

Leveraging Land-/Aquatic-based Physical Therapy Interventions in a Patient with Chronic Neck Pain. A Case Report.

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Background & Purpose

- 22% to 70% of people suffer from neck pain at least once in their lifetime¹
- Clinical Practice Guideline (CPG) for Neck Pain helps clinicians classify patients and determine interventions^{2,3}
 - All land-based therapy
- Limited guidance for treatment of the small subset of patients who either do not fit into classifications or do not improve from interventions
- There may be beneficial effects of aquatic therapy for patients with neck pain¹
 - The CPG does not include aquatic therapy^{2,3}.

The purpose of this case report is to determine if a shift from land- to aquatic-based physical therapy can improve pain and functional outcomes in a patient with chronic neck pain.

Case Description

- 56-year-old female, appeared lethargic
- 2 years of insidious onset of chronic neck pain:
 - morning stiffness, intermittent headaches with nausea, pain with turning head
- Referred to an outpatient orthopedic physical therapy clinic on 01/23/2020
- History of chronic low back pain, antibiotics for sinus infection for last month

Initial Evaluation

- Cervical**
 - Active range of motion limited in all planes
 - Pain with right lateral flexion and right rotation
- Shoulder Strength**
 - Shoulder flexion, abduction, internal and external rotation
 - 4-/5 bilaterally
- Palpation**
 - Severe tenderness to posterior occiput, C1-T4
 - Joint mobility unable to be assessed
- Special Tests**
 - Vertebral Artery test, Spurling's test, Alar Ligament test
 - All Negative

Figure 1. Examination Results

Examination & Timeline

Outcome Measures

Numeric Pain Rating Scale (NPRS)		Neck Disability Index (NDI)
Best 1/10	Worst 8/10	29/50

Diagnosis:

Idiopathic Chronic Neck Pain

Interventions: Land-Based Therapy

- Exercise and Manual Therapy consistent with CPG Recommendations.^{2,3}

Interventions: Aquatic Therapy

- Patient education, Active assist shoulder range of motion (ROM), Shoulder strengthening, Core stability, Aquatic Ambulation (Table 1)

Table 1: Summary of Typical Aquatic Therapy Session

Patient Education	Shoulder Active-Assist Range of Motion	Shoulder Strengthening	Core Stability	Aquatic Ambulation
<ul style="list-style-type: none"> • Pain Management • Safe activity progression • Strength Training • Aquatic Benefits • Pain Science 	<ul style="list-style-type: none"> • Scapular Protraction/Retraction with KB • Shoulder Abduction/Adduction with KB • DB Scapular Protraction/Retraction 	<ul style="list-style-type: none"> • DB Lateral Pull Downs • DB Anterior Pull Downs 	<ul style="list-style-type: none"> • KB Anterior Sinking • KB Push Pulls 	<ul style="list-style-type: none"> • Walk forward, sideways and backward • Focus on arm swing • 3 laps each

