

Back and Knee Pain

A Structural Yoga Therapy Course, July 2007

Madelaine Heinemann

London, England, UK

020 8806 2364

mad@heinemann.freeserve.co.uk

www.madyoga.co.uk

Case study: John

a – Initial intake: 12.5.07

John is tall, medium build, with mid to fair skin and silvery hair. He is reserved, but displays a sharp wit. He is an academic. He says, *'A few years ago my job was stressful, but right now I enjoy it and hope to work beyond retirement age.'* John works from home at least one day a week. Despite his desk job he likes to be active; he suffers pain in his lower back and knee when he sits for long periods. *'80% of my day is at a desk. If I'm at my desk for a long time, on a long car journey or at the theatre unable to stretch my legs out, I will suffer pain for days afterwards.'*

He lives with his partner, Jessica; their children are grown. They seem to have an enjoyable life together, getting away for weekends, *'spending the children's inheritance'*. He has a passion for theatre (one incentive for resolving his back and knee pain). He also enjoys *'cooking, an occasional glass of wine, bit of chocolate, gardening and walking in the country.... I am worried that my knee and back will stop me hill walking, I love nature'*. John swims for 30 mins once a week, walks 20mins daily and cycles to and from work. *'I occasionally do a few rounds of sun salutations, I find them energising.'*

He is happy to balance this with quieter pleasures and has no problem sleeping. *'I relax by lounging at home, reading or listening to classical music.'*

He is very committed to the yoga class he has attended for 2 ½ years (with me). He rarely misses a session; we all enjoy his dry, cheeky sense of humour. He is great to teach, asking questions and telling me if something is uncomfortable. Mainly he practices within his boundaries, unperturbed by others who can do more. He is happy to practice modifications or alternatives when indicated. I encourage him to 'lessen his effort', and movement and breath are progressing, but *'I still sometimes lose the breathing'*. Although John is quite focused, I sometimes have to make sure he isn't just going through the motions. *'I do lose concentration, my mind wanders'*.

After our initial intake, I felt he was keeping a lot hidden (from himself and me), and although he was happy to talk about mundane things, I felt there were underlying unresolved emotional issues, possibly a depressive tendency indicated by his movement, intonation and posture (depressed chest, forward, dropped head).

Review of symptoms

Lower back pain: John has suffered intermittent lower back pain for about five years; he has not consulted a doctor.

Unless he can extend his left leg when sitting, he can experience discomfort in his lower back for several days; sometimes this pain moves to the knee. Discomfort is avoided and eased by movement: *'My lower back and knee have improved since practicing yoga, but still become painful...'* John acknowledges the relationship of stress to postural imbalance and pain; *'When my job was stressful, I suffered from upper back pain; I hunch my shoulders when I'm stressed. My shoulders are still rather rounded, but I don't suffer pain in my upper back since I've gone to yoga regularly.'*

John suffers intermittent 'housemaids knee', or **bursitis**, in the left knee. This *'first occurred 10-12 yrs ago, maybe longer'*, after a tennis session. He has no memory of anything unusual, *'I think it was just compression, running on a hard surface'*. The doctor referred him to a physiotherapist, who gave him an exercise to strengthen his quadriceps.

John has high arches, and his doctor diagnosed **Metatarsalgia** a few years ago. The ball of his foot became irritated and infected (pitta); orthopedic pads in his shoes had helped. During exam of ankles, he is unable to Dorsiflex to neutral. This may account for forward weight when standing: *'I feel like my toes are lifting, and I feel unstable'*. He wonders if this is why he finds balances difficult. John is also unable to stand with straight legs, which may cause weakness and tightness in quads and hamstrings.

Subjective pain level: left knee 3-4. After a night at the theatre, 6-7. Pain throbbing. Lower back 4-5, sharp pain. Also twinges in left foot.

Self-assessment and goals: 'I would like relief from my lower back pain.' John is happy to establish a regular yoga practice to facilitate healing, and then a maintenance practice to 'slow the inevitable ravages of the passage of time'.

b – Physical assessment and body posture reading

Male: Height: 6' 4', weight: 85kg, age: 59 years

Weight forward, knees bent, flat back, rounded back/hunched shoulders, bent elbows. L shoulder high, increased space between R waist and arm. Head tilt to the right, right hand lower.

Sacroiliac test, no movement on left, right moved slightly up.

He showed scoliosis, a functional Left Thoraco C curve, the full length of his thoracic spine from L1 –T3 (3-5) then increasing gradually up to 8 at T12.

Range of Motion Assessments 12.5.07, 15.9.07							
Joint Action	ROM	12.5.07	12.5.07	15.9.07	15.9.07	6.3.08	6.3.08
	Norm°	Left	Right	Left	Right	Left	Right
ANKLE							
Dorsiflexion	20°	-15	-10	10	15	10	15
Plantar flexion	50°	70	65	60	60	70	70
Eversion	20°	18	20	20	20	15	20
Inversion	45°	47	45	40	40	50	45
KNEE							
Extension	0°/180°	170	176 *(2)	180	180	179	178
Flexion (Supine)	150°	140	145	150	150	145	145
HIP							
Flexion (Bent Knee)	135°	115	125	130	125	115	110
Flexion (Straight-Leg Raise)	90°	62	55	75	70	80	75
Flexors-quad/psoas restriction	NSS	Greater *Exten					
External Rotation (Supine)	45°-60°	50	40	50	40	55	55
Internal Rotation (Supine)	35°	20	38	35	44	35	22
External Rotation (Prone)	45°-60°	52	55	45	44	45	45
Internal Rotation (Prone)	35°	28	39	35	35	28	28
Adduction (Side Lying)	30°-40°	40	28	30	30	40	35
Abduction (Side Lying)	45°	35	22	35	35	35	35

*(1) Noticing vague sensation at the knee, unable to point one finger, or describe the sensation more precisely (vata).

*(2) Right knee John described as 'resistance, twingeing sensation' at 120.

*Hip extension L23 R23

John showed a general stiffness and limited ROM in the full exam (kapha).

Muscle Testing Assessments						
Joint Action	12.5.07	12.5.07	15.9.07	15.9.07	6.3.08	6.3.08
	Left, 1-5	Right, 1-5	Left, 1-5	Right, 1-5	Left, 1-5	Right, 1-5
ANKLE						
Dorsiflexion	3.5	3.5	4	3.5	4	4.5
Plantarflexion	2.5	4	4	4	4	4
Eversion	2.5	3.5	3.5	3.5	4	4.5
Inversion	3.5	3.5	4	4	4	4
KNEE						
Extension	3	4	3	3	3.5	3*
Flexion	2	3	3	3	3.5	3
HIP*						
Hip Flexors & Abs (Supine)	2.5		3		3	
Trunk Flexion (Supine)	U 3	L 2	3 U	3L	3U	3L
Hip Flexors - Bent Knee (Supine)	3	4	3.5	3.5	3	3.5
Iliopsoas Isolation (Supine)	4	3*	4	3	4	4
Sartorius Isolation (Supine)	3	4	4	3	2	4
Abduction (Side Lying)	4	3	4	4	4	4
Adduction (Side Lying)	3	2	4	4	4	4
Gluteus Maximus Isolation (Prone)					3.5	3.5
External Rotation (Prone)	3.5	3	4	4	3.5	3.5
Internal Rotation (Prone)	3.5	3	3.5	4	3	3.5
Quadratus Lumborum (Seated)		2	2.5	3	3	3

*Hip Extension: L 4R 4

*Iliopsoas Isolation: R caused tension in knee

*Knee Extension: felt it in Right sacrum so stopped.

c – Summary of findings

1st reading 12.05.07

Tight muscles	Weak muscles	Muscles to release
Ankle Plantar flexion: Tibialis anterior	Ankle Plantar flexion: Gastrocnemius, Soleus, (L2.5, R4)	
Dorsi flexion: Gastrocnemius, Soleus	Dorsi flexion: Tibialis anterior	
*Ankle Eversion: Tibialis anterior and posterior	*Ankle Eversion: Peroneus longus/brevis (L2.5, R3.5).	Tibialis anterior, posterior, (high arch)
Knee flexion: Quads	Knee flexion: Hamstrings and Gastrocnemius (L2, R3)	Quadriceps
Knee Extension: Hamstrings and Gastrocnemius	Knee Extension: Quads (L 3, R4)	Hamstrings

