Chronic Low Back Pain

Structural Yoga Therapy Course

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1 - Case study

A – Initial intake - review of symptoms, subjective pain level, self assessment and goals

Suzanne is 53 years old, about 5'4" tall, trim, athletic, strong and very active. She is married and devoted to her husband, has no children but has dogs, including a therapy dog. She loves cooking and does catering work (not full time) and spends considerable time taking care of her home, including gardening and such activities as overseeing interior renovations. She keeps herself very busy and feels stress from the demands of her activities. She has a very "can do" attitude about life and appears more inclined to push through things or "tough it out" than to relax or slack off in any way.

A few weeks into this case study period, Suzanne's husband had an accident and during treatment/diagnosis for the accident, which was not life threatening, he was found to be suffering from multiple myeloma. After weeks of testing, he is starting chemotherapy and other treatments and his prognosis is not yet clear. This, obviously, has been a huge stressor for Suzanne, although she is tackling the situation with her attitude that there's a job to be done (getting her husband diagnosed, treated and cared for) and she's going to do it.

Suzanne's past activities have included tennis, running and other very active outdoor sports which appeal to her. Over the last few years, she has given up many of these activities because of the physical pain they produced. Running caused headaches and aggravated a chronic neck pain; tennis has twisting motions which caused low back pain and she finally quit playing after injuring her low back a year ago. Gardening, which she still does ("because it needs to be done") can aggravate all of these painful areas as well as her wrists – she previously had surgery for wrist tendonitis and has ongoing minor carpal tunnel syndrome. Her description of her approach to gardening is very telling: during the spring when there is a lot of heavy gardening work to be done, she will go out intending to do 20 minutes or so of work, because she knows more than that will result in pain. She works until she notices that pain and strain are setting in – then instead of stopping she figures as long as she is going to be in pain anyway, she might as well go whole hog, get done what needs to be done and just deal with "all the pain at once" when she is finished. She works hard, lifts heavy rocks, etc, and does indeed end up in pain, especially later when her body tightens up.

In an effort to address these problems, and to keep her body at what she perceives as a necessary level of strength and fitness now that she has given up many of her sports activities, she regularly does weight lifting and cardio workout at a gym and has also been doing yoga for several months with a teacher she likes very much. She happened to come to my yoga class for the first time on the day I announced that I was looking for someone with chronic pain to participate in a Structural Yoga Therapy case study, and she responded immediately.

Suzanne's description of her symptoms included the following.

1. Her primary complaint is chronic (25 or more years) low back pain which she believes is related to her sacroiliac joint. (she had seen a chiropractor to treat this but stopped due to lack of results). She experiences this in the morning when she gets up, and often during the day in response to activity. Standing or slow walking, as in a museum, is especially aggravating. Pain levels are often around 5 and can get as high as 8 or 9.

2. Her right hip often is painful. A “tweak” of pain can happen after or during a variety of movements.

3. Her knees are sometimes sore after a gym workout. She does not perceive this as a significant problem.

4. Her neck has had chronic pain for several years, often up to a pain level of about 5. When she was a runner, this resulted in, or was related to, headaches she experienced after running.

5. She has the perception of less range of motion (ROM) in her right shoulder, with a low level of occasional discomfort. She notices this, for example, when grocery shopping.

Suzanne’s primary goal for the treatment program is to reduce her low back pain and the general experience of stiffness/pain which follows activity, and as a secondary goal, reduce her neck pain..

B – <u>Physical assessment</u>

***<u>i</u>*. <u>Posture Body Reading</u>**

During the initial intake session on 4-10-08, a visual observation of her body posture was conducted and included the following observations:

a. In standing position, both feet have slight turn-out.

b. From side view, vertical alignment is good.

c. From front view, right shoulder is slightly lower than left (observable, but not pronounced).

d. Head has slight tilt to right.

e. Arm carrying angle is within normal range for a woman.

f. SI joint movement test showed right SI joint moved up ½” when right leg lifted, left SI joint moved down slightly when left leg lifted.

g. No spinal curvature was observed. (no scoliometer was available for this session; later scoliometer measurements showed very slight left curvature of 2 to 2.5 in mid-upper thoracic spine).

h. In supine position, leg length was even.

i. In addition to postural conditions, the following was observed: In supine position, palpating her neck showed a tight spot (knot) on the right side about 2” below the occipital ridge.

***ii*. Range of Motion Assessments**

During the second session, on 4-17-08, a complete range of motion assessment was conducted. Only the results which pertain to the conditions of this case study are show below. A second assessment was done on 6-5-08 and a third on 7-17-08, and again, only the most pertinent readings are shown.

Joint Action	ROM	4/17/08	4/17/08	6/5/08	6/5/08	7/17/08	7/17/08
	Norm°	Right	Left	Right	Left	Right	Left
KNEE							
Extension	0°/180°	0	0				
Flexion (Supine)	150°	135	120				
HIP							
Flexion (Bent Knee)	135°	125	125				
Flexion (Straight-Leg Raise)	90°	96(1)	94(2)			93	89
External Rotation (Supine)	45°-60°					40	38
Internal Rotation (Supine)	35°	22(3)	26(3)			18	26
External Rotation (Prone)	45°-60°	60	52	55	55	50	50
Internal Rotation (Prone)	35°	18	34	18	23	18	26
Adduction (Side Lying)	30°-40°	35	35				
Abduction (Side Lying)	45°	56	56				
NECK							
Lateral Flexion	45°	50	35	35	28/35(4)	36	45(5)
SHOULDER							
Extension	50°	54	62	57	55	55	55

(1)Felt in rectus femoris

(2)Felt in gluteus maximus

(3)I have more confidence in the prone readings

(4)First reading was 28, then 35 after release,

(5) After release

***iii*. Muscle Testing Assessments**

Muscle testing was done during the first session on 4-10-08. Only the relevant data is shown below. Re-testing of those muscles pertinent to the case was done on 5/8/08 and again on 7-17-08 and only the most pertinent data is included below.

