

Repetitive Strain Injury (RSI)

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Introduction:

I started out with a paper on effects of JFS (Joint Freeing Series, from Mukunda Stiles' Structural Yoga Therapy Book) and Yoga on various body types. During the course of working with the volunteers I concluded that their aches and pains were due to their work habits and life styles more than their body shapes, which put me on the path of RSI (Repetitive Strain Injury) paper.

Since the study started on a different path, the volunteers were given the full JFS series, SI Joint exercise (See appendix) and simple wave breath exercise. Each participant was asked to perform the given routine for a period of at least eight weeks, four or five times per week. In addition they were asked to do six repetitions of the JFS for the first two weeks, then increasing the repetitions to twelve.

Full ROM (Range of Motion) and Muscle assessment tests were performed for each participant at the beginning of the study to determine tight or weak muscles. In addition each participant was given seven asanas to perform at the end of the study as part of their assessments.

The people used in this study all had desk jobs and used computers extensively for their work so the emphasis of this paper is on Computer professionals and their RSI conditions.

Each participant was evaluated at the completion of the study to determine any improvements in their physical body or their quality of life, such as reduced stress, etc. All participants who followed this regiment showed improved strength and flexibility at the end of the body type studies.

Only a limited set of participants agreed to continue on for the RSI study and were given some additional recommendations. All remaining participants were given three asanas to add to their practice (Parsvottanasana, Salabhasana, Seated Garudasana).

1 - Case Study 1 (Kristin):

A - Initial Intake:

Jane is a 44-year-old Interior Flooring Designer. Her job requires constant computer and telephone work in a very stressful environment. She has occasional pain in her wrists (especially right wrist) and tailbone from sitting too long and computer use. According to her the pain is "dull and mild".

Her exercise routine is sporadic, sometimes yoga once or twice a week, walking once a week. She was in a car accident twenty years ago. She describes her diet as healthy, no fast food, balanced diet with vegetables, fruits, etc.

Her main complaint is her stressful job and repetitive motion (computer use and repeated movement of measuring floors, etc.)

She said, "I cannot sit still most of the time." She mentioned that even when she wants to relax in the pool she has to do some exercises to keep her busy. She also has a very busy

life style and does not seem to be good at stress management and relaxation. She says that she feels her upper body is weak. She is in the process of moving to a new house and she has started traveling for her job. Her goal is stress management and pain relief.

B - Physical Assessments:

Body Readings:

She stands with her toes pointing out a bit and her right shoulder lower than her left. Both her SI joints did not move.

Range of Motion

Body Part	Initial Exam Right	Initial Exam Left	Final Exam Right	Final Exam Left
Hip Flexion – Bent Knee (Supine)	115	105	125	120
Knee Flexion (Prone)	130	125	135	135
Shoulder Extension (Prone)	35	40	55	55

Muscle Tests

Body Part	Initial Exam Right	Initial Exam Left	Final Exam Right	Final Exam Left
Hip Adductors – Side Lying	2	2	3	3.5
Hip Abductors Side Lying	3	3	3	3
Hip – Sartorius (Supine)	2.5	2.5	3	3
Knee Flexion (Prone)	3	4	2.5	4
Hip – External Rotators (Prone)	2.5	2.5	3	3.5
Hip Internal Rotators (Prone)	2.5	2.5	2.5	2
Neck Extension (Prone)	2		3	
Neck Flexion (Supine)	2		3.5	
Neck Rotation (Supine)	2	2	3.5	3.5
Neck Lateral Flexion	2.5	2.5	3.5	3.5
Wrist Flexors	2.5	2.5	3.5	3.5
Wrist Extensors	2.5	2.5	3.5	3.5
Wrist Ulnar Dev	2.5	2.5	3.5	3.5
Wrist Radial Dev	2.5	2.5	3.5	3.5
Elbow Flexion	2.5	2.5	3.5	3.5
Elbow Extension	2.5	2.5	3.5	3.5

Shoulder – Mid Trap (Prone)	2	2.5	3	3
Shoulder – Extensors (Prone)	2	2	3	3
Shoulder Adductors (Prone)	2.5	2.5	2.5	3.5
Shoulder Adductors – Supine	2.5	2.5	2.5	2.5
Shoulder External Rotators (Supine)	2.5	2.5	2.5	2.5
Shoulder Internal Rotators (Supine)	2.5	2.5	2.5	2.5
Shoulder – Flexors (Supine)	2.5	2.5	2.5	2.5
Shoulder – Lat isolation (Supine)	3	2.5	3.5	3.5

C - Summary of Findings:

She seems to have especially weak hip adductors and neck muscles. Her hip flexors are tight, especially the left, in addition to her quads. Her upper body especially her internal/external shoulder rotators in addition to adductors and abductors are weak.

Muscles to Strengthen:

Hip Adductors

Hip Internal/External Rotators (Gluteus Maximus /Gluteus Medius & TFL/Psoas)

Neck & Shoulders: Upper/middle trapezius, SCM

Internal & external shoulder rotators (Latissimus, Deltoids, Teres major/minor)

Shoulder flexors/extensors

Muscles to Stretch:

Psoas, Quadriceps, Pectorals.

D - Recommendations:

We met and talked several times during the study period. Since she followed the initial recommendations of the full JFS and wave breath exercises, her strength and flexibility improved in most areas. She did not follow the SI joint exercise. She also said the breathing exercises helped with her stress quite a bit. She also started getting regular massages that seem to help her stress level. She seems to like forward bends and twists.

However at the end of the study her wrists had gotten worst. According to her, the pain level in her wrists went from a dull annoying pain that occurred every once in a while to a constant ache so much that she stopped doing the JFS for her wrists because they were

too painful. She thinks this may be not only be due to her computer use but she also performs other repetitive motion such as measuring rooms on a daily basis.

I gave her several other recommendations such as rest and relaxation, good posture during computer use, taking regular breaks at work, good computer techniques such as using keyboard short cuts instead of the mouse, and pointed her to Deborah Quilters web site (rsihelp.com) for further information.

