

Research

Case Studies of Yoga Therapy with Focused Downward Release and Scapular Stabilization in Shoulder Injuries

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Abstract

Shoulder injuries can be complex and time-consuming to rehabilitate. Yoga therapy is well suited to deal with both the complexity and the subtlety of shoulder rehabilitation. This article discusses three case studies with different shoulder injuries and describes the role that Yoga therapy played in the rehabilitation of these injuries. The case studies share in common a focus on downward stabilization of the scapulae, release of the upper shoulder muscles, and awareness of upward energy flow in the spine in a variety of positions and movements. This rehabilitation focus (identified as FDRSS) is described in detail, including how it can be expressed in specific breathing practices and Yoga poses.

Introduction

Common Shoulder Imbalances and Injuries

The shoulder joint is the most flexible major joint in the body, and this flexibility needs to be balanced with strength throughout the entire shoulder girdle. The anterior muscles of the shoulder complex tend to be relatively stronger than the posterior muscles of the shoulder, due to selective muscular development of the internal rotators without concomitant external rotation strength.¹ Muscles of the shoulder such as the supraspinatus, the upper trapezius, and the levator scapulae are often overused due to injury or habitual poor body mechanics.² Injury and improper habits can also contribute to premature elevation of the scapulae in movements of abduction and flexion.³ Chronic tension due to habit and/or injury further fatigue shoulder muscles, which can lead to muscle atrophy. Many of these imbalances/improper motions can lead to shoulder impingement, the most commonly-diagnosed shoulder ailment.³⁻⁶

Yoga Therapy for Shoulder Rehabilitation

A typical rehabilitation program focuses on isolating muscles for strength and range of motion (ROM).⁵ One of the advantages of Yoga therapy is that it incorporates the

whole person. Not only do many of the *āsanas* work many muscle groups simultaneously for strength and flexibility, but Yoga also teaches the body to relax muscles not being used. This retraining of neuromuscular habits from Yoga practice appears to translate into improved movement function in day-to-day habits. For example, headstand (*sirsāsana*) has been demonstrated to retrain muscles of shoulder movement to reduce pain and increase ROM immediately following a 30-second practice, with continued long-term benefits.⁷ Breath and postural work also can aid in the rehabilitation of the shoulder, as described below.

The following three case studies demonstrate how Yoga therapy alone and with traditional medical care can address these concerns and aid in the rehabilitation of diverse shoulder injuries. The case studies include diverse shoulder injuries: thoracic outlet syndrome, bicep tendonitis, and rotator cuff injury. An important element in all of the case studies presented is a focus on the downward release of the upper shoulder muscles, the downward stabilization of the scapulae, and spinal awareness. This approach is described below.

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Focused Downward Release and Scapular Stabilization (FDRSS)

Practicing Yoga with focused downward release of the upper shoulder muscles and downward scapular stabilization (FDRSS) can lead to improved function and the reduction or elimination of pain for a variety of shoulder injuries. Key to the effectiveness of this approach is the release/non-use of ancillary muscles. For most shoulder injuries, this will include the upper trapezius, levator scapulae, and supraspinatus in certain movements and positions. The muscles of scapular depression—the lower trapezius and the lower serratus anterior—can be recruited to stabilize the scapulae in a depressed position, concurrent with the upper shoulder release. The third component of this approach is the “centering” work of spinal awareness techniques.

While the twin concepts of downward release of upper shoulder muscles⁵ and downward stabilization of the scapulae, coupled with spinal awareness techniques, in and of themselves are not new,^{1,3,5} the use of these concepts to develop a Yoga therapy program for shoulder injuries has not been previously reported. A Yoga practice with FDRSS lends itself to a variety of shoulder movements under a variety of circumstances (strength work, passive restoratives, focused balancing, open and closed kinetic chain movements, etc.) that train the body to form new movement habits. This enables students to apply the neuromuscular lessons learned from Yoga practice to a variety of everyday activities.

Key Concepts of FDRSS

Three main concepts work together to help achieve maximum results with FDRSS:

(1) *Awareness of the spine and awareness and/or visualization of energy moving up the spine, which creates a sense of support and center.* Without good posture and a sense of support from one's core, the stabilization and relaxation aspects of FDRSS will be limited. Focusing on developing a proprioceptive awareness through either actual experience or through visualization of a kinesthetic sense of energy flowing upward in the spine helps one maintain good posture and release tension that is chronically held in the upper shoulder area. It is not unusual for a Yoga practitioner to experience an upward flow of energy in the spine and into the head when chronic tension in the upper shoulder area is released. Conversely, chronic tension in this area will impede the upward flow of energy (commonly experienced by seasoned meditators) in the spine and into the head.