Muscle Testing Assessments

Joint Action	4/10/08	4/10/08	5/8/08	5/8/08	7/17/08	7/17/08
	Left, 1-5	Right, 1-5	Left, 1-5	Right, 1-5	Left, 1-5	Right, 1-5
KNEE						
Extension	4.5	4.5			4.5	4.5
Flexion	3	4			(1)	(1)
HIP						
Iliopsoas Isolation (Supine)	4	3	4	3	4	4
Sartorius Isolation (Supine)	3	4	4	3(1)	3	4
Abduction (Side Lying)	4	4	4	4	4	4
Adduction (Side Lying)	3	4	3.5	4	4	3.5
Gluteus Maximus Isolation (Prone)	3	4			4	4
External Rotation (Prone)	3	4	3.5	4	4	4
Internal Rotation (Prone)	3	4	3	4	3.5	3.5
NECK						
Lateral Flexion	3.5	3.5			4	4
SHOULDER						
Abduction	4	4				
Extension	4.5	3	4	3.5(2)	4	4

(1) Test produced hamstring cramp (2) Right side showed distinctly less ROM

C – Summary of findings

Based on the assessments noted in the tables above, the following is a summary of findings which relate to the conditions of this case study:

TIGHT MUSCLES	WEAK MUSCLES	MUSCLES TO RELEASE
L. rectus femoris	L. hamstring	R. upper trapezius
R external rotators	R. psoas	
(L. internal rotators)	(L. sartorius)	
R upper trapezius	L. adductors	
	L. external rotators	
	L. internal rotators	
	R. latissimus	
	R. posterior deltoid	

D – <u>Recommendations</u>

First Meeting, April 10, 2008 The bulk of this meeting was taken up with the initial intake, postural assessment, muscle testing and some general discussion about the process we would be following. Recommendations were limited to the following:

1. SI stabilization movements, 6X on each side for each movement.

2. Sunbird with knee to nose to strengthen hip flexors (psoas) and hip extensors (gluteus maximus) to stabilize SI joint. Foot turn out on extension was included. 6X each side

3. Cat knee lifts to strengthen external rotators (gluteus medius and "deep six" rotators) 6X each side.

4. Fire Hydrant to strengthen abductors (TFL and gluteus medius) to help stabilize SI joint. 8X each side.

5. Because Suzanne is comfortable with Ujjayii breath from her yoga classes, recommendations included using Ujjayii breath to help her settle into a more focused state in preparation for and during the SI work. She appeared to be enthusiastic about working with these recommendations.

Second Meeting, April 17, 2008 The majority of this meeting was taken up with Range of Motion (ROM) testing. We also talked at some length about the concept of "sattva" and doing this work in a "sattvic" way, not only to make this work most effective, but also to develop a stronger understanding of and relationship with the state of sattva so that it can manifest in other areas of her life as well. We reviewed the first half of the Joint Freeing Series (JFS). The following recommendations were given:

1. Continue the SI stabilization movements using the corrections we worked on during this session.

2. Continue Sunbird and Cat knee lifts as previously given, but adjust number as necessary to keep practice sattvic.

3. Continue Fire Hydrant but reduce to 4X each side and eliminate altogether if it produces any pain (she reported occasional slight pain in vicinity of right TFL which she thought could be related to this movement)

4. Do first 12 JFS movements (remaining ones to be taught at next session) 6X each. Pay special attention to JFS #5 to strengthen hip rotators, JFS #7 to strengthen R psoas and L gluteus maximus, JFS #8 to strengthen L adductors (press left knee firmly into right knee when hips are to right side).

5. Keep all of the above practice sattvic by noticing how it feels, how the body and mind are responding to it, and adjusting the number or pace of the movements as necessary.

Become familiar with what “sattvic” practice is. Back off or stop any movements that produce pain.

Third Meeting, April 25, 2008 ROM testing was completed for the upper body and neck. I noticed that Suzanne is a “reverse” breather – that is, she contracts her abdominal muscles on inhalation while lifting her shoulders and lifting/expanding her chest (this had not been picked up during the postural assessment) and we spent some time learning the wave breath and noticing the difference between it and her usual way of breathing. We also learned/practiced the Wall Hang. At first, she was not releasing her neck (upper trapezius and semispinalis capitis) as her head hung forward, but by giving some attention to this she became able to do so and found this movement extremely relaxing and enjoyable. We completed the second half of the JFS. The following assignments were given:

1. Do wave breath for 3 minutes daily and up to 5 minutes if it feels good to practice this longer. Careful concentration is more important than length of practice since it takes her a fair amount of concentration not to lapse back into reverse breathing.

2. Continue SI stabilization movements

3. Practice JFS daily. If time does not allow doing the complete series, she can do half one day followed by the other half the next day. Continue developing a sattvic style of practice.

4. Practice wall hang when she feels drawn to do so – doesn’t have to be every day (because homework is already extensive), but do so occasionally.

5. If possible, attend the 2 hr yoga nidra workshop/practice I will be giving at our studio this weekend. [she was able to do this and found it very beneficial].

Fourth Meeting, May 1, 2008 We worked more on breathing. Suzanne found her practice of the wave breath extremely challenging. She could only maintain this practice on her own for 2 to 2.5 minutes and would begin to feel “claustrophobic”. I observed her breathing more closely in both supine and standing positions and saw that her natural (reverse) breath produced significant shoulder movement up and down and very little belly movement. We modified the wave breath to more of a belly breath to accentuate the belly movement enough that she would really feel the difference between this pattern and her normal pattern. We practiced this together for about 4 minutes and she felt good about this practice – she seemed to “get” the intent of this belly breath for her and said she would not only like to do this as part of her daily practice but also try it in short stretches at various times throughout the day to reinforce the pattern. I also observed her JFS and refined a few movements (in JFS # 2, keep feet upright; in JFS #8, keep hips parallel to front edge of mat; in JFS #16, place legs so that each leg is resting on the opposite foot to bring knees up off floor slightly).

1. Do belly breathing for about three minutes plus for short periods as often during the day as you think about it (while standing on line, for example).

2. Continue JFS practice. Continue to keep practice sattvic.

3. At the end of each practice, be sure to include savasana, minimum 1 and up to 5 or more minutes (she had been doing this sporadically but not consistently)

4. Add Gomukasana, especially to stretch tight right external rotators. First sit in this posture with legs crossed and arms not engaged. After fully settling in, add arms in Gomukasana position, hold for 3-6 breaths and repeat on the other side.

