

# Student Engagement in the DPT Program in an Aquatic Physical Therapy Lab

Christy Morgan, PT, DPT

Board Certified Clinical Specialist in Sports Physical Therapy

Assistant Professor



# DPT Curriculum

## DPT 7540: Advanced Clinical Lifespan Problem Solving

Course Description: This course will address the role of the physical therapist as a multi-disciplinary team member with management of patients/clients across the lifespan.

### FLORIDA SOUTHERN COLLEGE DOCTOR OF PHYSICAL THERAPY PROGRAM CURRICULUM

Year 1		
FALL (16 weeks)	SPRING (16 weeks)	SUMMER (8 weeks)
DPT 7110 Human Anatomy for Physical Therapy (6)	DPT 7210 Musculoskeletal Physical Therapy I (4)	DPT 7310 Neuromuscular Physical Therapy I (4)
DPT 7120 Kinesiology/Biomechanics for Physical Therapy (3)	DPT 7220 Physical Therapy Clinical Assessment II (3)	DPT 7360 Integrated Professional and Community Education III (2)
DPT 7130 Physical Therapy Clinical Assessment I (3)	DPT 7230 Acute Care Physical Therapy (2)	DPT 7380 Physical Therapy Clinical Education Theory (1)
DPT 7140 Pathophysiology for Physical Therapy (3)	DPT 7250 Cardiopulmonary Physical Therapy (3)	<b>SUMMER (6 weeks)</b>
DPT 7150 Evidence-Based Physical Therapist Practice I (1)	DPT 7260 Integrated Professional and Community Education II (2)	DPT 7330 Administration for Physical Therapy (2)
DPT 7160 Integrated Professional and Community Education I (2)	DPT 7270 Neuroscience for Physical Therapy (3)	DPT 7340 Pharmacology for Physical Therapy (2)
Information Hour 1 (0)	Information Hour 2 (0)	DPT 7350 Evidence-Based Physical Therapist Practice II (2)
<b>Total (18)</b>	<b>Total (17)</b>	<b>Total (13)</b>
Year 2		
FALL 1 (10 weeks)	SPRING (16 weeks)	SUMMER (10 weeks)
DPT 7480 Physical Therapy Clinical Education Practicum I (10)	DPT 7510 Musculoskeletal Physical Therapy II (4)	DPT 7680 Physical Therapy Clinical Education Practicum II (10)
	DPT 7520 Geriatric Physical Therapy (2)	
<b>FALL 2 (4 weeks)</b>	DPT 7530 Pediatric Physical Therapy (4)	
DPT 7410 Neuromuscular Physical Therapy II (4)	<b>DPT 7540 Advanced Clinical Lifespan Problem Solving (3)</b>	
DPT 7460 Integrated Professional and Community Education IV (1)	DPT 7550 Evidence-Based Physical Therapist Practice III (3)	
Information Hour 4 (0)	DPT 7560 Integrated Professional and Community Education V (1)	
	DPT 7570 NPTE Review (1)	
	Information Hour 5 (0)	
<b>Total (15)</b>	<b>Total (18)</b>	<b>Total (10)</b>
Year 3		
FALL (16 weeks)		
DPT 7780 Physical Therapy Clinical Education Practicum III (16)		
<b>FALL (1 week)</b>		
DPT 7790 Physical Therapy Seminar (1)		
<b>Total (17)</b>		

# DPT 7540 Topics Covered

Nutrition

Psychosocial  
Issues

Chronic Pain

Pelvic Health

Aquatics

Sports



# Clinical Reasoning Cycle



Levett-Jones et al., 2010



# Panopto with built-in questions (~ 1:20)

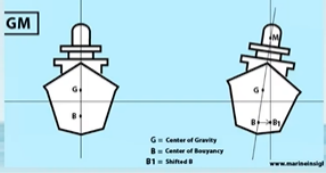
Panopto > Background and Principles for Aquatic Exercise

Buoyancy

1 of 1

Buoyancy

- A body will float by placing the center of gravity directly above the center of buoyancy
- This affects a patient's ability to balance and produce coordinated movements in the water



How much of your body weight is unsupported in water up to the xyphoid process?

☐ 10%

☐ 25%

☐ 33%

☐ 50%

☐ 65%

Search this recording

Details	✓ Exercise Land vs Water	2:16
Contents	✓ Precaution or Contraindication?	8:44
Discussion		
Notes	✓ Buoyancy	17:40
Bookmarks	✓ Pool Temperatures	36:38

< Previous

✓ Finish

17:40

-28:17

1x Speed

Quality

# Aquatics Case Study #1

Mike is a 54-year-old man who tore his right medial meniscus playing basketball. He is 2 weeks status postarthroscopic débridement of the torn piece of cartilage. Mike has returned to his desk job as a computer programmer but has a strong desire to return to his active workout schedule and weekend sports leagues. The surgeon has told Mike that he has no limitations except pain.

**Past Medical History:** Mike is healthy with no prior medical problems. He has never had an injury that made him miss more than a few days of sports participation.