(2) *An attempt to keep the scapulae down (inferior position) through engaging the muscles of scapular depression in most arm movements, including flexion and abduction.* Scapular elevation is a normal and healthy aspect of scapular range of motion. Range of motion including full scapular elevation is essential for maintenance and rehabilitation of the shoulder. However, the scapula is prone to getting “stuck” in elevation through chronic tension. Premature scapular elevation with abduction and flexion is commonly seen with shoulder injuries.⁸ Abnormal shoulder biomechanics and muscular imbalances are associated with impingement syndrome,^{1,3,6} rotator cuff injuries,^{3,5,6} and other injuries of the shoulder area.^{1,3,6} By retraining and strengthening the muscles of scapular stabilization to be able to hold the scapulae down (thereby recruiting often underused muscles such as the serratus anterior),³ it appears that many symptoms of shoulder injury can be lessened.

(3) *Releasing the upper shoulder muscles (primarily the upper trapezius, the levator scapulae, and the supraspinatus) in all restorative positions and most other held positions.* In many cases of shoulder injury, muscles not normally used for a particular movement may be recruited or overused. These inefficient muscle patterns can develop from stress, poor posture, or habits of movement, as well as from injury. Correcting the inappropriate and/or overuse of the upper shoulder muscles is a key factor in the success of FDRSS. The upper shoulder muscles are used in a variety of arm movements, such as elevation, upward and downward rotation of the scapulae, elevation of the clavicle, and abduction of the arm. Learning to release these muscles when not performing one of their intended functions can greatly facilitate pain relief and a return to normal function.

Developing a Yoga Therapy Intervention Using FDRSS

The above-described concepts are readily integrated into a program of Yoga therapy and regular Yoga practice. Positive results can include increased range of motion and function of the shoulder without pain, prevention of re-injury, and increased energy flow. The following techniques and *āsanas* utilizing FDRSS formed the core of all three case studies in this report.

Prānāyāma with Upper Shoulder Muscle Release Technique

Some of the shoulder muscles, such as pectoralis minor and serratus anterior, can act as accessory breathing mus-

cles, helping to change the shape of the thoracic cavity.⁹ In contrast, the upper trapezius, the levator scapulae, and the supraspinatus are not muscles of respiration. However, they can commonly be observed to contract during respiration, especially upon taking a deep inhalation or during shallow chest breathing. If these movements become habits, the upper shoulder muscles can easily be overworked. It is important to rest the muscles of an injured shoulder and therefore prudent to learn how to retrain these muscles to not habitually contract with movements of the breath.

Have the student lie in corpse pose (*savāsana*) with support under the knees and/or their head or neck, and any other props needed for comfort. First, instruct the student in belly breathing (belly rising with the inhalation and lowering with the exhalation). When the student is comfortable with belly breathing, proceed to the next step.



Photo 1. Assisted upper shoulder release technique

The Yoga therapist should sit on the floor at the head of the student. This next step involves a manual postural awareness support. With the student's permission, the Yoga therapist should gently press his or her thumbs into the student's upper shoulder muscles, as shown in Photo 1. It should be comfortable to the student, so ask. Then ask the student to begin belly breathing. The tendency will be a contraction of the upper shoulder muscles during the inhalation. The Yoga therapist gives feedback to the student so that the student can be made aware that the increased pressure felt is due to unnecessary contraction of these muscles. Once the student is aware of this contraction, then the Yoga therapist can encourage the student to keep the muscles relaxed through suggestion or imagery. The student may be able to respond right away, or it may take several sessions. Encourage the student to imagine that the muscles are staying released, assuring them that eventually they will.

When ready, the student can progressively work with other breathing techniques while keeping the upper shoulder muscles released. Over time, the student can be directed to keep these muscles released in a variety of Yoga postures, either separately or in combination with *prāṇāyāma*. Students who habitually breathe shallowly in the upper chest also tend to have chronic tension in the shoulder muscles. The above technique is helpful for these students to learn to relax their breath, release their shoulder muscles, and consequently feel more centered.