Hip Flexion: Gluteus Maximus and Hamstrings	Hip flexion: abs (lower), Iliopsoas (L4, R3), Sartorius (L3, R4), Rectus femoris (L3, R4), Tensor fascia lata(L 4, R3); Adductors (L3, R2)	Hamstrings Gluteus Maximus
Hip abduction: Adductor group	Hip Abduction: Gluteus medius, tensor fascia lata, (iliopsoas, Sartorius) (L 4, R3)	
Hip adduction: Gluteus medius, tensor fascia lata, (iliopsoas, Sartorius)	Hip Adduction: Adductor group (L3, R 2)	
Hip Internal rotation: Iliopsoas, Sartorius, gluteus medius posterior fibers, 6 deep ext rotators)	Hip Internal rotation: gluteus medius anterior fibers, tensor fascia lata, gluteus minimus.(L 3.5, R 3)	
Hip external rotation: gluteus medius anterior fibers, tensor fascia lata, gluteus minimus.	Hip external rotation: Iliopsoas, Sartorius, gluteus medius posterior fibers, 6 deep ext rotators) (L3.5, R3)	

Summary

***High arch** (tight tibialis anterior and posterior, weak peroneus longus and brevis)

Hamstrings weaker than **Quads**. (Strengthen Hamstrings and quads)

Weak **lower abs**, upper abs tight, possibly contributing to lower back pain and rounded back

Ankle: Plantar flexion and Eversion, left weaker than right. Strengthen Dorsi flexion, Eversion.

Knee: Flexion and Extension, L weaker than R (possibly related to inhibited ROM in L knee, because of bursitis)

Hips: R leg weaker than left (**internal +external rotators, abductors and adductors**). **Abduction**; strengthen abductors especially R. R Adductors need strengthening as well.

Right psoas weaker than left, **left sartorius weaker** than right.

d – Recommendations, 14.5.07

During this case study, for all contraindications and modifications see pg 20 21. For Ayurvedic notes see pg 18 -20. For references to chakra and Pancha Maya Kosha see pgs 15-18.

While I consulted Mukunda about this case study, I gave John:

- **Joint Freeing Series (JFS)** 6 x reps of each. Focus: Awareness of sensation. Emphasise muscle tone (kapha) rather than stretch (pitta), balancing R+L sensation (sattva). During spinal flexion, focus on toning each section of abs, during extension lengthen and move the vertebrae independently feeling the effort through the length of the spine. Break up periods of kneeling by practicing the sacroiliac stabilising sequence after JFS 6 and single leg locust after JFS 7(see below).
- Kali Rae shoulder strength cat bow with hands turned in, after JFS #8 to strengthen the middle trapezius, latissimus dorsi and posterior deltoid, to alleviate his kyphosis, improve his breathing and help reduce stress.

- 1 leg locust 3> 6 reps L+R, > 2 leg as strength is developed, (strengthens hamstrings, gluteus maximus, erector spinae and quadriceps). Extend as suggested in JFS.
- **Sacroiliac stabilising:** test had shown imbalance and instability. Sequence helps develop lower back extensors, hip flexors, lower abdominals and internal and external rotators.
- **Wave breath:** increases Prana (Vata balancing), alleviating pain and increasing relaxation. It reduces stress related to irregular and shallow breathing.
- **Savasana with Yoni mudra:** An opportunity to observe the effects of the asana - physically, emotionally, mentally - and increasing sensitivity and awareness of energy (Prana).
- I gave John an enlarged copy of this sutra to place in his practice room and read before he began, as he likes poetry and prose (Vata/ Pitta Kapha):

*‘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.’*

Patanjali’s Yoga Sutra 11.47, as interpreted by Mukunda Stiles

Lifestyle Integration

Keep a very brief **practice diary**: time of practice, how long, what, note anything unusual (balance and increase prana).

Notice any other possible triggers to pain. Continue to walk and cycle (awareness of relationship between ankle, leg and hip) as long as there is no inflammation.

Continue to swim. When I asked John about his breathing he said, *‘I can happily swim quite a long way but I have got in the habit of breathing on the right.’* I suggest learning to breathe on both sides (neck rotation) when practicing front crawl (freestyle) feel the effect on his neck/shoulders/spine. This may help John’s scoliosis. Focus on rhythmic breathing to determine the speed and effort (pranayama).

- Rotate between **front crawl, back crawl** (Main movements: **shoulder** flexion /extension/, **hip** flexion/extension and gentle **spinal** twists with extension)

Breast stroke, making sure the neck lengthens between breaths (**shoulder** abduction/adduction, **elbow** flexion /extension, **hip** flexion, abduction, external rotation, adduction, flexion, **spinal** extension).

e – Results of your recommendations

John has been very committed to his practice. *‘I practice five times a week in the mornings before work, for at least 30 mins.’ ‘I’m really enjoying it. It energises me for the day.’*

John’s attitude to his practice shows that he is balancing Pitta and Kapha. The enthusiasm and energy he feels are positive Pitta qualities; the regularity and pleasure he feels from his practice are positive (Kapha).

John reports less pain and discomfort. These are indicators that Vata is balancing. *‘I’ve had less discomfort around the hip girdle. ‘After an evening at the theatre, I would normally get pain in my left knee and would then suffer in my hip for two days or more. This time my knee was slightly sore in the performance, but it did not transfer into the lower back as it would normally have done. I was able to relax and enjoy the performance...’ ‘On Monday I am completely*

deskbound. I used to be in agony by the end of the day, but I haven't noticed any pain for the last 2-3 weeks'. 'After the first week it really felt like the calves had been worked!' Great! He is feeling Kapha strength.

John admits 'I've been practicing with the radio on.' I talk to him about Mukunda's suggestion that he needs to move into enquiry, investigating the sensations and interrelationship of his ankle, knee and hip, by practicing the joint freeing movements in free form, experiencing every permutation. The more he is able to focus inwardly, without distraction, the deeper this experience will be. I emphasise awareness of the sensations of breath and movement are the key to change and healing, I commend him on his dedicated practice and improved breath awareness.

We refine the practice, I enquire how it feels, where his attention is drawn, does it feel the same on the left and right, what is different?

When I ask him about the wave breath practice and how long he is staying in Savasana, he admits, 'I rush those a bit, I find it difficult to spend the time on them when I am alone.' (Vata/ Pitta imbalance)

In asana, pranayama and savasana develop '**relaxation of effort, and lessen the tendency for restless breathing,**' This works directly on the causes of pain and dis-ease: disturbing thoughts and emotions which cause stress. Observe the phases of the breath as the movement of healing prana, relaxation = expansion, '**promoting an identification of oneself as living within the infinite breath of life**'. (Patanjali's sutra 11.27, interpreted by Mukunda Stiles). 'I will try and spend longer on relaxation; I do have the time, just not always the inclination!'

Integration

He is still swimming: 'I'm including back crawl, breast stroke and learning to breathe on both sides. The breathing is still quite challenging, but I will carry on trying.' I respond, 'these are great changes, don't stress about the breathing in crawl, do it for a little while and then change stroke when you need, it must feel pleasurable not a labour.'. The diary hasn't happened, but 'I still think it's a good idea.'

Recommendations: 16.06.07

The core of the practice is **freeform variations of JFS**, emphasising movement and strengthening of the ankle, knee, hip and spine. I suspect the lack of mobility in the ankle joint is undermining his physical /emotional balance .

After consulting Mukunda, I encourage John to investigate the sensations and interrelationship of his ankle, knee and hip as he practices. This is to increase awareness, inquisitiveness, and sensitivity to sensations learning acknowledging discomfort, rather than working through it. See pg 20 for precautions and modifications.

- See previous instructions for joint freeing (pg 6). Slow down, if his is unable to do the whole series pg1 ankle, knee and hip and spine are the most important as they directly relate to his lower back condition. 6x reps of each.
- No 5 is modified as Mukunda teaches it: Internally rotating leg moving towards stationary leg, (hip lifting), externally rotating it moves away from stationary leg.
- No 6 as shown, and also fingers touching Kali Rae cat bow.
- No7 Sunbird variations, A) extension/ internal rotation (toes in) >flexion. B) extension/abduction/ external rotation toes up and leg out 30%>flexion. C) Abduction (dog peeing) >flexion. Build up to 3 reps of each L+ R (emphasise engaging muscles on the Right).
- Sacroiliac stabilising sequence.

