

- Prehabilitation is defined as a process of improving the functional capacity of a patient prior to surgery so the patient can withstand any postoperative inactivity and associated decline.
- In other words, to get the patient to a better place before surgery.

## What is prehab and why is it important?

- Prehab is physical therapy rehabilitation before a patient undergoes surgery.
- Prehab provides individualized physical conditioning programs to improve strength, endurance and range of motion prior to surgery.
- Prehab is important because it optimizes physical function before surgery which in turn decreases the potential for decline following surgery and also improves outcomes following surgery.

## What is the goal of prehab?

- To accelerate post-surgery recovery for return to **optimal function** as soon as possible.
- Getting patients active before surgery shows promising results in getting patients moving quicker after surgery with a goal of return to **independent function** as soon as possible.
- Insurance companies are interested in ways to **save \$** in post surgical recovery costs.
- To keep the patient comfortable both before and after surgery for the **best possible quality of life**.
- To **empower the patient** and allow them to participate in their care.

### Benefits of Prehab

- Gains in joint ROM, muscle strength and flexibility.
- Improves balance, cardiovascular function and gait movement quality.
- Improves pain control.
- Reduces hospital length of stay and overall costs associated arthroplasty surgeries.
- Decreases pre and post surgical anxiety.

### Surgical Stresses:

- Tissues including muscle, tendons, ligaments are often damaged by surgery.
- Patients are not able to move well both before and following surgery which leads to muscle and cardiovascular decline.
- Patient are often anxious and suffer psychological stress due to fear of the unknown of surgery.
- **The stronger and more informed a patient is prior to surgery the better outcomes will be following surgery.**

### Demand for Total Joint Replacements is Growing

- The World Health Organization has estimated that the number of people aged 65 years and older will increase from 524 million to 1.5 billion by 2050.
- These “baby boomers” are impacting society in relation to health care resources and the demand for elective surgery is increasing resulting in **longer surgical wait times** that have the potential to cause further pre surgical **deterioration and deconditioning** due to pain and immobilization for patients awaiting surgery.
- It is critical to keep patients active while they await surgery. **This period represents a timely opportunity for prehab.**

### What does the research say?

- Reduced post surgical admissions into inpatient rehab by 73%.
- 4-8 weeks of aquatic prehab resulted in improved functional outcomes as well as decreased depression and improved cognition
- Money savings of \$1500 attributed mainly to shorter length of stay in hospital and skilled nursing facilities
- Improved preoperative exercise capacity, range of motion, leg pain intensity, muscle endurance and walking capacities
- Associated with better self-reported mobility, physical function, mood and cognition
- Water exercise is associated with lower blood pressure pre-operatively
- Suggests the pool is an ideal place to begin rehabilitation since it is more comfortable to exercise in water
- **Alongside the growing research base, prehab is being increasingly adopted into clinical practice to improve post operative outcomes**

When to begin aquatic prehab?  
prehab?

- Must be medically cleared by MD.
- Total joint surgery is scheduled-  
Approximately 6 weeks prior to surgery
- Attend therapy 2x/week for 45  
minutes sessions

Why aquatic PT and not land PT?

- Water provides an optimal environment.
- Patients can move with greater ease in water.
- Patients are able to tolerate exercise at  
a greater intensity in water.
- Patients can easily transition into aquatic  
exercise classes for a seamless transition into  
lifetime exercise.

## Positive properties of water therapy

- Warm water enhances relaxation.
- Reduces limb edema.
- Unloads forces on joints while moving in the water.
- Weight loss.
- Increased patient satisfaction.
- Excellent peer support as patients often interact and support each other during their water therapy sessions.