I also gave her three asanas to practice, Salabhasana(Locust), Parsvottanasana (single leg forward bend) and seated Eagle with arms moving up and down with the breath.

E- Results of Recommendations:

She mentioned that the breathing exercises have helped her in stress management and she uses the wave breath on a regular basis. Her strength improved over the period of study, especially in her wrists and neck. She did not follow through after the initial study with the JFS or the three asanas.

1- Case Study 2 (Michon):

A- Initial Take

Michon is a 26-year-old engineer. She has scoliosis, measured 10 degrees on X-rays. She also mentioned her L4 and L5 herniated discs. She was unable to stand up from a seated position. She had physical therapy and started doing Yoga and Pilates, which have helped her back.

She complains about back pain in her left low back and left latissimus area, pain is deep and constant with some sharp tingles sometimes closer to her spine. She gets deep tissue massage once a month.

Standing forward bends sometimes makes her back “go out”. She does not like twists.

She claims that she has tight TFL. Pigeon pose and another TFL stretch that she showed seem to help not only with the tightness but also seem to relieve her back pain.

She dislocated her elbows when she was very young and her right rotator cuff used to feel like it was grinding and still does at times.

Her ankles, especially her left ankle sometimes give out in some asanas, for example in Warrior I on the left, she has to point her left foot to the right or her left ankle rolls and gives out.

She plays tennis once a week and tries to do Yoga twice a week. She has mostly a vegetarian diet, lots of salads, pasta, and no fast food. Her goal is to increase strength, pain management and maintain good health.

B - Physical Assessments:

Body Readings:

She stands with her toes pointing out a bit and her right shoulder lower than her left. Her SI joints do not move.

Range of Motion

Body Part	Initial Exam Right	Initial Exam Left	Final Exam Right	Final Exam Left
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Ankle – Dorsiflexion	25	35	25	35
Ankle – Plantar Flexion	70	75	70	75
Hip Flexion – Straight knee	90	80	90	90
Hip External Rotation	65	75	65	75
Shoulder Extension	70	70	70	70
Shoulder – Horizontal Adduction	145	145	145	145
Shoulder Abduction = Supine	35	45	40	40

Muscle Tests

Body Part	Initial Exam Right	Initial Exam Left	Final Exam Right	Final Exam Left
Hip Flexion (RF, P, etc., Supine)	3	2.5	3.5	3
Psoas –Isolation Supine	3	2.5	3.5	3
Hip Sartorius Isolation (Supine)	3	2.5	3	2.5
Hip Adductors – (Side Lying)	2.5	2.5	3	2.5
Knee Flexion – Prone	3	3.5	3.5	3
Hip – Glut Max Isolation (Prone)	1	1	2.5	2.5
Hip Internal Rotators Glut Min/TFL – Prone	2	1	2.5	2
Lower Erector Spinae (Prone)	2.5		2.5	
Shoulder External Rotators – Supine	2.5	3.5	3.5	3.5
Shoulder Internal Rotation – Supine	3	2	3.5	3
Shoulder Flexors – Supine	2.5	2.5	2.5	2.5
Shoulder Lats Isolation	2.5	3	3.5	3

C - Summary of Findings:

She seems to have especially weak adductors, internal/external hip rotators in addition to her right shoulder rotator cuff muscles. Her Hamstrings seem to be tight on left side. She is very flexible and she is beyond ROM (hyper mobility) in some areas, which points to her several weak muscles listed below.

Muscles to Strengthen:

Hip Adductors

Hip Internal/External/flexors Rotators (Gluteus Maximus /Gluteus Medius/Psoas)

Hip/Knee: Sartorius

Back: Erector Spinae, Rectus Abdominus.

Neck & Shoulders: Upper/middle trapezius, right rotator cuff

Muscles to Stretch:

Psoas, Hamstrings.

D - Recommendations:

We met and talked several times during the study period. She followed the initial recommendations of the full JFS but not the SI exercise or the wave breath.

She likes backbends, but does not like most forward bends. She also avoids twists as they create a sensation of nails on a chalk board in T10-T12 areas in her back, twisting to the left is even worse due to her Scoliosis curve on the right.

I gave her several other recommendations such as rest and relaxation, good posture during computer use, taking regular breaks at work, good computer techniques, and pointed her to Deborah Quilters web site (rsihelp.com) for further study.

I also gave her three asanas to practice, Salabhasana(Locust), Parsvottanasana (single leg forward bend) and seated Eagle with arms moving up and down with the breath. I also gave her Bikram's half moon pose (Ardha Chandrasana Pada Hastasana).

E- Results of Recommendations:

Her strength improved in most areas. She liked the JFS series, however she wanted more challenging exercises in some areas. She felt that some of the JFS series have helped her gain strength. She specifically mentioned the exercise number 5 of JFS, the internal and external hip rotation.

Her wrists health has improved since she changed her job, which changed her pattern of computer use. She also started using short cuts in her computer work in addition to taking regular breaks at work.

She also started practicing the four asanas given at the end. She especially liked Bikram's half moon pose and the seated Eagle. She felt that seated eagle helped the tightness in her upper back/shoulder/neck areas and half moon felt great on her lower back.

1 - Case Study 3 (Greg):

A - Initial Take:

Greg is a 30-year-old Computer engineer. Due to his work he has had lots of hip pain from sitting too long. His back was so painful that he now has to stand at work. If he sits for long periods the pain comes back. He also has dull wrist pains due to repetitive computer work. He had AC separation in his right shoulder due to getting hit by a car while he was riding his bicycle. His right shoulder was immobile for two months. He did not do any therapy for it, just rest and lack of use helped it heal. He started doing Yoga about a year ago, which has helped him. He also does some weight training.

Arm extensions, Cow face hurt his shoulders, Triangle pose and Twists cause strange contracting feeling in his lower ribs so they are not pleasant to do.

His goal is pain management, especially since his computer work promotes pain, and he likes to improve his flexibility and overall health.