As John won't be at college for the summer, he'd like to do a longer practice, of an hour–90 mins. Following Mukunda's advice, I have tried to give him what he needs in a format he likes and is familiar with by adapting the Sun Salutation sequence to suit his needs (pg 20), focusing on the sensation of strength and stability rather than

stretch. The movements flow from the breath, gently dynamic they strengthen opposing muscles, and increase flexibility. Poses are then held statically, only as long as release is occurring and steadiness is felt.

1. IN> Tadasana, IN > shoulder flexion.
 2. Ex> Uttanasana, soft forward bend (rest chest on thighs as slowly move towards gentle knee extension) feel the hip flexors. Upper and lower Abdominals and Quads engage, shoulder /arm extended softly.
 3. IN > Utkatasana, flex shoulders as you lift heart (keep lower ribs drawn in), knees flexed, using quads to keep alignment. Feel strength/stability in back /legs /abs, keep **natural** curve in lumbar spine. Hold statically for 3 breaths. Arms wide to relax shoulders, shoulders drawn back and down, engage lower Trapezius and lower /upper abs to support lower back and keep floating ribs in.
 4. EX>Step from Tadasana back, slowly lower into lunge using the strength of the thighs, hands on front thigh for support if needed (runners stretch) gently rock the pelvis forward and back (gradually extending front knee), x2, awareness on sensations as you create movement in the pelvis/spine. Hold statically for 3-5 breaths. Focus stretch to hamstrings of back leg, to strengthen buttocks and release lower back. Focus on quads stretch on front leg, releasing hip flexors e.g. psoas. N.B. use padding under back shin.
 5. IN > Warrior 1, Focus on hip adduction, feeling strength in the inner thighs. Flex shoulders Engage Lower trapezius. Soften the pose as needed to avoid any discomfort. EX> Warrior 2 Adduct shoulders, extending elbows, arms just below shoulder height, engage L trapezius. Feel strength in the buttocks to externally rotate thighs (gluteus maximus) and adjacent abductors (gluteus medius). Stabilise the alignment of the knees by engaging the quadriceps. Dorsiflex ankle by engaging the Tibialis anterior. **IN> Warrior 1, EX> Warrior 2**, practice dynamically to strengthen and stretch apposing hip muscles, build up reps slowly 2-6. IN> Come back down into lunge (runners stretch).
 6. EX> Adho Mukha Savasana, (Downward Facing Dog), bend knees to extend spine and assist shoulder flexion. Pelvic tilt x 2, static 3-5 breaths. This dynamic version strengthens the whole back, arm and abdominals, quads. It stretches the hamstrings and chest.
 7. Kali Rae Cat bow. Progression towards Ashtanganamaskar. EX >down, IN> up. Strengthens triceps, middle trapezius, latissimus dorsi, posterior deltoid. It is beneficial for alleviating rounded shoulders and strengthens the supportive muscles of the neck and head enhancing the natural cervical curve. X5
 8. Locust, one leg at a time x3, then both legs 3>5 breaths (increase slowly if there is no discomfort, otherwise stay with single leg raises). Bend knees, press soles of feet to ceiling (focus hamstring, gluteus maximus strength). Then press heels to buttocks, gently to release quads, feel sensation of release rather than force. Progress slowly to full locust extending the length of the spine, particularly focus on pressing the heart centre forward and up to engage the lower trapezius, only lift the chest as high as the legs. Keep the hips stable on the floor, keep lengthening the L back, there should be no discomfort.
 9. Reverse sequence, 5, 4, 3, 2, 1 repeating lunge (runners stretch) and Warriors 1<>2 on the other side. Repeat both sides depending on energy and time available.
 10. Finish with legs up wall (blanket under hips, knees bent as needed), aim to feel release in back and legs. Practice Yoni mudra here or in Savasana or both, *'listen to what you need.'*
- Other practices remain the same see pg 7. **Wave breath** and **Savasana with Yoni mudra**. I suggest John give at least 20mins to this, not necessarily all at once. I asked him what kind of relaxation he likes? Chanting /mantra? *'I really like Tibetan singing bowls, I heard some on the radio I really liked, so I wrote down the details.'* He is going to use the CD, with or without Yoni mudra, either letting go, (open Savasana), or receiving, (closer legs in Savasana with Yoni mudra). I would like John to feel confident about responding to his sensitivity, intuitively choosing what he needs to do, (Kosha 4, Vigyanamaya Kosha). *'When I'm relaxing I think I have got stuck at the point of thoughts and feelings and got distracted.'* I advise him to welcome all sensations and watch them as movements of energy, passing through your awareness, rather than fight them.

'Water if you don't stir it, will become clear,

The mind left unaltered, will find its own natural peace.'

'Chu Ma Nyok Na Dang, Sem Ma Cho Na de' Tibetan Dzogchen Buddhist teaching from Sogyal Rinpoche.

- Integration same as before (pg 7),
- I have suggested that John practice the sacroiliac stabilising and lunge before and after sitting for long periods, walking or cycling.
- Practice ankle, knee and hip movements from JFS at his desk when ever he can.

e – Results of your recommendations 1.08.07

'Its been going well I've been doing it maybe 5 times a week, not finding it a chore. I often practice first thing in the morning.' My lower back has been largely OK, but today very slight twinges in my L lower back; I think I only noticed because I've become more aware, sensitized. I've been sitting at my desk most of the week and it hasn't been uncomfortable (knee), there was a time when it was uncomfortable even sitting in chairs at home, but that hasn't occurred. There has been significant improvement; the occurrences of discomfort have largely gone.'

I intended to retest ROM and muscle test, but because of a slight twinge, I decided to check that he was doing postures correctly. I didn't think I would get a fair ROM or muscle test after the practice, as I had taken exam at the beginning before.

'I'm really enjoying the exploratory knee movement; just get a sense of how the ball fits into the socket, how the body joins up and what's happening in the knee'. Vata> Pitta> Kapha = pleasure.

JFS no 16, John practices knees together, (Navasana preparation, to strengthen abs and hip flexors) and from crossed leg. *'I really like the feeling of opening my heart centre'. Kapha strength and heart opening.*

Warrior 1> 2 (sun salutation sequence, no4), we made adjustments, his alignment had become too narrow (hips) and it was better for him to have the back heel down.

The **Locust**, I palpate to help John isolate primary movers. Weakness in his upper back causes him to compensate in his lumbar spine. I guide him to keep his hips on the ground, pressing the pubic bone into the mat, tuck the toes under, squeezing the heels away and lifting, it's a smaller more controlled movement and John is able to extend the spine and really engage the legs. John needs to check he is rolling shoulders back and then down, feeling the lower trapezius engage behind the heart. *'This feels better, I can feel how the upper and lower back work together'.*

When I ask him how pranayama and relaxation is going: *'Much better, I find I have been there much longer than I thought! I practice 'letting go and receiving '(Yoni mudra and open savasana. It focuses my mind, I love listening to classical music to relax as well. '*

John's description shows how he is now moving through the koshas, no longer getting stuck at the mental 3rd Kosha level. He finds he is now able to focus his mind, and loses sense of time/space > bliss (4th -5th Koshas).

Though still shy about expressing emotion, he is clearly beginning to enjoy exploring his sensitivity increasing pleasure to all his activities. A more sensuous and deep response to life emerging. This is wonderful!

Recommendations 1.08.07

Continue the practice, see pg 10 >11, with refinement of postures we worked on, see above.

e – Results of your recommendations 15.09.07

'I've had an active summer (Pitta). My knee hasn't been troubling me, or my back!. Now I'll be returning to office life, sitting more, so this will be the test. I want to continue the practice to keep the benefits, I'm pain free and feel more comfortable in myself. I haven't done much of the breathing, but have kept up a regular asana and relaxation, 70-90mins five days a week. I miss it on the days we're away.'

John is obviously dedicated and enthusiastic about his practice. Avoidance of the breath practices might indicate deep emotional issues (possibly related to fear or grief) that he is not yet ready to address. Hopefully as he continues to balance vata, he will feel secure enough to explore deeper emotional issues.