## Contraindications / Concerns

### Contraindications:

- Open wounds that cannot be covered with waterproof dressing
- Active Infection
- Bowel incontinence / GI distress

### Concerns:

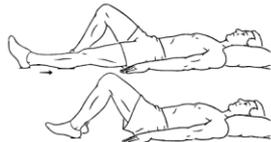
- Vestibular disorder
- Uncontrolled or unstable BP
- Epilepsy
- Decreased lung vital capacity
- Urinary Incontinence
- Hydrophobia
- Temperature sensitivity conditions
- Diabetes

## Differences of Land vs. Aquatic Therapy

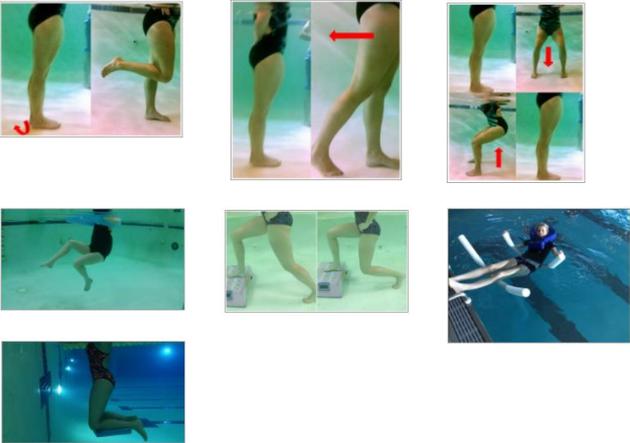
- Land Exercise vs. Water Exercise

<p><b>ANKLE PUMP</b></p>  <p>Pull your toes toward you, bending at your ankle, and then push your toes downward. Repeat. Repeat 10 times per set. Do 1-2 sets per session. Do 2-3 sessions per day.</p>	<p><b>HIP / KNEE - 16 Strengthening: Hip Adduction - Isometric</b></p>  <p>With ball or folded pillow between knees, squeeze knees together. Hold 30 seconds. Repeat 10 times per set. Do 2 sets per session. Do 2 sessions per day.</p>
<p><b>HIP / KNEE - 54 Strengthening: Hip Abductor - Resisted</b></p>  <p>With band looped around both legs above knees, push thighs apart. Repeat 10 times per set. Do 2 sets per session. Do 2 sessions per day.</p>	

## Land Exercise

<p><b>SNOW ANGEL</b></p>  <p>Bring right leg out to side and return. Keep knee straight. Then perform with left leg. Repeat 10 times per set. Do 1-2 sets per session. Do 2-3 sessions per day.</p>	<p><b>STRAIGHT LEG LIFT</b></p>  <p>Tighten muscles on front of your thigh, then lift one leg 4-6 inches from bed keeping knee straight. Slowly lower and repeat. Repeat 10 times per set. Do 1-2 sets per session. Do 2-3 sessions per day.</p>
<p><b>BRIDGE</b></p>  <p>Slowly rise buttocks from bed, keeping stomach and buttock muscles tight. Repeat 10 times per set. Do 1-2 sets per session. Do 2-3 sessions per day.</p>	<p><b>KNEE BEND</b></p>  <p>Pull your heel back toward your buttock, bending your knee. Slowly return to straight position and repeat. Repeat 10 times per set. Do 1-2 sets per session. Do 2-3 sessions per day.</p>

Aqua Exercise



Methodist Pool Hydroworks Model 2000



## Methodist Pool – Hydroworks 2000

- Located at Methodist Healthwest on First Floor.
- Opened in October of 2017
- Model: Hydroworks 2000
- Zero depth entry.
- Adjustable floor/variable water depth.
- Treadmill.
- Waterjet technology.
- Specialized system of underwater video cameras.
- Temperature of pool.
- Patient to provider ratio 1:1, Pool Maximum.



## Aquatic Therapy



### Aquatic Therapy



### Aquatic Therapy Staff

- Julie Jessen – Physical Therapist
- Sue Aliano – Physical Therapist
- Ted Whalen – Physical Therapy Assistant
- Chelsee Faust- Physical Therapy Assistant

## Take home message

- If you want to improve the odds of joint replacement success and positive post surgical outcomes, patients need to get in shape and to be educated prior to surgery.
- Encourage your patients to get an order for aquatic physical therapy from their primary care physician or surgeon.
- Prehabilitation has been well researched and is becoming the standard of care in many institutions. **“Prehabilitation seems to be good for patients. It’s good business and it costs payers and Medicare less money.”**

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