Fifth Meeting, May 8, 2008 A couple of times this week Suzanne did excessive gardening and yardwork, including lifting heavy bags of mulch and moving large (50 lb) rocks around the yard. Her body reacted with tightness and considerable back pain, which seemed like a setback from the progress she had been feeling. We talked more about a balanced, sattvic approach to her activities and the need to be more mindful of this if she wants to avoid these kinds of setbacks. She clearly understands this intellectually, but also is so driven by her "can-do" habit energy that she doesn't seem to quite believe this "new" approach makes sense for *her*. She expressed earnest interest in continuing to try, though, so we proceeded. The behavior described above is pitta deranged behavior, as evidenced by the lack of discernment shown in her willingness to engage in the activities described.

We did reassessment muscle testing and ROM testing for the pertinent areas. R psoas still tested weak. Right side internal rotation was still limited, indicating tight external rotators or weak internal rotators (further testing required to determine which it is). R psoas muscle test produced sensation ("not quite pain") in both SI joints; left psoas test did not.

Belly breathing is still challenging. We practiced together for about 3 minutes, which works well for her. We also practiced the wall hang again, and she again said she likes it a lot – finds it very relaxing. Homework assignment included:

1. Wall Hang as part of daily practice, with emphasis on allowing head to hang as early on as possible and use little head shaking movements to help release the neck muscles (her semispinalis capitis and/or upper trapezius have a tendency to hold and not release without this little movement).

2. Continue JFS, with special emphasis on JFS #7 hip flexion on right side, drawing knee up firmly into chest to strengthen the R psoas and JFS #5 to strengthen hip rotators.

3. Continue SI series, proceeding gently (sattvically) for second movements since Suzanne reports that doing them too vigorously causes some pain. I emphasized if pain develops, stop the practice until we can reassess it.

4. Add Face of Light (gomukasana) to the daily practice to stretch the external hip rotators. To get a deeper stretch, before engaging arms in the posture, fold forward, chest toward the floor, hang out there and breathe a few breaths before coming up and completing the posture with the arm positions.

5. Continue savasana at end of practice.

Sixth Session, May 14, 2008 Breathing is still a "chore" but is getting somewhat more comfortable and sustainable. She has continued to work on it almost daily. I had her lie

supine on the table and breath into her belly with my hand applying light pressure on her belly. This helped her to focus more clearly on the belly breathing and her breathing seemed more natural and stronger than I have seen previously. We also practiced wall hang again and continued on to learn some new asanas to add to her practice. Homework included:

1. Continue wall hang with attention to neck release.

2. Continue JFS as in session five. If time does not allow full series, do half one day, half the next day.

3. Continue Face of Light (gomukasana) to stretch right external rotators

4. Add Side of Hip Stretch (Parsvottanasana) to strengthen the right psoas, left adductors and left sartorius and stretch the external rotators.

5. Add Energy Freeing Pose (Apanasana) to strengthen the psoas and right TFL and stretch the rectus femoris and gluteus maximus. Do the pose for 6 breaths with movement (pull down on exhale, release pressure on inhale) followed by 12 breaths holding knees firmly.

6. Continue savasana at end of practice.

Seventh Session, June 5, 2008 It's been three weeks since the last session because Suzanne was away on vacation for one week and her husband had an accident and needed her care the following week. During this time her practice has continued but been more sporadic. Her low back pain has been better and pain in right TFL has gone away. She partly attributes the reduction in back pain to the fact that she has been unable to do any yard work involving heavy lifting and also did not do any weight lifting at the gym (this was the first she disclosed that she had been working out with weights during our treatment period; we used the opportunity to talk more about her tendencies to gravitate toward activities that require excessive strength, perseverance, etc and what a sattvic version of that could look like). She recognized that when she was not doing her regular strenuous activities, not being so wound-up about activities around her house and was taking long walks on the beach, her pain level was distinctly reduced.

We discussed using her practice time not only for movement and toning, but also for relaxing and that with conscious breathing, awareness and a "sattvic" approach the entire practice could become a form of relaxation for her. She said she recognized the value of this. I taught her yoni mudra and crocodile breath to add to her practice. Her homework at this point is:

1. Crocodile breath, with or without a sandbag on the lower back (she likes it with a bag) for up to 3 minutes.

2. Wall Hang each practice – she continues to like this and find it relaxing and "a good stretch".

3. JFS, not necessarily the whole series at once. Maintain emphasis on the particular movements we have stressed previously.

4. Face of Light (Gomukasana), with a bit longer period of releasing into a forward fold before engaging the arms (fold forward, hang out, breath and release). This forward fold gives an additional stretch to her tight hip rotators.

5. Yoni Mudra for 3-20 minutes. This can be done at the end of practice along with savasana or can be done at bedtime while lying in bed.

Eighth Session, June 12, 2008 Suzanne reported that she is less active now because she has to devote so much time to caring for her husband, who has been diagnosed with multiple myeloma. This is a stressful time because of her husband's situation. She has been fairly consistent with her practice; she uses yoni mudra each night to help get to sleep and also does the crocodile breath (with a sand bag) each day and belly breathing several times a day. She also does Gomukasana and does JFS "in pieces". We did an SI joint reassessment and found both right and left sides move up nicely. We also checked her hip internal and external rotation and found that her right hip internal rotation was still low in range of movement. I again had Suzanne lay supine on the table and belly breathe into the slight pressure of my hand for about 3 minutes. We also worked on some new asanas and reviewed others; her homework included:

1. Continue crocodile breath, which she likes, especially when done with a sand bag.

2. Continue doing Face of Light (Gomukasana) with slight correction of shifting hips to sit more evenly between her feet.

3. Continue Side of Hip Stretch (Parsvottanasana), taking care to square hips.

4. Add Eagle (Garudasana) to stretch the external hip rotators.

5. Continue Energy Freeing Pose (Apanasana) 6X moving with breath, 6X holding firmly during breath.

6. As time allows, continue to work with JFS, Wall Hang and SI movements.

Ninth Session, June 19, 2008 Suzanne reports neck pain is still gone; right TFL pain almost completely gone; low back pain is reduced, but she is still very stiff when she gets up in the morning. We reviewed the homework she is doing (which she will continue) and made the following corrections:

1. Eagle (Garudasana): get a deeper leg wrap by lifting the knee up higher as the leg is wrapped around the standing leg. This will allow a deeper stretch of the hip rotators. Also draw knees and hands more to the centerline, in line with the face.

