Pilates for Breast Cancer Patients

with Frozen Shoulder

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ABSTRACT

PILATES FOR BREAST CANCER PATIENTS
WITH FROZEN SHOULDER

Frozen shoulder, or adhesive capsulitis, is a condition in which the glenohumeral joint, or shoulder joint proper, develops stiffness or immobility due to an extensive surgery, disease, or immobility for long periods of time. The connective tissue of the shoulder joint, or the shoulder capsule, thickens and tightens around the shoulder joint, restricting movement and causing pain. Breast cancer patients are more susceptible to frozen shoulder after a mastectomy or extensive chemotherapy/radiation.

This paper examines the anatomy behind frozen shoulder, looks at the effects of the condition and suggests a Pilates-based regimen for clients, with special emphasis on Breast Cancer patients who have developed frozen shoulder. In addition to this, a case study is provided for a breast cancer patient with the Full Circle Breast Cancer Recovery Program in Long Island, NY.
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Overview of Frozen Shoulder

1. The Shoulder’s Anatomy

The shoulder is comprised of three bones, the humerus, the scapula, and the clavicle bones. The shoulder girdle provides the support or, mobile base for the circumduction of the arms. The humerus bone joins at the meeting point of the scapula and clavicle. See the diagrams below:\footnote{Blandine Calais Germain, \textit{Anatomy of Movement} (Seattle: Eastland Press, 1993), 105 & 107}

\begin{figure}[h]
\centering
\includegraphics[width=0.8\textwidth]{image1.png}
\caption{Bones of the Shoulder}
\end{figure}

These three are joined by three different joints, the sternoclavicular joint, the acromioclavicular joint, and the glenohumeral joint. The sternoclavicular joint, is a saddle shaped joint that attaches to the “inversely-shaped articular surface” of the manubrium of the sternum.\footnote{Blandine Calais Germain, \textit{Anatomy of Movement} (Seattle: Eastland Press, 1993), 106}
The acromioclavicular joint is made up of the lateral end of the clavicle and attached to the small oval-like shape of the scapula or the acromion. The joint allows for the gliding movements of the scapula.³

The glenohumeral joint, more specifically known as the ball and socket joint, attaches to the scapula and provides great range of motion, but is known as one of the most unstable joints in the human body.⁴

All these joints are held together by an assortment of ligaments, and three groups of muscle. The first group of muscles support the scapula but do not touch the humerus bone. These include the trapezius, rhomboids, levator scapula, pectorals minor and serratus anterior. The second group surround the rotator cuff and include the suprasinatus, infraspinatus, teres minor, and the subscapularis. Finally, the third group envelops the larger muscles of the shoulder that enhance stability and support major movements of the arm. These are the pectorals major, deltoids, latissimus dorsi, and teres major.⁵

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⁵ Raael Issacowitz, *BASI Study Guide* (Costa Mesa: BASI, 2000-2013), 87
2. What is Frozen Shoulder?

Frozen shoulder, more commonly known in the medical field as adhesive capsulitis, occurs when the sac of ligaments, or shoulder capsule surrounding the glenohumeral joint, becomes inflamed, tightens, and contracts (See Diagram\textsuperscript{6}). The shoulder becomes stiff, tight, and painful to move, much less offer a wide range of motion. For most, range of motion cannot occur above 90 degrees in flexion, sometimes less. Frozen shoulder is known to have three stages: the painful stage, the frozen stage and the thawing stage. In the painful stage, the patient will feel pain with any kind of shoulder movement, even if it is a slight movement. After this, the shoulder will freeze and although some pain will subside, the shoulder will become stiff and immovable. Slowly, the joint will move toward the thawing stage. During this time the joint will gradually start to “thaw” and range of motion will return. According to a study (Lundberg, 1969), the majority of patients who experience Frozen shoulder are in their 40-70s, white, have diabetes, or are coming out of extensive, or traumatic surgery.

3. Causes of Frozen Shoulder in Breast Cancer patients

In a course of treatment for breast cancer, many women are subject to a mastectomy or lumpectomy. In these extensive surgeries, the surgeon will remove breast tissue as a way to prevent the cancer from spreading. In addition to the tissue removal, some muscle removal is almost inevitable. Lymph nodes and the muscles underneath the breast, including the serratus anterior, and latissimus dorsi are all subject for removal. Because of the muscle removal, women who undergo this type of extensive surgery are “six times more likely to experience shoulder restriction and impairment.”

More than seventy percent of people with frozen shoulder are women ranging in the population from age 45-75, the same age when most women are diagnosed with breast cancer. Because of this staggering statistic, it is important to delve into treatment for these women that is rehabilitative, but conservative for any additional treatments (i.e. chemotherapy, radiation), that might occur alongside frozen shoulder.

