

Prehabilitation Guidebook

ADAPT-OC

Assessing Delivery Approaches for Prehabilitation Trials in Ovarian Cancer

School of Kinesiology and Health Studies, Queen's University

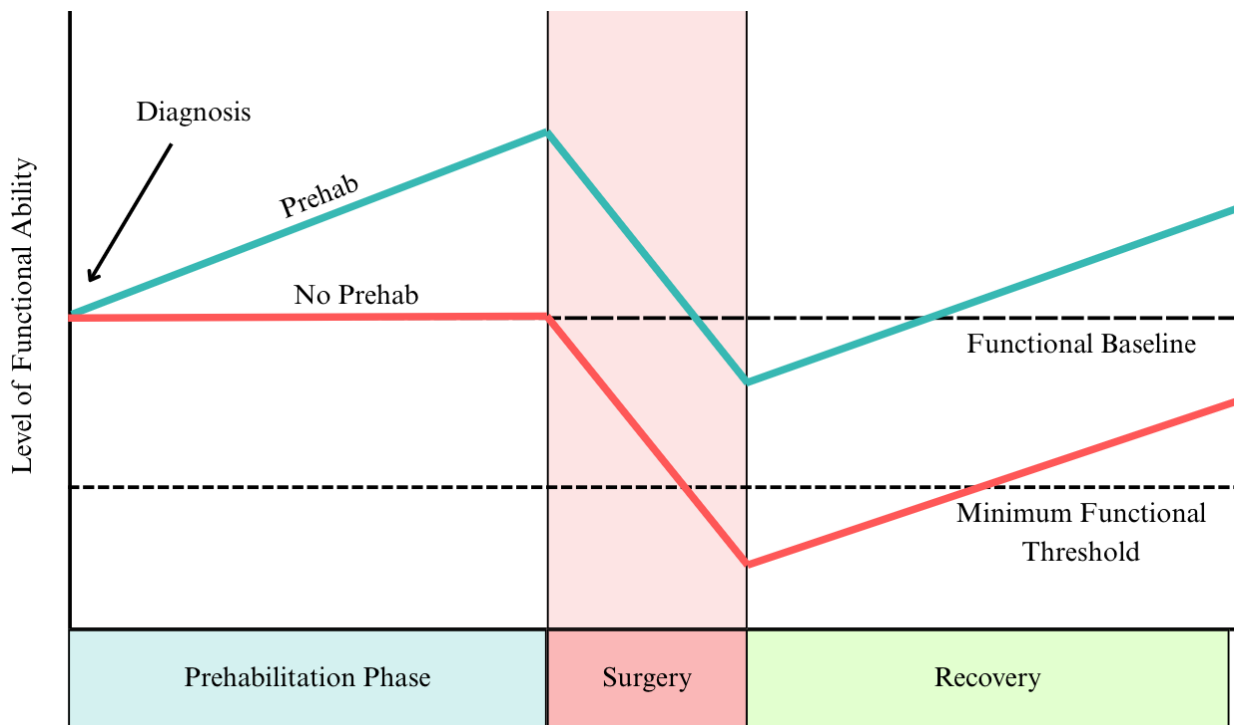


Let us introduce you to Prehabilitation!

Prehabilitation, or ***Prehab***, is about getting your body ready before surgery. It includes simple things like exercise, healthy eating, and relaxation to build your strength and energy. By starting before surgery, prehab can lower risks and help you heal faster. Research shows that people who do prehab often recover better. Think of it like a training plan to put you in the best shape possible before your surgery.

Depending on your study group, you may receive additional support, such as coaching sessions, access to the *KingstonPrehab* web application, and nutrition supplementation.

This guidebook provides the core information for all participants.

