

Reset, upper extremity: Iatrogenic shoulder-complex mobility restrictions in breast cancer (BC) survivors (BCS)

There are over 2.6 million BCS with an additional 200,000 more women diagnosed each year (Ebaugh, Spinelli, & Schmitz, 2011). While multimodal BC treatments (e.g. mastectomy, breast conserving surgery, axillary lymph node dissection, radiation therapy) are highly individualized, it is generally recognized that BCS are susceptible to and suffer from serious iatrogenic shoulder impairments (e.g. rotator cuff/RC disease, adhesive capsulitis, axillary web syndrome/cording), particular restricted range of motion (ROM), with long-term effects on activities of daily living and quality of life (Ebaugh et al., 2011).

Wise, Kepics, and Lattanzi (2009) classified 7 (not mutually exclusive) shoulder movement impairment syndromes in BCS: neuromuscular coordination; pain/post-mastectomy; muscular force production; peripheral neuropathic; myofascial restriction (axillary web, scar fibrosis, trigger points); glenohumeral capsular restriction; and lymphedema.

Protective postural (forward/protracted shoulder) and movement adaptations, a common response to BC treatment pain/scar tissue/lymphedema (anterior chest wall and axillary region), typically promoted: short/tight pectoralis major-minor; malalignment of the glenohumeral (GH) joint; 3-17° GH flexion deficit; 7-33° GH abduction deficit; 1-11° GH external rotation deficit; 1-4° GH internal rotation deficit; decreased scapular upward rotation and posterior tilting; 11.5° increased scapula internal rotation and other scapula dyskinesia; latissimus dorsi tightness (Ebaugh et al., 2011). Deficits in normal GH flexion-abduction might contribute to RC pathology by loss of GH centration on the glenoid fossa and compression of the RC tendons in the subacromial space (Borstad & Szucs, 2012; De Groef et al., 2015; Ebaugh et al., 2011; Jang, Kim, Oh, & Kim, 2015). Multiple active trigger point sites (upper trapezius, sternocleidomastoid, levator scapulae, scalene, pectoralis major, and infraspinatus) were also found in BCS who sustained lumpectomies/mastectomies (as compared to non-surgical treatments) causing local and referred pain in the neck-shoulder-axillary regions (Fernández-Lao et al., 2012).

Application

A "reset" is a positive [mostly passive] movement response (e.g. regain ROM, corrective posture/alignment) by the client's body to a therapeutic intervention (e.g. manipulation, soft tissue treatment) (Cook, n.d.a.; Cook, n.d.b.).

Effective clinical interventions included (but not limited to): manual lymphatic drainage; tissue glide mobilisations; joint/soft tissue mobilisations of chest wall, scapula, GH joint; deep friction massage of supraspinatus tendon; radial nerve stretching; and various upper-extremity proprioceptive neuromuscular facilitation techniques (Cho et al., 2016; Tunay, Akbayrak, & Kay, 2012; Yeung, McPhail, Kuys, & Yeung, 2015).

For the clinically-discharged post-rehabilitation client (cleared to train in a gym), initial "reset" may include self-myofascial release (SMR) using a soft-firmer ball of the appropriate size and/or roller (foam/other material) on the upper back, scapula, serratus anterior, and if possible

the chest area (which may/may not be too sensitive)--see [Kaiser Permanente's](#) (2006) "side to side", "upper back mobilization", "tennis ball rolling", and "cat/camel". Other options include [Beard's](#) (2010) and [Starrett's](#) (2010) sequences which may easily be progressed/regressed by the client using smaller ROM, followed by Somerset's [lateral](#) and [sagittal](#) traction exercises.

Following the above-mentioned techniques (used selectively depending on the individual's comfort), I would also include [Memorial Sloan Kettering's](#) (2013) "forward wall crawls", "side wall crawls" as well as the [Canadian Cancer Society's](#) (n.d.) "winging it" and "snow angels". These exercises are all self-limiting and safe for general use of improving ROM, before Cook's (n.d.a., n.d.b.) "reinforce" and "reload".

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