



The Reality of Prehabilitation for Real World General Surgeons: What I Do and What I Need from the QC

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What is Prehabilitation

- Preoperative patient assessment with recognition and optimization of risk factors attempting to minimize the risk of postoperative complications and improve chances of long-term success.
 - patient characteristics (comorbidities)
 - hernia characteristics
 - wound characteristics

Patient Characteristics

- Obesity
- Malnutrition
- Smoking/tobacco
- Functional Status
- Immunosuppression
- Alcohol/drug use
- Compliance to Care
- Inflammatory Bowel Disease
- Hypertension
- Diabetes (type I vs II)
- Hyperlipidemia
- COPD
- CAD/PVD
- Renal Disease
- Anemia
- Anti-coagulation/Anti-platelet

Hernia Characteristics

- Incisional vs Primary
- Location (Midline vs Lateral)
- Transverse Width
- Craniocaudal Height
- Stoma Present
- Number of Recurrences
- Previous Spaces Used
- Presence of Synthetic mesh (location)
- History of Infection

Does Botox help?
What dose?
Over what time period?
Single treatment vs multiple treatments?

Wound Characteristics

- Open Wounds
- Intestinal Fistulas
- Chronic colonization of a tissue space
- Infected Mesh
- Quality of Skin/Subcutaneous Tissue

Preoperative Exercise and Outcomes

- Liang, Bernardi, et al. Modifying Risks in Ventral Hernia Patients with Prehabilitation: a Randomized Controlled Trial. Ann Surg. 2018
 - Concluded Reduced 30 day complications in Prehabilitation
- Bernardi, et al. Two Year Outcomes of Prehabilitation Among Obese Patients with Ventral Hernias: a Randomized Controlled Trial. Ann Surg. 2020
 - Concluded that at 2 year follow up (91.5%) no differences in recurrence or late complications

Was the protocol aggressive enough?

Impact of Exercise Frequency

- Renshaw, Poulouse, et al. Preoperative Exercise & Outcomes After Ventral Hernia Repair: Making the Case for Prehabilitation in Ventral Hernia Patients. *Surgery*. 170 (2021) 516-524.
 - Increasing exercise frequency associated with significantly lower odds of experiencing any post op complication at 30 days
 - Also lower odds of readmission
 - No significant differences in QOL or pain from baseline 30 days after surgery

What is considered exercise?

Diet & Exercise Plan

Diet

- 1,200-1,500 calories total per day, spread out evenly over 3 meals
 - This equates to 300-500 calories per meal, 3 times a day
 - Space out each meal by 5 hours + allow 5 hours between Dinner and Bedtime
 - Do eat breakfast!
 - If you do not have time for breakfast, drink a protein shake or eat a protein bar
- Meals should be focused on protein and vegetables
- Drink ~64 oz. of water daily

Exercise

- 30 minutes of exercise daily
- Increase duration, intensity, and frequency of exercise as it gets easier

Walking is a great form of exercise!

Things to Avoid

- Do not drink any calories
 - No sodas, juices, sweet tea, etc.
 - If you need to put sugar in coffee or tea, use Splenda
 - If you need milk in coffee, do a small splash of low-calorie milk
- Avoid sugary foods (candy, donuts, cakes, muffins, pastries, etc.)
 - If you need something sweet, eat a small portion of fruit
- Avoid snacking (chips, pretzels, popcorn, etc.)
 - If you need a snack, eat something with protein (protein bar, jerky)
- Avoid potato products (French fries, mashed potatoes, sweet potatoes, etc.)

Goals and Follow Up

- I set goals with the patient
 - HgA1C < 8
 - Stop smoking 6 weeks
 - Loose 25-30% excess body weight (more for higher BMI)
 - Demand compliance
- I see the patient monthly until goals are met
- I coordinate with cardiology, PCP, GI, Endocrine, etc..
- I use compression garments to reduce hernia risks

What I Need from the ACHQC

- Who benefits from weight loss and how much is enough?
 - BMI, body habitus, fat distribution?
- What is considered exercise & what level is acceptable?
 - Is a steady paced walk over 30 min exercise?
 - Over all activity tolerance?
 - Moderate/heavy Labor jobs?
- Smoking vs other forms of nicotine?
 - How long is enough time off?
 - Do we need to test Cotinine levels?
- What HgA1C is acceptable?
- What role does hernia morphology play in prehabilitation?
 - When to be more aggressive and when to say NO?

Great Review on Prehabilitation in Ventral Hernia

- Timmer, Claessen, et al. Risk Factor Driven Prehabilitation Prior to Abdominal Wall Reconstruction to Improve Post Operative Outcome. A Narrative Review. 2022 Sep 16:1:10722. doi: 10.3389/jaws.2022.10722. eCollection 2022.