

# Tethered Spine

Structural Yoga Therapy Course

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## **1 - Case study:**

### **a – Initial intake**

J. is a 54 year old, Caucasian man. He has been married since 1975 and they have one child, a son, 19 years old nicknamed “JD” whom they adopted. J. speaks of JD with great pride and joy. J. is a real estate appraiser whose occupation involves much desk work and some walking and climbing stairs. J. enjoys his life and states he has a positive attitude about the trials and tribulations of life. He acknowledges that he has been dealing with a lot of stress in his life recently. During the course of this study J. experienced several stressors. J.'s dog, Fritz, whom J. has owned for 11 years, died prior to session 2. JD had an accident which required 28 stitches and a night for him and J. in an emergency room. JD has an anxiety disorder which concerns J.. J.'s father-in-law has been close to death for some time and this has required J.'s wife to travel more to see her father. This has also caused her and J. additional stress. J.'s car was recalled for safety reasons and was subsequently bought back from him by the car company. There were financial problems with his son's student loan that J. helped resolve and the loan situation “was a load of stress”. J. got a puppy about week 5 into this study. This was a source of joy as well as “a load of stress”. In addition, J. said “I get angry” more often and more intensely than he would like and this has been an additional source of stress in his life. In spite of all these stressors, J. has a positive attitude about life. He scores himself as experiencing only a moderate degree of stress on the Perceived Stress Scale. This is due, J. said, to his philosophy and attitude about life that he developed growing up with and coping with the medical problems in his life. J. reported he has been diagnosed as having a “tethered spine” that has caused the symptoms for which he has come to be treated.

J. has difficulty climbing stairs. The muscle response that would lift J.'s body with his right leg as he climbs stairs is failing. He can lift the leg but he cannot put weight on it. If he does the leg collapses out from under him. J. is not able to stand on the toes of his LEFT foot, but he can on his RIGHT foot. The only pain J. experiences is a “dull throb” in the back of his right thigh and some stiffness in his lower back.

J. said he was born with hip dysplasia which caused him to “walk like a duck” as a child. J. has worked over the years to walk with his feet less externally rotated with some success.

J. has consulted a neurologist who told him surgery for his tethered spine is optional. The surgery has only a 50% chance of being helpful to him and a 25% chance of making him worse. J. is working closely with a chiropractor, who referred J. for yoga. J.'s primary goal is to have a set of exercises he can use to maintain his functioning and prevent his symptoms from getting worse. J. understands that, due to his medical condition, some of his muscles have likely become weak and their antagonist muscles tight. He wants to exercise muscles that are not being fully used due to his condition in order to prevent them from becoming weaker. J. understands that SYT will in no way cure his conditions. His goal is to mitigate the effects of those conditions as much as possible.

### **b – Physical assessment and posture body reading**

#### **Body Reading:**

- 5 feet and 7 1/2 inches tall
- 209 pounds
- BMI 32.2 (Obese)
- BMI Categories: <http://www.nhlbisupport.com/bmi/>
  - Underweight = <18.5

- Normal weight = 18.5-24.9
  - Overweight = 25-29.9
  - Obesity = BMI of 30 or greater  
 Note: Obesity is a sign of Kapha imbalance. "The body becomes large from excessive eating and lack of exercise and they begin to feel unhealthy." (Stiles, 2007, p. 33)
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- SI: L side moves up .5 inches, R side does not move.
  - Wide shoulders and hips.
  - Pronounced lordosis. Shoulders appear to lean back.
  - R hip slightly higher than L hip.
  - R finger tips lower than L fingertips.
  - Scoliosis and spinal evaluation: At half-way point in forward bend L shoulder is higher.
  - Hips externally rotate (due to hip dysplasia).
  - Feet slightly/moderately turned out.
  - Low arches on feet.

Range of Motion Assessments							
Joint Action	ROM	6/08/2008	6/08/08	8/09/2008	8/09/08	8/30/2008	8/30/08
	Norm°	Left	Right	Left	Right	Left	Right
<b>KNEE</b>							
Extension	0°/180°	2°	6°	3°	6°		
Flexion (Supine)	150°	136	134	152	165		
<b>HIP</b>							
External Rotation (Prone)	45°-60°	82	82	70	75		
Internal Rotation (Prone)	35°	22	22	14	18		
Adduction (Side Lying)	30°-40°	35	37	24	33		
Abduction (Side Lying)	45°	62	52	58			

<b>Muscle Testing Assessments</b>						
<b>Joint Action</b>	<b>06/08/2008</b>	<b>06/08/08</b>	<b>08/09/2008</b>	<b>08/09/08</b>	<b>08/30/2008</b>	<b>08/30/08</b>
	Left, 1-5	Right, 1-5	Left, 1-5	Right, 1-5	Left, 1-5	Right, 1-5
<b>KNEE</b>						
Extension	3	3	4	4	4	4
Flexion	2	3	2	3	3	4
<b>HIP</b>						
Hip Flexors & Abs (Supine)	3	3				
Trunk Flexion (Supine)	1.5	2				
Hip Flexors - Bent Knee (Supine)	2.5	2.5				
Iliopsoas Isolation (Supine)	3	3				
Sartorius Isolation (Supine)	3	3				
Abduction (Side Lying)	3	3	4	4	4	2.5
Adduction (Side Lying)	0	1	0	1	0	1.5
Gluteus Maximus Isolation (Prone)	2	2	3	3	3	3
External Rotation (Prone)	2	3	2	3	2.5	3
Internal Rotation (Prone)	3	4	3	4	3	3
Quadratus Lumborum (Seated)	2	3				
Extension – Gluteus Maximus/Haamsstrings						

**c – Summary of findings**

<b>Tight Muscles</b>	<b>Weak Muscles</b>
L TFL	L and R hip flexors
L sartorius	
L and R hip abductors	L and R hip adductors
L and R external hip rotators	L and R internal hip rotators
spine extensors	L and R gluteus maximus
L and R iliopsoas	trunk flexors, abdominals
lower erector spinae	

**Discussion of Test Results:** Strength testing indicates general weakness on J.'s left side in the hip and knee flexion muscles. The left side is weak in the following tests: knee flexion, hip extension, prone external rotators and prone internal rotators. J. is somewhat weak on both left and right sides on the hip flexion – rectus femoris, psoas, etc. test. J. was weak on the trunk flexion test and the gluteus maximus isolation test.