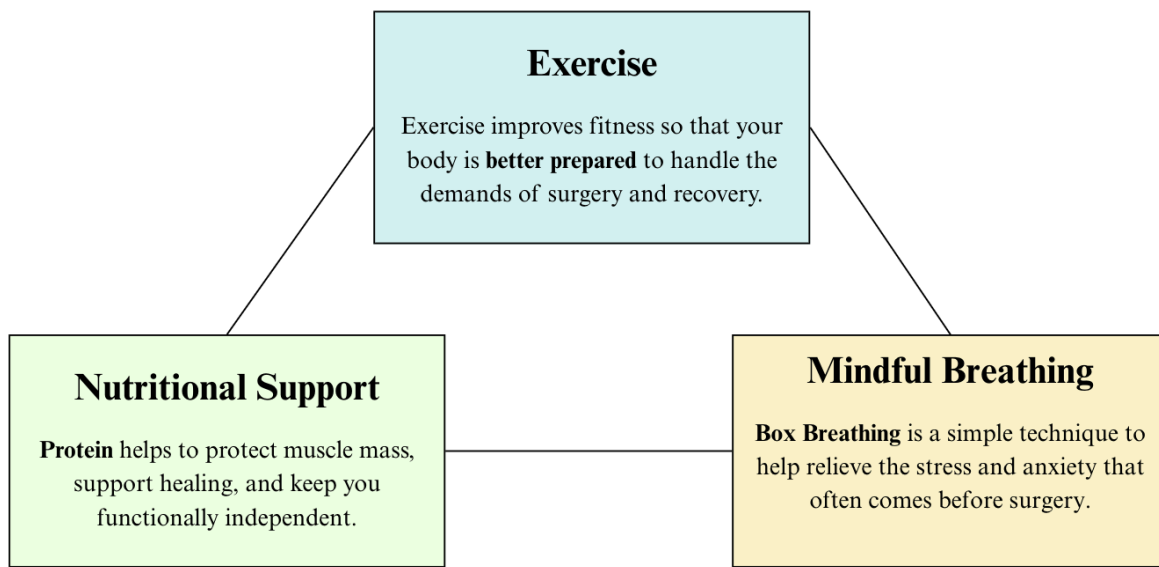


Why Prehab Matters

Surgery can put a lot of stress on your body, similar to the effort of running a marathon. It is a big challenge, and many parts of your body have to work hard to get you through it. The good news is that, just like you would train for a marathon, you can prepare your mind and body for surgery.

Unlike rehab, which starts after surgery, Prehab begins beforehand. It focuses on keeping your strength up, improving your endurance, and helping your body handle the stress of surgery more effectively.

The Three Domains of Prehab



Aerobic Training

Aerobic training is any activity that gets your heart beating faster and lungs working harder. Some examples include **walking, swimming, cycling**, and plenty of sports.

Aerobic training strengthens your **cardiovascular system**, helping your body handle the extra oxygen demand during surgery. Greater aerobic fitness going into surgery is associated with lower rates of complications and a smoother recovery.¹

Even if you do not engage in regular exercise, don't worry! The greatest benefits of aerobic training are seen in those who are not currently active, and the more you can add in, the better. Your Prehab coach (if applicable) can help guide you, but all participants can use this guide to structure their activity.

Measuring Intensity

While every intensity of exercise counts, this program prioritizes **moderate to vigorous** intensity activity. However, it can be difficult to know exactly what that feels like. Here are a few simple tools to help monitor intensity:

1. **RPE (Rate of Perceived Exertion):** A 0-10 scale to describe how hard an activity feels.
 - Aim for **RPE 5-8** for most exercise sessions.
2. **Talk Test:** How easy or difficult it is to speak during this activity.
 - Aim for **few words** for most exercise sessions.

RPE	Intensity	Talk Test
1	Very Light	Normal Talk
2	Light	Conversational
3	Moderate	Short Sentences
4	Somewhat Hard	
5	Hard	1-2 Words
6		
7	Very Hard	1-2 Words
8		
9	Very Very Hard	Unable
10	Maximal	

METs and MET-Hours

A **MET** (“Metabolic Equivalent”) describes how much energy your body uses during exercise. **1 MET** is the energy expended while sitting. The more your body works, the more METs that activity is.