B - Physical Assessments:

Body Readings:

His right shoulder is lower than his left. His SI joints do not move.

Range of Motion

Body Part	Initial Exam Right	Initial Exam Left	Final Exam Right	Final Exam Left
Hip Flexion – Bent Knee (Supine)	110	110	130	122
Hip Flexion – Straight Knee (Supine)	80	80	90	87
Hip Adduction (Supine)	20	25	30	30
Hip Internal Rotation (Prone)	25	30	30	40
Shoulder Internal Rotation (Supine)	35	35	55	45
Shoulder Horizontal Abduction	15	25	18	25
Wrist Extension	60	70	72	70

Muscle Tests

Body Part	Initial Exam	Initial Exam	Final Exam	Final Exam
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	Right	Left	Right	Left
Hip Internal Rotators Glut Min/TFL – (Prone)	2	3	3.5	3.5
Shoulder Lats Isolation	3	3.5	4	4
Shoulder Internal Rotators (Lat, Teres M, etc.)	3	3	4	4

C - Summary of Findings:

Overall he is very strong, however he seems to have weak internal hip rotators, and weakness in his right rotator cuff muscles due to injury.

Muscles to Strengthen:

Hip Internal Rotators (Gluteus Medius/TFL, Psoas)

Shoulders: Right rotator cuff

Muscles to Stretch:

Psoas, Pectorals, Hamstrings.

Hip extensors, shoulder external rotators, shoulder adductors

D - Recommendations

We met and talked several times during the study period. He followed the initial recommendations of the full JFS but not the SI exercise or the wave breath. His range of motion improved in many areas. However he did not perform the SI joints exercises and no improvements were seen there, SI joint is still immobile. He did not perform the wave-breath breathing exercises given to him during the time of the study.

Forward bending asanas are challenging for him due to tight hamstrings, he does not usually feel the stretch in his lower back. Also twisting to the right side seems to aggravate his right shoulder and it's difficult for him to twist without compressing his lower back.

I gave him several other recommendations such as rest and relaxation, good posture during computer use, taking regular breaks at work, good computer techniques, and pointed her to Deborah Quilters web site (rsihelp.com) for further study.

I also gave him three asanas to practice, Salabhasana(Locust), Parsvottanasana (single leg forward bend) and seated Eagle with arms moving up and down with the breath.

E- Results of Recommendations:

He felt that the JFS was beneficial. He started at six, then went to 12, feels that he still likes to do more. He used to get cramps in his ankles and the JFS seemed to have helped in that area as well. He also feels that the wrist and neck exercises have helped him,

especially since he uses a computer for his work. He asked for specific exercises for his right shoulder. His flexibility improved.

He started practicing the three asanas. He thought that the asanas helped his lower back strength and his shoulders felt better. They also made him realize that he is very tight in his chest so now he stretches his chest lying on a ball.

2 – A Name and Description of the Condition

Repetitive Strain Injury (RSI) is a collective term that refers to many separate ailments affecting the nerve, muscles, tendons and connective tissues of the hand, wrists, arms, elbows, neck and shoulders. RSI is a chronic condition. Healing usually requires modification of the repetitive behavior, plenty of rest due to inflammatory nature of the conditions, and in some cases total change of careers and life styles. Since the injuries occur over time, recovery is usually very slow.

Examples of RSI conditions are Carpal Tunnel Syndrome, Tennis Elbow, Tendonitis, Bursitis, Trigger Finger, Cubital Tunnel Syndrome, Epicondylitis, DeQuervain's Disease, Rotator Cuff Tendonitis, Cervical Radiculopathy, Thoracic Outlet Syndrome, Raynaud's Disease, etc.

The symptoms of RSI include numbness or stiffness, tingling, tremor, clumsiness and pain. The pain can be burning, jolting, sore, constant aching, and mild to excruciating. Back pain, digestive problems, and eyestrains usually accompany the RSI conditions. Symptoms and pain can occur during the activity or anytime and can be transient.

RSI affects a variety of professions including computer professionals, dentists, musicians, athletes, carpenters, check out clerks, or any profession that requires repetitive use of their hands. With some professions such as computer professionals, their problems are exasperated with back pains due to long periods of sitting at a desk.

The RSI Epidemic: According to the U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), repetitive strain injuries (RSI) are the nation's most common and costly occupational health problem, affecting hundreds of thousands of American workers, and costing more than \$20 billion a year in workers compensation. Musculoskeletal disorders, including carpal tunnel syndrome, are among the most prevalent medical conditions in the U.S., affecting 7% of the population (eight million people each year). In the United States, these disorders affect one out of every four people (American Academy of Orthopedic Surgeons, 2000). However RSI is not limited to the USA, but all industrial or developing nations where computer use is on the rise. Please see references for further info.

While women account for about 45% of all workers, they experience nearly 2/3's of all work-related RSI. Women are more prone to RSI problems due to their musculature built.

Surgery for carpal tunnel syndrome is the second most common type of musculoskeletal surgery, (back surgery is #1) with well over 230,000 procedures performed annually. Carpal tunnel surgery has about a 57% failure rate following patients from 1-day to 6-

years. At least one of the following symptoms re-occurred during this time: Pain, Numbness, Tingling sensations. Source: Nancollas, et al, 1995. J. Hand Surgery.

Another study produced by the Washington School of Public Health and Community Medicine showed that relief from pain was complete or modest in 86% of the patients. Of the patients studied, only 67% were able to return to their old jobs whereas, 15% had to change jobs and the remainder did not return to work.

B - Gross and Subtle Body Symptoms:

Poor Posture:

Performing movement with good posture is critical to proper functioning of the muscles, joints, nerves, tendons, and connective tissue.

It is estimated that most office workers spent an average of 5-6 hours a day sitting. However most computer professionals use the computer for even longer periods (8-10 hours per day), taking few breaks in between. Sitting at a desk very often produces bad posture, which compresses the organs in the chest cavity and belly area, the heart and lungs become compressed and the digestive system & blood circulation slows down, etc.