'I've noticed much more what's happening in my body. Like right now there is a slight discomfort in my R sacrum, I would not call it pain it's too subtle.' Previously John had strong intermittent pain in his left, lower back. I'm hoping to refine his practice on the basis of the exam, to continue to increase stability and comfort in his lower back. Keeping Vata balanced will always be an issue, and a part of Johns eventual maintenance practice.

'When cycling it feels like my foot is rolling out (inversion); this refers to my R sacrum.' I reinforce the importance of the ankle, knee, hip JFS movements. *'You've said that all along!'*(We laugh.) *'Now I've developed more general awareness, I feel connections through the whole body'*. This describes integration through the five koshas see pg 14.

Body Reading

General posture greatly improved. Standing looks more balanced, weight more even in his feet, although previous tendencies are still visible (see pg 2). Generally John looks more grounded; he is standing taller, looking much more comfortable and confident in his body. Sacroiliac now moves up on both sides. Re – exam ROM (See pg 3 for comparison) and muscle testing.

After 2nd Reading 15.9.07

Tight muscles	Weak muscles	Muscles to release
Ankle Plantar flexion: Tibialis anterior	Ankle Plantar flexion: Gastrocnemius, soleus, (L4, R4)	
Dorsi flexion: Gastrocnemius, soleus	Dorsi flexion: Tibialis anterior	
Ankle Inversion: peroneus longus/brevis	Ankle Inversion: Tibialis anterior and posterior	
*Ankle Eversion: Tibialis anterior and posterior	*Ankle Eversion: peroneus longus/brevis (L 3.5, R3.5).	Tibialis anterior, posterior(high arch)
Knee flexion: Quads	Knee flexion: Hamstrings and gastrocnemius (L3, R3) Cramped in testing first time	quads
Hip Flexion: Gluteus Maximus and hamstrings	Hip flexion: abs (lower), Iliopsoas (L4, R3), Sartorius (L4, R3), rectus femoris (L3, R3), tensor fascia lata, adductors (L4, R4)	Hamstrings Gluteus Maximus
Hip External rotation: gluteus medius anterior fibers, tensor fascia lata, gluteus minimus.	Hip external rotation: Iliopsoas,(L4, R3) Sartorius (L4,R3) , gluteus medius posterior fibers,(L3, R4) 6 deep ext rotators(L 4,R4)	R internal rotators

Summary of Muscle Test

Ankle: Continue to strengthen ankle movements: Dorsi flexion, Eversion and Inversion, release plantar flexors. John's Dorsi flexion has improved dramatically: 1st reading L -15. R -10. 2nd reading. L10. R 15. His hypermobility in Plantar flexion has dropped (opposing muscles strengthened). 1st reading L 70. R 65. 2nd Reading L 60 R 60. *'I'm really feeling it in my calves'*.

Knee: We still need to develop strength in the hamstrings / gastrocnemius (extensors), particularly R. Flexion (quadriceps) is now strengthened to normal ROM. 1st reading L 140. R 145. 2nd Reading L 150. R 150.

Hip: Flexion improved and L/R balanced, but hip flexors still need more strengthening, particularly R Iliopsoas and Sartorius, which still tested weak.

Supine External rotation: still weak on the R and internal rotation hypermobile on R, still need to strengthen External rotators on Right, as shown above. Weak R Iliopsoas and Sartorius. If there is insufficient response we may need to release internal rotators on R (gluteus medius, tensor fascia lata, gluteus minimus).

Gluteus Maximus: L needs strengthening. R Gluteus Maximus, may need releasing if R Iliopsoas does not respond to strengthening, (increasing external rotation, and hip flexion).

If Right Sartorius does not respond to strengthening we will release the TFL (Abdominal twist, SYT asana pg 251, check alignment of spine and use support, bolster or blocks as needed).

All other muscle tests related to hips and lower back now tested stronger and balanced L/R.

Hip/Lower back: Continue to strengthen Quadratus Lumborum.

'I really feel the difference, it feels like Yoga is deferring the falling to pieces with time'.

Recommendations 15.09.07

Because John is now back at work, I shortened and simplified the practice, targeting key areas (see p13):

- JFS remains at the core of the practice. Include the freeform ankle knee hip movements (see pp 8-9). Continue tiger variations 7, (adduction, external rotation, abduction). Continue Navasana (boat) preparation, as well as no16.
- Sacroiliac stabilising asana (Mukunda's handout).
- Include supine Iliopsoas, Sartorius strengthener. Ex > knee and hip flexion, Ex> externally rotate hip, keep flexing knee, EX >straighten leg 30% abduction, externally rotated and foot lifted approx 40cm from the floor. Ex> legs together on the floor. 6-12 times building stamina slowly. Gradually increase the hold between each movement. Focus on feeling strength and stability on the Right.
- **Vamp**, contracting the Quadratus Lumborum, elevate alternate hips, causing lateral flexion of lumbar spine.
- Strengthen/Release hip flexors, Stand on books, lift 1 leg (at a time) hold for a couple of breaths (to strengthen) then allow the leg to swing loosely and release hip flexors particularly iliopsoas.
- **Locust**, knees bent pressing feet up to the ceiling and knees extended.
- **Wind screen wipers** Release (internal external rotators) or **Groin stretch**: Start in cat with feet together gradually walking hands further away, eventually coming onto forearms, move the pelvis and spine with the

breath, relaxing into a release when you feel you have gone far enough. (see *Structural Yoga Therapy*, by Mukunda Stiles, pg 164 for more detailed description).

- **Apanasana**
- **Wave breath / Visualising awareness**, moving from the eyebrow centre down alternate sides of the body. First alternate arms > then alternate legs > then down each side of body to feet. > Feel the whole body breathing.
- **Tibetan Singing Bowls relaxation/ yoni mudra**

Integration

John has been a total inspiration to me. His persistence, good humour and dedication are an example: he is enjoying the process with almost childlike enthusiasm. *'I've noticed I'm really resistant to change, when you made changes to the practice, it took me a week or so to get into the new one. Would you be trying to work on the flexibility of my mind as well as my body?'*

I'm not pressing the diary, it's not going to happen. He still doesn't seem completely comfortable with wave breath and yoni mudra, but is happy to continue. *'Some things just take me longer'*. I suggest visualising awareness moving down alternate sides of the body. This encourages integration of left and right while engaging the mind.

Prompted by his observation about change I have suggested Mukunda's, **Russian hot/cold shower treatment**, caution progress slowly. Don't make the temperature contrast too extreme to begin with and build up the time gradually. We talked about the benefits of detox, and autumn being a good time. I have given John Mukunda's website details so he can read about it for himself. Both excellent practices for moving stagnant Kapha.

- Integration same as before (pg 7).
- I teach John a simple **walking meditation**: rotating through the senses, smell, taste, sight, touch and sound as you walk slowly and mindfully. Keep repeating the sequence in quick succession, moving from one sense to the next as soon as you are aware of it. This balances the chakras and potentially allows one to move through the five koshas (see pg 14-17).

e – Results of your recommendations 6.10.07

'I practice at 7am, five days a week. I love the practice and miss it when I'm away'. 'It's a nice way of starting the day'.

I ask him how his back and knee have felt? *'Well I was driving the car yesterday, for a few hours. I felt a slight discomfort around the L sacrum area, but not pain'*. On the scale of 1-10? *'I wouldn't even give it a 1. I had a week when my right ankle felt odd - got in a twist – 'When I ask John to point with one finger where it had felt odd, he indicated the Peroneus Longus / Brevis area, he was not able to define it to one point. 'I was then aware it referred to a slight sensation of discomfort in my R sacrum. Last week it all felt fine'.*

I ask John, 'How has your knee bursa been. *'I'd forgotten about it. Actually I did sit in a tight aeroplane seat for 3 hours, without any discomfort in the knee or back'. 'I've done things like tennis or squash, putting it under pressure, but with no repercussions. I'm very pleased'*. I urge him to be sensitive to discomfort, wear good trainers, and play on softer surfaces when possible. *'The shower hot/cold treatment is very invigorating, although some mornings I'm very resistant.'* We talk about Pitta force, and Kapha resistance transmuted into ease and comfort. Patanjali's Sutra 11.47. I suggest an affirmation.