MET-hours track your activity by combining how hard and how long you exercise:

$$\circ \text{ MET-hours} = \text{MET value of activity} \times \text{duration of activity (in hours)}$$

For example, 30 minutes of brisk walking (4 METs) would equal:

$$\circ 4 \text{ METs} \times 0.5 \text{ hours} = \mathbf{2 \text{ MET-hours}}$$

Activity	Intensity	METs	10 MET-hr/week	20 MET-hr/week	27 MET-hr/week
Leisure Walking	Light RPE 1-3 Conversational	2	5 days x 60 min	5 days x 120 min	-
Brisk Walking	Moderate RPE 3-4 Short Sentences	4	5 days x 30 min	5 days x 60 min	6 days x 70 min
Leisure Cycling	Moderate RPE 3-4 Short Sentences	4	5 days x 30 min	5 days x 60 min	6 days x 70 min
Dancing (Social)	Moderate RPE 3-4 Short Sentences	4.5	5 days x 30 min	5 days x 65 min	6 days x 75 min
Hiking (Uphill)	Mod to Vig RPE 5-7 Short Sentences	6	3 days x 30 min	4 days x 50 min	5 days x 55 min
Aerobic class (e.g. Zumba)	Mod to Vig RPE 5-7 Short Sentences	7	3 days x 30 min	4 days x 45 min	5 days x 45 min
Swimming (Moderate Pace)	Mod to Vig RPE 5-7 Short Sentences	7	3 days x 30 min	4 days x 45 min	5 days x 45 min
Jogging (Moderate Pace)	Vigorous RPE 6-7 1-2 Words	7	3 days x 30 min	4 days x 45 min	5 days x 45 min
Cycling (Moderate Pace)	Vigorous RPE 6-7 1-2 Words	8	3 days x 25 min	5 days x 30 min	6 days x 35 min
Running (Fast Pace, ~8-9km/h)	Very Hard RPE 8 Unable to Talk	9	3 days x 25 min	5 days x 30 min	6 days x 35 min
Cycling (Fast Pace)	Very Hard RPE 8 Unable to Talk	10	3 days x 20 min	5 days x 25 min	6 days x 30 min
Sprinting (>9.7km/h)	Max Effort RPE 10 Unable to Talk	10	3 days x 20 min	5 days x 25 min	6 days x 30 min

Your Goal

Your goal with Prehab is to increase your activity level by *at least* **10 MET-hours/week**, up to a maximum of **27 MET-hours/week** above baseline.

Ideally, we are doing this as quickly as possible and continuing to increase until your surgery. To increase your fitness, a certain amount of **volume** and **intensity** is required. You will be exercising **5 days per week**, targeting **higher-intensity activities**. This may look like...

Activity	Duration & Frequency	MET-hours/week
Brisk walking	30 min × 5 days/week	10
Walking/hiking uphill	30 min × 5 days/week	15
Jogging	30 min × 5 days/week	20
Cycling (moderate to fast pace)	40 min × 5 days/week	27

Creating & Progressing Your Exercise Program

Based on what **activities you like** and how you are **feeling** week to week, you can build a plan that works for you. Participants in the Prehab program may work with a coach to do this, while others can use this framework independently.

Step 1: Your Current Activity

First, we want to understand how much activity you are already doing each week. Identify your recreational activity and assign it a MET-hour value.

Step 2: Setting a SMART Goal

Develop a plan to reach the goal of adding ***at least*** 10 MET-hours/week using the SMART framework:

- **S = Specific:** Clearly define what activity you will do.
- **M = Measurable:** Make sure you can track it, like minutes of brisk walking.
- **A = Achievable:** Start with something you can realistically complete.
- **R = Relevant:** Pick activities that you enjoy and fit your lifestyle.
- **T = Time-bound:** Clearly define *when* you will engage in your exercise.