Physical Therapy and Pilates Rehabilitation for Frozen Shoulder

When a patient is diagnosed with frozen shoulder, the most important goal in rehabilitation is to develop range of movement. Once the symptoms start to show, the patient should visit a physical therapist first. The therapist will work on small stretching exercises, band work, in combination with heat and ice to relax the muscles. There will be a few exercises that the patient should take home and practice everyday. After a couple months, exercises will

7 Jack Crosbie, Effects of Mastectomy on Shoulder and Spinal Kinematics during Bilateral Upper-limb Movement (Sydney: American Physical Therapy Assoc., 2015) pg. 1

increase in range of motion and there might be more resistance added along with the heat and ice. This stage of the treatment is a good time for patients to start seeing a Pilates instructor for personal instruction under the advisement of a physical therapist and in close communication with them. In the final stages of treatment, the focus of the work will be on normal arm movements and full range of motion.

Case Study for Breast Cancer Patient with Frozen Shoulder

1. History and Suggestions

Sue (full name has not been disclosed for privacy) came into Full Circle Breast Cancer Recovery program in Long Island in September 2014. She had been diagnosed with breast cancer about five to six months earlier at age 48. During that time she had undergone one round of chemotherapy and radiation and had received a mastectomy in the summer. She came to Full Circle when she noticed symptoms of frozen shoulder: pain, and the decrease in the range of motion in her left arm. Full Circle founder, Diana Tjaden, had been working with Sue for one month and prescribing soft tissue massage work, small assisted range of motion exercises, and a basis of foundational Pilates exercises for a full body workout. Some of these exercises included balance and neuropathy work. Sue recently was referred to a Pilates studio in her area, under the advisement of Diana and the Full Circle staff. She had been unable to start a more regular exercise routine before this, because during her time with Diana in the fall, she was still in chemotherapy treatments. Soon, in March 2015, under the advisement of Diana, Sue will begin with a Pilates instructor.
In discussions with Diana and the Full Circle staff, some considerations have to be made when approaching a client like Sue. Even at the end of chemotherapy, patients still feel the effects of the poison months after treatment. Some apparatus such as the reformer might not be beneficial if the patient becomes dizzy. Fundamental, Light resistance, and mat work with the assistance of the cadillac might be more beneficial in such a case. Below is a BASI Block System Workout for Sue after and in addition to physical therapy work in the “thawing phase” of frozen shoulder.

<table>
<thead>
<tr>
<th>BASI Block System Frozen shoulder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Warm up</strong></td>
</tr>
<tr>
<td>Mat: Pelvic Curl, Spine Twist Supine, Modified arms for Chest lift (arms parallel to ground, just hovering)</td>
</tr>
<tr>
<td><strong>Footwork</strong></td>
</tr>
<tr>
<td>Cadillac: Parallel Heels, Toes, V position, Open V Heels and Toes, Calf Raises, Prances. *Note: very light spring and spotting and assisting, absolutely necessary. Having a hand on Push through Bar at all time is beneficial.</td>
</tr>
<tr>
<td><strong>Abdominal work</strong></td>
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<tr>
<td>Cadillac: Roll up with Roll-Up Bar</td>
</tr>
<tr>
<td><strong>Hip Work</strong></td>
</tr>
<tr>
<td>Cadillac: Frog, Circles down &amp; up, walking, bicycles</td>
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<tr>
<td><strong>Stretches</strong></td>
</tr>
<tr>
<td>Ladder Barrel: Shoulder Stretch 1(being very cautious with this stretch, not pushing too deep into stretch), Hamstrings</td>
</tr>
<tr>
<td><strong>Arm Work</strong></td>
</tr>
<tr>
<td>Small Arm Circles Supine, Magic Circle Sitting: Arms Bent, Arms Straight, Single Arm Side Press (Series is modified/ Arms over head is contraindicated until full range of motion is developed)</td>
</tr>
<tr>
<td><strong>Full Body Integration</strong></td>
</tr>
<tr>
<td>Reformer: Knee Stretch Series: Round Back and Flat Back</td>
</tr>
</tbody>
</table>
*Note: Some work deviates from the BASI repertoire to better accompany physical therapy treatments. Also, because of frozen shoulder, Arm Work comes before Full Body Integration. The shoulder joint will not be fully prepared for Full Body Integration until proper work has been done to it.

Conclusion

Adhesive capsulitis, or frozen shoulder, is a horrible side effect of breast cancer treatment and can cause excruciating pain and inconvenience on the individual dealing with breast cancer. The sensitivity of the shoulder joint, and the increase of susceptibility to frozen shoulder in breast cancer patients makes this condition a prevalent concern for physical therapists and Pilates instructors. Sue is still on her journey to full range of movement in her left shoulder girdle. But with the help of the Full Circle Recovery Staff and a regular Pilates instructor, she should soon see results. With so many resources, specialist, and the help of Pilates, Frozen Shoulder can be dealt with, treated, and rehabilitated.


Raael Issacowitz, BASI Study Guide (Costa Mesa: BASI, 2000-2013), 87


Jack Crosbie, Effects of Mastectomy on Shoulder and Spinal Kinematics during Bilateral Upper-limb Movement (Sydney: American Physical Therapy Assoc., 2015) pg. 1