2. Side of Hip Stretch (Parsvottanasana): more emphasis on drawing thighs together for more toning of the adductors.

3. Energy Freeing Pose (Apanasana): have shins more parallel to the edges of the mat (instead of feet close together and knees wide apart) to create more internal rotation to tone internal rotators, stretch external rotators.

4. Wall Hang: let arms dangle - do not hold them in place – to allow more shoulder and upper trapezius release

Tenth Session, July 1, 2008 Since I was still seeing limited ROM in a couple of areas, we did some muscle release techniques. To address the ongoing limited ROM in right hip internal rotation, I did a right piriforis release with very deep pressure. She said it felt good and she could feel some release, but it produced only a small measurable result (perhaps an increase of 2 -3 degrees of rotation, which I did not consider a significant measurement). Also, I did a neck release, starting with her supine on the table, I held her feet and felt her pulse there for several minutes. Then I moved to her head and gently moved her head in and out of side neck flexion on the left side. Her neck released and there was a dramatic increase in ROM (to 45 degrees) of neck flexion to the left. We reviewed her homework (continuing essentially the same from last week) and did some breathing together.

Eleventh Session, July 17, 2008 Due to traveling and continuing doctor's visits and care for her husband, practice has only been sporadic for the last two weeks. Neck pain is still gone; sitting for long periods in an airplane and then a car resulted in more low back pain, and a some point she "tweaked " her right TFL and a low level of pain has recurred there a few times. We spent most of this session doing reassessments – muscle testing and ROM testing of all pertinent areas and discussing how she should continue with her practice and whether she would like to set up ongoing, though less frequent, meetings. Because of the situation with her husband, weekly visits are difficult, and she would like to try bi-weekly meetings and see how that works for her. We agreed we would keep working to improve her areas of reduced ROM, especially right hip internal rotation, and she will continue to focus on pieces of JFS that address that condition

E – <u>Results of Recommendations</u>:

Summary of results: Suzanne experienced a reduction, but not elimination, of her low back pain and an increase in proper mobility of her sacroiliac joint. The level of pain is still not at an acceptable level for her because she still feels the need to curtail certain activities she would like to be doing. Her side-of right-hip pain decreased significantly so that she is mostly pain free with just occasional "tweaks" of pain when she makes certain movements. Her neck pain is dramatically reduced and is no longer any concern to her. She continues to work on breathing "normally" in lieu of her usual "reverse" breathing and finds "normal" breathing much less challenging than it was at first. She understands the value for herself in making this breath pattern change and remains committed to doing so. She has a good understanding of "sattvic" approaches to the various pieces of her life and also is aware of her tendency to be over-active and un-sattvic. She continues to practice in this area, including the use of yoni mudra, savasana, pranayama and personal choices about her activities.

Specific results from weekly meetings:

1. At our second meeting she reported that she had been able to practice at least 15 minutes 6 times in the week without a problem. She's willing to do more. When she does too many "fire hydrant" leg lifts, she has pain develop in her right TFL (tensor fascia lata). We reduced this practice to just 3x each side, which seems to be OK for her.

2. At third meeting she continues to be enthusiastic and practices 5-6 times per week. When we worked on the wave breath I noticed that she is a “reverse” breather. As I watched her breathe in a standing position, I could observe her shoulders lifting up with each inhalation – a condition which probably contributes to her neck pain (and the headaches/increased neck pain she was experiencing after running).

3. At the fourth meeting she described how difficult she finds the wave breath practice and can only do it for a couple of minutes at most. We placed more emphasis on the belly part of the breath which helped her “get” it, and she had renewed enthusiasm for this part of her practice. She continues to enthusiastically practice JFS and SI work.

4. At the fifth meeting, she reported that she especially likes the wall hang, finding it relaxing and that it feels good for her neck. She has noticed a reduction in neck pain level. Her breathing practice is still difficult, and she has found that frequent short (8-10 breaths) practices throughout the day are easier than a single longer practice. She is still experiences “tweaks” of pain in her right TFL.

5. By continuing to work with the JFS, she is gaining an experience and understanding of “sattvic” practice and activity.

6. At the seventh meeting she reported that her neck pain continues to be dramatically reduced, her right TFL pain is significantly reduced and her low back pain is “a little better”. She likes cowface posture because it feels like a good stretch in her right hip rotators.

7. At the eighth and again at the ninth meetings, she reported that neck pain is essentially gone, right hip pain is significantly reduced, and low back pain is definitely reduced, but also definitely still present. Movement in her SI joint is better (from SI assessment). Breath work is still a challenge but getting easier.

8. At the tenth session we tried a deep right piriformis release; she reported that it felt very good to have that much pressure applied, but I did not measure much change in ROM before and after this work. On the other hand, the neck release work clearly resulted in a significant release and a sizable increase in measured neck flexion.

9. At our eleventh and final (as far as this case study is concerned) meeting, Suzanne reported no neck pain, no right hip pain (except very occasionally) and a reduction but definitely not elimination of her low back pain. ROM improved for her neck and rectus femoris, but there was very little improvement in right hip internal rotation.

2 a – Name and description of the condition

Chronic Low Back Pain is a general term for pain in the area of the low back which persists for an extended period of time, two to three months or longer. For some individuals it can continue for years or even decades. Low back pain can originate from many different conditions in or near the low back, and appropriate treatment will vary widely depending upon the condition. Often, low back pain results from structural issues related to muscles, tendons, ligaments or joint alignment in this area. However, it can result from very different conditions such as liver malfunction, herniated discs, colon problems or arthritis. Low back pain is also often associated with

emotional stress or underlying unresolved emotional issues which may accompany or cause the physical symptoms.

Regarding the structural causes of low back pain, the symptoms often result from muscles in or near the low back which are either too weak or too tight. Either of these conditions, or a combination of them, can result in compromised joint movement, imbalanced weight or force transfer through the skeletal system with resulting compensatory actions, nerve impingement or irritation, or muscle strain or muscle spasm. Muscles which can affect the low back include:

Psoas: this muscle is a primary hip flexor which has its origin on the lumbar vertebrae and inserts on the lesser trochanter of the femur. Weakness can cause a flattened low back and tightness can cause excessive lordosis.

