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Enhancing Learning Outcomes in an Intervention Based Orthopedic Course

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Enhancing Learning Outcomes in an Intervention Based Orthopedic Course

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School of Occupational Therapy, Belmont University



Belmont University School of Occupational Therapy

Mission

The School of Occupational Therapy provides comprehensive graduate education within a Christian learning environment to enable students from diverse backgrounds to positively impact the community at large and enhance the human condition through appreciation of diversity, problem-solving, and utility of meaningful, and purposeful occupations.

Vision

The School of Occupational Therapy's vision is to offer a comprehensive education to graduate students in a Christian environment, preparing them to become, and continue to be, occupational therapy practitioners who are committed to evidence and occupation- based practice, life-long learning, service, and advocacy.

Identified Needs

Occupational Performance 1 Course

- Educational material to supplement important concepts covered in lecture

Occupational Therapy Graduate Students

- Hands-on experiences to practice skills
- Experimental learning

Learning Objectives

- Enhance student learning outcomes in the OP1 course by providing educational resources and extracurricular review sessions.
- Assess effectiveness of educational resources given to students.
- Explore options for translating the educational material to additional settings.
- Review the OP1 course learning objectives and materials to ensure the findings of current practice techniques are implemented.
- Create and implement 2-3 video based clinical case studies for the OP1 course.

Case Studies:

- Studies include post-op: Distal radius fracture, Carpal tunnel release, and CMC arthroplasty.

Case Study - Distal Radius Fracture

History: Distal Radius Fracture

Presenting Problem: Open Reduction and Internal Fixation (ORIF) of distal radius fracture. The fracture is displaced, and a combination of plate and multiple screws are placed to secure the fracture position. MD orders occupational therapy "1x per week for 10-12 weeks and a custom thermoplastic orthosis".

Intake: This is the protocol that this specific surgeon uses for a ORIF distal radius fracture:

- Phase I (0-10 days) - ROM of shoulder, elbow, forearm, wrist, and digits. Edema management, ice packs.
 - ROM within the patient's tolerance.
- Phase II (day 11 - week 3) - Continue orthotic use, add gentle PROM week 3, continue ROM, initiate scar massage once incision healed, and begin for joint stiffness, initiate wearing out of orthotic week 3 (simple braces off each day and work up to not wearing at all during repetitive activities).
- Phase III (week 4-12) - Week 4-7: discontinue orthotic and introduce light resistive exercises, continue PROM and ROM, week 8 progress to full strengthening exercises.

History of client:

Date of OT Evaluation - 2/16/2023

The patient is a 42-year-old female who is referred to your clinic by her MD for a distal radius fracture 4-days ago. Patient arrives with post-op dressing intact. Patient states she was cleaning her home when she slipped and struck her hand with her left wrist. Patient immediately went to the ER and had surgery the following day.

Occupational Profile: The patient lives at home with her husband, both work. The patient works in a retail store for an apparel store and her job duties include washing, ironing, and gluing. She states her job requires a heavy amount of hand and finger dexterity. She has to enter her name in a computer system which she has to do every light duty work at the office before she returns to her original role. The patient states her husband is supportive and will be able to assist her in any needs regarding the care of her wrist. She is normally responsible for the cooking and housework responsibilities in her home. She states she enjoys spending time with her husband and two sons, three to twelve, and her dog. Patient is a R hand dominant. PMH includes generalized anxiety disorder, HTN, HDL, Carpal tunnel release surgery (3 years ago), and L wrist fracture and removal (3 years ago). Current medications include Lexapro, Celebra, and has been taking Hydrocodone for pain since the surgery.

1. What frame of reference might the therapist use while treating this patient? Explain your rationale.

2. What approach might the therapist use to guide the evaluation and intervention process?

3. Which body structures are involved?

4. Which body functions are involved?

5. What outcome measure could you use?

6. For the evaluation, what assessments would you use?

Assessment results:

Phase: T10 at the wrist

ROM

- R wrist flexion - 40 degrees
- R wrist extension - 45 degrees
- R elbow deviation - 5 degrees
- R radial deviation - 4 deg
- R ulnar deviation - 15 degrees
- R pronation - 40 degrees
- R supination - 40 degrees
- L wrist extension - 60 degrees
- L elbow deviation - 25 degrees
- L radial deviation - 15 degrees
- L ulnar deviation - 20 degrees
- L pronation - 40 degrees
- L supination - 40 degrees

Edema (circumferential from distal wrist)

- R wrist - 12cm
- L wrist - 11cm

7. Create a strength list (at least 2)

8. Create a problem list (at least 2)

9. How would you explain the wear schedule and care of the orthotic to this patient?

10. How would you explain the wear schedule and care of the orthotic to this patient?

11. Write a goal for this patient:

ICF:

ETC:

ETC:

STYL:

STYL:

12. Below are common topics that would be included in evaluation documentation. Following a SOAP note format, write "S", "O", "P", or "A" next to the statement.

a. How that incision looked open?

