



Post-Surgical Considerations in Aquatic Therapy

HOLLY LOOKABAUGH-DEUR, PT, DSC, GCS, ONCCS, CEEAA
CERTIFIED FALLS AND BALANCE PROFESSIONAL

Learning Objectives

Describe	Describe yellow and red flags for aquatic therapy following surgical procedures
Describe	Describe when and demonstrate how to secure an incision or skin integrity break for safe aquatic therapy
Describe and demonstrate	Describe and demonstrate how and when to prime the lymphatic pump through simple manual techniques in the aquatic environment
List	List key indicators and sequential progression considerations for aquatic therapy for the following post-operative conditions: •Arthroscopic rotator cuff repair •Hip labrum repair •ACL Repair

Why Water Works

- Circulatory benefits
- Reduction of weight bearing and loading
- Suppression of pain; early mobility
- Compression and assistance with edema prevention and management
- Lymphatic Stimulation

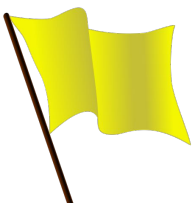
Timeframes for Post-Surgical Immersion Vary: 2- 6 weeks for most



Always verify your plans with physicians:

- Recommend sending them a post surgical summary of timing and having each sign off
- Include your definitions of red flags or why you would not put a patient in the pool

Methods for Protection from Infection



Always cover open areas; treat "scabs" as open wounds

Yellow flags: history of infection, MRSA, poorly healing wounds, underlying hygiene issues

INSERT

Video for wound cover application

Video for topical covering removal

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Cast Covers

Always remember critical thinking points – why water and is it worth the risk?

Castcoverz: <https://castcoverz.com/>

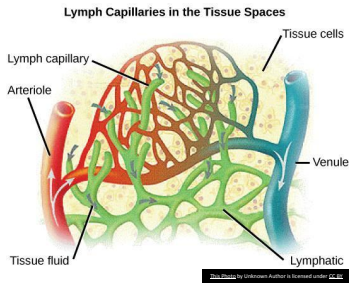


Impact on Lymphatic System

Sluggish from anesthesia and introduction of foreign particles; break in break integrity barrier

Often directly impeded by trauma to venous system or even the arterial or capillary beds

Immobility following surgery doesn't help our lymphatic system



Methods to Prime the Lymphatic Pump

Deep breathing – watching the belly move – fill and empty

Short Neck Sequence

Superficial abdominal sequence

Deep abdominal sequence

LE Node stimulation



WHICH TYPES OF PATIENTS MIGHT BENEFIT THAT WE MIGHT BE MISSING NOW?



**VIDEOS FOR 3 TECHNIQUES

Videos for Lymphatic Sequence

Lets' Look at Peer-Reviewed Protocols

* All are supported by numerous evidence based research articles within the past 10 years.

Arthroscopic Rotator Cuff Repair

Hip Labrum Repair

ACL Repair

2023 Jan 13;10:2 ; J of Experimental Orthopedics

Compared 3 groups: Self-directed HEP; Land – based PT and Aquatic – Based PT

At 2 months; aquatic outcomes were the best.

Continued to be best at 3, 6 months, then evened out with land-based PT at 1 and 2 years

Aquatic Protocol:

- Immobilization for 4 weeks in sling
- 0-4 months: gentle PROM: IR; pendulum; assisted elbow flexion, extension, flexion to 90
 - Start aquatics at 2 – 3 week point; keep shoulders under water for exercise
- 4-6 weeks: Increase range under water
- 6 weeks – start strengthening and mobilization; start alternating with land
- 8 weeks – mobilization if needed; primarily land-based



Why Water?

Less tension on sutures in completely supported tissues

Buoyancy allows for slow, steady, supported movement and muscle/tendon tension

Movement in 3D patterns are easier and supported in the pool

Neuromuscular coordination activities receives more proprioceptive feedback

Greater overall humeral movement; less guarding

Patient's perceptions are that they move better and more safely under the water – no sudden drops of UE; less guarding, improved patient compliance

Hip Labrum Repair

* This is the surgery with the most growth in number of procedures

Challenges: early mobility without pain and less weight bearing...so why not water?

Key Points:

1. Wait a minimum of 3 weeks. Should be thinking "move in painfree ranges only"

2. labralreconstruction.com – great resources for PT's and patients!

3 Phases of Recovery

Phase I: weeks 3 – 6

Focus on muscle activation within painful ranges in these movements

Hip circumduction

Hip abduction

Mini squats

Heel raises

Hip Extension

Walk FW; BW; lateral stepping

Phase II: Weeks 6 - 12

Goal: Maintain level pelvis with movement	Hip IR/ ER ROM and gentle stretching	Calf stretch	Ham stretch
Groin/ add stretch	Quad stretch	Marching – high knees with walking in all directions	*Swim with kicking by week 12 – functional goal of open chain power moves

Phase III. 12+ weeks

Goal: Restore full strength; Swimmer goals: swim backstroke and freestyle without pain; butterfly types of forces tolerable at 6 months

Lunges

Unweighted bike pedaling

Single leg deep squat

Stride jumps and plyometrics

Unweighted jumping from side of wall

SLR Kicks – prone and supine

#3. ACL Repair

G. Pipino et al. Muscles, Ligaments and Tendons Journal; 2023;13(3): 421-429

Why Water?

Increased blood flow and O2 exchange

Catabolites are drained easier

Viscosity of water makes painfree exercise easier to achieve; stop moving; stop force

Impact on joint effusion due to hydrostatic pressure

Sensory modulation of pain



SYMPHYSIS PUBIS
LEVEL: 40%

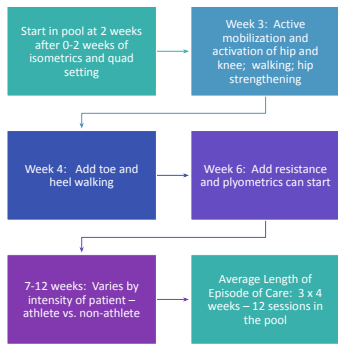


UMBILICUS
LEVEL: 50%



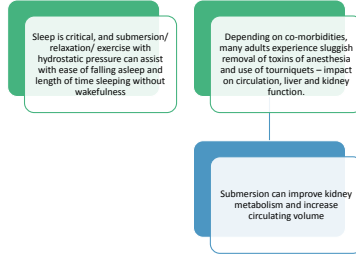
XIPHOID LEVEL:
75-80%

Reminder
about
Weight
Bearing %



General Progression of ACL Recovery Protocol

Other Post-Surgical Considerations



Key Points for “Why Water” after Surgery

- Earlier, controlled movement introduced safely to recovery
- Systemic benefits of submersion
- Can address abnormal movement patterns with greater ease and comfort
- Compliance to therapy overall is improved
- Transitions with land-based therapy can begin immediately
- Goal to transition to all land-based therapy and functional tasks on land by time of last appointment
- If lifestyle modification includes more activity, you can create a “hook” for the pool if that is an option.
- Great for patients with barriers to movement: hypertension; obesity; pregnancy; difficulty tolerating traditional positions for mobilization or movement



Questions