Testing indicated less than standard ROM on knee flexion in both the supine and prone test positions. The large amount of tissue surrounding his knee likely limited the ROM of his knee joint. J. has less than standard ROM on the hip adduction IT band test and more than standard ROM on the hip abduction test. J. has more than standard ROM on the hip external rotation test and less than standard ROM on the hip internal rotation test.

The more than standard ROM on the hip abduction and hip external rotation tests may be due to J.'s hip dysplasia, a skeletal deformity. J.'s efforts and moderate success at walking with his feet less externally rotated may have resulted in J. strengthening his hip adductors and hip internal rotators somewhat, but has not been enough to overcome the effects of his hip dysplasia. J.'s hip adductors tested extremely weak and J. said it was “structurally impossible” for him to lift either leg in the strength test. J. tested weak on his left external rotators. The internal rotators had adequate strength but the left internal rotator is not as strong as the right. There is a general weakness on J.'s left side.

**d – Recommendations for loss of tone and flexibility**

Treatment will focus on strengthening J.'s hip adductor muscles, both J.'s hip internal rotators, particularly on the left side, and his gluteus maximus, a hip external rotator. Even though J.'s internal rotators tested stronger than the external rotators, the external rotators may be tight but weak and need stretch and strength due to his skeletal structure. The increased ROM of the external rotators could indicate a need to strengthen the internal rotators. It is not possible without x-rays and measurements taking J.'s hip dysplasia into account to determine how much of J.'s greater than standard ROM of the external rotators is due to muscle weakness/tightness and how much is due to his unique skeletal structure. The weakness demonstrated on the gluteus maximus (an external rotator) isolation test, however, indicates a need to strengthen it as well. We do not, however, want to strengthen the external rotators to the point that it would increase the more than standard ROM of the external rotators. Effort to strengthen the external rotators, therefore, will focus on the gluteus maximus and not on the other hip external rotators. The impingement of J.'s sciatic nerve on the right side of the body, resulting in J. having difficulty lifting his right leg on stairs is neurological in etiology. Over time, it may cause muscles on his right side to atrophy, if not corrected. These recommendations have also helped J. keep the muscles of his lower back flexible, which has already relieved a tight feeling in the lower back and

brought back “95%” of his right leg function while climbing stairs. See Jarney (pp.116-139, 2003) for an excellent series of illustrations of the muscles involved.

### **Log of sessions with J.:**

Session 1. June 8, 2008. Taught first half of JFS.

Session 2. June 15, 2008. Assigned second half of JFS.

Session 3. June 21, 2008 Assigned SI exercise.

Session 4. July 5, 2008. Completed the stress test. Reviewed SI exercise and some of JFS. Assigned no new exercises.

Session 5. July 12, 2008. Taught J. the Internal Hip Rotation strengthening exercise. I assign 3 sets of 6 dynamic motions; one set near beginning of ROM, one set in the middle of ROM and one set near the end of range of motion for each leg. This was later changed to the method described in SYT (Stiles, 2000, p. 174) in which the leg is raised 3”-6” and swept back and forth through the entire ROM in order to promote an even strengthening and stretching of the involved muscles through the entire ROM. Note: Stiles does not teach this anymore since it is hard to get full range of motion.

Session 6. July 20, 2008 Taught J. the wave breath (Stiles,2000,p.53) followed by an introduction to diaphragmatic/abdominal breathing. Assigned J. the wave breath to practice at least three minutes each day, adding one minute if he wishes, up to a maximum of five minutes a day.

Session 7. July 26,2008 J. said he has been doing some additional gentle yoga routines that I had taught to him in a private lesson that he took with me last winter. He said these additional routines feel very good on his back and he is enthusiastic about his practice so I support him in this with the caveat that the new exercises I give him be his top priority. I assign J. the gluteus max isolation exercise and the sunbird with leg abducted and foot externally rotated, 6 times each.

Session 8. August 2, 2008 J. has been doing Warrior II because it feels good on his lower back. I encourage this taking initiative. Taught J. Ujjaye breath to use with all of the exercises. Taught J. Vrksasana to tone the gluteus maximus/medius and hip flexors and to strengthen his ability to focus. Taught J. Jnana Mudra (Wisdom's Seal) (Stiles, 2007, p. 206).

Session 9. August 9, 2008. Reviewed recommendations to date. Made no new recommendations.

Session 10. August 16,2008. Taught J. Runners Pose ( Lunge) with torso lifted and back knee down on mat to stretch the hip extensors (hamstrings and gluteus maximus) and the quadriceps. J. was later instructed to lean forward in the Runners Pose if he experienced lower back pain. Taught J. the Groin Stretch without the use of a wall in order to increase safety. Finally, I taught J. Technique 3 on the “Pranayamas for Healing and Pain” (Stiles, 2008) handout, instructing him to “breathe into the pain” and, as he exhaled, hold the pranic energy in the site of his pain.

Session 11. August 30,2008. I assign J. Cobra, with instructions to change to Warrior I and then to Side of Hip Stretch as he feels himself getting stronger. I encourage J. to continue to practice Tree pose.

Session 12. September 28, 2008. Reviewed previous recommendations. Recommended J. continue all previous recommendations in order to maintain his positive mental attitude that has resulted from doing the exercises.

### **e – Results of recommendations**

Session 1. June 8, 2008. Gathered information for initial intake (see case study outline above). Did ROM evaluation. Taught first half of JFS.

Session 2. June 15, 2008. Collected further history. J. did not practice the JFS. Performed muscle testing. Assigned second half of JFS.

Session 3. June 21, 2008 J. did not practice JFS. Discuss how J. may overcome the obstacles to his practice. Performed further ROM measurements. Assigned SI exercise. Using the stairs, J. demonstrated his difficulty with climbing stairs.