I refine his asana work particularly, sacroiliac stabilizing, psoas / sartorius strengthener, vomp and locust.

Recommendations 6.10.07

Same as 15.09.07 (see pg 14, + 1 additional release when he has more time.)

- Psoas/hip flexor release and tone. Stand on a couple of telephone directories/blocks, use a chair or mantle piece for support. Lift the straight leg and allow the leg to swing back passively, repeat for 30 seconds.
- Affirmation: 'I let go of force' (unbalanced Pitta); 'I let go of resistance' (unbalanced Kapha) = sattva.

e – Results of your recommendations 6.10.07

See 3rd column of ROM and Muscle testing results pgs 3-5. The discomfort John mentions in his R sacrum began in September. The rolling out of his right foot when cycling (to avoid his trousers catching in the chain) is related, it abducts and externally rotates hip. I advise trouser clips. The sartorius are very unbalanced, (the left is very weak) so I will recommend a practice for this. As mentioned at the beginning of this case study, vata balancing is a continuous process and continuing adjustments John's practice will reflect this need. He continues to feel the benefit and is able to do sit, hike, and work for long periods without pain. The discomfort it seems will take persistent effort and practice, to release the underlying physical /emotional/mental causes. But for the purposes of the case study this was the last evaluation.

Recommendations 6.3.2008

Continue with previous practices, substituting supine iliopsoas, sartorius strengthener, and psoas release. Instead include: Standing balance- knee flexion and hands on hips to focus attention of sensation in thighs and hips. IN > hip flexion. EX > Hip extension. IN > Hip flexion. EX hip abduction/external rotation, (Tree pose/ Vrksasana), hold for progressively longer. Notice any difference between sides, only hold as long as the weaker side is stable and comfortable. Hold both sides for the same count. Do not use hand to place foot on thigh, use strength in sartorius to support the leg, avoiding any pressure on knee. Counter pose with gentle adduction twist.

2a – Name and description of the condition

Intermittent Lower Back Pain

Colds and back pain are the two main causes of absenteeism from work. As many as 60-80% of people are affected by back pain at some point in their lives.

Lower back pain can be experienced as generalised discomfort (of varying degrees) in the lower back area/ pelvis, or in one or more precise points. The exact cause can be difficult to identify as there are many possible causes and/or contributory factors. These can include structural degeneration, injury or deformation of the spine, vertebrae, discs (between the vertebrae), ligaments or muscles supporting the spine. There may be pain caused by virus or impingement of the spinal cords or nerves by the surrounding structures, which can result in referred pain: impingement of the sciatic nerve causes pain to radiate down one or both buttocks and/or legs, and possible tingling as far down as the feet. Pay particular attention to any incontinence/ urinary dysfunction or decreased sensitivity in the urinary genital organs: this may require urgent medical intervention to avoid permanent damage to these functions. Disorders of the internal organs of the pelvis and abdomen (e.g., IBS) can also cause lower back pain.

Acute back pain can be caused by sudden or vigorous movement, e.g. sports injury. Habitual lifestyle and postural imbalances can also result in sudden back pain while sitting, standing or lifting incorrectly.

Most lower back pain is not found to have a specific cause. Sufferers are generally encouraged by medical practitioners to exercise more, lose weight (if needed) and reduce stress. Evidence suggests that stress is a key factor: *'Statistics suggest very strongly that the cause of most back pain is emotional, for the years between thirty and sixty are the ages that fall into what I would call the years of responsibility This is the period in one's life when one is under the most strain to succeed, to provide and excel'*. (Dr John Sarno, 'Healing Back Pain', pg 5).

Taking into account John's history, the interviews, postural reading, and physical exam (Rom and Muscle testing), it seemed most likely that habitual physical and psychological patterns had caused tension, imbalances and weakness leading to intermittent pain.

b – Gross and subtle body common symptoms

Most lower back pain - the result of stress and repressed emotional responses - is exhibited in habitual muscle contractions which cause imbalance and weakness in opposing muscles. It will be caused by one, or a combination, of these imbalances in the spine and legs:

- Flexors v extensors of spine and legs. (inc iliopsoas and sartorius)
- internal rotators v external rotators
- adductors v abductors
- Imbalance L > R Quadratus Lumborum

Psoas - A weak psoas can cause a flattened back, a tight psoas, lordosis. Imbalance may twist the pelvis and /or make 1 leg seem longer. Tension in the psoas can cause nausea as well as deep pain. The psoas is a main hip flexor, and stabilises the lower back. It is also an external rotator. *'As part of the group of flexor muscles, the psoas contracts when ever the fear reflex fires'*. Pg 38, *The Psoas Book*, by Liz Koch. Habitual responses may need to be explored to allow the psoas to relax, only then will it be able to develop its potential strength.

Sacral/lumber spinalis: Weak they can cause flat back, tight they can cause lordosis. Imbalanced or overworked they may spasm, and pull single vertebrae out of alignment or cause longer lateral curvature, scoliosis.

Abdominals: Weak abs causes instability in the lower back and pelvis, this can result in excess lumbar curve. Tense abs can weaken the back muscles (spinalis) flattening the back. Imbalance L> R can contribute to scoliosis.

Quadratus Lumborum: Imbalances can contribute to scoliosis (particularly a lumbar curve).

Gluteus Maximus: tightness can contribute to a flat back, weakness excessive lumbar curve.

Piriformis: when tight will restrict the mobility of the joint (internal rotation). This is sometimes accompanied by entrapment of the sciatic nerve (sciatica). N.B. Pigeon Pose, although often recommended to release the Piriformis, does in fact contract it, aggravating the problem. Instead Gomukhasana, Garudasana internal rotation + adduction will release pressure.

Hamstrings: Tight hamstrings can tilt the pelvis creating a flat back.

Adductors: Tight adductors will tilt the pelvis (pubic bone down) increasing lumbar curve.

Lower back pain can vary from mild discomfort to complete incapacity. It is often intermittent (vata) triggered by chronic stress patterns (pitta). This can become a vicious circle as pain creates more stress. Protective reflexes may become habitual, spiralling into increased muscle imbalance and more pain/stress.

Physically, the spine is our support: emotionally, it describes how supported we feel. In *You can Heal Your Life*, Louise Hay says lower back problems relate to *'fear of money and lack of financial support'*. Astrologically these

fears are related to the energy of the planet Pluto which governs, power, control, and issues of birth and death, positively expressed transformative healing energy is accessed as one surrenders to divine will.

'Abdomen and lower back. Tension here relates to an attempt to control personal power. Stiffness here relates to a lack of Self trust or lack of knowledge of purpose'. Stretching without Pain, W Paul Blakey. He also says that the related areas of the lower abdomen, hips and buttocks are 'the areas of sexual energy and letting go through the process of urination and defecation. The war here is for release, discharge. The fear is of letting go'.

'Knee war zone, is associated with being able to stand firmly, but with resilience'.

'Ankle Zones are associated with being able to sense the ground. Difficulties in either of these areas relates to hip dysfunctions associated with letting go. The inability to feel grounded is not letting gravity go through the body'.

Chakra Energy

Energetically the feet, legs, hips and pelvis, (areas related to lower back pain), correspond to the 1st and 2nd chakras.

The 1st Muladhara Chakra, or root chakra, describes our connection to the earth, our ability to find stability and security from which to express the potentials of the other higher chakras. It describes our physical health and vitality, and our ability to get our survival needs met. It is the source of our most primal instincts and describes our earliest formative years. Our ability to tap into this energy determines our ability to trust, we can then relinquish control without fear, surrendering to the sublime energy of Shakti, as it manifests in the field of awareness.

Imbalance in this chakra may describe a profound deep rooted insecurity, a lack of trust in the processes of life. Life may be felt as threatening and/or a fight for survival.

The 2nd chakra, Swadhisthana, is the energy of creation, sexuality and change. When the first chakra provides a strong foundation, the second chakra has the stability for creative self expression. One can develop respectful, balanced relationships. Secure and happy in your sexual identity you are able to enjoy the pleasures of sexual union in a balanced and natural way. The rhythms of life and change are embraced and appreciated, through appreciation of nature, art and/or the conception/incubation of children. The second chakra is the water element, governing bodily fluids and the period of pregnancy. Primal emotional instincts are stored here.