1. Was the incision closed? open?

2. Was the incision red or moist?

3. Did the incision appear to be infected?

4. How long is the scar?

5. Is there bruising in the area?

6. Are there edema in the area?

7. Post-op dressing intact?

8. Results of assessments given (pain, ROM, edema, etc.)

9. "My wrist is in a lot of pain"

10. Did I have to touch or explain something multiple times?

11. Were they able to watch back or verbally agree?

12. How / when did the injury occur?

13. If you were writing the "P" section of a SOAP note, how would you write that for this patient (i.e., duration and frequency)?

14. The patient comes in for her first treatment session on day 10, following Phase I of fracture healing and the protocol given by the MD, answer the following:

a. The therapist wants to give the patient a RIEP. What type of movements would be included? What other general information would be included?

b. Which physical agent of modality would be beneficial for this patient at the moment? Explain why you chose this modality and how it is a better option than the others.

15. Refer to the picture labeled "DRIF" incision.

a. From looking at this picture, would you begin scar massage? Why or why not?

b. If/when the patient is ready for scar massage, how would you explain what scar massage is and what to do (how to do it, schedule, what not to do, etc)?

16. The patient comes in for treatment on week 6, following Phase II of fracture healing and the protocol given by the MD, answer the following:

a. What physical agent of modality would be beneficial for this patient at the moment? Explain why you chose this modality and how it is a better option than the others.

b. List at least three treatment ideas you would complete in this session. Provide rationale for each.

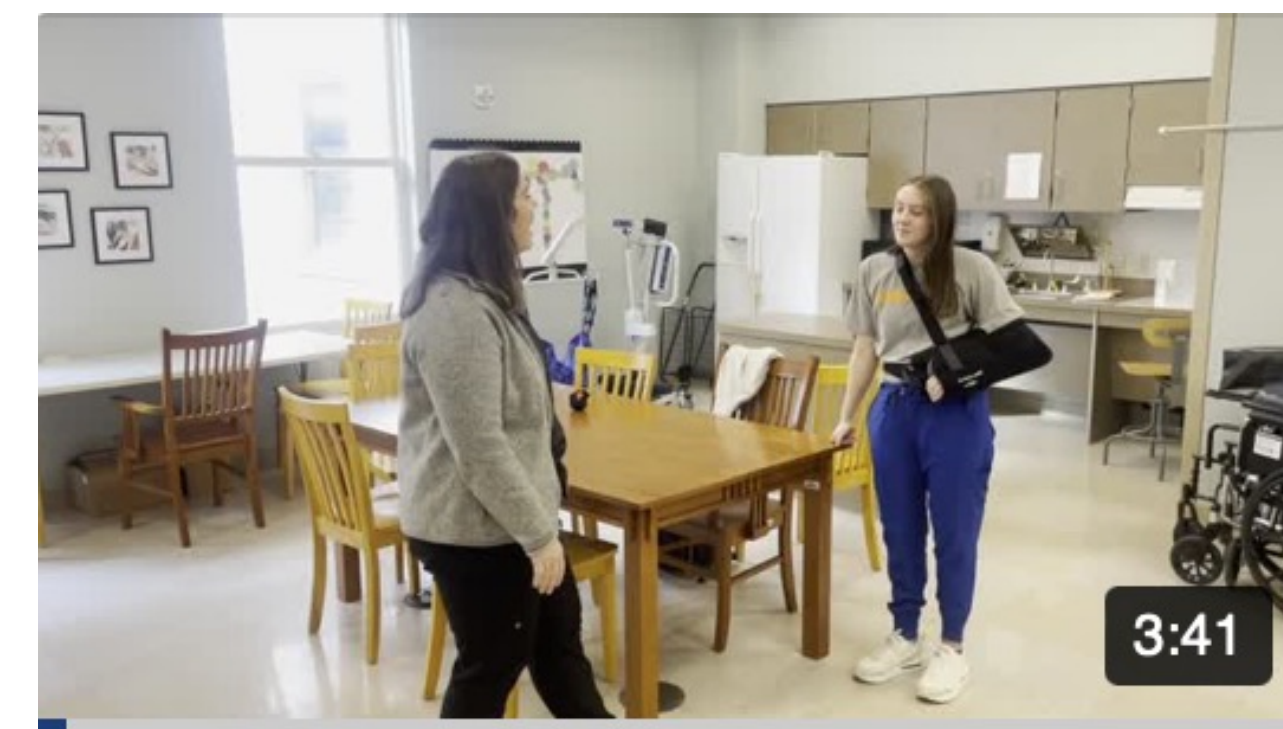
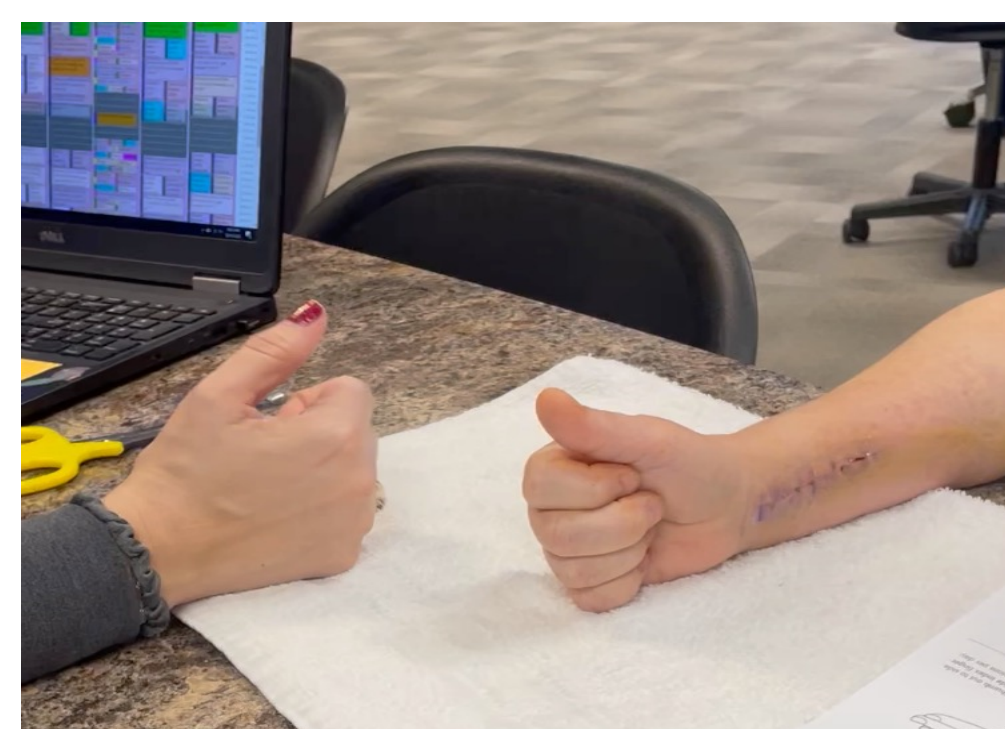
17. Using your clinical reasoning, at what week in the POC would you introduce strengthening and full resistive exercises? Why?

18. The patient comes in for treatment on week 8, following Phase III of fracture healing and the protocol given by the MD, answer the following:

a. List three continued and occupation-based activities the patient could do during this treatment session.

Supplemental Videos:

- Videos include: Pendulum body mechanics, post-op shoulder bed mobility, in-hand manipulation skills, Moberg pick-up test instructions, shoulder joint protection, and videos of evaluation and treatment sessions that coincide with the case studies



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References Available Upon Request

Deliverables

Student Review Sessions:

- Review sessions include: Shoulder provocative tests, peripheral nerve injuries, elbow tendinopathies, finger deformities and injuries

Fabrication of orthotics and a 3D finger model:

- Orthotics include: Forearm and hand-based thumb spica, volar wrist cock-up, resting hand, ulnar gutter, anti-claw, and a variety of finger orthotics
- Fabricated a life-size and dynamic model of a finger that shows the relationship of the tendons and structures in the finger when an injury occurs.



Project Outcomes

- Created pre and post surveys using a Likert scale for students to complete at each review session. A statistical analysis using a paired sample t-test was ran for each topic, significance was found at a ≤ 0.01 value for each.