Session 4. July 5, 2008 J. did not do consistent practice. Discussed requirements of the case study. J. promised he will do the exercises at least 4 times a week. J. said he did not realize he was expected to practice 4 times a week in order to meet the requirements of the case study. Focused on the stress in J.'s life and J. completed the stress test. Reviewed SI exercise and some of JFS. Assigned no new exercises.

Session 5. July 12, 2008. J. did JFS and SI exercise 5 times this week. Said he is feeling stronger and better in his joints and muscles. J. feels these exercises have "loosened up" his back which is feeling more comfortable this week.

Session 6. July 20, 2008 J. did JFS, SI exercise and Internal Hip Rotation exercise 5 times this week. I feel we are finally getting started on this case study. J. said the 3 sets for Internal Hip Rotation muscle strengthening were a bit too much so we reduced this to 1 set for each leg in the middle of the ROM. Taught J. the wave breath (Stiles, 2000, p.53) followed by an introduction to diaphragmatic/abdominal breathing. Stiles (Stiles, 2007, p.205) said, "...this is the most natural discipline of the Prana to engage in continuously." "In general, pranayama balances Vata and calms the mind." The wave breath is a pranayama that is especially effective at balancing Vata dosha in particular. Assigned J. the wave breath to practice at least three minutes each day, adding one minute if he wishes, up to a maximum of five minutes a day.

Session 7. July 26, 2008 J. did the assignments from last week "four and one-half times". He said he has also been doing some additional gentle yoga routines that I had taught to him in a private lesson that he took with me last winter. This practice totaled one hour of practice each day he did the assignments. He said these additional routines feel very good on his back and he is enthusiastic about his practice so I support him in this with the caveat that the new exercises I give him be his top priority. J. practiced the wave breath every day he did the other exercises. I assign J. the gluteus max isolation exercise and the sunbird with leg abducted and foot externally rotated, 6 times each.

Session 8. August 2, 2008 J. did the assigned exercises 4 times during the last week. He reports that his chiropractor told him he has "come a long way" in his healing process since starting yoga therapy. J. said the exercises that target his lower back are the most beneficial. He has found the SI stabilization exercise and exercises that include pelvic thrust to be very beneficial. J. found it hard to maintain his focus while practicing the wave breath. J. played golf yesterday but other than that has not done any aerobic exercise. J. is spending 30-40 minutes on the assignments each time he exercises. J. has been doing Warrior II because it feels good on his lower back. I encourage this taking initiative and inform him that Warrior II is an open hip pose and as such is good for the lower back as "The openness of the groin region releases compression of the lower back and is a necessary part of a complete back rehabilitation program (Stiles, 2000, p.207). This is also grounding and good for Kapha. Taught J. Ujjaye breath to use with all of the exercises. Ujjaye is the second pranayama technique taught by Stiles in Structural Yoga Therapy and "...is the basic pranayama technique from which most others derive." (Stiles, 2000, p.55). Taught J. Vrksasana to tone the gluteus maximus/medius and hip flexors and to strengthen his ability to focus. Taught J. Jnana Mudra (Wisdom's Seal) (Stiles, 2007, p. 206). Jnana mudra and chin mudra "...are the two best known hand positions of Hatha Yoga, and they have an effect on the physical, mental, emotional and spiritual level." (Hirschi, 2000, p.139).

Session 9. August 9, 2008. J. says his right leg is "95% back to normal" at times and he is very pleased with his progress. I gently caution J. that progress from week to week is likely to be highly variable and he acknowledges that he understands this is so. J. did his exercises 4 times in the past week. He did no walking or golf due to rain in the last week. J. did not use Jnana Mudra although he states he is very interested in trying it. He feels his balance has



improved in Vrksasana.

Session 10. August 16, 2008. J. said, regarding the results of the exercises given to date, he had an “up and down” week; he had to use a handrail when climbing stairs at the beginning of the week, but his back “loosened up” and his negative symptoms while climbing stairs subsided as the week continued. Taught J. Runners Pose ( Lunge) with torso lifted and back knee down on mat to stretch the hip extensors (hamstrings and gluteus maximus) and the quadriceps. J. was later instructed to lean forward in the Runners Pose if he experienced lower back pain. This pose can relieve chronic pressure on the lumbar spine. Taught J. the Groin Stretch without the use of a wall to increase safety. “This motion provides a deep stretch for the groin and adductor muscles and increases mobility of the hip joints. Freeing the hips often provides stress relief to the spinal column and major postural muscles. It is frequently beneficial for sciatica by relieving the compensatory tightness of the groin, which is directly opposite to the sciatic nerve.” (Stiles, 2000, p.165). Finally, I taught J. Technique 3 on the “Pranayamas for Healing and Pain” (Stiles, 2008) handout, instructing him to “breathe into the pain” and, as he exhaled, hold the pranic energy in the site of his pain. J. expressed interest in working more with this technique.

Session 11. August 30, 2008. J. reported that his new puppy “is sapping every bit of energy that I have” and “is an amazing upheaval for us.” J. got a lot of exercise in the last two weeks which has included playing golf and walking the dog. J. said his ability to climb stairs is “up and down” but that his chiropractor said he has advanced in his ability to perform this function. J. stated he is still doing four SYT sessions a week. J. said he does the pranayama exercise I assigned him at our last session at night to help him relax before going to sleep, but this has been only moderately helpful. I am focusing in this session on strengthening J.'s hip adductors, so I assign him Cobra, with instructions to change to Warrior I and then to Side of Hip Stretch as he feels himself getting stronger. A goal J. stated is to tone muscles that are not being used adequately because of his medical conditions to prevent these muscles from becoming weak. J.'s right knee collapses under him when he climbs stairs. J. has been assigned both Warrior I and II, and these poses will be beneficial in strengthening the muscles surrounding his knees. Stiles (1999, p. 2), in his discussion of the treatment of knee injuries, said: " A practice that alternates between the closed-hip warrior pose (virabhadrasana I) and the open-hip warrior pose (virabhadrasana II) provides sustained challenge. The closed hip version strengthens the inner thighs (adductors), while the open-hip version works the outer thighs (abductors)." I encourage J. to practice Tree pose because J. said he has found this to be a pose he likes and he states “in balancing poses my small muscles get more of a workout than my large muscles”, which he feels is beneficial to him. Tree pose will also help him to strengthen his adductors and will improve his poor balance if done consistently.