In addition bad posture during sitting will produce tightness & shortness in the hip flexors, which promotes back pain. Strain on the arms, shoulders and neck muscles from computer use can also lead to rounded shoulders and forward necks, creating tightness and weakness in the related muscles. The tight and weak muscles can lead to nerve and tissue damage. Bad posture contributes heavily to RSI problems.

For example tight and shortened Pectorals muscles can bind the nerves in the brachial plexus, which can lead to numbness, pain and weakness in the arms. The weak trapezius muscles that hold the shoulder blades in place create rounded shoulders and can contribute to the problem. Therefore common body readings show most computer professionals have rounded shoulders due to tight pectorals, levator scapula, serratus anterior, and weak trapezius and latissimus dorsi, tight pectorals, and weak thoracic erector spinae.

The use of computers requires extensive use of hands and arms. An average arm can weight about twenty pounds, just holding the arms in position for computer use is exhausting to the arm, shoulder and neck muscles, especially since in most cases the head is held forward. Typing itself is exhausting to the muscles, for example if you type 40 words a minute, you press 12,000 keys per hour or 96,000 keys per 8-hour day. Approximately 8 ounces of force is necessary to depress one key. Your fingers will exercise almost 16 tons of force.

Ergonomics and Proper Technique:

Another major contributor to RSI is using proper technique in an ergonomic working environment. Most computer professionals work in a non-ergonomic environment with extensive use of the mouse and non-ergonomic keyboards that promote improper placement and use of hands, etc.

Improper technique is another contributing factor to RSI problems.. For example the use of mouse promotes extra strain on the dominant hand, especially since most users grasp the mouse too tightly exerting unnecessary force. The thumb and/or index finger of the dominant hand take do most of the work. Using keyboard short cuts instead of the mouse spreads the work to both hands and fingers and avoids some of the repetitive motions of using a mouse.

Proper technique should include use of hands in neutral position during typing, avoiding dorsiflexion and ulnar deviations. The fingers should be curved and not stretched during typing. The arms should be floating over the keyboard, and moved to position the fingers over the keys, using both hands as much as possible to spread the workload, exerting only appropriate amount of force.

C – Related Challenges:

In addition to the dealing with the physical pain of the RSI conditions, most patient have emotional challenges such as dealing with anger, depression, guilt, loss, sleepless nights, and, fear and anxiety. For example losing the use of the hands contributes not only to feelings of powerlessness but fear of financial ruin due to loss of career can be devastating. Some have to change their life styles including their daily activities of driving, preparing meals, doing home chores in order to live and stay pain free.

For most RSI sufferers a change in career is a challenge that they may eventually have to face. For example a study produced by the Washington School of Public Health and Community Medicine showed that relief from RSI, only 67% were able to return to their old jobs after several treatments, surgeries, etc. whereas, 15% had to change jobs and the remainder did not return to work.

3 - Ayurvedic Assessment:

RSI is a pitta condition, therefore pitta imbalance is usually observed in people with RSI problems, these include anger, hostility, depression, anxiety, guilt, inflammation of digestive tract, and excess acidity in the body. This condition can especially be acute in people with pitta doshas who have the most innate drive and energy and have a difficult time resting and relaxing,

Pitta balancing techniques and proper Ayurvedic diet may help the RSI conditions. Breathing exercises, relaxation and decreasing repetitive activities, attention to leisure, and decreasing stress, and exposure to natural beauty can immensely help these conditions.

A cooling anti-inflammatory diet that includes omega-3 fatty acids(salmon, tuna, etc.), fresh fruit, vegetables, beans and whole grains should be followed. Avoid excess oils, fried foods, caffeine, alcohol, salt, hot spices and red meat in the diet.

4 - Common Body Reading:

As mentioned earlier in the Posture section, most RSI sufferers have poor posture including forward heads (due to weak neck muscles such as SCM), uneven shoulders,

rounded shoulders due to tight pectorals, serratus anterior, and weak middle and lower trapezius and latissimus dorsi. In addition computer professionals sit a lot at their desks promoting tight hip flexors such as Psoas.

5 - Contra-Indicated Yoga Practices:

A gentle yoga practice is optimum. Some RSI sufferers who also have a pitta dosha and like to follow a more aggressive practice such as Ashtanga can worsen their conditions. They may need to modify some asanas in order not to aggravate the RSI conditions. This could be Sun Salutations without the Chataranga Push ups, or Up dogs, etc.

Any asana that puts pressure on the wrists, arms and shoulders may be contra-indicated. This includes Down Dog, Chataranga Push-ups, Handstand, Urdhva Dhanurasana, etc. However this can vary based on the stage of the RSI. For example some RSI patients have no problems with Down Dog, as others are unable to perform cat/cow, or Sunbird. Include references where you got this info.

According to Deborah Quilter any hand and arm intensive activity such as tennis, bowling, and volleyball, power lifting should be avoided. Do not use over the counter wrist exercisers or braces unless prescribed by a competent physician familiar with RSI.

6 - General Recommendations for RSI:

A - Therapeutic/Free of Pain

Relaxation and Stress Relief: Since RSI is a Pitta condition, relaxation is critical to healing. Breathing techniques such as the Wave Breath, especially done throughout the day can be very helpful in decreasing Pitta. Taking a relaxing walk in the park, getting a massage, getting plenty of sleep, etc.

Gentle oil massages, especially the hands, wrists, and arms can be soothing and help with stiffness and increase blood flow and prana to the painful areas to help in healing. This can be done at home or via regular massage sessions with a massage therapist.

Avoiding repetitive Activities: Its important to avoid any repetitive activity during working and non-working hours. For example some computer professionals play computer games after they go home in the evenings, therefore helping worsen their conditions.

JFS & Asanas: Use of JFS and gentle asanas that can strengthen the neck and shoulders should be the focus. In addition stretching hip flexors will improve posture and can relieve back pain from long periods of sitting. Savasana should always be practiced as well.