Step 3: Progressing Your Program

We are hoping to add 10 MET-hr/week **as quickly as possible**, then continue to progress by increasing duration and/or intensity until surgery. For example, if your 30-minute walk last week was an RPE 4, this week try:

- Increasing to a **40 minute** walk
and/or
- Targetting an **RPE of 5 or 6**

For more information on how to structure your days inside and outside of exercise, refer to the Canadian 24-Hour Movement Guidelines at <https://csepguidelines.ca/>.

(Optional) Resistance Training

Resistance training is not required. The primary focus of this program is aerobic training. However, if you choose to include resistance training, it may help support muscle strength and function. This section is **optional** and applies to participants who wish to include additional strength-based exercise.

What is Resistance Training?

Resistance training uses body weight or external resistance, such as dumbbells or bands, to challenge and strengthen muscles and bones. Stronger muscles can make daily tasks easier and may help you better tolerate the stress of surgery. Because some muscle loss can occur after surgery, maintaining or building strength beforehand may be beneficial.

If You Choose to Include Resistance Training

- Aim for 1-3 **non-consecutive** days per week
- Target an **RPE 6-9** (very challenging)
- Progress by increasing **sets, reps, load, or variation** once you have achieved 15 repetitions of an exercise

Safety Tips

- Only perform exercises you feel comfortable with
- Keep support nearby for balance
- Stay hydrated
- **Stop** if you feel sharp or worsening pain

Sample Resistance Training Program

If you are new to exercise, begin with **Level 1** movements. You may also consider adding simple balance exercises and gentle flexibility movements at the start and end of your session.

	Level 1 (Start Here)	Level 2	Level 3
Warm-Up Dynamic Flexibility + Balance	Arm circles Forward & Backward, 20sec each Marching in Place Knees as High as Possible (Wall Support if Needed), 20sec Single Leg Stand With a support surface nearby, lift one leg and hold, 5-30sec		
Resistance Training Upper Body 1-3 sets of 8-15 reps	1 Push Wall Push-Ups 1 Pull Scapular Retractions	1 Push Elevated Push-Ups 1 Pull Seated Band Row	1 Push Push-Ups (from floor) 1 Pull Single Arm Row (heavier band)
Lower Body 1-3 sets of 8-15 reps	1 Squat Sit to Stand 1 Hinge Broomstick Hinge	1 Squat Bodyweight squat 1 Hinge Glute Bridge	1 Squat Reverse Lunge 1 Hinge Single Leg Glute Bridge
Core 1-3 sets of 8-15 reps or 30-60sec	1 Static Elevated Plank 1 Dynamic Seated Knee Lifts	1 Static Knee Plank 1 Dynamic Partial Curl-Ups	1 Static Plank (from toes) 1 Dynamic Sit-ups
Cool Down Balance + Static Flexibility	Tandem Stand Heel to toe stance, as if standing on a line, hold, 5-30sec Doorway Chest Stretch Palm on Doorway and Turn Away, 20sec Seated Hamstring Stretch Sitting with Legs Straight, 4 holds of 5sec		

Nutritional Support

Good nutrition is an essential part of preparing your body for surgery. Eating well helps you maintain strength, support your immune system, preserve muscle, and recover more quickly after surgery. Combining proper nutrition with Prehab exercise ensures your body is in the best possible condition before surgery.

Building Balanced Meals

- **Half your plate:** fruits and vegetables
- **One quarter:** whole grains (brown rice, oats, quinoa)
- **One quarter:** protein-rich foods (meat, fish, eggs, dairy, legumes, or tofu)



Protein: Your Key Nutrient

Protein helps maintain and build muscles, which is especially important when preparing for surgery and participating in exercise. Aim for approximately **1.2 - 1.5g/kg of body weight**.

*For example, a 150lb (68kg) woman should aim for **81 - 102g** of protein per day.*

Quick Tips to Meet Your Protein Needs:

- Aim for 20 to 30 g of protein at each meal
- Include a protein source in snacks
- Have a protein-containing snack or drink after exercise

Examples of protein sources and portion sizes are provided on the following page.