Session 12. September 28, 2008. J. said his ability to climb stairs has been “up and down” since our last session; however he continues to feel positive regarding the yoga therapy sessions because he feels they have been helpful. J. has been doing “a complete or partial routine every day.” Further, he has been walking his dog 1-2 hours a day and played golf yesterday. His dog has become less stressful to him and more of a source of pleasure. J. reviewed the poses that have been most beneficial to him. J. said: helpful to his back were Joint Freeing Series, Cobra, Tree and Warrior II; also helpful were Runners Pose (“I love that”), Warrior I and II, SI Joint Exercise and Internal/External Hip Rotation performed to increase strength. J. concluded, regarding his ability to climb stairs, “some days are better than others”; however he feels SYT overall has had a beneficial effect. J. mentioned that his chiropractor told him that it is essential for him to maintain a positive mental attitude and he feels SYT has helped his attitude by giving him something he can do to positively affect his medical condition, especially since “the alternative is surgery” which he does not want to undergo.

**2 a – Name and description of the condition:** J. was born with a “tethered spine”. “Tethered spinal cord syndrome is a neurological disorder caused by tissue attachments that limit the movement of the spinal cord within the column. These attachments cause an abnormal stretching of the spinal cord. The course of the disorder is progressive.” (NISD, 2008). The spinal cord normally is able to retract up into the spinal column as it allows for growth of the individual from birth to full growth at adulthood. In the case of a tethered spine, the spinal cord is attached to the spinal column at birth and does not let go. The spinal cord “horsetails” at the base of the spine through the vertebrae allowing the nerves to spread out through the body. In the case of a tethered spine, the nerves leaving the spine often become impinged by the vertebrae, interrupting the flow of the nerve impulses to the rest of the body. In J.'s case, his sciatic nerve is impinged upon. This has caused J. to have difficulty climbing stairs. The muscle response that would lift J.'s body with his RIGHT leg as he climbs stairs is failing. He can lift the leg but he cannot put weight on it. If he does the leg collapses out from under him. This is not due to a skeletal or joint abnormality. It is related to the sciatic nerve being

impinged.

Tom also was born with “hip dysplasia”; his symphysis pubis joint is missing, resulting in an actual gap of 2 1/2 to 3 inches between the two pubic bones. The gap has caused Tom's pelvis and acetabulum sockets to splay outward and his femurs to abduct and externally rotate. The hip dysplasia caused Tom to “walk like a duck” as a child. Tom has worked over the years to walk with his feet less externally rotated with some success.

### **b – Gross and subtle body common symptoms**

Right leg collapsing at the knee when climbing stairs and putting weight on the right leg.

Lower back stiffness.

Dull throb in back of right thigh. “Vata imbalanced individuals experience... pain – especially dull chronic or irregular pains in the morning that leaves after movement.” (Stiles, 2007, p. 22). Pain generally is a Vata imbalanced condition.

Poor physical balance.

Obesity (a sign of Kapha imbalance)

Difficulty managing anger (a sign of Pitta imbalance).

The majority of symptoms this study dealt with were primarily physical and on the annamayakosha level.

### **c – Related challenges** – lifestyle, diet, limitations on activities

J. was born with several physical abnormalities, the two most pronounced being a tethered spine and hip dysplasia resulting from the absence of his pubis symphysis. J. was also born with a bladder extrophy that resulted in his bladder being removed at age 5 and J. wearing a urostomy since that time. J. had many surgeries related to his tethered spine through childhood in order to make room for his body to grow. “ In children, early surgery is recommended to prevent further neurological deterioration.”(NINDS, 2008). Further, J. said, “I am losing my hearing” and that doctors have not recommended intervention for it. J. believes nothing can be done to treat his hearing problem. In spite of growing up with a host of medical problems, J. said “I have led a full and active life” and has never let his medical issues prevent him from being active. J. believes growing up with his medical problems made him self-reliant and optimistic about life, as he had to develop these qualities in order to cope. This was the explanation J. gave for scoring low on the stress test in spite of dealing with numerous present stressors. The only pain J. is experiencing is a “dull throb” in the back of his right thigh. X-rays reveal no structural abnormalities of his knees. Tom has been active throughout his life and presently enjoys golf and walking which he does “as much as possible”. J.'s obesity indicates a need for a healthier diet and additional exercise in order to lose weight. He may benefit from a Vata pacifying diet. “As Vata tends to be the most readily imbalanced dosha, a Vata pacifying diet is needed more frequently than diets for other doshas” (Stiles, 2007). Losing weight, however, was not a part of our treatment contract and J. expressed no desire to lose weight during the course of the study.

### **3 – Ayurvedic assessment and Ayurvedic based yoga recommendations**

Chopra (2000, p. 32-33) says the first question an Ayurvedic doctor asks is “Who is my patient?, meaning “How is an individual constituted?” The doctor looks for traits that disclose a person's prakruti. “This sanskrit term means “nature”-it is your basic nature”. Further, Chopra (2000, p.35) defines prakruti as “your psycho-physiological constitutional type”. “Everyone has a specific constitution, or Prakruti, comprised of a mixture of the three doshas.” (Stiles, 2007. p.26). The vast majority of people manifest primarily as one of the dual dosha constitutions. The current imbalance of the Prakruti is called Vikruti. Tom has a dual dosha constitution of Kapha/Pitta. Tom's doshas are unbalanced on several aspects or qualities. Following are Tom's imbalances listed by the dosha involved:

Kapha - The focus of ayurvedic recommendations for J. is intended to balance primarily Kapha and secondarily Pitta. J.'s health concerns represent an imbalance in specific doshas. J. was advised to do all exercises generally repeatedly

and slowly focusing on challenging himself to create strength and stamina. Following the guidelines provided by Patanjali in the Yoga Sutras (Stiles, 2002, p. 28), Chapter II, 46-47 was advised: II, 46 "Yoga pose is a steady and comfortable position." and II, 47 "Yoga pose is mastered by relaxation of effort, lessening the tendency for restless breathing, and promoting an identification of oneself as living within the infinite breath of life." This approach to practice is especially relevant for Kapha imbalanced individuals and promoting the Kapha quality of being drawn to merge with the infinite. J.'s obesity is clearly a Kapha imbalance. Kapha tends to manifest as a large bodied person. " The body becomes large from excessive eating and lack of exercise." (Stiles, 2007,p33). J.'s poor hearing is symptomatic of Kapha excess. Virabhadrasana I and II were assigned for balancing Kapha. All exercises were assigned to be accompanied by breathing in which the exhale is longer than the inhale and periodically released through the mouth with a sigh in order to balance Kapha (Stiles, 2007,135).