Quadratis Lumborum: originates at the iliac crest and inserts on the twelfth rib and upper four lumbar vertebrae. Imbalance between the left and right QL's can cause tilting of the pelvis or an imbalance of action between the left and right SI joints. Weakness can result in inadequate stabilization of the lumbar spine.

Abdominals: tightness can cause a flattened low back and weakness can cause excessive lordosis resulting in insufficient stabilization of the lower spine.

Piriformis: originates on the front surface of the sacrum and inserts on the greater trochanter of the femur (thus crossing the SI joint). Tightness results in reduced internal hip rotation and reduced hip adduction when the hip is in flexion. The piriformis can also impinge or aggravate the sciatic nerve.

Hamstrings: originate on the sitting bones (ischial tuberosities) and insert on the tibia and/or fibula. When they are tight, they pull down on the back of the pelvis, reducing natural lordosis.

Adductors: originate on the anterior pubic bone and insert on the medial surface of the femur (except gracilis, which inserts on tibia). When they are tight, they pull down on the front of the pelvis and create excessive lordosis.

Gluteous Maximus: originates on the outer surface of the ilium and posterior surface of the sacrum and inserts on the upper femur and illiotibial band. This is a primary hip extensor. Weakness can result in excessive lumbar curvature.

Sacrospinalis consists of several muscle groups, including the Iliocostalis lumborum: originates on back side of the sacrum and inserts on the ribs. Excessive tightness causes too much spinal curvature; weakness causes flattening of low back. Over use or mis-use can cause muscle spasms.

b – <u>Gross and subtle body common symptoms</u>

<u>Gross body symptoms</u> of chronic low back pain depend, of course, on the underlying condition causing the pain. Pain can be chronic and nearly constant, or it can be intermittent but occurring repeatedly and regularly over an extended period of time, or it can be intermittent and "episodic" – occurring in response to a specific movement or activity or stressor at irregular intervals but over a long period of time. (Suzanne's pain was primarily of the second and third types: the pain in her right SI joint occurred repeatedly - daily, in fact – but only at certain times of day; and the pain in her right hip was episodic – it would occur after she did specific movements while gardening, in yoga class, etc, and then would last for a couple of days).

Pain levels can also vary greatly. Some individuals experience level 3, 4 or 5 pain and seldom more. But others can have pain spiking up to 8-10, and still others can experience almost constant high pain levels. (Suzanne's pain level would usually hover at a "chronic" level of around 5, but would occasionally peak at 8-10 after especially vigorous activity)

Low back pain can be perceived as a sharp pain concentrated in a very specific location, it can be a radiating pain that extends several inches from the causal site, or it can be sensed as a dull (or strong) ache in a general region of the low back but without a clear center or focal point. In the case of sciatic nerve pain, the pain can radiate a considerable distance along the sciatic nerve pathway, in some cases as far as to the foot.

There are often postural symptoms that occur along with low back pain. Some examples are: foot turn-out in standing position, indicating tight external rotators or weak internal rotators; one hip appearing higher than the other, possibly indicating an imbalance between the QL muscles; excessive lordosis (low back curvature) or the opposite condition, an excessively flat back.

There are also movement symptoms which can accompany low back pain. Joint stiffness resulting in reduced mobility is common. This can present itself as difficulty in getting up from a seated position, uneven gait (walking), difficulty in swinging a leg out to get out of a car seat, or lack of movement in the SI joint during a SYT sacroiliac joint mobility assessment (from a standing position, one knee is lifted into a flexed hip position and the SI joint is observed during this movement). Another possibility is excessive movement in a joint, caused by weak or overstretched muscles which articulate the joint, or by compromised ligaments which normally stabilize the joint.

Subtle body symptoms of chronic low back pain can vary significantly, and as with the gross body pain symptoms , can vary greatly in intensity as well. Loss of sleep and resulting loss of energy is common. The loss of sleep can be due to physical pain felt while lying in bed or while moving in bed, or can be due to the underlying mental or emotional issues that accompany the condition.

Loss of vitality and enthusiasm for life (reduced pitta) can occur with low back pain. This may be attributable to the client's perception that their life and activities must be curtailed in ways they do not want or cannot accept, possibly with the added perception that this may be a permanent, lifelong condition. It may also be related to confusion over an underlying emotional issue which remains unresolved. If the latter, these symptoms will likely remain until clarity and resolution (or acceptance) of the issue is accomplished.

Loss of serenity (reduced vata) can also occur, again, either because the physical pain interrupts moments of potential serenity or because thoughts generated by the underlying emotional issues do the same.

Low back pain occurs in the vicinity of the first and second chakras and hence may be related to issues generally associated with these energy centers. First chakra issues include items which provide stability in life: ability to trust and be trusted; financial security or the ability to feel financially secure whatever one's actual financial status is; stable and secure home and home life. These are all items which allow one to stand firm and not be overcome or unduly influenced by fear. The second chakra relates to creativity – the ability to stand on the firm ground of the first chakra and from there create something new and unique. This includes the creative forces of sexuality. Unresolved issues in any of these areas can cause, accompany or be reinforced by the gross or subtle symptoms of low back pain.

c – Related challenges

Chronic low back pain can be insidious and gradually creep into and affect many areas of one's life and enjoyment of life. First, and most obvious, are the limitations on physical activity. Either due to actual pain, or the anticipation of pain in the future, activities are curtailed, and often they are the very activities that bring one great enjoyment and a sense of vitality. For example, Suzanne loved very active sports – tennis, skiing, running – and one by one gave these up due to the pain they caused. These activities were a source of fun and release for her, and eliminating them from her life caused almost a sense of grief, followed by a sense of resignation to the "realities" of getting older. Other activities have not been eliminated but are curtailed. Museum trips must now be brief because standing or very slow walking agravates her condition. Similarly, grocery shopping and other forms of shopping result in increased pain unless kept to brief periods of time and so are done differently than before this condition arose.

Long term experience of her pain condition has had a more pervasive, daily effect on her lifestyle. Because she is quite stiff and has pain in the morning upon rising, she has learned not to plan activities early in the day. Because she is determined to continue certain activities, such as gardening, despite knowing that they will be followed by a period of greater pain, she tries not to plan activities on those evenings after such activities so that she can stay home and deal with her pain and/or stiffness. In short, she eliminates activities she would otherwise enjoy because she is managing her pain condition.