Imbalance in this chakra may make it hard to fully enjoy relationships and the simple pleasures of life. Control prevents spontaneity, and freedom of creative, sexual or artistic expression. Imbalances in these first two chakras often manifest in deep fear, insecurity and a lack of trust, exhibited in a need for control - specifically, in elimination, sexual and financial affairs.

When the energies of these first two chakras are balanced and integrated in the 3rd – the Manipura chakra - feelings and desires are acknowledged and purified for expression through the higher chakras.

Pancha Maya Koshas

Yogic view perceives us as composed of five illusionary sheaths. These sheaths are all Prana (pure consciousness, life force), but variation in the frequency of vibration makes the quality and attributes appear different. Lower frequencies appear grosser and more solid, higher frequencies appear subtle. As all healing is Prana, increasing and balancing prana is priority. When prana is balanced, consciousness (5 koshas) becomes harmonised (sattvic).

Annamaya Kosha

Annamaya Kosha, 'body sheath made of food which is an illusion', is the lowest frequency of the koshas: it describes our perception of the physical body. It is sustained by fresh, live, natural seasonal foods, whose quality determines our vitality and health.

Annamaya Kosha Recommendations

- Asana, including the JFS. Asana supports the function of the joints by stimulating the production and distribution of synovial fluid in the joints. Opposing muscle strength and flexibility is balanced, and bone density is increased by the force exerted by the muscles on the bone. Asana promote health and balance in all the physical structures, improving digestion, circulation, respiration, elimination, and reproduction. Asana also promotes health of the lymphatic system, nervous system, and endocrine system.
- John loves to cook and share good food with friends and family. He participates in an organic box scheme.
- Increase sattvic foods, ghee, almonds, dates and figs, to be assimilated and transformed into ojas.
- Suggestion of trying the anti-arthritis diet, from Mukunda's web site. It balances Pitta, reducing inflammation, and is detoxifying for Kapha.
- Increase water consumption, warm if possible. Helps process of detoxification and balances vata to keep one sattvic. Avoid caffeine, it disturbs vata and over stimulates Pitta.
- Walking, swimming, and cycling.
- Hot and cold shower treatment.

Pranamaya Kosha

Pranamaya Kosha, 'body sheath made of prana, which is an illusion', has been described as a series of energetic channels, which flow to and from spinning energy vortexes or 'chakras'. These chakras are like two-way electrical transformers, which regulate the frequency of vibration. The subtle body conducts our sensual and emotional experiences, providing sensory input and output for the five gross senses and subtler senses of the mind. Prana is also divided into five prana Vayus (wind/air), which correspond to different physical/ emotional/mental functions, but remain integrated and unified as Prana, the spiritual force permeating all creation.

Beautiful sense impressions and uplifting emotions, converted into prana, keep the chakra open and spinning. When asleep, uninterested or disgusted, chakra activity slows or stops. Pranamaya Kosha, through its relationship with the breath, is particularly significant in yoga: the breath is regulated unconsciously by the autonomic nervous system, but also can be affected consciously by the central nervous system, allowing it to mediate between body and mind.

Pranamaya Kosha Recommendations

- JFS to balance Vata and increase Prana. JFS encourages heightened awareness and sensitivity: all movements are coordinated with the breath, increasing the absorption of prana. The freestyle exploratory movements increase awareness and thus prana, as well as most of the other asana, when performed with breath awareness and mindfulness.
- Wave breath: all pranayama by definition should increase prana. Increased awareness of breath will help increase sensitivity to energy movement/distribution in the body.
- Savasana: allows for the assimilation and absorption of prana, as one rests in awareness.
- Yoni mudra: increases prana, through the balancing of vata, bringing it home to the pelvis.
- John's love of literature, art, music, nature and fine food is encouraged.
- Swimming freestyle, turning the head to alternate sides with awareness focussed on the breath, is a form of Nadi Shodhana pranayama.
- Walking meditation.

- A practice diary would balance vata and increase prana, through awareness leading to revelation/truth.

Vijnanamaya Kosha

Vijnanamaya Kosha, 'the body sheath of wisdom, which is an illusion', is made of selfless, transcendental thoughts. As prana increases awareness and sensitivity, one realises subtler aspects to one's being and no longer perceives oneself as a gross separate body. This brings detachment from self-interest and increases empathy and compassion for all things. 'Wisdom is the beginning of contact with transcendence'. This body is sustained and accessed by spiritual practices (contemplation and meditation), spiritual literature, good company and selfless service to others.

Vijnanamaya Kosha Recommendations

- Spiritual literature and teachings. Patanjali's sutra's (11.47). 'Chu Ma Nyok Na dang, Sem Cho Na de'. *'Water, if you don't stir it, will become clear; the mind left unaltered will find its own natural peace'*. Tibetan Dzogchen teaching
- Tibetan Singing bowls sung mantra.
- Yoni mudra and pranayama can lead to meditation.
- Walking meditation.
- Generating appreciation in all our undertakings, and applying ourselves with love for the benefit of others.

There may be increased saliva, juiciness; that accompanies an increase in ojas, blissful nectar.

Anandamaya Kosha

Anandamaya Kosha is the fifth body: 'the body sheath of bliss, which is also an illusion.'

'Hidden in the heart of every creature

Exists the Self, subtler than the subtlest,

Greater than the greatest. They go beyond

Sorrow who extinguish their self-will

And behold the glory of the Self

Through the grace of the Lord of Love.' Katha Upanishad 2.20 Eknath Easwaran

This body is intrinsic happiness, leading to the realisation of the Self. This body absorbs the benefits of the energy of the previous four bodies, and also sustains them through its close proximity to the Self /source. Healing is determined by our ability to remain connected to the Truth, through sustained awareness beyond the constructs of the mind. When undistracted and totally present (in meditation) we can experience the bliss of the hidden Self.

Anandamaya Kosha Practices

- All of the previous practices can lead us to the undistracted state.
- Single-pointed attentiveness. Awareness of stillness within movement, movement within stillness, so one is constantly remaining.

c – Related challenges

Lifestyle, diet, limitations on activities: John is an academic, and spends most of his working day at a desk; prolonged sitting is the main trigger for his pain. Work was stressful in the past, but he enjoys it now and chooses to work beyond retirement age. (He admits he carries stress in his shoulders.)

John enjoys hill and mountain walking, but because of pain he has had to do much less and is missing long hikes. *'I would love to be able to go walking in India again, and re-visit some of the monasteries in the mountains'. 'If I continue to be free of pain, we hope to go next year. I won't go without my yoga practices though!'*

He enjoys the theatre, and occasional city breaks, but sitting through a show or in a car caused pain. (This seems to have been mostly resolved, as of Jan 2008. With a continued maintenance practice I hope he will enjoy these pleasures for a long time.)

General challenges: People suffering acute lower back pain may become unable to work, sit, walk or enjoy many pleasures of an active life. A fear of pain may impede progress, as they are tense when they move. They may also be too anxious of re-injuring themselves to do the exercises that would help their condition.

3 – Ayurvedic assessment and Ayurvedic-based yoga recommendations

The conditions seem to be a Vata/Pitta/Kapha development. Awareness and observation (balanced Vata), should lead to clarity and discernment (balanced pitta), allowing one to take appropriate action that will bring comfort and pleasure (balanced Kapha). As the doshas balance one experiences greater awareness of interrelatedness (increased balanced Prana).

'Promoting an identification of oneself as living within the infinite breath of life', from Patanjali yoga sutra 2.47, Mukunda Stiles.

- The intermittent quality of the symptoms, moving from hip to knee and knee to hip, describe vata imbalance. The hips and pelvis are the *'home of Vata'*, making them inherently unstable. Imbalanced Vata corresponds to the emotional quality of fear, anxiety, and confusion.
- The occasional inflammation of the knee is caused by unchecked friction and stress (lack of discernment causing inflammation is Pitta). Imbalanced Pitta corresponds to anger, criticism, causing stress and tension.
- The longstanding nature of the complaint, throbbing, excess fluid (bursa), as well as bone growth below the knee, stiffness and limited ROM, are Kapha. Imbalanced Kapha corresponds to stagnation, attachment, greed.

One can approach the principles of Ayurvedic balancing in a variety of ways.