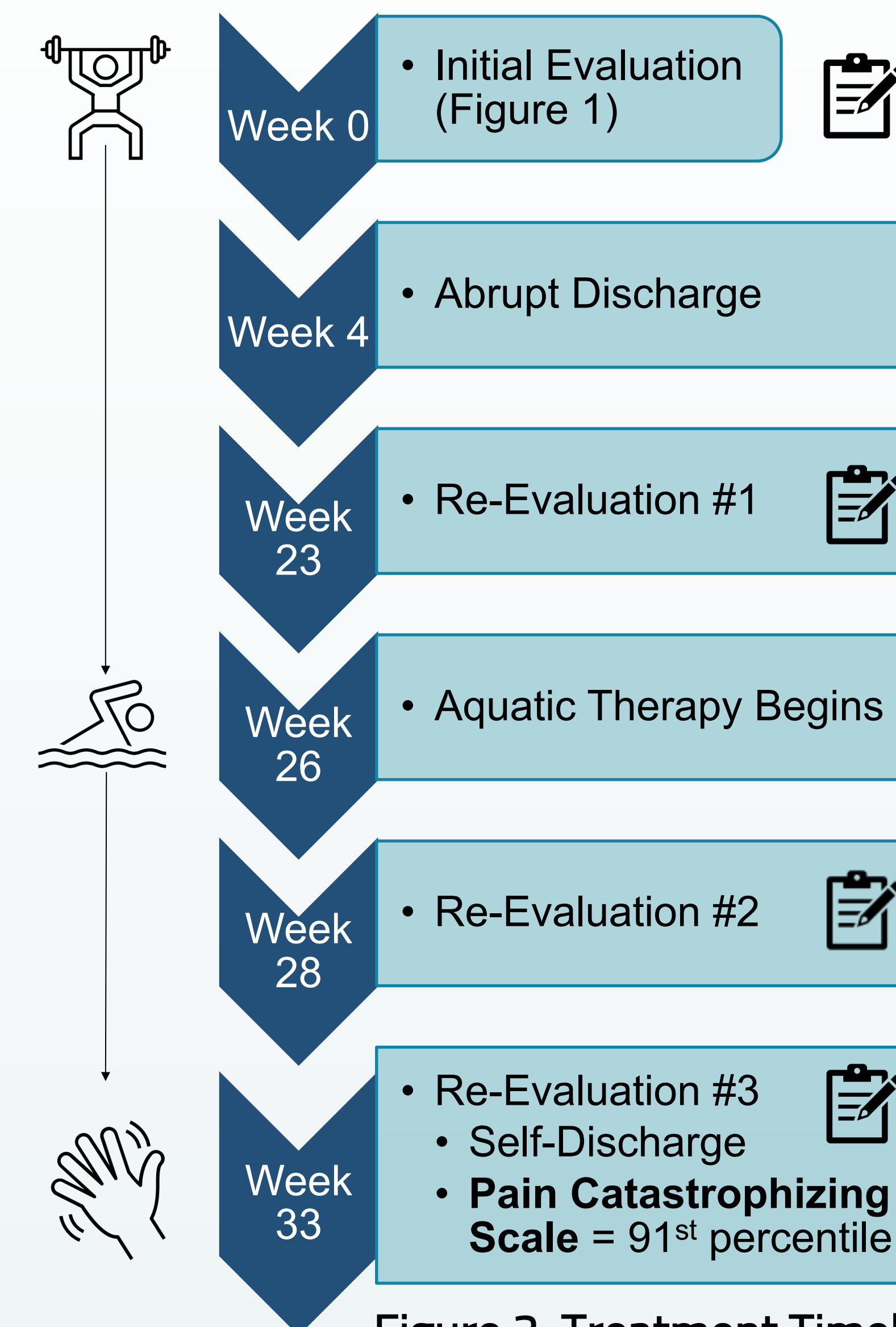


Figure 2. Treatment Timeline

Discussion

- Significant functional gains (NDI) after aquatic
 - Minimal improvements of impairments
- Treating chronic neck pain with different types of aquatic therapy can improve health-related quality of life, pain, and functional capacity^{1,5,6}
- Increased NPRS reports may be contributed to inconsistent pain reporting or catastrophizing⁴
- Psychosocial aspects of pain should have been addressed earlier in treatment
 - May have improved the patient's quality of life to a larger degree⁴
- Patient had five of eight CPG risk factors for chronic neck pain² → use risk factors to determine need for patient education, screening for pain perception, or aquatic therapy
- Further research is warranted on what factors clinicians should screen patients for when determining if the aquatic environment may be more beneficial than land-based interventions

Conclusion

- Results suggest aquatic therapy could be an effective tool in treating chronic neck pain in patients who do not respond to or fit within CPG classifications.
- Improving CPG classifications to include aquatic therapy will help clinicians to improve patient care and quality of life

References

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6. Türel A, Solak Ö, Dündar Ü, et al. Evaluation of the Efficacy of Spa Therapy on Pain and Quality of Life in Patients With Chronic Mechanical Neck Pain. *Arch Rheumatol.* 2015;30. doi:10.5606/ArchRheumatol.2015.5445