Pitta - J. having a tendency to anger demonstrates a Pitta imbalance. J. demonstrated the Pitta quality of discrimination between what is beneficial to him and not beneficial when he began to practice the assignments consistently. J. going beyond the assigned exercises may have been the manifestation of a swing away from the early sessions in which J. did not practice the assigned exercises to the high Pitta need for achievement. The inflammation that accompanied J.'s sciatica and arthritis indicate a Pitta imbalance. J.'s arthritis and sciatica were treated with Yoga practices for balancing Pitta in order to reduce the inflammation accompanying these conditions (Stiles, 2007, p. 174). Sunbird pose was assigned to balance Pitta (Stiles, 2007, p.28).

Vata - J.'s sciatica and arthritis are due to a Vata imbalance. J. described the pain in his right thigh as a "dull throb." "Vata imbalanced individuals experience... pain – especially dull chronic or irregular pains in the morning that leave after movement." (Stiles, 2007, p. 22). Pain generally is a Vata imbalanced condition. Ayurvedic yoga recommendations included Joint Freeing Series and the wave breath for balancing Vata (Stiles, 2007, p. 174).

#### **4 – Common body reading**

Feet externally rotated. Tight muscles: psoas, external hip rotators, sartorius, gluteus maximus. Weak muscles: TFL, gluteus minimus.

Lordosis. Tight muscles: Lumbar erectors, psoas, hip flexors. Weak muscles: Middle trapezius, rectus abdominus.

#### **5 – Contraindicated yoga practices and general activities to modify or eliminate**

Calais-Germain (1993, P. 39) discusses the importance of good practice in caring for the spine. She said "... it is important to avoid "loaded" vertebral flexion ,e.g. flexing the lumbar spine while lifting a heavy object. Instead, keep the spine straight and flex at the hip and knee joints only. In fact, it is preferable to avoid loaded lumbar flexions in any type of physical exercise, even if you are not lifting any object." She illustrates this with a picture of a person doing a straight leg forward bend. This is consistent with the instructions Stiles (2003) gives regarding adapting yoga poses for individuals who have sciatica. He states that Westside Back Stretch and Side of Hip are not recommended for people with sciatica. They should also avoid straight leg forward bends

#### **6 – General recommendations for the condition**

**a – Therapeutic/free of pain:** Bend the knees in all forward bends to transfer the strain off the back and intensify the stretch of the hamstrings. Modify or eliminate any movement that causes pain. Breathe into the pain using technique three based on the Hatha Yoga Pradipika V,9-11 as listed on the handout "Pranayamas For Healing and Pain".

**b – Stabilize situation** including lifestyle recommendations: The most important action a person can take to stabilize one's self is to create a container to hold one's self in balance. The primary way an individual can do this is by regulating his/her lifestyle. Creating a structure to the day is a key component to regulating lifestyle (see below). Additionally, Tom should proceed with the structural yoga exercises as long as they don't cause pain or significant discomfort.

**c - Maintenance** and long term considerations: Life aspects to consider include: waking and going to sleep at the same time each day; taking meals at the same time each day with lunch being the largest meal of the day; a vegetarian diet; Yoga Nidra performed on a daily basis; all Vata balancing practices and all practices that promote relaxation and sensitivity to the Inner Self. The Joint Freeing Series done rhythmically led by the natural pace of the breath promotes these qualities. The Joint Freeing Series also increases the flow of synovial fluid which will lubricate the joints and improve circulation. Regular exercise based on Structural Yoga Therapy principles is essential for maintaining health. A pranayama practice will help maintain emotional stability. A spiritual practice will provide a whole additional level of meaning and satisfaction to life.

## 7 – Questions and answers on Yoga Therapy from [www.yogaforums.com](http://www.yogaforums.com)

a. Question from: cátuhsata Member on 08/05/2004

I have a student who has sciatica in her left hip. From closer observation, I notice that her left hip is considerably higher than her right hip and her right hip is twisted forward. Her spine is curved to compensate for hip height difference, and perhaps one disk is starting to think about bulging. (she does feel comfortable in child's pose).

What do you recommend I do with her and is there anything/adjustments that I should do while teaching her in a general yoga class to help her condition? Many Thanks C

Mukunda's Answer:

In general you want to do postures that improve her alignment in asana as this may help her sciatica. Also of course avoid contraindicated poses for sciatica – hamstring stretches and emphasize strength of the gluteal region (hip extensors more specifically) in poses such as locust and stretch of its antagonists, the hip flexors in poses such as

the runner stretch or lunge. Giving extra relaxation exercises (such as child's pose) is also helpful as sciatica as a vata imbalance inhibits the ability to relax and sleep. Calming pranayama like the wave breath and concentrating on progressive relaxation is a must.

I will now address the answer to this more explicitly as you are in my Structural Yoga Therapy (SYT) certification course. At this point you have had only 2 of the 12 weekends required for certification, I think others will also benefit from hearing the full scope of this work. I want you to help you utilize my book and my skills more beneficially. Use me by all means, but overtime learn to use me to point to what you cannot get to from referring to my writings. I want you to utilize my response to see how you can utilize your powers of observation and discernment more acutely (being a Sherlock Holmes of body reading assessment) in making future assessments.

There are six levels of assessment information that can be utilized in making a thorough SYT set of recommendations for any given situation.