Setu Bhandāsana Variation with Upper Shoulder Muscle Release Technique

Practice this technique after the student is successful with the *prāṇāyāma* upper shoulder muscle release technique above. The Yoga therapist should sit at the head of the student and place his or her hands as described above on the upper shoulder area. The student is then directed to tilt the pelvis on an exhalation, then to continue to breathe comfortably while sequentially rolling up the spine into bridge pose (*setu bhandāsana*). At this point, the student can pause momentarily and then roll back down. See Photo 2.



Photo 2. Assisted upper shoulder release technique in bridge pose

The student's tendency will be to tense the upper shoulder muscles as soon as the student initiates effort elsewhere; in this case, the effort is in the deep pelvic muscles. As before, the Yoga therapist provides feedback from the sensation of the thumb pressure and verbally ("Did you feel that?"). Some students will not be able to feel subtle changes in muscle contraction at first. The Yoga therapist can point out that the upper shoulder muscles are not necessary for any of the movements that bring the spine off the floor and onto the

shoulders. The student should stop and wait until he or she can release the upper shoulder muscles before continuing up higher. If it is difficult for the student to release the muscles, he or she can come down and start all over again as often as necessary. Some students will respond to this technique very readily, and others will need to work on visualizing and practicing this technique for some time. Some students will need to be encouraged to relax their jaw, forehead, and other muscles of their face and neck as well.

This technique adds a layer of complexity to the first one. Being able to release unnecessary tension of the upper shoulder muscles while doing an activity (in this case, rolling up the spine) is the first step toward learning how to release this tension in their daily activities. If a Yoga student only releases this tension during Yoga practice of a single *prāṇāyāma* or *āsana*, that student will experience some pain relief and rehabilitation, but may fail to rehabilitate fully.

Full bridge pose (*setu bhandāsana*) can be helpful to the Yoga student with a shoulder injury. For students who can be in the full position without discomfort, this pose often provides some immediate pain relief. Many of the anterior muscles of the shoulder are stretched and posterior muscles are contracted (thus strengthened) in a way that helps to balance uneven anterior/posterior strength and flexibility.

Āsanās

The following *āsanas* were key in all three case studies in this report. Other *āsanas* used in cases studies but not described in detail below include shoulder circles, shoulder shrugs, all or part of Paramhansa Yogananda's Energization Exercises, table pose with and without lifting one arm at a time into full flexion, locust pose (*śalabhāsana*) variations, and scapular elevation and depression with the arm in full flexion in a variety of Yoga postures.

General Cautions

If any of the following *āsanas* produces discomfort or pain even after checking for proper alignment and technique, then it should be discontinued. Individuals with an acute shoulder injury, such as glenohumeral instability, total joint labral tear, or rotator cuff tear, should only practice *āsana* in communication with a healthcare provider. Some acute shoulder injuries need rest for perhaps several weeks before *āsanas* that involve the shoulder should be attempted. In these cases, adapted *āsanas* that keep the shoulder in a neutral resting position can be done for the overall well-being of the student. As always, cautions and contraindications for conditions such as high blood pressure, low bone density, spinal problems, or pregnancy should be taken into consideration.

Chest Openers and Shoulder Release

The chest-expander stretch (hands clasped behind back, squeezing shoulder blades together, extending the arms back and up) is helpful for many shoulder injuries. It stretches the pectoralis and other anterior muscles while contracting the rhomboids, trapezius, and other posterior muscles. The Yoga therapist needs to monitor that the student does not take this stretch into the shoulder joint, which can put stress on the ligaments and tendons of the joint. In particular, if the stretch is felt anteriorly along the three glenohumeral ligaments, the arms should be lowered. If there remains any sensation in this area, even after adjustments, it should be discontinued until the anterior muscles are strengthened and it can be done without feeling the stretch in the joint along the area of the glenohumeral ligaments. If it is difficult to assume this pose, the following adapted *āsana* can be done until full chest expander is appropriate: The student should place his or her hands on the waist and draw the elbows back as though trying to get them to touch each other. In either variation, the Yoga therapist should apply the concepts of FDRSS by monitoring posture and directing the student to draw the scapulae down the back and release the upper shoulder muscles. Asking the student to briefly move his or her head gently from side-to-side is one way to help facilitate the upper shoulder muscle release.

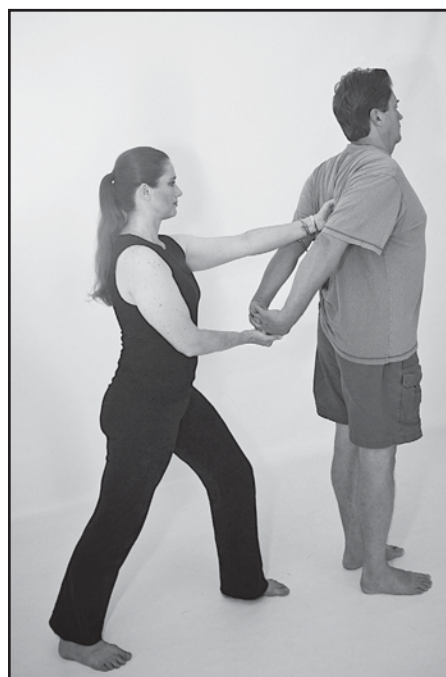


Photo 3. Assisted chest-expander stretch

The chest-expander with assistance was used for all of the case studies participants. See Photo 3. Because of the manual assistance provided in this variation, once again the Yoga therapist needs to obtain permission from the student. The Yoga therapist should also note that this assistance

is contraindicated for an unstable shoulder or acute tears. Some students will be able to tolerate only slight assistance, while

others will require much stronger assistance. Go slowly and continually seek feedback from the student. The assistance should feel good and never produce discomfort for any reason. The student should first practice the chest expander without assistance. The Yoga therapist should pay strict attention to posture. The second time that the student goes into chest expander, the Yoga therapist can gently draw the arms toward each other by holding onto the upper arm just above the elbow and slowly bringing the elbows towards each other, never past the point of comfort. When the student goes into the *āsana* a third time, the Yoga therapist can gently lift the student's hands and pull gently diagonally downward. The therapist's other hand is in a fist and placed between the shoulder blades (which the student is squeezing together). Counter-press forward with this fist, again never going beyond the point of comfort. In hyper-flexible students, keep the arms lower than the point at which they would be parallel to the floor.

During every phase of the chest expander, the Yoga therapist should encourage the student to release the scapulae down, and to release the upper shoulder muscles through suggestion, imagery, and touch. Concurrently, the student should be directed to feel the energy move up the spine, and to be aware of their center of support in the spine.



Photo 4. *The bolster stretch*

The bolster stretch (see Photo 6) stretches the anterior chest muscles and helps to release tension from the posterior and upper shoulder muscles. Sandbags can be added to the shoulders if the student finds it helpful and comfortable. Other restorative positions can be helpful as well. The Yoga therapist can encourage full relaxation through the *prāṇāyāma* upper shoulder muscle release technique described previously. The Yoga therapist can also ask the student to actively draw the scapulae down the back and then relax completely, or manually assist the student in a passive downward place-

ment of the scapulae if the Yoga therapist has the training to do this technique.

While in inversion at the wall (see Photo 7), the arms can be taken into a variety of positions that are tolerated while in this pose. Finger-tensing and shoulder rotations with tension (part of Paramhansa Yogananda's Energization Exercises) can be done in this position. For a mild stretch, students can be directed to reach their arms overhead with comfort, and then bring the arms onto the floor. The elbows can bend so that the arms can be lowered to the point where they rest comfortably on the floor. Some people will have their arms quite close to their ears in this position, while others will have to have their arms no higher than a "T" position (90 degree angle from the body).

Inversion at the wall is a great position not only for resting and exploring movements of the shoulder, but also for providing a foundation for practicing poses that might otherwise be difficult to do due to the shoulder injury. For example, the hip stretch shown in Photo 6 would require the effort of the arm to draw the legs in if practiced away from the wall. At the



Photo 5. *Inversion at the wall*

wall, a student can assume the pose without using their arms or tensing the shoulders. Belly breathing and full Yogic breath can be incorporated in this position as well.

Standing Poses

If the shoulder injury is still acute or easily aggravated, it might be best to start with floor *āsanas* that make it easier to release tension in the upper body and give the shoulders a more complete rest. However, when the injury is not acute, many standing *āsanas* can be safely done by modifying the arm positions. For example, warrior II (*virabhadraśana* II) can be done with the arms lower than the usual position. Warrior I (*virabhadraśana* I) can be done with the hands in



Photo 6. *Hip stretch at wall*

namasté position (*anjali mudra*), or with the hands relaxed to the side.

Some Yoga *āsanas* may be assumed by moving into them in a non-traditional fashion. For example, perhaps an individual is unable to abduct the injured shoulder, which would be the usual way of bringing the arm into position for side-angle pose (*parsvakonāsana*). However, if this individual is able to cross the arm in front of the body and lift it up into position (flexing and adducting the shoulder) without pain, the pose could be safely assumed in this manner. The individual should then reverse this movement to come out of the pose.

Twists

Spinal twists, both supine and seated, can stretch a variety of shoulder muscles. Care must be taken not to stress the joints while trying to stretch the muscles. In a supine twist, for example, if the forearm and hand do not easily rest on the floor, bring the arm closer to the body until it does, and/or place a bolster or other prop under the forearm to lessen the stretch. Applying the three aspects of FDRSS in spinal twists can greatly assist in a deeper, safer twist that can aide in the rehabilitation of shoulder injuries.

Spinal Stretch at the Wall (An Adaptation of Downward-Facing Dog)

Spinal stretch at the wall (see Photo 7) may be attempted when full flexion can be achieved without any symptoms. This pose not only stretches and strengthens muscles of the shoulder girdle, but it is also an excellent way to teach arm and shoulder technique/positions without full weight-bearing. It is recommended that the student be able to practice this pose with good alignment and complete comfort before trying downward-facing

dog or other postures that require weight-bearing through the arms and shoulders. The main stretch for most students should be in their legs, and the Yoga therapist should check that the student does not hyperextend at the shoulder joint. The spine should feel released and energy felt or imagined flowing up the spine and out through the crown of the head.



Photo 7. *Spinal stretch at wall*

The effort of the *āsana* is primarily felt in the lateral aspect of the triceps brachii muscles of the upper arm, as the upper shoulder muscles are encouraged to release and the scapulae are stabilized.

Three Case Studies

The following three case studies were chosen because complete histories and follow-up information was available. The cases present both common and less common shoulder injuries, including rotator cuff injuries and bicep tendonitis (common injuries), and thoracic outlet syndrome (less common). All of the students in the case studies consulted medical professionals, whether a physical therapist, a general practitioner, or additional specialists. All three of the case study individuals worked with the same Yoga therapist (the author).

Case Study 1: Steve Background

Client Information: Male, age 46, first-time Yoga student. Steve is an avid recreational athlete (mountain-biking and skiing).

History: About 10 days before attending his first Yoga class with the Yoga therapist, Steve went to his physical therapist after a surfing accident. In addition to a cervical compression with right brachial plexus traction injury, the physical therapist noted inhibition of the right infraspinatus

and teres major muscles, with scar tissue indicating an old rotator cuff injury from a ball-throwing incident.

Shoulder Injury: Since Steve strained his shoulder, many activities continued to aggravate it, such as throwing a ball and riding a bike. Steve had been planning to start Yoga classes before his surfing injury and discussed with his physical therapist beginning a semi-private Yoga class with the Yoga therapist. Steve was advised to tell his Yoga therapist that he should start a practice without weight-bearing on the affected arm/shoulder. Steve was treated by his physical therapist eight times.

Yoga Intervention

One of the first observations of Steve was in mountain pose (*tadāsana*): Steve's arms and hands were held tense (even when trying to relax them), and his arms remained a few inches away from his body. His first warm-up was (and continues to be) Double Breathing Palms Touching, one of Paramhansa Yogananda's Energization Exercises. (Stand with feet parallel, hip-width apart, knees bent, the arms extended parallel to the ground and the palms touching. Tense the body, while inhaling with a double breath [short, then long, inhalation through the nose]. Straighten the legs and open the arms out to the sides, then double-breathe out [short, then long, exhalation out through the mouth making a "huh-huh" sound] as you bend the knees and release the tension; repeat three to six times). Steve felt some immediate relief from his shoulder pain after completing this exercise the first time. Steve was instructed in additional Energization Exercises (such as shoulder rotation with tension, neck recharging, and arm rotation in small circles).

Steve practiced the key Yoga postures described earlier in the article, with the focus on FDRSS. Steve was particularly encouraged in the release-and-relax aspects of FDRSS. After two months of Yoga lessons, Steve was able to bear weight in poses such as table pose with arm and leg extensions. For increasing flexibility, especially of the anterior shoulder muscles, Steve found the chest expander with and without assistance to be particularly effective.