- The most common method is to decrease the qualities that are elevated, through a balanced sadhana (regular committed practice).
- The second method is to decrease an elevated dosha, by increasing its opposite quality in another dosha.
- The third method is to approach Yoga asana in a way which balances the dosha, learning to express its most positive qualities.

Vata balancing practices

Vata balancing practices emphasise bringing awareness to the moment, which increases sensitivity to subtle energy flows. With sustained attention (meditation) these energy flows balance, bringing a sense of calm and spaciousness. This increased prana (healing energy) is felt as vitality and ease of movement, a profound feeling of health, (sattva).

Vata Asana: gentle movements coordinated with the breath; help regulate prana, releasing blocked energy from the chakras located at the joints.

All pranayama should balance vata, but Wave breath, Ujjaye and Kapalabhati are most effective.

John's vata practices:

- Joint Freeing Sequence, sacroiliac stabilizing asana.
- General emphasis on breath and awareness in all poses
- Releasing postures e.g. wind screen wipers, iliopsoas release.
- Wave breath
- Yoni Mudra, brings vata home, stabilising the pelvic area while promoting healing and deep relaxation
- Practice diary, never happened. Pitta avoids practices that they did not initiate.
- Walking meditation

Pitta Practices

Pitta practices need to focus on the development of discernment. Are your desires beneficial to the good of all? Vata must be balanced: awareness of how things are now, to determine the most beneficial course of action (righteous duty). Discernment is needed to judge the correct effort, and endurance to apply to the task. Pitta likes to be stimulated, but they need to find balance, creating warmth and enthusiasm, rather than overheated frustration and anger. Mildly stimulating practices to create warmth, and gentle sweating, rather than overheated inflammation.

Asana: Moderately dynamic sequences, creating warmth. They should feel a comfortable stretch rather than 'burn'.

Pranayama: Nadi Shodhana, Bastrika

John's Pitta practices:

- Variation on the sun salutation, keeping heat moderate, with gentle stretching.
- Variation on Nadi sodhana, awareness of alternate sides of body moving with the breath. Also alternate breathing when swimming front crawl (freestyle).
- Cycling.
- Affirmation: 'I let go of force.'

Kapha Practices

The approach will depend on whether the imbalance is due to rajas (hyperactivity) or tamas (lethargy). Grasping can be transmuted into the sensation of strength. Rajasic Kapha, needed to hold the postures, developing steadiness and patience, (letting go of force). Tamasic students need to exert themselves a little more, holding postures to develop a sensation of warmth and opening of the heart (letting go of resistance).

Both need to practice in a way which allows them to experience ojas, developing the positive Kapha qualities of joy, courage, hopefulness, humility and love. This is realised as pure love, everything is felt as a glorious expression of the unified field of awareness.

John's Kapha practices:

- Focus on the sensation of strength and opening of the heart, as he holds some of the postures. Warrior 1 + 2, Utkatasana, Urdho Mukha Svanasana. Locust, Kali Rae cat bow: all poses that strengthen the middle trapezius behind the heart, allowing chest opening.
- Affirmation: 'I let go of resistance'
- Walking (especially in nature) and walking meditation.
- Swimming

- Patanjali's sutra 11.46 (uplifting reading to elevate the mind and heart) also Dzogchen quote.
- Classical music and Tibetan chanting
- Hot <> cold shower treatment.

'To re-establish sattvic state, all practices need to follow the Classical Yoga guide lines (Patanjali) and seek the tried and proven path to harmony.' Mukunda Stiles, *Ayurvedic Yoga Therapy Manual, 2006*

4 – Common body reading

Male: Height: 6' 4', Weight: 85kg Age: 59yrs.

Weight forward, knees bent, flat back, rounded back/hunched shoulders, bent elbows. L shoulder high, increased space between R waist and arm. Head tilt to the right, right hand lower. Sacroiliac test, no movement on left, right moved slightly up. He showed scoliosis, a functional Left Thoraco C curve, the full length of his thoracic spine from L1 –T3 (3-5) then increasing gradually up to 8 at T12.

5 – Contraindicated yoga practices

Any pain is a sign of contra indication/ or the need for modification/alternative. Pain in the sacrum or inner/outer knee should not be ignored.

Lower back: Care should be taken in all forward and back bends. Lessen possibility of strain by bending the knees in all forward bends. Use blocks under shins in cat to encourage lumbar curve.

Extend the spine in all backbends, equalizing the extension through the length of the spine, especially the mid-back and shoulders.

Align and extend the spine in twists, avoid any tension in the sacrum, paying attention to balancing the hips.

Utkatasana: If any discomfort is felt in the lower back use the wall to support flat back (do not hold too long).

Kali Rae, shoulder strengthener cat bow - with hands at shoulder height on the wall, fingers touching: start with straight arms pressing into the wall, keep hips over feet as you slowly bend elbows and extend spine.

Elevate any seated /kneeling postures (blocks/blankets), e.g. Sacroiliac Stabilising Sequence. If there is discomfort use chair or stand.

Practice Pranayama and relaxation lying down: place a bolster or rolled blanket under knees, or rest legs on a chair. Roll one end of blanket for neck support and fold the other to support head. Keep warm.

Knee bursitis: Avoid excessive stretching, and sensations of friction, which will cause Pitta to rise, and inflammation to occur.

Avoid holding weight bearing poses e.g. Utkatasana (chair bridge pose) for too long or moving dynamically for more than 2 repetitions, it is likely to aggravate knee bursitis.

Warrior 1, Use wide gait, and keep back heel lifted if any sensations are felt in knee.

Avoid any intense knee flexion e.g. Virasana use a rolled up blanket for ankle support as needed. During extension, soften knees, e.g. Paschimottasana, use a blanket under the knees. Avoid Full Squat.

Remaining on all fours (Cat) for long periods – e.g. practice sacroiliac asana / locust between kneeling poses . Use padding or support under the shins, so that there is no pressure on the knees. If there is still any discomfort stand for cat, tiger, abduction/adduction poses.

Shoulder and upper back tightness: During shoulder flexion widen arms for comfort. If this stresses shoulders or L back, adduct shoulders and flex elbows at shoulder height to open chest.

Ayurvedic contraindications: If there is weakness in the muscles or hyperextension (vata imbalance), avoid strong stretching, but focus on strengthening and practicing dynamically with breath awareness.

If there is inflammation or sharp pain (Pitta imbalance), heating and strong stretching practices should be avoided.

If the joint is unstable, the pain moves or is intermittent, offer a slow mindful practice coordinating breath with gentle movement. The student should avoid autopilot/spacing out during their practice.

Kapha stiffness, growths or swelling (without inflammation) need a pragmatic approach. Introduce more dynamism if the energy is lethargic and stagnant, holding postures to feel quality strength and opening of the heart. Or lesson effort and encourage more heart opening if there is rajasic force present.

6 – General recommendations for the condition

a – Therapeutic/free of pain

Those suffering from lower back pain should avoid standing or sitting for long periods.

Use a safe lifting technique, bending the knees and keeping the spine straight. Use the abdominals and strength of the legs to lift the weight, slowly straightening the legs, while avoiding any twisting as you move to upright.

Sleep on a supportive mattress. A cushion between the legs can stabilise the sacrum and keep the femurs neutral.

Investing in an ergonomic car seat or office chair can relive discomfort, especially if you are sitting for long periods.

Notice if you are carrying heavy bags/computers asymmetrically, and invest in a back pack with well padded straps.

Reduce weight if a pot belly may be contributing to back strain.

Regular exercise has been proven to prevent and help back pain. Weakness and loss of flexibility in the muscles that support the natural curves of the spine can increase the possibility of strain, injury and displacement of the vertebrae.

In general, lower back pain is relieved by increased abdominal strength and strong, balanced hip and leg muscles. See pg 13. In some trials, students maintaining a regular personalized yoga practice showed long-term relief.

Become aware of the causes of stress and, where possible, eliminate them. Introduce stress management techniques, to change the way one responds to stressful situations. Use stress relief practices to regain balance.

Recommended practices From *Structural Yoga Therapy*, Mukunda Stiles

- **Practice JFS**, It is ideal to aim at normal ROM movements, which create the least stress on joints.
- **Apanasana** hold long enough to release back pain. 10 to 30 mins can release back spasms.
- **Urdhva Prasarita Padasana** Upward stretched legs encourage one to distribute the effort evenly throughout the back, avoiding strain to any one area.
- **Virabhadrasana1** tones the hip extensors and adductor muscles of the hip.