1 - You began this question well enough showing a closer observation thus utilizing bodyreading skills from chapter 12 of my book. By using this step alone you can create a helpful program of SYT. One solution to your question about what to do can be found in by using my book. It tell you what muscles are contracted making postural changes (see table 3 page 103), another chart shows therapeutic asanas for postural change (table 6, page 266). However this first level of SYT is not very precise.

2 - The second step in the progression to more accurate SYT recommendations is to take and evaluate this body reading in a kinesiological manner. So that is what I will do next I will say the postural imbalances you identified in kinesiological language. For new readers kinesiology is a second level of anatomy studies applied to understanding what muscles are contracting to create movements. Left hip is elevated (thus a

contraction of left quadratus lumborum & possibly psoas), right hip is internally rotated (contracting gluteus medius anterior fibers and tensor fascia lata also some of the adductors which are internal rotators too); this implies that the left hip is externally rotated (contracting the gluteus maximus and deep 6 rotators anterior to it - among them is the piriformis infamous for causing sciatica). By considering the antagonists (opposing movers) of these contracted muscles you can discover what muscles are over stretched. A sample list of muscle antagonist pairs is located in table 4 page 122; and another chart shows what asanas strengthen and stretch what muscles (table 5 page 254-255). From this knowledge you can create a more precise set of recommendations that direct the students awareness to feeling the stretch and strength where it is needed.

3 – The last three steps go beyond the scope of my book covering information only given in my certification training. A step you left out, because you are new to this training, is to do a range of motion (ROM) assessment of the client either following the joint freeing series (JFS) as it is given in chapter 16 – Anatomy and Mobility Assessment or through a detailed assessment by learning to use the goniometer (sold via my website bookstore) based on our SYT Examination Manual. This manual is available only to students in the training. This provides exact angles of ROM to be more precise than JFS assessment based on guessing the angles of motion. Either manner will tell you what muscles are tight. Then referring to the previously mentioned table 5 you can give yet more helpful recommendations.

4 - Later on you will learn to do a physical therapy based form of muscle testing (MT), also detailed in your SYT Examination Manual, to determine how much a muscle is weakened. With these four assessments - bodyreading, kinesiology understanding, ROM, and MT - then you can utilize your thinking more clearly in giving accurate Structural Yoga Therapy recommendations.

5 – You can also give recommendations based on an understanding of the condition; in this case sciatica or you could look up that topic ([www.yogaforums.com](http://www.yogaforums.com) for the archives of such questions). Sciatica can be a mixture of three factors that compress the sciatic nerve – from its roots at L4-S3 as a result of herniated or degenerated disc; a contraction of the nerve in the gluteals between the piriformis above and the obturator internus below; or tight hamstrings affecting the area where the nerve divides into its two components – peroneal and tibial nerves. For this precision, the student will need to comprehend the scope of the full 2-year program. A more informed set of recommendations would take into consideration all five factors. In this way by understanding the specific muscles that are imbalanced with her unique sciatica condition, understanding the specific muscles that are imbalanced with her unique sciatica condition can create a more personally tailored program, more pertinent to this woman.

6 – An Ayurvedic assessment of the condition will also point out what of three approaches is best utilized in giving the above recommendations. This material is given out sparingly in this course until my book Ayurvedic Yoga Therapy is published (hopefully by the end of this year). A training in this method will be given May 16-21 in Zurich, Switzerland.

One also needs to keep in mind the guidelines from my first book, Yoga Sutras of Patanjali, as these guidelines help us to become clear on what is harmful and avoid all such movements that cause himsa (see YS II, 33-35), such as straight leg forward bends. These writings also reveal how we can guide ourselves and students through the progression of Classical Yoga training leading to freedom from all forms of pain and suffering

b. Post 10/3/02 from Mukunda, (last referenced 6/19/07)

Dear Friends in Yoga -

The sacroiliac is the key joint to the lower body. There have been so many queries on problems related to this that I wanted to share with you an exercise I have devised that relieves a host of offshoot problems - knees, lower back, sciatica, even menstrual irregularities. While these conditions are not necessarily caused by S/I dysfunction, they accompany it. I find that by creating natural motion in the S/I it begins to help vata/pranic energy find its way to balance.

The sacroiliac joint has a small amount of motion #8211; adduction, abduction, flexion and extension. Without these motions or moving into extension (downward) during hip flexion (lifting your knees or sitting), your lower back and hips can be quite uncomfortable. The solution is to mobilize the sacroiliac properly.

The following exercise balances the joint so that as the hip goes into flexion, the psoas will contract with sufficient force to overcome its antagonist, the gluteus maximus, and the joint will flex (move upward). The movement needs to be done regularly for those who have frequent lower back discomfort until the correct pattern of motion is established. This should be done before any other exercises or asanas for those with reoccurring lower back, sacroiliac or hip strains.

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 the iliac crest (top of pelvis) exhaling as you contract your belly and round your lower back. Then arch your lower back accentuating your natural lumbar curve by contracting the psoas as you inhale. Repeat 12X, or until you feel the motion becoming smooth, whichever takes longer. You 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 (sit bone) will touch the floor. Inhale as you lift your hips moving into internal hip rotation. Exhale as you lower the hip coming into external hip rotation. Continue for 12X, then reverse your legs and repeat.

When finished stand up and walk in place for 6-10 steps which will assist in promoting stability.

Blessings. Mukunda

c. Questioner cátuhsata Member on 07-01-2002

I need your advice. My right hip (sciatica pain) has really been hurting. My whole right side is not as flexible as my left, and now my right side lower back is starting to burn. It hurts most when I lay flat on back, no bent knees, like Shavasana. Is that a disk problem? Which exercise would you recommend from your book? Thanks so very much. Look forward to hearing from you.

