harnessed to motivate people to adopt healthier lifestyles for good. Healthcare professionals have an important role to play; their endorsement of exercise at the outset is closely linked to its successful initiation and long term continuation.¹¹

Worldwide, at least 230 million people have major surgery every year¹² and this number is likely to increase with an expanding and ageing population and improved access to healthcare. On average, every person will undergo approximately six surgical procedures in their lifetime.¹³ Statistically, therefore, we are all preoperative.

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