A very serious challenge for Suzanne is her frequent mild-to-medium level of feeling overwhelmed by the demands of life. She is such a doer that she does not allow herself to actually be overwhelmed – she can plow through most anything, as evidenced by her tackling the extremely challenging task of helping her husband through his medical crisis. Nonetheless, that sense of near overwhelm is often there, lurking in the background of her awareness, depleting her energy and reducing her experience of joy. Being impaired by her low back pain amplifies that sense of impending overwhelm. It is very possible that the underlying fear which establishes this state of mind actually creates the conditions for low back pain; and it is certainly clear that the low back pain reinforces the non-sattvic, or unbalanced, state of mind, so the two clearly operate hand-in-hand.

3 – Ayurvedic assessment and Ayurvedic based yoga recommendations

Low back pain is a vata imbalance. Suzanne's pain is unstable – it varies in intensity and duration, a further indication of its vata imbalance nature. The home of vata is in the pelvic region and hips, which is where chronic low back pain resides. Vata also controls breathing, and Suzanne's "reverse" breathing is another indication of vata imbalance.

Suzanne also exhibits some pitta imbalance which appears as a lack of discernment regarding her choice of activities. First, she is inclined to choose too many activities or commitments, which contribute to her frequent sense of being overwhelmed. Second, she often chooses to do activities despite knowing that they will likely result in increased pain. She simply doesn't use her discernment capabilities as much as necessary to help manage her pain condition.

Recommendations for restoring vata balance include slow, deliberate JFS practice with good concentration and breathing, and the "wall hang". These gentle movements, especially when combined with the breath, establish a sense of calm and ease. Also, breath awareness and the specific practices given to correct her "reverse" breathing will balance vata. "Belly" breathing and the wave breath create a spontaneous sense of calmness and increased

serenity – both signs of balanced vata and quite different from the shoulder and neck stress her current breathing pattern generates.

Further recommendations for restoring vata imbalance include yoni mudra, shavasana, and yoga nidra. Because Suzanne spends significant amounts of time feeling stressed from the demands she places on herself, she needs these practices to both give herself a rest and to become more familiar with the experience of spaciousness and stillness.

Recommendations for restoring pitta include practicing the JFS and the SI series strengtheners (cat knee lifts, sunbird, fire hydrant) with constant attention and discernment as to the number and intensity of each movement. This involves excercising discernment and discretion about her movements instead of just "toughing it out" and plowing through a number of repetitions despite how her body might react.

4 – <u>Common body reading</u>

Common body reading of Suzanne showed the following:

* Vertical alignment (from side view) is good.

* Right shoulder is lower than left.

* Head tilts slightly to the right.

* Both feet have mild turn-out.

* Rt SI joint moves up ½" (normal) and left SI joint moves down slightly.

* Breathing is in "reverse" pattern. At beginning of inhalation belly moves in rather than out and chest and shoulders lift; on exhalation, shoulders and chest drop.

* Visual observation of spine found no curvature. Later measurement with scoliometer found slight curvature to left of 2 to 2.5 in mid-upper thoracic spine. * Arm carrying angle is within normal range for a woman.

* Overall, body is trim and athletic.

5 – <u>Contraindicated yoga practices</u> and general activities to modify or eliminate

Any practices or activities which create pain should be avoided until conditions have stabilized and they can be re-introduced without pain.

In general, yoga practices which fall outside of the range of "sattvic" practices should be avoided. This means that practices, asanas or sequences which are too vigorous or require too much strength or stretch in areas related to the pain condition should be avoided or modified. The same holds true for practices which are too mild or lethargic and which cause one to space out or loose interest. Suzanne often attends yoga classes and can sometimes "do too much" or "go too far" and end up with significant aggravation of her condition. On the other hand, if she experiences something as "too mild" her mind reacts and she loses interest. So remaining in the "sattvic" range is important but definitely challenging for her.

Specifically, due to her SI joint pain, she needs to be careful when doing forward and back bends. Slightly bending knees during forward bends (Uttanasana, Paschimottanasana) will

create greater safety. Lifting or extending out of the waist in preparation for back bends will reduce the tendency to “crunch” the low back.

Due to a history of wrist surgery and carpal tunnel syndrome, Suzanne should also avoid all hand balancing postures (this condition was not a part of this case study).

During shavasana, to relieve pressure on the lumbar spine and SI joint. Suzanne should place a folded blanket or bolster under her knees. This is especially important when staying in shavasana for extended periods of time (longer than 5 minutes).

Heavy lifting while gardening is a known stressor which results in pain, and should be avoided altogether. Proper lifting techniques (bent knees, straight back) should be employed when lifting is unavoidable.

6 – General recommendations for the condition

a – Therapeutic/free of pain

The first recommendation to reduce/eliminate pain is to identify the activities or movements that aggravate the pain and modify them or stop them altogether. In Suzanne’s case, she had done this with certain activities, like running and tennis, but was very reluctant to do so with others, like heavy gardening and working with weights at the gym. We spent a good amount of time discussing the notion of performing activities in a “sattvic” way so that they are supportive and not harmful, even when this way runs counter to a habitual way of doing things. Learning to tune in and back off when that is what her inner guidance suggests is a challenge for Suzanne, but the practices used to develop an awareness of “sattva” have definitely helped her in this regard.

Next recommendations include practicing the gentle stretches and strengthening movements of the JFS and the SI joint stabilizing movements. These practices bring prana back into areas that are depleted. They help re-establish proper joint range of motion and strengthen muscles that are chronically weak so that joints can become more stable and operate in their natural, pain-free way rather than in a compromised or constricted and painful way.

Further recommendations include breathing practice (in Suzanne’s case, both during her JFS and SI work and as separate, breathing-only practice) and relaxation practices such as shavasana and yoni mudra. These practices help balance the vata derangement, lessening the mental and emotional stressors which drive the physical body into the conditions which produce pain.

b – Stabilize situation

To stabilize the improvements, strengthening of weak muscles is necessary so that the body can maintain proper joint alignment and proper joint use on its own. Continuing JFS for 30 to 60 days with close attention to those movements which affect the muscles related to the pain condition will gradually increase strength – and gradual development is the best and safest approach.