After a few months, Steve's shoulder became pain-free except with long bike rides. More strength *āsanas* and some flexibility *āsanas* were gradually added to his routine. They included variations of inclined plane pose (*purvottanāsana*) with forearms on the ground and headstand preparation as described by Fishman, Konnoth, and Polesin in their discussion of headstand for rotator cuff injury.⁷

Steve's home practice consisted of Double Breathing Palms Touching, which he continued to do as a break in the middle of mountain-biking.

Outcomes

After less than six months of Yoga therapy, Steve's shoulder pain was gone. Steve now has normal range of motion in his shoulder. His Yoga practice continues to help balance the recreational activities that tend to contract his anterior muscles and stretch his posterior shoulder muscles. Steve is able to participate in all of his recreational activities without shoulder pain, including intense bike riding.

Case Study 2: Kevin

Background

Client Information: Kevin, male, age 50, had been taking a few Yoga classes off and on over the years. Kevin is an avid recreational athlete, mainly playing tennis and bike-riding.

History: Approximately ten years ago, Kevin injured his upper back. He also has a history of bilateral foot, knee, hip, and sacroiliac joint pain. He has had right anterior shoulder pain for three years. A physician diagnosed his shoulder injury as bicep tendonitis.

Shoulder Injury: Kevin was experiencing constant shoulder pain. Playing tennis aggravated it. Initially, his right arm hung farther away from his body than his left. Both arms hung in a slightly lateral position a few inches away from his body, with some medial rotation. There was minimal right shoulder elevation as well. When supine, his right forearm and hand would remain about six inches off of the floor due to the tension throughout his arm and shoulder. It made no difference if the hand was in pronation or supination.

Yoga Intervention

Kevin began taking a weekly semi-private Ananda Yoga class, and the concepts of FDRSS were central to the practice. Initially, when Kevin was in supine positions, a folded blanket would be placed under his right forearm and hand to support them. From time-to-time in various supine *āsanas*, such as inversion at the wall, supine spinal twists, bolster stretch, and *savāsana*, the Yoga therapist would apply the upper shoulder muscle release technique and/or press on his upper shoulder muscles and gently apply traction (pull away from his body) to his shoulder by holding and pulling gently on his right hand. Then the Yoga therapist, who had training as a physiotherapist, would carefully and gently press down over his shoulder joint with one hand and his forearm with the other hand. This stretch would bring his hand down to the floor. These and other similar actions helped to passively depress the scapula and release the upper shoulder muscles, demonstrating the passive use

of FDRSS. After a couple of months, Kevin's hand would be able to lightly touch the floor after this assistance. After a few more weeks, his shoulder and forearm were able to maintain their release with the hand positioned on the floor, and the assistance was not needed except to help deepen the release and relaxation of the shoulder area. Kevin practices the bolster stretch and inversion at the wall at home.

Outcomes

Kevin has improved his range of motion without pain and returned to a normal bilateral relaxed arm position both in standing and supine. His bilateral shoulder heights are even. Recently, Kevin played tennis nine out of eleven days (an increase in his usual two to three times a week) without further aggravating his shoulder. This indicates a degree of strength and stability in his shoulder joint that was not present before he began his current Yoga therapy.

Case Study 3: Vince

Background

Client Information: Male, age 50, with a history of low back and cervical pain. Vince has had thoracic outlet syndrome with complications for several years.

Shoulder Injury History: Vince was first diagnosed with thoracic outlet symptoms due to repetitive stress issues about seven years ago. At that time, he began physical therapy, Yoga therapy, and lifestyle changes. Vince's thoracic outlet symptoms included upper back, shoulder, and neck pain. Sometimes he would experience tingling in his hands and fingers, muscle knots, and pains in his upper back, shoulders, and neck. Usually, his left upper shoulder area (and consequently his left hand and fingers) would have greater symptoms than the right. Additional symptoms that Vince has sometimes experienced from this condition are aches in his neck and head, slight disorientation/"fogginess" in his thinking, headaches, and tingling and numbness in his feet.