Other Therapies: Several other therapies are complementary and can help in pain relief for RSI sufferers, some of these include Acupuncture, Biofeedback, Osteopathy, Alexander Technique, Myofascial Release, Specialized Physical Therapy such as use of electrical stimulation, ultrasound, Massage Therapy, etc.

B – Stabilize Situation:

Good posture: As stated earlier bad posture is an important contributor to RSI problems. Sitting with good alignment with the spine erect, arms at ninety degrees to the keyboard and taking several breaks during the day is essential.

Ergonomic Work Area & Proper Technique: As stated earlier an ergonomically correct working environment and proper technique can help alleviate RSI problems. Its important to have a chair that promotes good posture with a desk at the proper height that can help proper hand and arm positions. Ergonomic keyboard can help position the hands properly to decrease the stress on the muscles. Please see Appendices for further info.

Regular Exercise and Diet: As with any healthy life style regular exercise and diet are important aspects. With RSI injuries it's even more important to have a diet that helps decrease Pitta and bring the body back to balance. A regular exercise routine should be followed that includes aerobic conditioning (brisk walking, swimming) in addition to focusing on strengthening the muscles that assist good posture (back muscles) and stabilize the shoulder joints (Erector Spinae, Rectus abdominus, trapezius, Rhomboids, Serratus Anterior) and stretching pectorals, scalenes, upper trapezius, and wrist flexors/extensors.

C - Maintenance

This is a chronic condition so it's important to continue a pitta balancing diet and a regular exercise program that includes a daily and gentle yoga practice.

The most important aspect of healing is stopping the repetitive motion that has caused the condition. For some RSI sufferers this means that they will eventually have to change careers or leave the work force due to their injuries. In addition most RSI sufferers have to change their daily routines to help stay pain free as flare-ups and set backs are common with RSI.

7 - Questions and Answers from www.yogaforums.com

Q - A friend of mine developed a tennis elbow and had surgery 15 years ago. Now the problem has developed again. Which yoga practice can I recommend her? Is there any connection between tennis elbow and kyphosis? Namaste

A - Khyphosis or hunch back may limit the range of motion of the shoulder, which in turn could cause limitations in tennis motions. But I doubt there is a correlation between the two in this case. Tennis elbow is more likely associated with a carrying angle (when the arms are presented straight palm facing forward the elbow angles off from the upper arm to lower arm). It is usually associated with weakness and/or inflammation of the pronator and supinator muscles of the forearm and elbow ligaments. namaste mukunda

Q - Can anyone tell me any asana to strengthen my shoulders? I have a bit of shoulder pain from swimming. Thank you.

A - Swimming tends to strengthen the front of the body, increasing internal rotation of the shoulder. Strengthening the muscles of external rotation and shoulder stabilization are likely candidates for you, although this cannot be confirmed by your brief comments. An in person structural analysis by a good yoga therapist would be helpful. Assuming that you do have increased internal rotation, I would recommend poses which open the anterior shoulder girdle, stretching the muscles of the chest, and poses which strengthen the thoracic (upper back muscles) providing stability for the shoulder blades and bringing them back and down. Bridge pose - both supported Bridge for a passive stretch and Active Bridge for stretching and strengthening. Cobra pose - especially done in a modified version, which focuses on upper back extension. Hope this is helpful. Namaste Chandra

Q - One of my students has painful tendonitis of the elbows- he says it originated from lifting very heavy weights- he remembers when it happens very clearly. He is afraid of stretching too much- and he and I would like to know if yoga can further damage his tendons. Is it okay for him to do a regular (Vinyasa) practice? Or should I send him to a therapist/ extra gentle yoga class.

A - Ashtanga practice is contraindicated for tendonitis as it commonly aggravates or can even cause such problems due to likelihood of creating repetitive **motion** syndrome in wrists, elbows, and/or shoulders. A gentle practice class will be good for temporary relief but overall he needs tissue and mind reeducation for how to use the arm efficiently. I find bodywork best to heal such injuries, as the tissue around elbow is too delicate for fine-tuning needed. Asana is in general too gross a therapy for that area. In general we can only give contraindicated practices like how to avoid elbow alignment and where to give weight bearing in those practices. I find Ashtanga is usually given too fast for the therapeutic details to be retained and thus protect from further injury. He can see me or Leslie Kaminoff at the Breathe Center in NYC for assistance; both of us can do Yoga Therapy with therapeutic bodywork.

Q - One of my regular students is coming for a private session, as I have not been teaching classes this fall during my own recovery from surgery. She is clearly pitta predominant --vivacious, fiery, piercing eyes and high energy/enthusiasm. Her build is medium/strong and she tends to be impatient with herself and with the more meditative aspects of her yoga practice. (For example, she has a reaction to practicing Surya Namaskar with the movement flowing with her breath.) Last year she injured her shoulder -- apparently a rotator cuff injury.

She was not happy to listen to her body during class and frequently went beyond her safe range of motion and into pain, despite encouragement to not do so. She has also been experimenting with Reiki healing and had some strong emotional reactions last spring after Reiki sessions. We did some meditation and discussion together after her experience, and she felt some relief from the anxiety/fear, which came up. Now she has developed a gastroenteritis (had 2 attacks, they have subsided), but continues to have heartburn. Also, rotator cuff is still injured. Both issues seem to be pitta inflammations.

She will come next week, and I suggested she do some "homework" to prepare. 1) Wave breath with focus on following the complete wave, allowing (not forcing/controlling)

exhalation to lengthen. This to be done first lying, then sitting, and if she feels up to it, 2) Joint Freeing Series with focus not on full ROM but rather on maintaining wave breath as given above. When she comes, I will see how she is doing and review breath -- making sure she is not Efforting OR straining but rather releasing and letting go. I will also do ROM analysis for shoulder joint -- lying down on back seems easier for me than when sitting up.