Adding specific yoga asanas to further strengthen certain muscles and stretch others also, over time, produces an increase in strength and mobility which stabilize the situation and allow greater freedom of activity without fear of re-agravating or re-injuring the problem. In Suzanne’s case, Gomukasana (Face of Light Pose), Parsvottanasana (Side of Hip Stretch),

Apanasana (Energy Freeing Pose), and Garudasana (Eagle Pose) were among the postures used to achieve this strengthening and increased range of motion.

A key to creating real stability is to firmly establish an understanding of and relationship with "sattvic" activity – activity which is truly appropriate and naturally arising in the moment. The type and intensity of activity which is sattvic may vary from one time to another or from day to day; the key is to be able to pay attention to one's self and discern what level is appropriate in the moment and then act on the basis of that discernment. For Suzanne, practicing this discernment in the context of the JFS and her "stabilization" asanas was very helpful. These practices can be done at a slow pace, with breath awareness which enhances overall awareness. She could tune in to and experience feeling sattvic activity and contrast that with her more habitual pattern of hyper-activity. This allowed her to strengthen her "sattva muscle", and use it more regularly in daily life.

c – Maintenance

As on-going physical practice, Suzanne will maintain a "daily" yoga practice. Realistically, this means practicing about 5 times a week for her, anywhere from 15 to 45 minutes depending on her day. The physical practice will include the JFS, done in pieces rather than the entire series each day. It will also include, at her discretion, other practices she has found helpful, such as the "Wall Hang", wave breath practice, specific asanas including those used to stabilize her condition, and some daily relaxation – either relaxing in shavasana after her physical practice, or relaxing with yoni mudra in the evening before sleep.

Perhaps the most important part of her maintenance program is to consciously apply a sattvic approach to her daily physical practices (including the yoga classes she attends), and gradually extend that sattvic approach to all of her activities and thoughts. She understands (at least to some degree) that it is her tendency for non-sattvic activity – specifically, trying to do too much, pack in too many activities, lift weights that are too heavy, etc., that creates and then aggravates her physical conditions. A great deal of her stress is self-induced by this habitual attitude. Because it is habitual, it is a pattern that is very challenging to alter. That is why the frequent (daily) practice in which she has learned to notice what "sattvic" feels like is so important. It will act to counterbalance her habit and will gradually dismantle that habit pattern and replace it with a much healthier and more sustainable approach to life.

7 – Questions and answers on Yoga Therapy from www.yogaforums.co

sciatica and sacroiliac dysfunction 11-14-06
Q: To be terse: I have chronic sciatic pain (since 3/2004) on my left side, which seems to originate deep in the left buttock and is felt mostly severely in the upper left leg/hamstring. It is aggravated by even the slightest forward bending, walking, and walking up hill. There is both the feeling of nerve pain and muscle spasm. I also have pain and stiffness in my knees.
Over three weeks my therapy has been as follows (all with modifications for sciatica):
+ SI Stabilizers
+ JFS
+ runners/groin/pelvic tilt-thrust/rolling bridge
+ warrior(affected leg back)-bridge-shoulderstand-energy freeing-cobra-locust-camel-corpse.
+ trigger point (self) massage
+ focus on relaxation, meditation
+ daily oil baths and use of antispasmodic and nervine herbs

There has been some improvement. It seems the glutes muscles had a bit of release yesterday.

Bridge seems to be aggravating the back of my right knee so I'm only doing rolling bridge and not going up as high as before.

A:The main trick with this condition is to have the sacrum move in the proper direction (upward during hip flexion) and stabilize the sacroiliac by toning the gluteus maximus and piriformis in their external hip rotation motions. The first objective is achieved by my sacroiliac stabilizer exercise which you mention. However you must be observed in doing it to make sure it is correcting the dysfunctional pattern. In addition those motions to tone the external hip rotation movements need SYT assessment that progress is being made. For personal help see me or one of the SYT Graduates listed on my website - www.yogatherapycenter.org The list of practices you are doing seems fine provided you are focused on what muscles you are attempting to tone or stretch in each asana.

I assume you have also looked up both these topics in earlier emails here and are doing basic therapy for this condition including -
hydrating to one - two quarts of water only a day for a 3-6 month minimum period;
resting when fatigued and doing Yoga Nidra and Yoni Mudra to stabilize your prana;
Not stretching the nerve by doing hip flexion (forward bending) when acute or when doing sun salutes inflames the condition.

Hip pain 12-20-05
Q:Dear Mukunda, I write on behalf of my Mom who has been experiencing
increasing pain in her right hip joint. She is 67, very thin, fit, and yet
very stiff. She has little to no hip turn out, so essentially all hip openers
have become impossible. What would your recommend? She can barely do the JFS exercises. What would you recommend? Is there a structural yoga therapist you would recommend in the Philadelphia area/
A: I would work with turn out motions in JFS #3 (hip flexion especially), #7 (sunbird) and also in locust. those are more affective than in JFS #5. that one is much harder for those with hip troubles.

back pain 11-07-05

Q: I started to have low back pain after doing some house cleaning. It is strange that it hurts only on my left low back, sometimes spreads to the left mid-back, didn't go away for days.

I do the suryanamaskar everyday and I stopped it because I thought I shouldn't do any bending till it gets better. I also stopped the sarvangasana which I do occasionally.

Is there a difference in pain on the left side for females? I understand it represents the feminine, emotional side. I had more problems with my left than right side of body.

How can I increase energy flow to these problems areas?