Yoga Therapy History: After being diagnosed with thoracic outlet syndrome, Vince began Yoga therapy and lifestyle changes. These consisted of traditional Yoga classes in *āsana* and *prāṇāyāma* (with modifications for his condition), both private and group instruction, and a two-month weekly class in a Yoga for the Heart program (based on Dean Ornish, MD's heart disease reversal program). Five years ago, after taking a few group classes with his current Yoga therapist, he began taking private Yoga lessons exclusively with her. The new approach by this Yoga therapist utilized the concepts of FDRSS, from which Vince was

able to immediately experience a greater degree of relief from all of his symptoms. Additionally, by applying the concepts of FDRSS to his daily life as advised by his new Yoga therapist, he was able to reduce aggravating situations to his condition.

Collaborative Care

Thoracic outlet syndrome is a condition that should be diagnosed and supervised by a doctor. During the time period of Yoga therapy, Vince also received regular massage therapy and personal training instruction. He also worked with a physical therapist and chiropractor. His care was overseen by his primary care physician and a neurologist. The Yoga therapist briefly discussed his condition on the phone with the physical therapist who treated Vince.

Yoga Intervention

Vince attended private Ananda Yoga instruction two to three times a week for 90- to 120-minute sessions. He requested walking (which consisted of walking posture corrections and walking meditation with *mantras* or affirmations from Paramhansa Yogananda's book, *Metaphysical Meditations*) and meditation instruction. Vince was also interested in Yoga philosophy, which was interwoven throughout his sessions. The concepts of FDRSS, energy, *mantras*, affirmations, and Yoga philosophy were incorporated into both his walks and his Yoga practice.

Vince typically came to his Yoga class with multiple flared-up symptoms. Walking would be difficult, and his posture was somewhat stooped on the more extreme occasions. Initially, Vince had to avoid bringing one or both arms overhead or actively holding the arms in any position, as doing so would cause symptoms whether he was standing, sitting, or supine. Standing or sitting in any position for very long would also produce symptoms. Even slight extension of the head and neck also had to be avoided because it triggered symptoms.

Vince's Yoga therapy has always brought him immediate relief. He has always been able to leave his sessions walking normally with relief of symptoms, good posture, and positive spirits. The two most important *āsanas* for Vince have been the chest expander (with and without assistance) and the bolster stretch (with and without assistance, and with sandbags). The Yoga therapist spent a lot of time with Vince on his posture, including standing and sitting as he would at home or work.

The use of Ananda Yoga affirmations¹⁰ during walking and *āsana* practice have been very important to Vince during his healing process. Vince and other Yoga students have

found the following affirmation from Swami Kriyananda's Super Conscious Living Exercises to be very useful:

I am strong in myself.
I am strong in my body.
I am strong in my mind.
I am strong in my will.
I am strong, I am free!
In myself I am free!
In myself I am free!

For meditation, the Yoga therapist taught Vince how to use bolsters to support himself in a semi-reclined position, as traditional sitting would flare up his symptoms. By using a large cylinder-shaped bolster behind his back, he not only was able to meditate comfortably, but also found some symptom relief in this position. He now can sit for short periods of time on a meditation bench, placing a bolster on his lap to support his arms in the resting position of the joint, in which the arm is in slight flexion, abduction, and internal rotation.²

Outcomes

Vince no longer has continual symptoms of thoracic outlet syndrome. His only common complaint is a dull ache in his left upper shoulder area, which Yoga practice helps to alleviate. He can drive and do deskwork for longer periods of time before symptoms arrive. If he overdoes driving or deskwork, a session with his Yoga therapist will bring him immediate relief. Vince can also now bring his arms overhead for longer periods of time and flex and extend his neck somewhat without producing symptoms. His quality of life has significantly improved, and he continues to show improvement.

Conclusions

Yoga therapy can easily incorporate the concepts of FDRSS to specifically aide the rehabilitation of diverse shoulder injuries. By retraining the mind, the breath, and the muscles of shoulder movement to maintain downward stabilization of the scapulae, and to release unnecessary

upper shoulder muscle activation in a variety of Yoga positions, it appears that shoulder function is improved, pain is reduced or eliminated, and range of motion is increased in a variety of shoulder injuries. The Yoga therapy helped not only in the healing of the injury, but also helped correct general imbalances such as left/right discrepancies and anterior/posterior discrepancies.

FDRSS also appears to facilitate desirable energy flow for enhanced benefits of a general Yoga and meditation practice.

A limitation of this report is the relatively small number of case studies, all derived from the professional practice of a single Yoga therapist. The promising outcomes of these case studies suggests that a larger study would be beneficial to determine more precisely the mechanisms and outcomes of using Yoga therapy with FDRSS in a variety of shoulder injuries.

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