- **Virabhadrasana 2** tones the deep hip rotators and abductors, while stretching the adductors. These asana practiced dynamically, moving from Warrior 1 <> Warrior 2, help tone opposing muscles increasing strength and flexibility in the hips and legs.
- **Navasana** encourages strength in the upper thighs, hip flexors and abdominal muscles. Helping to stabilise the lower back.
- **Locust** spread the effort evenly along the length of the spine, avoiding any strain in the lumbar region.
- **Pelvic tilt and Thrust** develops abdominals, lower back, pelvic floor muscles and iliopsoas muscles.
- **Rolling Bridge** Focus strength to the buttocks (gluteus maximus) and hamstrings. The middle and lower trapezius are toned; as the scapula are drawn towards the spine at back of the heart. The hip flexors and chest are stretched. Dynamic movements help isolate the movements of the independent vertebrae, and tone the abdominals and erector spinae.
- **Runner's stretch:** practice dynamically to alternate stretch and tone into the hamstrings and quadriceps. Focusing on the hamstrings relieves muscles of the lower back, and allows their antagonists the gluteus maximus to develop. The stretch to the adductors helps hip flexibility. The stretch to the quadriceps can extend to the upper groin, releasing the iliopsoas and other hip flexors, and pressure on the lumbar spine.
- **Groin stretch from wide knee cat progressing lower.** This cat variation increases mobility of the hip joints, whilst providing a deep groin stretch. This can help sitting posture.

Sacroiliac stabilizing postures Sit on the floor with the feet to the right. The right foot points back the left sole against the right knee. If you feel very unbalanced, uncomfortable, or discomfort in either knee, then elevate the pelvis by sitting on blocks/cushions. 1. The first movement is to tilt the pelvis back and forth from the iliac crest, contracting the abdomen and rounding the lower back on the exhalation. Then inhaling, arch the lumbar spine contracting the erector spinae and iliopsoas. 12 x reps or until you feel a release, and the movement becoming smooth. 2. The second movement is to roll the right thigh into internal (inhale), then external hip rotation (exhale). During internal hip rotation the pelvis will lift from the floor, during external rotation the sitting bone will make contact with the floor again. 12 x reps. Repeat both sequences legs towards the left. When complete stand and walk on the spot for 6-10 steps, to help promote stability.

Judith Lasater's book, *Rest and Renew*, recommends for relieving back pain:

- **Supported Child's Pose:** Keep knees wide, and build up support under the chest and abdomen. Breathe deeply feeling the support.
- **Supported Half Dog pose:** Lie on your front on a stable table, use blankets for padding for support. This will relieve the muscles of the spine and release tightness in the lower back.
- **Relaxation pose with legs on chair:** Place lower legs on a padded chair. Lie on the ground (use support for lumbar or neck as needed), place eye bag over eyes for increased relaxation. Place a sand bag on the belly and breathe into back. This helps release the abdominal organs as well as the muscles of the lower back.

b – Stabilise situation including lifestyle recommendations

- Keep weight within recommended levels.
- Reduce stress.
- Awareness of posture and use ergonomic seating, mattress etc.
- Wear loose comfortable clothing that does not restrict the breathing.
- Learn relaxation and visualization techniques.

- Exercise to balance related muscle groups, and increase endorphins (natural pain killers). See recommendations pg 27-28.
- Avoid standing or sitting for long periods.

John Sarno (*Healing Back Pain*, pg 77) suggests:

- Acquire knowledge and insight into the nature of the condition
- Act on that knowledge, changing the brain's behavior.

c – Maintenance and long-term considerations

Become more aware of the physical and emotional triggers for back pain. Act on this knowledge, maintaining the physical practices that help, and change the response to thoughts and emotions which initiate unconscious stress patterns. Cultivate detachment and a welcoming observation of all our thoughts, feelings, and perceptions, without the need to identify with them. This will allow the natural and free flow of energy as healing, rather than suppressed subconscious reactions that manifest as blockages and physical pain. See Patanjali's sutras 2.3 – 2.11.

Develop a balanced sadhana; that facilitates spiritual growth, (see Patanjali's sutras). Address the needs of all 5 koshas so our awareness moves from the stress of identification with thoughts and perceptions, to a more sublime relationship with the Divine life force everywhere. Sat Cit Ananda, (being, consciousness, bliss), these are not qualities, however, for the Absolute is unqualified (nirguna) and impartite (akala).

'There are five primal causes of suffering,
Ignorance of your true Self and the value of spirituality;
Egoism and its self centeredness;
Attachment to pleasure;
Aversion to pain;
And clinging to life out of fear of death' Patanjali 11.3, as interpreted by Mukunda Stiles

'Their variations are reduced or overcome through meditation.' Patanjali 11.11, as interpreted by Mukunda Stiles

7 – Questions and answers from www.yogaforums.com

Prone: L /R balanced and normal ROM? Mukunda what does this mean, why the difference from supine to prone?
Mukunda's reply: Weak on R external rotation from supine means sartorius; prone is testing gluteal external rotators. Internal rotation supine hypermobile is TFL prone is more likely to be adductors that are also rotators.

I have read many very helpful Q and A from the yoga Therapy Forums - thank you everyone. To save space I am not going to include them individually, but suggest you go to the web site, and read them for yourselves!

8 – References and websites

Blakey, Paul: *The Muscle Book*, Himalayan Institute Press, Bibliotek books Ltd 1992
 Blakey, Paul: *Stretching Without Pain*, Himalayan Institute Press, Bibliotek books Ltd 1994
 Coulter, David H: *Anatomy of Hatha Yoga*, Body and Breath Inc., 2001
 Frawley, David: *Yoga and Ayurveda*, Lotus Press, 1999
 Hay, Louise: *Heal your Body*, CA: Hay House, 1984
 Lasater, Judith: *Rest and Renew*, Berkeley, Ca: Rodmell Press, 1995.
 Saro, John: *Healing Back Pain*, the Mind Body, Connection Warner books 1991
 Saro, John: *Mind Over Back Pain*, New York: Time Warner Books 1998
 Stiles Mukunda: *Structural Yoga Therapy*, Red Wheel/Weiser 2000
 Stiles Mukunda: *Structural Yoga Therapy Physical Exam Manual (Third Edition)*, Mukunda Stiles, May 2005
 Stiles Mukunda: *Ayurvedic Yoga Therapy Manual*, Mukunda Stiles 2006

Stiles Mukunda: *Ayurvedic Yoga Natural Pranayama*, Mukunda Stiles June 2007
Stiles Mukunda: *The Yoga Sutras of Patanjali*, as interpreted by Mukunda Stiles Red Wheel/Weiser 2000
Structural Yoga Therapy, teacher training class notes Nov 2006 –Sept 2007

9 – Appendix

10 – Biography

I have been fascinated by the laws of nature and spiritual growth since a child. An early interest in comparative religious studies, philosophy and meditation, developed into an interest in the Vedic arts. I attended my first yoga class 22yrs ago. After experiencing the healing potential of yoga, while recovering from pneumonia, I decided to become a yoga teacher.

British Wheel of Yoga Foundation April 2003 with Tara Fraser
British Wheel of Yoga Diploma May 2005 with Monica Burton co/05.1130. BWY no: 07/ELO/13611/T
Level 3 Member of Exercise Professionals No: R0031726
Meditation Module May 2006 with Maarten Vermaase :No: 06/MED/68
Integrating Pregnant Women into a General Class with Uma Dinsmore-Tuli
Introduction to Post Natal Yoga with Uma Dinsmore-Tuli
Anatomy for Yoga, basic principles of Yin and Yang yoga with Paul Grilley. 2006 (Yoga Academy short course certificate)
'Early Years Yoga Teacher Training Module' (The Life Centre) March 2007.
Yoga Therapy Foundation in Jan 2007 (Biomedical trust) May 2007
Structural yoga therapy Intensive with Mukunda Stiles Sept 2007. Diploma certified when this is on the web.
Presently studying for 'The Biomedical Trust Yoga Therapy Diploma'
British Red Cross - Emergency Life Support Qualification 168413. Updated 30/9/2006 Emergency First Aid (suitable for an Appointed person) certificate.