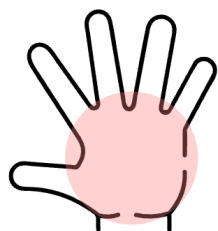
Participants in the Prehab intervention groups will receive **ready-to-drink beverages** containing **30 grams** of whey-based protein to consume daily.

Common Protein Sources & Portion Sizes

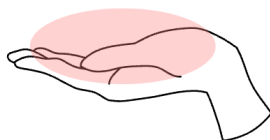
Source: Canadian Nutrient File, Health Canada

Food	Serving Size	Protein per Serving (g)
Meat & Poultry (cooked)		
Beef, chicken, turkey, pork	85 g	24
Fish (cooked)		
Salmon, whitefish, tuna	85 g or ~½ can	21
Scallops, lobster	85 g	16
Shrimp	30 g (~6 medium)	7
Eggs & Dairy		
Egg	1 whole	6
Cottage Cheese	½ cup	14
Greek Yogurt	½ cup	12
Cheddar Cheese	¼ cup	6
Milk	1 cup	9
Grains & Legumes		
Lentils	½ cup	9
Beans (black, kidney)	½ cup	8
Oats (dry)	⅓ cup	6
Quinoa (cooked)	½ cup	4
Nuts & Seeds		
Almonds	¼ cup (~25 whole)	7
Peanut Butter	1 tbsp	4
Hemp Hearts	2 tbsp	6
Pumpkin Seeds (roasted)	¼ cup	17
Soy & Vegetable Proteins		
Firm Tofu	85 g	7
Tempeh	85 g	15
Edamame (shelled)	½ cup	12
Soy Milk	1 cup	7
Protein Supplements		
Whey-Based Protein Powder	¼ cup	18
Premier Protein Shake	1 bottle	30

Palm of your hand Cupped hand Front of your fist Thumb



~85 - 115 g



~30 g



~1/2 cup



~2 tbsp

Mindful Breathing

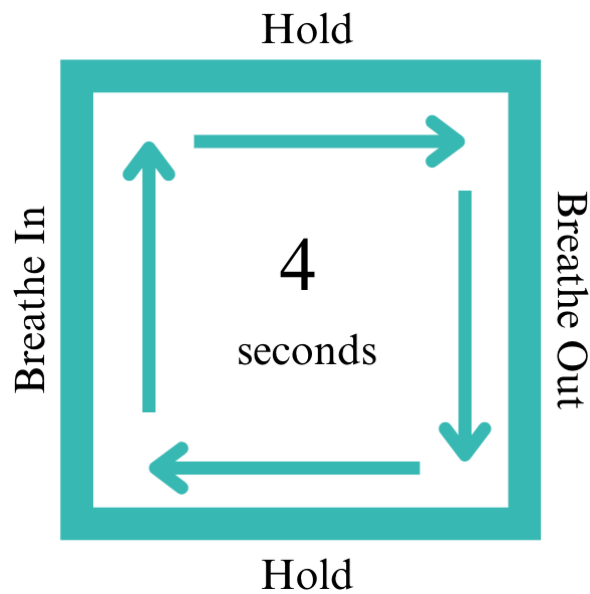
Box breathing is a mindfulness practice that helps relax your body as you focus on breathing intentionally. It is called “**Box Breathing**” because you are following a 4-step process:

Breathe in for 4 seconds

Hold breath 4 seconds

Breathe out 4 seconds

Hold breath 4 seconds



Aim to complete at least **5 minutes** of box-breathing **every day**

Closing Message & Resources

Your prehabilitation journey is about to begin. This guide provides an overview of what to expect and how to get started. You don't need to do this alone! Invite family or friends to join your exercises and routines. If concerns arise, please speak with your Prehab coach or physician. Additional evidence-informed resources on exercise and nutrition are provided below.

[Canadian 24 Hour Movement Guidelines](#): Additional guidance on how to structure your days around exercise.

[Canada's Food Guide](#): Canada's resource for balanced and healthy eating.

[ACE Fitness Library](#): A library of resistance exercises with instructions if you are looking to try something new.