A: The quadrant of the lower back between the ribs and pelvis is often subject to strains. The region closest to the spine is controlled by the quadratus lumborum muscle. the muscle reacting lateral from there is the latissimus dorsi. You can see them drawn respectively on pages 142 and 149 of my SYT book. Vacuuming is especially likely to strian this region. For toning it i would recommend doing the rolling bridge pose, and the JFS. In this case i would not suspect an energy issue nor a conceptual idea of it being feminine. Those are for subtle body (kosha 2) and not likely to cause physical pain. Emotional pain can be there however. namaste Mukunda

Sacroilliac joint pain 9-23-03

Q:I have searched your database of previous Q & A's pertaining to SI joint pain and have tried several things to no avail. I have pain in my Right SI joint that results in tightness in the hip flexors & rotators and side of leg. I have been through 11 weeks of physical therapy with little relief. The therapist diagnosed it as an unstable SI joint that "gets stuck" out of position coupled with tight hip muscles (he felt that the SI joint was moving instead of the hip). I have also sought chiropractic adjustments to ease the pain recently -- the chiropractor said that the joint was "frozen" and "locked into place" and is adjusting to free it up and thinks the joint is "too tight." I was also X-rayed due to my Doctor being concerned about Spondylitiis. (X ray should very mild Osteoarthritis - no sacroilitis.) I presently teach about 7 classes a week (Kripalu style) and feel the pain mostly when doing twists and some forward bends. I have modified those to make sure I am moving the hip in relation to the pelvis to ease any strain on the joint and also do gentle stretches/Asanas for the hip muscles daily. Before teaching I had a desk job for 14 years and frequently sat cross-legged (R over L leg habitually) which is probably the precursor for the problem. Any thoughts or advice? Namaste, T

A: I always prefer to see those who are outside the general guidelines. Is that possible? Perhaps even videotape yourself and send me tape to evaluate. If not or until then some ideas are to use only muscles of tone during asanas. Do not try to stretch. Only work to feel muscles contracting, especially during twists and forward bends. Use hip flexors for strength. If this does not help it within a week then I would also suggest doing my joint freeing series daily for 2 weeks and nothing else. Other thoughts are what is the major stress in your life? Are you tending to it? Or is there something big you are avoiding? This is often accompanying lower back pains -- especially not dealing with an intimate or business relationship issue that is a "pain in the back,".

lower back pain 9-23-03

Q: I attended your Structural Yoga Therapy Workshop Level 1 at Yogaville this past year. I also had a private session with you. I have had lower back pain, which radiates down the side of my left leg and it has begun affecting my knee about two months ago. When I do not stretch or do impact exercises like running or walking it seems to lessen or disappear. In fact when I sleep and get up in the morning I feel good. An x-ray showed nothing wrong with my bones or cartilage in my knee. An MRI from about one year ago showed herniation in 2 discs. L-5 and L-2.
Can years of over-stretching hamstrings and quads do permanent damage that cannot be erased? If I simply do not do exercises that cause pain do you think the muscles that ache in my leg will get better or heal in any way from not stressing them? Can ultra sound improve my muscles? Bicycling seems not to cause pain. You prescribed some of your joint freeing series movements including the pelvic rocking motion. It feels OK when I do the motions you prescribed. I like more strenuous exercise and I am not sure where to go from here.
Any insight or help will be welcomed to relieve the tired achiness in my muscles and furthermore is there a chance if I rest them for a certain period of time I will be able to use them for more strenuous exercise at some point in the future?

A: Without having access to the records of assessment that I did at Yogaville, it is not easy to comment on your questions. If you wish more accurate information email a summary of the findings. It sounds like the root of the trouble is the nervous system inflamed from herniation. Hydrating the disc can often relieve this and doing all that you can to maintain that for a full season. Overstretching tendons and ligaments can led to permanent hypermobility and thus instability. Overstretching muscles is quite another thing. When you feel the stretch in the joint region you are causing damage. When the feeling of stretch is in the belly of the muscle away from a joint then you are usually fine. I have had only limited experience with ultra sound and in most of those instances it was only of temporary relief. I find best relief is from using BF & S ointment and herbs from Nature's Way this can be rubbed into the injured tissue and I find it works better than taking glucosamine and chondrotin. The latter supplements are also highly recommended. Laying off an injury is a good idea for anywhere from 2 weeks to an entire season - 3 months. Depending on the severity of the injury.

What is wrong with being gentle with yourself for a while? As we age it is important to be sensitive to the changes life brings. Personally I feel that intensive exercise is only appropriate for those who are young and/or foolish.

Sacroiliac Pain 4-27-02

Q: I am suffering from sacroiliac pain in the right side. I visited a chiropractor but it doesn't cure me completely. After some time the pain returns quickly. An x-ray was taken and I suppose that my pelvis is slightly rotated forward on the right side. Please let me know what postures I can use to get rid of this problem permanently?

A: I love hearing a request for a permanent solution to a repetitive problem. The permanent solution is stop identifying your Self as being a physical body. The short-term solution for the body issue is to mobilize the sacroiliac properly. The following exercise does that and needs to be done regularly until the new pattern is established as a reflex. Sit on the floor with your knees bent and feet to the right side, so that the right foot points back beside the hip and left foot is adjacent to the right knee. If you are stiff and unable to sit comfortably erect, then place sufficient padding under your pelvis to make it comfortable to be erect and move. Avoid leaning so far to one side that your hand needs to support you on the floor. The first movement is to pelvic tilt back and forth from iliac crest (top of pelvis) exhaling as you contract your belly. 12X or until you feel the motion becoming smooth whichever takes longer. Your are looking for a feeling of release (Kriya) in the tissue, energy, or emotion that will react to the motions. The second motion is to take the top of the right thigh (not pelvis) and move it into internal and then external hip rotation. During internal hip rotation your pelvis will lift from the floor, during external rotation your ischial tuberosity (sitz bone) will touch the floor. 12X then reverse legs and repeat. This should be done before any exercises or asanas.

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9 – Biography

Glenn Tucker received his 200 hr yoga teacher training certification from Kripalu in 2001 and will complete his 500 hour certification on September 14, 2008. He has taught yoga in numerous studios in the greater Danbury, CT area and since 2005 has been a partner and co-owner of Yogaspace, a yoga studio in Brookfield, CT which offers over 20 classes a week in multiple styles of yoga. He also teaches yoga weekly to prisoners with mental health issues at Garner State Prison in Newtown, CT. He has additional training from Karen O'Donnell Clark in adapting yoga for students with Multiple Sclerosis; has studied the Bhagavid Gita with Kripalu scholar-in-residence Stephen Cope; has studied breath and the body's "breathing technology" with Leslie Kaminoff; has engaged in nyingma school Tibetan Buddhist practices during the last five years based on study with Lama Zangpo of that lineage and has taken various empowerments in that tradition; has immersed himself in both meditiation practices and bhakti yoga practices with American born, international spiritual teacher and kriya yogi Narayana (Stephen Gorey). Also, when this case study is accepted, he will have fulfilled the requirements for certification as a Structural YogaTherapist based on study and training with Mukunda Stiles, founder of Structural Yoga Therapy.

-End-