I will give her review of JFS and pranayama -- would also like to offer a soothing mind focus or more active releasing movement for her as the slow pace of the things could irritate her I have in mind. Gary Kraftsow's book suggests exhalations from kneeling with raised arms to child pose -- bringing arms behind the back rather than overhead on the ground -- while humming out or using a mantra on the exhalation is helpful for issues with digestion and/or anger/anxiety. I thought I would offer Apanasana done as a flow on breath (single legs w/reaching arms overhead as legs extend, single leg to belly with gentle compression on exhale and "Om" or "letting go...." Perhaps the movement, which Kraftsow recommends also. Both have gentle compression of belly to stimulate digestion, but main focus on exhale and release of tension. Both are also comforting movements of being curled up and fetal. My feeling is that what she needs now is to allow herself to quiet and experience her deeper self and meditation.

Do you have any comments on the above or additional recommendations? Sorry I am so wordy -- thanks for your response. Namaste

A - I can see that you are understanding Ayurvedic concepts as they apply to making Yoga recommendations. Great you have given an excellent series of homework for this lady. If you have not purchased David Frawley's Yoga and Ayurveda then that may assist you at have more material for this combination of studies. You can also inquire into diet and lifestyle more effectively with that information. I would also recommend she do an anti-pitta diet and regulate her stimulating substances and lifestyle to having more time in nature and getting to bed earlier. Massage with soothing oil like sesame would be soothing too. For the shoulder the recommendations you have cited are fine and show the principle of adapting to this individual. Allow her to stay in charge your advice is only suggestions that she could try. Pitta predominant people need control until they are ready to relinquish it. Blessings. Mukunda.

Q - Hi Tom, I have developed tennis elbow from playing a lot of tennis over the last two months. I also lift weights three times a week. What can I do to help the situation? Can I still do yoga and weights while I give the elbow a rest from tennis for a few weeks? Thanks for your help, Best wishes always.

A - That sounds like a good strategy. When playing tennis the unique motion of rotating the elbow as you hit the ball occurs. These muscles called pronator and supinator they form a reflex to the colon, which in turn is a major organ revealing how much stress you are holding. You can detect this just by rubbing the top and outer portions of muscles near the elbow. If they do not tolerate 10# of pressure, then consider getting a good massage, which in turn can provide the colon reflex with some relief. So often it is good to eat better -- more organic foods, less prepared foods or even consider some fall cleansing diets.

Q - I have a student, a 44-year-old beginner who has been taking one of my classes for about 8 weeks. Last class she had wrist and ankle pain to the degree that adho mukha svanasana (Down facing Dog pose) and Urdhva mukha svanasana (Upward Dog) were uncomfortable. We have gone from very mild exploration of Bhujangasana to Urdhva mukha svanasana in the last two weeks. She says the pain feels deeper than just muscles adjusting. She has also begun practicing at home with videotape recently and practices in a carpeted room. My question: what do you think is causing this pain? Does the carpet contribute? What may I do to help her?

A - For wrist pain I often find that simply adjusting the hands so that the fingers turn outward, 30 – 45 degrees will alleviate irritating the problem. As to why she is having both is a bit of a mystery. I have not seen this mixture before. Did you take her through the Joint Freeing Series? Check out her range of motion by comparing it to the images in my book. If not I would recommend doing only that for one week and seeing if the pain subsides. If it does she may consider it a stress reaction, as JFS is balancing for vata which is where we all hold our energetic stress before it becomes emotional.

Q - Will Structural Yoga Therapy relieve and/or heal a tendonitis condition in the elbows? Also, I am assuming that I all weight bearing poses such as downward dog, plank and chaturanga poses in the case of tendonitis should be avoided. Is this correct? Your advice would be much appreciated. Looking forward to our session on 12/5. Thank you.

A – Such a delicate condition as this I find can be worsened by yoga so we must clarify what to avoid. You have a good start on it. Some can be modified; some must be eliminated depending on your personal situation. Sometime Ayurvedic perspective helps in getting clearer on the deeper issues for this is not limited to elbow only. Over all I find tendonitis and other tendon injuries responds best to bodywork and I can do that for you (as I formerly owned a massage school and have lots of training) or recommend some techniques that can assist.

Q – I have many questions and hope this is the correct format in which to ask questions. If not please let me know where to ask questions. I will be happy to re-submit. I have, from the right broken foot episode: Plantar fasciitis, ankle tendonitis (the tarsel tunnel is about gone) in right foot; bursitis in left hip but both hips sort of lock up when standing up if I sit very long - even in a chair. I have some ulnar nerve damage in wrists and some thumb pain from using crutches. And my chondra-malasia in my knees is kicking in big time. I have continued my exercises you gave me from my first private with you plus JFS and sacral freeing work as well as all the stuff the pts have given me. I don't even have the time or the strength to go through an entire regular yoga session anymore. After being in physical therapy for 3 months, I opted for a cortazone shot in my left bursa, which has relieved most of the pain there, and my gate is less altered. I noticed in the questions a reference to stretching the IT band ... critical for chondra-malasia and the hip problems I am having. The only thing pt is giving me is leg "hang-overs." laying on my side with the top leg hanging over behind me and psoas stretches holding one knee while the other leg hangs off the edge of the table. I have done side stretches (bend to tight with left leg and

foot placed behind the right). Because I am generally pretty flexible - none of these really seem to "get into the IT band.

A - For stretches to the IT band there are several alternatives what was given for you is the mildest of the possibilities. Moderate stretch can be done by standing side bend pushing out on the side of the hip joint to stretch the IT; one often needs to slightly rotate the pelvis for it to catch where you are tight. Another alternate is revolving head to knee pose (Parivrtta Janu Sirsasana). For most people this stretches the lumbar sacral fascial band but in some cases the pull will extend down the outer pelvis to the IT. Both these are a try it and see. The most intense IT stretch I have found is to sit in eagle pose (Garudasana), legs only and lay backward while attempting to keep knees stacked and close to the floor. On some by leaning forward with the same leg pose it will move to the IT; though most feel it in the gluteus medius muscle. To my way of thinking stretching either is a good idea as the IT band attached to the gluteus medius, gluteus maximus and tensor fascia lata hence any stretch that affects any of these muscles will with relaxation to into the IT band.