Sincerely, TC

Reply from Mukunda:

With sciatica that is irritated vata (stress). Major need is to relax, eat and sleep consistently. Most common need is to strengthen the external hip rotators you can look in my book for examples of what does that I find doing sunbird with leg turning outward is often best way to do this. Gentle backbends like cobra and locust, which focus on strength and not stretch, can help. Also avoid contraindicated motions, which are all forward bends. Especially do not stretch hamstrings. For more chronic issues a colonic or enema may be helpful too. The seat of the problem is often colon issue -- diet irregularity, too much travel, or suppressed fear. This is such a common problem you will see many questions on this topic -- so do a search under sciatica at my Website [www.yogaforums.com](http://www.yogaforums.com) for more ideas.

d. Questioner: cátuhsata Member on 04/26/2002

I'm offering yoga therapy to a 54-year-old man who is seemingly in good health. It turns out he has arthritis in his joints. I haven't seen an X-ray yet but he was told (and he feels them) that there are bone spurs in one hip, one shoulder, and in some of the spinal segments. He is responding beautifully to sequences that emphasize moving the joints through their R.O.M. Before we hold any pose, we move in and out with the breath, easing our way into greater opening and freedom. His main restriction is in the thoracic spine. Can you give me some advice in how to work with him?

Reply from Mukunda:

What you are doing is good. Vinyasa motions coordinated with breath can release joint pain. My sequence of joint freeing series is important as the specific sequence given there allows the prana to move through its 5 forms to the subtlest, called Vyana. The development is to teach him how to send Vyana Prana into the joint that he is moving. At first showing how to keep attention onto specific joint and visualize its functions anatomically, then progression is made by learning to stay attentive to the feeling of prana as it moves into and throughout the joint. The fifth chapter of the Hathayoga Pradipika describes this as the method of overcoming bad practice and how to generate healing force of prana.

e. Questioner: cátuhsata Member on 04/27/2002

Hi Mukunda, this is from a participant in my hospital based stress reduction program. The following is her letter asking if you have any suggestions; she may be interested in a private assessment if possible when you are in Calgary in March. When she started the stress reduction program in September, she had very little patience. I would guess she might be approximately 42 years old. If its helpful to post her letter in your Q and A that would be fine, She is very motivated to do whatever will benefit her. Thank you, H.

"Dear Sir, I would like to ask about ways that I could strengthen my spine And shoulders after recently being diagnosed with cervical stenosis on the basis of a congenitally narrowed cervical canal as well as bulging of the C5-6 and C6-7 discs. There is no associated foraminal stenosis. I appreciate that you have knowledge of therapeutic yoga, and realize the benefit to myself as I recently have begun to practice yoga. Background Information: I have been employed as a Licensed Practical Nurse for 21 years. Mainly I have worked in Long Term Care where heavy lifting and transferring of patients is part of my duties. On October 12, 2001, I assisted in lifting a patient who had fallen, to her feet. I had both arms extended under patient's arms and patient pushed back into me as she stood. At this time I did not feel any discomfort. The next morning I

woke, sat up on the side of the bed and heard and felt 3 distinct 'thunks' in my neck region. This was followed by momentary dizziness, and pain radiating from my middle neck across my left shoulder and down my left arm. It was uncomfortable, but tolerable, so I used ice and heat and rested for that day. The next day the pain had significantly increased in my left arm, especially elbow and hand. I went to the doctor and was told it was a muscle strain. The next day I woke to find that my left thumb and next 2 fingers were numb. The intense pain lingered 6 weeks. During this time I went to physio and regained some mobility and the pain gradually decreased. Triceps remain very weak as well as weakness to left wrist, and finger extensors. I continue to have diminished sensation in my fingers. After an MRI done in November I was sent to an Orthopedic Surgeon for assessment. His advice is that surgical intervention is reasonable (within the next 6 months). As I had started yoga and stress reduction (based upon mindfulness meditation) in September of 2001-I felt that not only the meditation, body scan, and yoga poses helped me with pain, but I have seen improvement in flexibility, mobility, and stress reduction. At the present I am on no medication and am practicing yoga daily as well as walking 5 km daily. I would appreciate any information or direction you could give to me in regard to my situation. At present I am researching alternative solutions to this condition. I sincerely appreciate your time and attention to this matter. Kindest regards, C"

Response from Mukunda:

C and H - First of all I commend you on your working together to address this difficult challenge. Secondly my advice is to only to those motions that alleviate pain, built strength and promote sensitivity to your comfort zone. I would highly recommend you do my Joint Freeing Series daily in harmony with breathing rhythmically as you do the motions. The thought is that as i move my joint i send the breath energy into the joint and free it up for ease of mobility and heightened energy throughout my body. As you do this always remember to extend (open) the joint before moving it. With regards to the neck region do not go to full range of motion but rather hold yourself back to 50% and emphasize feeling spaciousness between the vertebrae. Be especially cautious on extension (looking upward). When I come to Calgary next month it would be most helpful if both of you come for a session together to help each other learn how to work with this situation.

f. Questioner: cátuhsata Member 04/27/2002

For many years, I have suffered from lower back problems, esp. on the right side. I have searched for a long time for understanding and relief. About two weeks ago I took a yoga workshop with a Canadian Iyengar trained teacher and he encouraged us to "unlock" the pelvis in order to free the groins. In Parsvakonasana, for example, he asked us to tip the pelvis forward until we felt it "lock" and then to back off just enough to where it felt free again. Now I've heard this kind of direction before, both through years of modern dance training as well as through yoga. I've even "taught" it. Well, that day something changed dramatically. It became very clear that I had been very well trained to hold my pelvis in a little pelvic tilt (like I thought I was supposed to), but that this deeply patterned habit's time was up. My pelvis is now in a slightly tilted position (in the direction of the "dreaded" swayback or lordosis) and I feel truly liberated. I feel lighter and my spine feels long and free. My backbends have now become very free as my lower and upper back sections both can move in complement to one another. I feel inspired to do lots of backbends too. I feel new energy and lightness in my Asana practice. I feel as though I have received a gift. Here's my question:

What is the cause of this? Some significant events in my sadhana life have been things like a customized asymmetrical Asana practice from you, an intensive satsang and yoga therapy studies at RMIYA this summer, switch to vegetarianism, Ayurvedic treatment, initiation/transmission from my guru, deepening sadhana practice, and letting go of a decades old wrong neuromuscular pattern of "centering my pelvis"



(perhaps AKA "being in the right place at the right time?"). Is it grace? I just feel very grateful. Much love and light to you, your family, your students and your teachers. K.