**Functional Status:** Mike is ambulating without assistive devices, but he limps slightly because of a stiff knee. He is able to go up and down stairs but only one step at a time and has to lead with his left leg.

**Musculoskeletal Status:** Mike has only minimal swelling of the right knee. He rates his pain as a 1 out of 10 at rest and a 3 out of 10 with activity. His active knee ROM is 5° to 100°. He has normal ROM in the remaining joints of the right leg. Mike is able to perform a straight leg raise and has good quadriceps contraction. Manual muscle testing reveals 4/5 quadriceps strength and 4/5 hamstring and gastroc/soleus strength. He has good patellofemoral joint mobility.

**Physician Referral:** The prescription Mike's physician gave him states, "Evaluate and treat right knee, S/P arthroscopic meniscal débridement; may utilize land and aquatic exercise for ROM and strength."

## For Skills Check:

Be prepared in lab to demonstrate the following to address Mike's impairments

- 1 ROM exercise
- 1 Flexibility exercise
- 1 Strengthening exercise






Acuathrapy ▾

☐ Search by selected module only.

▾

☒ Mine
 ☐ All
 ☐ Physiotec

Body Parts	Objectives	Equipment	Position	Specification
<input type="checkbox"/> Abdominals <input type="checkbox"/> Pelvis <input type="checkbox"/> Cervical <input type="checkbox"/> Shoulder <input type="checkbox"/> Chest <input type="checkbox"/> Elbow <input type="checkbox"/> Wrist/Hand <input type="checkbox"/> Hip <input type="checkbox"/> Knee <input type="checkbox"/> Ankle/Foot <input type="checkbox"/> Scapula <input type="checkbox"/> Lumbar <input type="checkbox"/> Thoracic	<input type="checkbox"/> Stretching <input type="checkbox"/> Gait/Walking <input type="checkbox"/> Posture <input type="checkbox"/> Stability <input type="checkbox"/> Strength <input type="checkbox"/> Proprioception <input type="checkbox"/> AROM <input type="checkbox"/> Isometric	<input type="checkbox"/> Wall <input type="checkbox"/> Plate <input type="checkbox"/> Towel	<input type="checkbox"/> Straddle on the pool noodle <input type="checkbox"/> Sit on the pool noodle <input type="checkbox"/> Pool noodle under the arms from the back <input type="checkbox"/> Pool noodle under the arms from the front <input type="checkbox"/> Standing	<input type="checkbox"/> Water at collar bone height <input type="checkbox"/> Water at sternum height <input type="checkbox"/> Water at umbilical height



# Knee Stretching Techniques

- Knee extension with patient on steps
- Knee flexion with patient on steps
- Knee flexion with patient supine
- Hamstring stretch



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# Lab setup evolution





# Lab setup evolution



# Course evaluation comments

- “Aquatics was the best day of PT school”
- “I loved doing the Aquatics lab and having the case studies helped with the application of materials”
- “I enjoyed the aquatics lab and skills check the most out of any lab in PT School thus far. I wish we could implement more of what we are learning kinesthetically”



# Assessment

2	aquatic contraindication	MC	86%	.19
3	decreased WB property...	MC	100%	0
4	chest-deep water WB %	MC	89%	.07
5	LE edema property of w...	MC	100%	0
6	water temp ranges	MC	94%	.29
7	aquatic equipment	MC	63%	.22
8	HS self stretch	MC	89%	.41
9	MSK and aquatic purpose	MC	94%	.2
10	body regulating temper...	MC	80%	.42
11	progression for aquatics	MC	83%	.16
12	resistance to limb move...	MC	83%	.01
13	A 55-year old man with ...	MC	74%	.4
14	circulation and aquatics	MC	91%	.24
15	Techniques and methods	MC	89%	.38
16	Methods and Technique...	MC	97%	.31
17	Methods and Technique...	MC	97%	.11
18	AROM resisted by bouy...	MC	60%	.21
19	Hydrostatic Pressure	MC	83%	.49

# Takeaways

- Set clear expectations early on that lecture is not occurring and students are to prepare ahead of time
- Kinesthetic learning (especially for PT students) is more FUN!
- Assessment:
  - Panopto questions: students can learn to focus on concepts/ testable material
  - Case Study/ Skills Check: allows for discussion and evaluating outcomes/ reflection on process and new learning; ensure psychomotor comprehension
  - Exam: Ensure cognitive comprehension



# References

- Kisner C, Borstad J, Colby LA. *Therapeutic Exercise: Foundations and Techniques*. 8th ed. Philadelphia, PA: F.A. Davis Company; 2023.
  - Chapter 9: Aquatic Exercise
- Levett-Jones, T., Hoffman, K., Dempsey, J., Jeong, S., Noble, D., Norton, C., Roche, J., Hickey, N., 2010. The 'five rights' of clinical reasoning: an educational model to enhance nursing students' ability to identify and manage clinically 'at risk' patients. *Nurse Educ. Today* 30, 515–520.  
<https://doi.org/10.1016/j.nedt.2009.10.020>.