8 – References and Web Sites:

Web Sites:

<http://www.rsihelp.com>

<http://www.yogatherapycenter.org>

<http://www.rsirescue.com/>

<http://www.rsi-relief.com/>

<http://ergocise.com/wrists.html>

<http://www.selfcare4rsi.com/index.html>

<http://www.academyofosteopathy.org/>

<http://www.alexandertechnique.com/>

<http://www.aapb.org>

<http://www.eatonhand.com/index.htm>

<http://www.eatonhand.com/hom/hom033.htm>

http://www.deepaksharan.com/cr_myofascial.html

<http://www.ayurvedhealthcare.com/>

<http://www.ayurvedacollege.com/index.htm>

<http://www.vedanet.com/>

<http://support.microsoft.com/kb/126449/>

<http://bubl.ac.uk/Link/o/occupationalhealthandsafety.htm>

<http://www.answers.com/topic/repetitive-strain-injury>

<http://office.microsoft.com/en-ca/assistance/HP030842231033.aspx>

<http://office.microsoft.com/en-ca/assistance/HP011116591033.aspx>

<http://office.microsoft.com/en-us/assistance/HP051866641033.aspx>

http://www.limmatsharks.com/files/shoulder_strengthening.pdf#search=%22shoulder%20strengthening%20exercises%22

Books:

Structural Yoga Therapy by Mukunda Stiles, ISBN 1-57863-177-7

The Repetitive Strain Injury Recovery Book by Deborah Quilter, ISBN 0-8027-7514-4

Repetitive Strain Injury: A Computer User's Guide, by Emil Pascarelli, M.D. and Deborah Quilter, ISBN 1-0471-59533-0

Perfect Health: Deepak Chopra, ISBN 0-609-80694-7

The Ayurveda Encyclopedia by Swami Sada Shiva Tirtha, ISBN 0-9658042-2-4

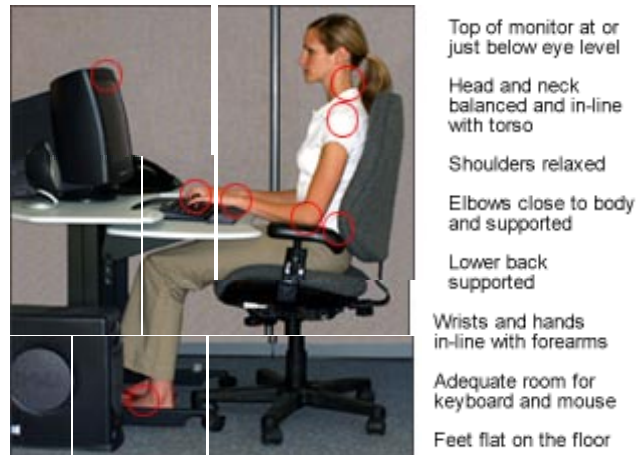
It's Not Carpal Tunnel Syndrome! RSI Theory & Therapy for Computer

Professionals by Suparna Damany and Jack Bellis, ISBN: 0965510999

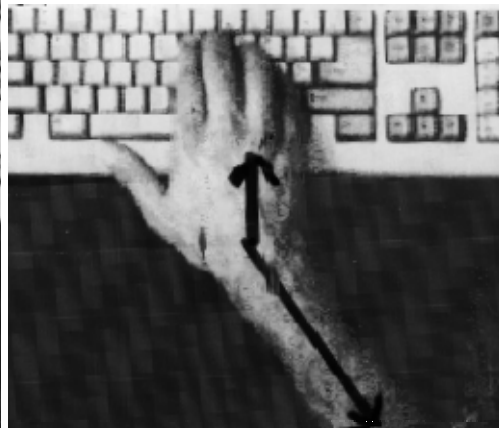
The Ayurvedic Cookbook by Amadea Morningstar, ISBN 0-914955-06-3

9 - Appendix A Ergonomics of Computer Use

In the picture shown below, ergonomic use of computers is demonstrated. The desk height should be adjusted so that your arms can be at a 90 degrees angle to the keyboard. The monitor should be just below eye level. The head and neck should be neutral. The wrists should float over the keyboard and not rest on them during typing. Use of mouse should be avoided as much as possible by using keyboard and program short cuts.



Correct hand position



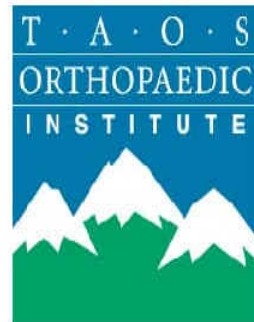
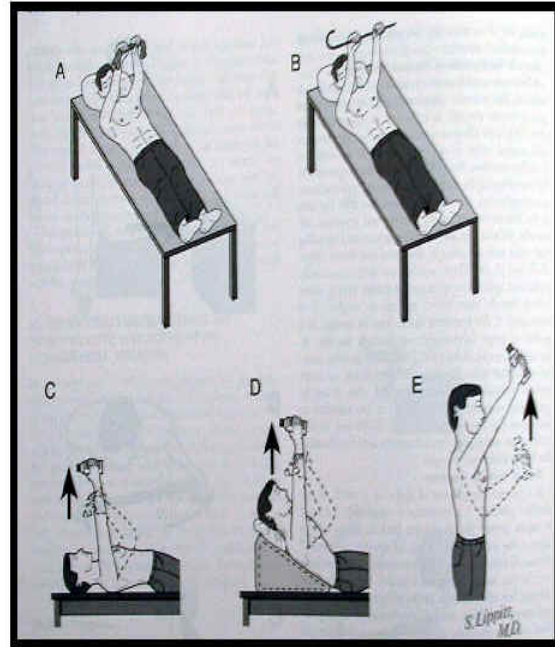
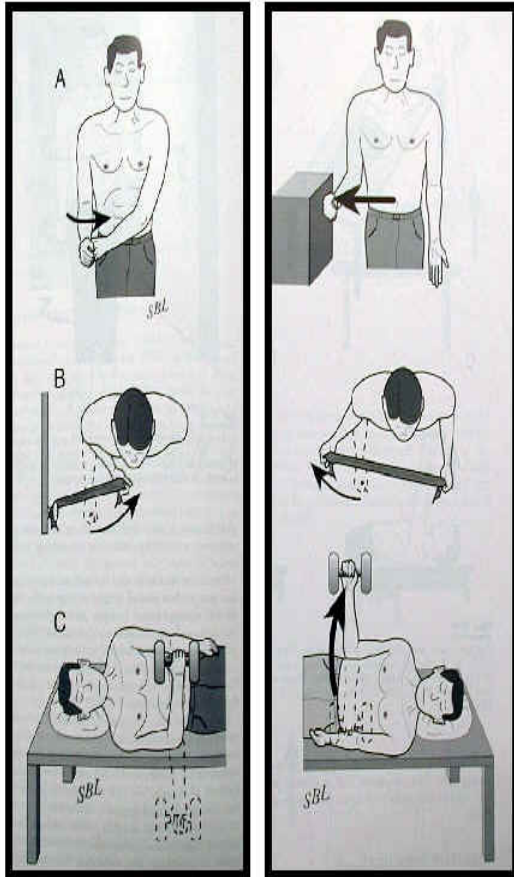
Incorrect hand position

Appendix B Sacroiliac Stabilizing Exercise:

Please contact Mukunda Stiles for details of this exercise.

Appendix C Shoulder Strengthening Exercises.

SHOULDER STRENGTH EXERCISES



Diagrams courtesy of *The Shoulder*-WB Saunders 1999

10 - Biography:

Armoun Forghan is a Computer Consultant and engineer who has been practicing several styles of Yoga including Bikram and Ashtanga since 1995. She completed her Yoga Teacher Training in Southwest Institute of Healing Arts (SWIHA) in Tempe, AZ and has been teaching since 2003. She is a dedicated student of Yoga.

I have been struggling with RSI myself for the last few months and thought it would be useful to include some of my experiences in this paper. When I started having constant pain in my wrists and forearms, and my yoga exercises were not addressing them I went to my Family Physician. I was referred to a neurologist and a hand surgeon. Physical Therapy was also recommended.

I stopped my practice of Ashtanga Yoga, and performing any asanas that put my wrists into extension (Down dog, Chataranga push ups, Hand stand, Urdhva Danurasana, etc.) because these became painful or uncomfortable. I changed my practice to insure that my wrists were always in neutral position, focusing on stretching the forearms and strengthening my shoulder and upper back as well as my lower back. I started getting massages, which helped loosen up my forearms, shoulder, and upper back/neck areas, my forearms were very tight and my wrists/fingers had very limited range of motion.

I tried to minimize my computer activity during work and at home, as much as I could. In addition I made some life style changes to insure that I get more rest. I tried to bring awareness to my computer use in order to insure that I use good techniques and proper alignment.

It is important to find out the cause of the pain as there are different strategies for dealing with recovery. For example RSI could lead to Carpal Tunnel, which is the inflammation of the Median Nerve, or it could lead to Osteoarthritis (overuse or misuse of joints) in the hands and arms. Another culprit could be inflamed tendons due to overuse. Also depending on stages of RSI, mild, medium or severe may lead to different prescriptions or methods to address them. For me the best strategy after talking to several Physicians and Physical Therapist was use of Physical Therapy, because it was concluded that I had inflamed tendons in the wrists and mild case of Osteoarthritis.

The Physical Therapy consisted of manually manipulating the wrist (carpal) joints in order to create more movement. We started with stretching the very tight muscles of the wrists/fingers and forearms. We advanced to strengthening the forearm, shoulders and upper back, specifically internal shoulder rotators, trapezius/rhomboids.

After my initial wrists/finger exercises, my range of motion improved. The strengthening exercises with weights also helped my stamina during computer use as my forearms and internal/external shoulder rotators had become very weak from overuse contributing to pain. The pain in my forearm went away and my wrist pain decreased.

Part of therapy was use of laser and ultrasound to help in healing the scarred/inflamed tendons, however in my experience they had little effect if any. I believe that the stretching/strengthening exercises together with change in computer use (decrease in

repetitive motion) were the major factor in decreasing my pain. I have included some of those exercises in this section.

Its important to remember that avoiding pain is the number one concern in therapy so any stretching or strengthening must be done without pain, therefore not all exercises are appropriate for everyone even if they have the same diagnosis as specific problems could vary a lot.

Stretching Exercises:

- 1) Rest your right wrist on a table, palms facing up. With left hand hold all fingers of your right hand down except index finger, then slowly flex your index finger toward your wrist. Do this movement ten times. Repeat this with the other three fingers, holding all other fingers down except one and flexing it toward the wrist. Repeat with left hand.
- 2) Hold your arms in front of you, palms facing you, elbows bent. Flex all four fingers in each hand so the tip of the fingers gets close to the base of the fingers. Repeat the same exercise, except flex all four fingers in each hand as close as possible to the wrists.
- 3) Flex and extend each hand to feel the stretch in the forearms, hold each stretch for 30 seconds. This is similar to JFS exercise # nine (wrists flexion/extensions) except this is holding and not movement.
- 4) Hands in Namaste in front of you, keeping palms flat and together lower arms till stretch is felt in the wrists, hold for 30 seconds.

Also see web sites below for additional stretches:

<http://ergocise.com/wrists.html>

Strengthening Exercises:

- 1) With a very small weight (1-2lbs) in your hand, perform wrists flexion/extension, holding your elbows stationary on a table.
- 2) With a very small weight (1-2lbs), let the weight roll by opening your fingers, then close your fingers, and move the weight up to your wrist. Three sets of ten repetitions per hand.

Please see Appendix C above for shoulders strengthening exercises.