Outcomes

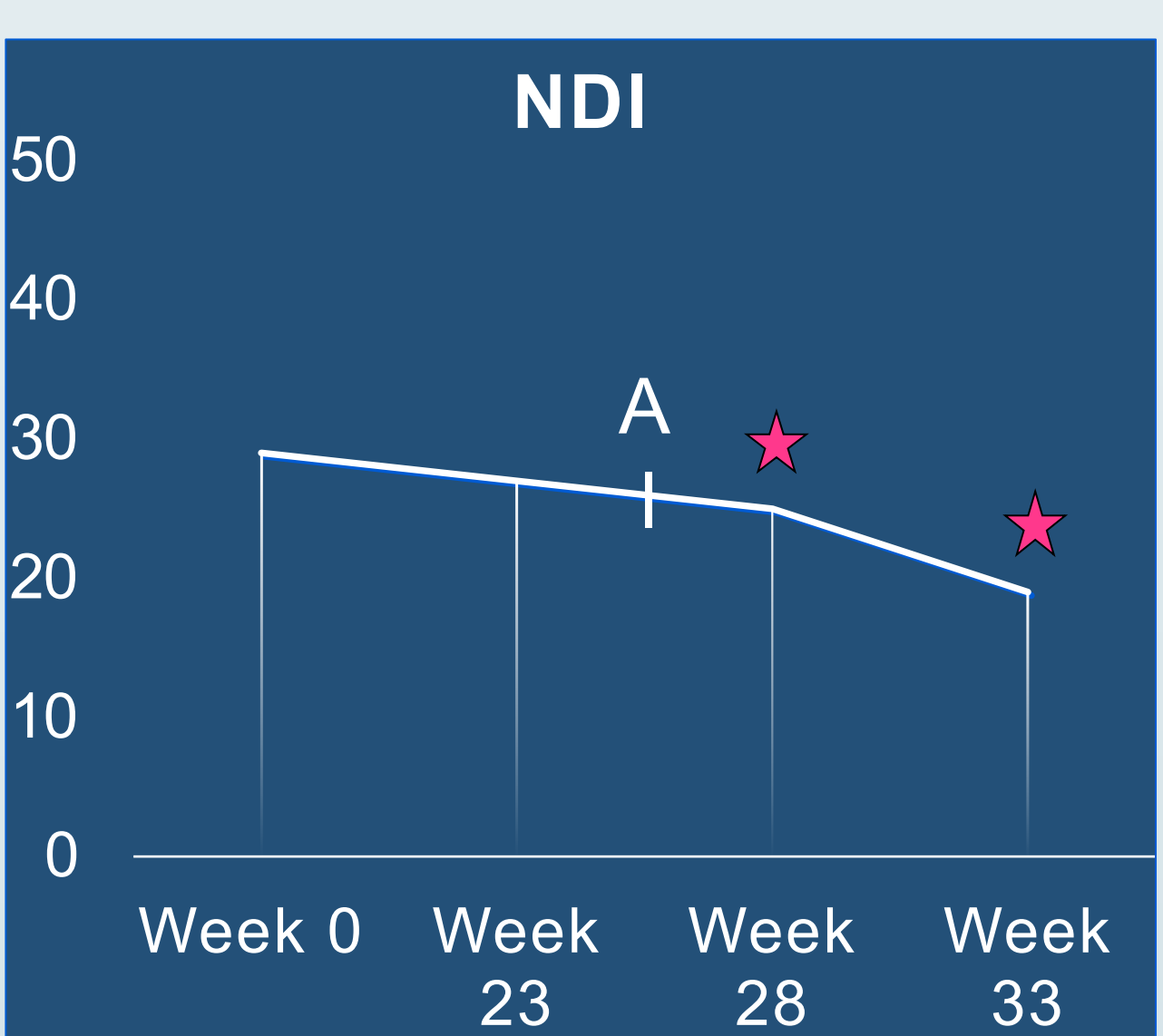


Figure 3. NDI Scores Over Treatment
★ = MCID met. A= Aquatic begins.

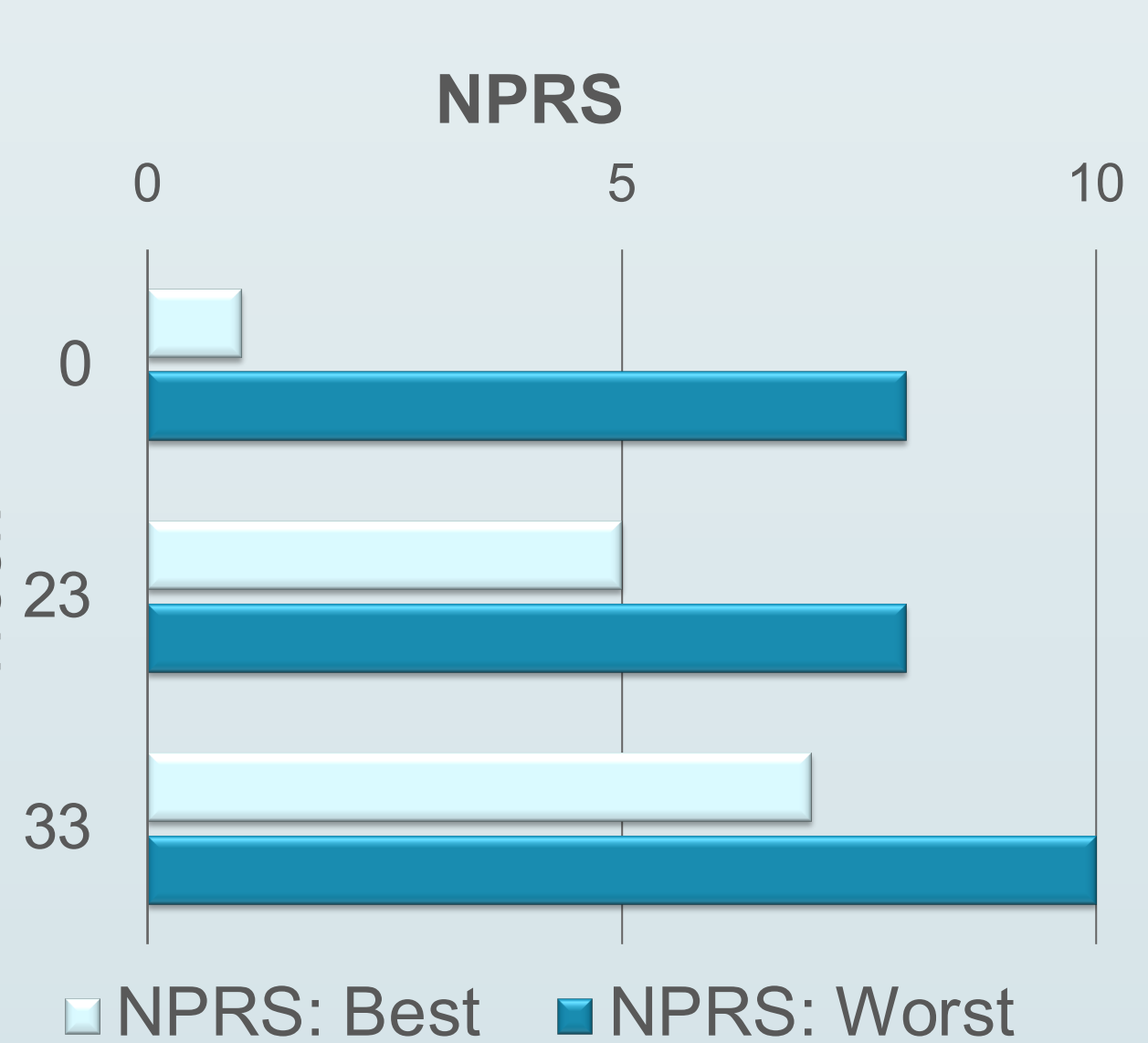


Figure 4. NPRS Ratings Over Treatment

Goal Progress

- Improve NDI by 5 points **MET** ✓
- Tolerate washing her hair without compensation (NPRS < 5/10) **PARTIALLY MET** ?
- Tolerate reaching & lifting 5 lbs. overhead (NPRS < 5/10) **NOT MET** ✗

Figure 5. Long Term Goal Progress at Week 33