Reply from Mukunda:

K. - It is wonderful to hold yourself in the place of looking for Grace. This place of holding yourself or returning yourself to is a great blessing. When one looks for Grace, what else can be found? On another level the backing off of full range of motion or a "locked position" is the only place where change can occur. The end point has no potential for eliciting change. So students of yoga will always find change occurring when they back off as Patanjali says so eloquently in his Yoga Sutras II, 47 "The perfect posture is attained by relaxation of effort, lessening the tendency for restless and meditation on the infinite." Seek Ananta, the infinite, and Grace is the result. On the most profound level this is truly what your yoga practice has been all aimed at. Hold onto gratefulness and gratitude.

My good friend Jean Couch (author of Runner's Yoga Book) of Palo Alto has found that backing off yet increasing the pelvic angle, hence enhancing lordosis creates a state where "balance" as she calls it can occur and joint pain disappears. She has studied many 3rd world cultures that literally have no joint pain and finds that their pelvic stance is at the base of a way of being in their bodies that keeps them free. She teaches this method individually and to movement therapists. See <http://www.balance.com> for details.

## **8 – References and websites**

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Jarmey, Chris. The Concise Book of Muscles. Berkley: North Atlantic Books and Chichester, UK: Lotus Publishing, 2003.

Stiles, Mukunda. Ayurvedic Yoga Therapy. Twin Lakes. Lotus Press, 2007

Structural Yoga Therapy. Boston:Samuel Weiser, 2005

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Stiles, Mukunda and Ryder, Genevieve. Structural Yoga Therapy Examination Manual with accompanying DVD. Third edition c. May, 2005.

Websites:

National Heart Lung and Blood Institute. <http://www.nhlbisupport.com>

National Institute of Neurological Disorders and Stroke, NINDS Tethered Spinal Cord Syndrome Page  
<http://www.ninds.nih.gov>

Perceived Stress Scale by Sheldon Cohen - Mind Garden, Inc. <http://www.mindgarden.com>

Yoga Forums. <http://www.yogaforums.com>

Course Handouts and Lecture Notes:

Stiles, Mukunda. Structural Yoga Therapy Program. New York: 2007 - 2008.

## 9 – Appendix

### Perceived Stress Scale- 10 Item

Instructions: The questions in this scale ask you about your feelings and thoughts during the last month. In each case, please indicate with a check how often you felt or thought a certain way.

1. In the last month, how often have you been upset because of something that happened unexpectedly?

0=never  1=almost never  2=sometimes  3=fairly often  4=very often

2. In the last month, how often have you felt that you were unable to control the important things in your life?

0=never  1=almost never  2=sometimes  3=fairly often  4=very often

3. In the last month, how often have you felt nervous and "stressed"?

0=never  1=almost never  2=sometimes  3=fairly often  4=very often

4. In the last month, how often have you felt confident about your ability to handle your personal problems?

0=never  1=almost never  2=sometimes  3=fairly often  4=very often

5. In the last month, how often have you felt that things were going your way?

0=never  1=almost never  2=sometimes  3=fairly often  4=very often

6. In the last month, how often have you found that you could not cope with all the things that you had to do?

0=never  1=almost never  2=sometimes  3=fairly often  4=very often

7. In the last month, how often have you been able to control irritations in your life?

0=never  1=almost never  2=sometimes  3=fairly often  4=very often

8. In the last month, how often have you felt that you were on top of things?

\_\_\_0=never \_\_\_1=almost never \_\_\_2=sometimes \_\_\_3=fairly often X4=very often

9. In the last month, how often have you been angered because of things that were outside of your control?

\_\_\_0=never \_\_\_1=almost never \_\_\_2=sometimes X3=fairly often \_\_\_4=very often

10. In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?

X0=never \_\_\_1=almost never \_\_\_2=sometimes \_\_\_3=fairly often \_\_\_4=very often

*This scale can be found in the following articles:*

Cohen, S., Kamarck, T., Mermelstein, R. (1983). A global measure of perceived stress. *Journal of Health and Social Behavior*, 24, 385-396.

Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), *The social psychology of health: Claremont Symposium on applied social psychology*. Newbury Park, CA: Sage.

### **Perceived Stress Scale Scoring**

PSS-10 scores are obtained by reversing the scores on the four positive items, e.g., 0=4, 1=3, 2=2, etc. and then summing across all 10 items. Items 4,5, 7, and 8 are the positively stated items.

The PSS was designed for use with community samples with at least a junior high school education. The items are easy to understand and the response alternatives are simple to grasp. Moreover, as noted above, the questions are quite general in nature and hence relatively free of content specific to any sub population group. The data reported in the article are from somewhat restricted samples, in that they are younger, more educated and contain fewer minority members than the general population. In light of the generality of scale content and simplicity of language and response alternatives, we feel that data from representative samples of the general population would not differ significantly from those reported below.

**J. scored a total of 13.**

**An L. Harris pole gathered test data on 2387 respondents in the U.S. The average score for subjects 45-54 years old was 12.6 (Perceived Stress Score web page. See References and Websites section). This places J. in the average range for people in his age group.**

**Gluteus maximus isolation strength building exercise. This exercise is based on the Gluteus Maximus Isolation Test for measuring strength in the SYT examination manual. Stiles says on the accompanying DVD regarding this strength test, "These muscles being weak is often an indication of lower back trauma or sciatica so these are not only good to assess but they're good to recommend for toning this region."**

**Sunbird strength building exercise. This exercise is based on the Sunbird pose to strengthen the hip extensors (gluteus maximus and hamstrings ) (Stiles, 2000, p. 176).**

### **10 – Biography**

Bob Sagona, LCSW, RYT 200 is a psychotherapist and Kripalu trained yoga teacher. Bob is interested in promoting healing in all five of the kosha's. Bob is especially interested in the mind/body interface and helping to alleviate depression, anxiety and accompanying physical manifestations of these conditions.