

SUPPLEMENTARY DIGITAL MATERIAL 1

Myofascial release techniques

Breast and axillary scar Both hands of the therapist were placed on both sides of the serrated scar tissue (which had adhered to surrounding tissues after cancer surgery) so as to be perpendicular to the patient's scar tissue. Stretching force was applied by pushing both hands apart or fixing one hand and sliding the other hand. Pressure was applied to small scar tissue in the same way using both thumbs or fingertips (Supplementary Figure 1A).

The pectoralis major therapist stood at the patient's head and induced elongation of the horizontal fiber of the pectoralis major. Both fingers were attached and moved along the same direction so that the therapist's hands gently split at the center of the pectoralis major. She waited until the fascia was relaxed in the area where it was adhered and then stretched it again. After the elongation of the horizontal fiber, the diagonal fiber was released. The therapist stood at the patient's head, positioned the sides of both palms in the center of the diagonal fiber. her two-handed ulnar corner in the center of the diagonal fiber, and then moved both hands while split apart, feeling the fiber was loosened (Supplementary Figure 1B).

After the therapist placed the back of their hand on the back of the patient's face (as the patient was lying down), the therapist held the patient's shoulder away from the bed and constantly pressed under the scapula with their fingertips to induce vertical local elongation (Supplementary Figure 1C).

Latissimus dorsi A foam roller was placed on the waist of the patient and the patient's trunk was manually bent with the shoulder flexed as much as possible while lying sideways. One hand of the therapist was placed at the point of origin of the latissimus dorsi, and the other hand was placed at the point of insertion on the pelvis. The MFR was conducted by applying pressure that reached the fascia of the latissimus dorsi (Supplementary Figure 1D).

The deltoid therapist stood by the side of the patient lying supine, gathered fingers of both hands, held one hand at the origin of the anterior and middle fibers of the deltoid muscle, and glided the other hand toward the insertion of the muscle. In the case of the rear fiber, the patient was lying face down (Supplementary Figure 1E).

The intercostalis therapist applied the technique by standing at the patient's side while supine and placing the therapist's thumbs parallel to the top of the lower rib and the bottom of the upper rib, thereby diagonally releasing the fascia between the ribs. The release was repeated while the ribs were moved individually (Supplementary Figure 1F).

Supplementary Figure 1.—Myofascial release techniques. A) Breast and axillary scar; B) pectoralis major (diagonal fiber); C) subscapularis; D) latissimus dorsi; E) deltoid anterior fiber; F) intercostalis.



Supplementary Table I.—Changes in secondary outcomes between pre- and post-intervention.

		Pre-test	Post-test	MD (95% CI)
Subjective pain (NRS)	MFR	5.10 ± 1.24	1.87 ± 1.01	3.23 (2.78 to 3.69)
	Placebo MFR	5.00 ± 1.23	3.03 ± 1.29	1.97 (1.56 to 2.38)
Shoulder ROM - flexion	MFR	143.60 ± 16.40	154.23 ± 13.41	-10.63 (-14.92 to -6.35)
	Placebo MFR	146.20 ± 16.32	148.53 ± 13.22	-2.33 (-5.21 to 0.54)
Shoulder ROM - extension	MFR	28.43 ± 7.47	33.67 ± 6.36	-5.23 (-7.00 to -3.47)
	Placebo MFR	29.17 ± 7.33	30.93 ± 8.34	-1.77 (-3.09 to -0.44)
Shoulder ROM - abduction	MFR	143.77 ± 20.28	154.83 ± 15.74	-11.07 (-14.24 to -11.21)
	Placebo MFR	142.80 ± 20.93	144.17 ± 19.89	-1.37 (-3.34 to 0.61)
Shoulder ROM - adduction	MFR	35.33 ± 4.96	39.20 ± 4.92	-3.87 (-4.85 to -2.89)
	Placebo MFR	35.13 ± 5.21	36.93 ± 5.17	-1.80 (-3.36 to -0.24)
Shoulder ROM - internal rotation	MFR	41.30 ± 7.36	42.33 ± 6.09	-1.03 (-3.20 to 1.13)
	Placebo MFR	40.60 ± 7.26	41.33 ± 6.76	-0.73 (-1.84 to 0.37)
Shoulder ROM - external rotation	MFR	57.93 ± 8.35	70.80 ± 6.99	-12.87 (-14.52 to -11.21)
	Placebo MFR	57.90 ± 8.30	65.53 ± 7.91	-7.63 (-8.84 to -6.43)
Chest mobility	MFR	3.34 ± 0.69	3.59 ± 0.85	-0.26 (-0.45 to -0.06)
	Placebo MFR	3.15 ± 0.75	3.19 ± 0.76	-0.03 (-0.17 to 0.11)

Shoulder function (DASH)	MFR	48.22 ± 5.79	33.28 ± 6.74	14.94 (13.21 to 16.67)
	Placebo	49.28 ± 5.80	37.53 ± 5.38	11.75 (10.97 to 12.53)
Quality of life (FACT-B)	MFR	53.83 ± 13.22	51.20 ± 12.29	2.63 (0.97 to 4.29)
	Placebo	58.10 ± 12.02	57.20 ± 10.54	0.90 (-0.06 to 1.86)

MD, mean difference; 95% CI, 95% confidence interval; MFR, myofascial release; ROM, range of motion; DASH, Disabilities of the Arm, Shoulder, and Head; FACT-B, Functional Assessment of Cancer Therapy for Breast Cancer Patients