



### Reforming range of motion: The use of the Pilates reformer in a female with postoperative adhesive capsulitis

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#### BACKGROUND & PURPOSE:

Adhesive capsulitis or “Frozen Shoulder”, is characterized by pain and progressive loss of mobility of the shoulder. The prevalence of adhesive capsulitis is between 4.3-38%.

Current research on the benefits of Pilates for those with low back pain (LBP) and lower extremity injury demonstrate that Pilates exercises are able to positively impact strength, endurance, posture, flexibility, balance, and proprioception while also decreasing pain. Currently, a scant amount of research exists discussing the effects of Pilates exercises on those presenting with shoulder and upper extremity dysfunction.

*The purpose of this case report is to describe the rehabilitation outcomes of a 62-year-old female with post operative adhesive capsulitis using Pilates-based intervention in conjunction with standard Physical Therapy.*

#### CASE DESCRIPTION:

The patient was a 62 year old active female with diagnosis of right lung adenocarcinoma. Over the course of two years, the patient underwent right lobectomy, bronchoplasty and wedge resection. Due to multiple surgeries in a short period of time, tissues of the shoulder girdle and rib cage exhibited decreased excursion and mobility limiting ROM at the shoulder.

#### Body Structure / Function

- ↓ Right shoulder ROM
- ↑ Pain with overhead activities
- ↑ Pain with palpation to shoulder

#### Activity Limitations

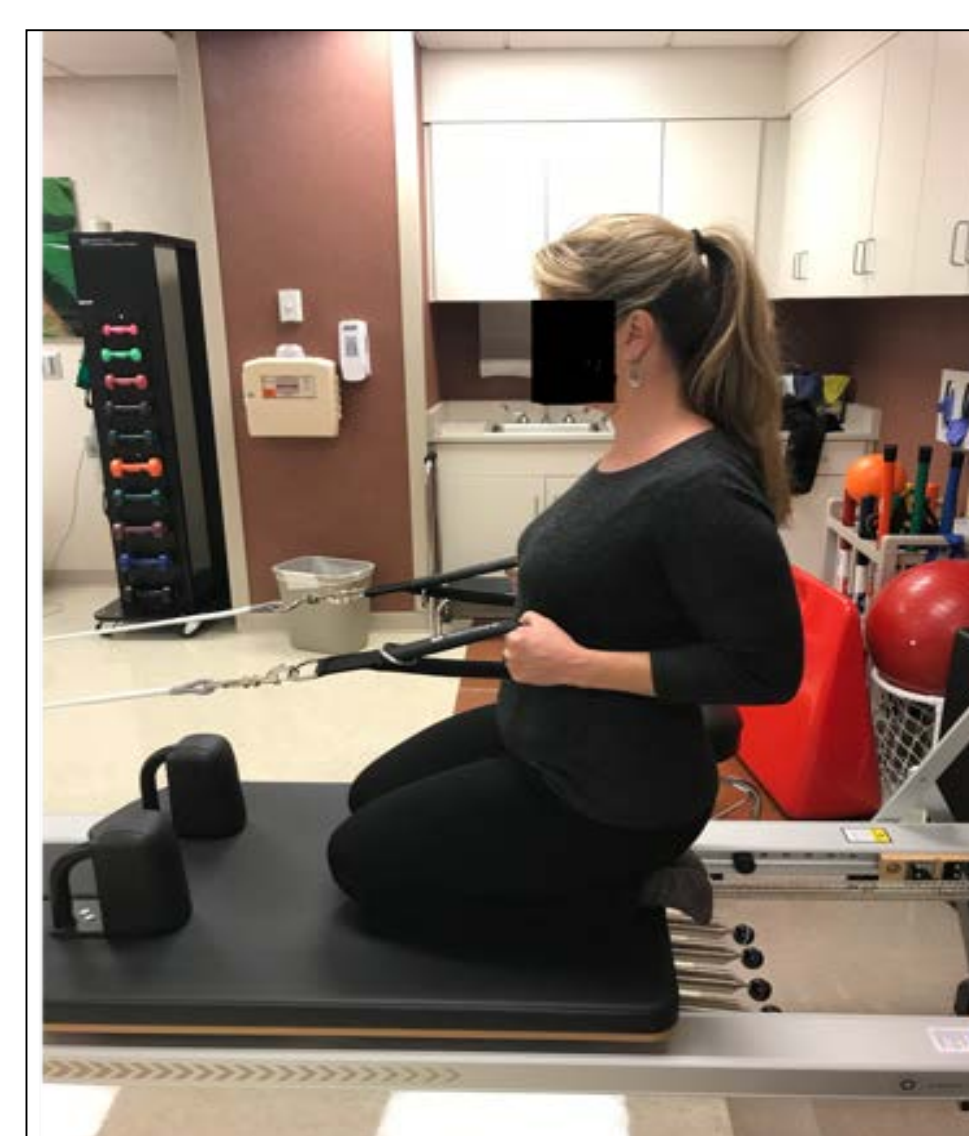
- Inability to reach overhead
- Inability to reach across body
- Increased pain throughout the day

#### Participation Restrictions

- Inability to participate in church bell choir
- Unable to attend employee fitness class
- Unable to perform work duties

#### INTERVENTIONS:

Standard Physical Therapy included active warm up, theraband exercises, upper extremity stretching and myofascial release techniques implemented in visits 1-8. Pilates reformer return visits 3 through 8.



#### RESULTS:

Table 1: Examination Outcomes

Outcome Measure	Initial Examination	8th visit: Discharge	MCID
<b>Numeric Pain Rating Scale</b>	5/10 at rest 9/10 with activity	0/10 pain at rest and with activity	2 point change
<b>Structural Inspection</b>	Right scapular winging	Decreased right scapular winging	NR
<b>Active range of motion</b>	<u>Flexion</u> : 150° <u>IR</u> : T10 Spinous Process <u>ER</u> : 75°	<u>Flexion</u> : 170° <u>IR</u> : T7 Spinous Process <u>ER</u> : 90°	5 degree change
<b>Strength</b>	Grossly assessed within functional limits	Grossly assessed within functional limits	NR
<b>Palpation for tenderness</b>	Tenderness to biceps, axilla, pectoral muscles, scapula	No tenderness reported	NR
<b>QuickDASH Score</b>	14/36: 38.5% disability	7/36: 19.4% disability	9 point change

Minimal Clinically Important Difference (MCID); None Reported (NR)

#### DISCUSSION:

Over the course of 8 treatment sessions over 15 weeks, the patient received standard physical therapy including active warm up, theraband exercises, upper extremity stretching and myofascial release techniques in addition to Pilates reformer exercises.

At discharge, the patient had significantly decreased pain ratings and improved right shoulder ROM. She reported improved functional ability with overhead and reaching activities.

The patient achieved a 7 point change on the QuickDASH, not satisfying the MCID value of 9 point change. The outcomes of this case report are consistent with the current literature advocating the use of Pilates Reformer exercises to improve ROM and decrease pain

#### CONCLUSION:

- Pilates Reformer exercises in conjunction with traditional physical therapy can improve range of motion and functional status in those with adhesive capsulitis.
- Pilates on the Reformer represents a safe and functional intervention that can be progressed and adapted to meet the needs of the patient.

#### RESOURCES:

