

The Impact of a Daily Yoga Program for Women with Fibromyalgia

Abstract

Background: Fibromyalgia (FM) is characterized by widespread pain, sleep disturbance, negative affect, and stress and is notably difficult to treat. Individuals with FM have lower physical activity and endorse fears that exercise may worsen pain. Gentle daily yoga practice may allow a gradual increase in activity and positively impact many of these FM symptoms. This qualitative study investigated the impact of participation in a pilot trial of group and daily individual home yoga intervention on women with FM. **Materials and Methods:** Fifteen individuals participated in telephone interviews after participating in the yoga intervention, which included semi-structured questions to elicit insights and impressions of their experience. Responses were systematically coded and themes identified. **Results:** Five themes were identified: (1) physical/body perceptual changes, (2) practices affecting pain, (3) emotional changes, (4) practice motivators and barriers, and (5) group effect. Participants not only reported reductions in FM symptoms, including pain and stress, but also a positive impact on mood, sleep, and self-confidence. **Conclusions:** Participants enumerated both physical and psychological impact of starting yoga practice. Specific helpful poses and practices and important barriers were identified. Group practice and social connection with others with other FM patients was an important benefit to participants.

Keywords: *Fibromyalgia, pain, sleep, social support, stress, yoga*

Introduction

Chronic painful musculoskeletal conditions such as fibromyalgia (FM) afflict millions of Americans and are associated with profound personal and societal consequence.^[1] FM is a condition characterized by widespread musculoskeletal pain,^[2] sleep disturbance, fatigue, and psychological symptoms including anxiety, depression, and impaired cognition,^[3-5] all of which are known to compound the pain experience.^[6] Given this complex combination of symptoms, it is not surprising that opioids have shown little long-term efficacy in treating FM. Holistic behavioral interventions may be better suited to address the full range of FM symptoms.^[7] Such nonpharmacological, holistic approaches have proven acceptable to other chronic pain patients,^[8] and have been used both in conjunction with conventional therapies, and as an alternative to them.^[9] In particular, integrative therapies that involve exercise, stretching, breathing, and relaxation techniques have shown promise in multiple chronic pain conditions.^[10,11] Yoga, which combines many of these techniques, has also shown

efficacy in treating pain.^[12,13] Yoga has proven to reduce muscular tension and somatic complaints and improve fatigue, sleep, and mood.^[14,15] It has also been shown to increase uptake of pain-coping strategies,^[16,17] to alter body awareness and to increase pain acceptance.^[18] Yoga is also associated with measurable adaptive biochemical changes, including restoration of cortisol awakening response.^[19-23]

Several elements of yoga may address chronic pain and stress among women with FM. Focused breathing is associated with improved emotion regulation^[24,25] and meditation may improve symptoms in FM patients.^[26] Past studies have noted that more traditional pain treatment regimens may pose anatomical and cultural barriers to women.^[27] Conversely, women are significantly more likely than men to benefit from group-based movement therapies,^[28] and studies show that FM patients, who are predominantly female, are willing to embrace yoga as a therapy.^[8,19]

This qualitative study explored the subjective experiences of FM patients who participated in a 6-week, pain-specific yoga

**Asimina Lazaridou,
Alexandra Koulouris,
Kathleen Dorado,
Peter Chai¹,
Robert R Edwards,
Kristin L Schreiber**

Department of Anesthesiology, Perioperative and Pain Medicine, Brigham and Women's Hospital, Harvard Medical School, ¹Department of Emergency Medicine, Division of Medical Toxicology, Brigham and Women's Hospital, Harvard Medical School, Boston, MA, USA

Address for correspondence:

*Dr. Kristin L Schreiber,
Department of Anesthesiology,
Perioperative and Pain
Medicine, Brigham and
Women's Hospital, Harvard
Medical School, 75 Francis
St, Boston, MA 02115, USA.
E-mail: klschreiber@bwh.
harvard.edu*

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program. The primary outcome of the quantitative study was pain and symptom reduction due to yoga practice. Specifically, we identified improvements in participants' daily pain ratings, fatigue, and quality of sleep. Reduction in pain catastrophizing was also noted and was correlated to improvements in FM symptoms. We observed that greater reductions in pain were associated with higher daily yoga practice at home, particularly in participants with >25 min of daily practice. In this qualitative analysis, however, we aimed to: (1) understand the aspects of the experience that patients found most meaningful and beneficial, (2) clarify the relative importance of group and solo practice, and (3) gain insight into important logistical and practical considerations in implementing yoga practice into the daily life of individuals with FM.

Materials and Methods

Setting, participants, and study design

This qualitative study occurred immediately following a nonrandomized pilot study exploring the quantitative effects of yoga on sleep, pain, and stress. Participants for the larger yoga study were recruited through advertising by physical flyers and a centralized clinical data registry. After completing the yoga program, all participants ($n = 36$) received an invitation via E-mail to participate in one-on-one interviews over the phone. Telephone call attempts were also made, with 14 participants unreachable, 7 declining participation, and 15 completing the phone interview.

The Institutional Review Board (IRB) approved this study. Participants for the larger yoga study were recruited through advertising by physical flyers and a centralized clinical data registry.

Participants were eligible for the parent yoga interventional study if they (1) were 18–75 years old; (2) had chronic pain with a diagnosis of FM for >6 months' duration and met the Wolfe *et al.* 2011 criteria for FM; (3) were on stable doses of medication prior to entering the study and agreed not to change medications or dosages or other treatments during the trial; (4) had an average pain score of 4/10 or greater over the previous week; (5) had at least mild degree of sleep disturbance, defined as Pittsburgh Sleep Quality Index score >5; (6) were able to speak and understand English; (7) had an E-mail address and access to a computer or tablet at home; (8) were not currently engaged in a rigorous daily exercise routine (>20 min/day and >5X/week); and (9) were willing and physically able to participate in yoga-based exercise. Participants were ineligible if they had: (1) active cancer treatment; (2) acute osteomyelitis or acute bone disease; (3) current diagnosis of chronic systemic inflammatory disease; (4) present or past diagnosis of schizophrenia, delusional disorder, psychotic disorder, or dissociative disorder that would be judged to interfere with study participation; (5) pregnancy; (6)

unstable systemic illness judged to interfere with exercise treatment; (7) pain condition or injury requiring urgent surgery or treatment; (8) active addiction disorder that would interfere with study participation; (9) current regular meditative practice (e.g., Tai-Chi, meditative form of yoga or contemplative prayer) for >20 min/week; and (10) were participating in any other therapeutic trial.

Yoga study procedures

Potential participants for the parent interventional yoga study underwent initial telephone screening for inclusion and exclusion criteria. Eligible participants were invited for a baseline research visit followed by a 6-week yoga program. Participants' attendance was logged at the start of each class, and adherence to home practice was monitored through weekly electronic questionnaires, sent via a secure online questionnaire (Redcap).

Satyananda yoga program

Individuals participated in a yoga program specifically adjusted for chronic pain patients for 6 weeks, led by a certified yoga teacher and PhD-trained scientist. Each weekly in-person session lasted 1.5 h and included asanas (postures, Pawanmuktasanas I and II), pranayama (breathing techniques), Yoga Nidra (deep relaxation), and meditation techniques to facilitate the process of reconnecting body, mind, and emotions and to develop acceptance of and trust in one's own self. Postures were drawn from the beginner and intermediate Satyananda Yoga asana series.^[29] Each class included the following sections: (1) settling the mind and body and establishing awareness (10 min); (2) asana (50 min); (3) pranayama (5 min); (4) Satyananda Yoga Nidra (15 min) [Appendix 1]. Participants were also sent daily 30-min yoga videos to practice at home. Satyananda Yoga is a traditional form of Yoga which includes Asanas, Pranayama (breathing exercises), Pratyahara (mind focusing practices), and meditation and has a gentle and less physically-demanding nature. The aim of Satyananda's holistic approach is to develop all areas of ones being: physical, mental, emotional, psychic, and spiritual, leading to a more harmonious state of being [Appendix 1]. Participants were encouraged to practice yoga at home after the intervention. FM patients were given a CD of Satyananda Yoga Nidra,^[30] and a pamphlet detailing the postures and breathing exercises practiced during the 6 week intervention.

Qualitative interview process

Consenting participants were scheduled for a separate phone call. The interviews were conducted by the study coordinator, who was not involved in the teaching of yoga. Before conducting qualitative interviews, the telephone interviewer was trained in open-ended questions and facilitation of individual semi-structured interviews. The interviewer used a guide developed by the study

team [Table 1] to conduct a 15–30-min semi-structured interview over the phone. Stem questions developed *a priori* by the study team were used, but latitude was granted to ask additional probes relating to each topic in the interview guide. In addition, several opportunities were provided throughout the interview for participants to provide their own, unprompted observations.

Data analysis

Extensive written notes detailing participants' responses were taken by the interviewer in real-time. These notes were then compiled and transcribed, and applied thematic analysis was performed.^[31] Thematic analysis was chosen due to its flexibility, in which researchers identify relevant codes, and then group these into emergent themes based on their level of significance and frequency of occurrence throughout the data.^[32] Two independent study team members individually read interview notes and identified codes within these interview data. For example, several comments referred to participants preferring poses that involved focus on improving their breathing. These comments and phrases were coded as “breathing benefits.” Codes were then read in aggregate by two additional reviewers, who had access to the original real-time interview notes. Group discussion between the two coders and the two additional

reviewers addressed and reconciled discrepancies. During this discussion stage, codes were categorized, and themes emerged. The four criteria of credibility, dependability, confirmability, and transferability were used to refine themes until thematic saturation was achieved.^[33] Consideration of points of agreement, disagreement, and universality was taken into account, and major themes finalized.

Results

Interviewed participants ($n = 15/34$) were all female, Caucasian, aged 50 ± 14.3 years, 73% with college degree or higher. Pain and psychosocial measures at baseline were similar to previously reported samples of FM patients. Class participation was somewhat variable, with 5 participants attending all 6 classes, 6 attending 5 classes, 3 attending 4 classes, and 1 attending only 3 classes. At home, daily practice in between classes was similarly varied, with the self-reported median number of days practiced between classes was 4–5/5 (range of 3–5) and a reported median daily practice of 30 min (range 15–60). Interviews ranged in length from 15 to 30 min. The qualitative analysis of these interviews allowed the identification of five major themes regarding the experience of the participants in the study: (1) physical/body perceptual changes, (2) practices affecting pain, (3) emotional changes, (4) practice motivators and barriers, (5) Group effect (See Table 2).

Table 1: Interview guide: Questions asked of participants

1. Please tell us what you liked about the program
2. Please tell us what you did not like about the program/ways to improve
3. What things made it harder for you to attend yoga classes?
4. Which poses or practices helped the most with your chronic pain?
5. Which poses or practices were not helpful/made the pain worse?
6. What physical changes did you notice in your body while practicing yoga?
7. Did your energy levels change as a result of doing the program?
8. Did your FM pain feel any different during and after the program?
9. Did any of your FM symptoms fluctuate during or after the yoga?
10. Did you notice any changes in your mood during or after the program?
11. Has your body perception changed since the start of the yoga course?
12. How did you like practicing yoga with other people with FM versus practicing yoga alone at home?
13. How was doing yoga compared to other therapies for FM/chronic pain
14. Were you able to make yoga a regular habit during or after the program was over?
15. How did you find the daily yoga videos? Strengths/weaknesses?
16. Were you able to manage the multiple questionnaires and saliva sample collection during the study?

FM=Fibromyalgia

Theme 1: Physical/body perceptual changes

Participants mentioned that they noticed physical changes as a result of doing yoga, including differences in their pain, body awareness, energy levels/endurance, stiffness, and breathing. For example, one participant reported improved body awareness:

“I became more conscious of my breathing and my body.”

In addition, a decrease in morning stiffness and increase in overall mobility were reported:

“It (yoga) helps to get the body moving again.”

Yoga broke some previously perceived physical barriers and allowed more physical potential:

“Yoga showed me that I could do more than I thought I could.”

“I realized that I can do more, that I can challenge myself.”

In regard to changes in their body capacity, participants reported increasing endurance and flexibility. Participants reported an increase in energy levels.

“Even now I do half hour of yoga in the morning, I notice a big difference in that day, I feel more alert.”

“...I am able to keep going during the day, I have more stamina.”

Changes in breathing and the impact of such changes on other aspects of life were noted:

Table 2: Emergent themes from participant interview

Theme	Description	Representative Quotes
Physical/body perceptual changes	Increased body awareness	<i>"I became more conscious of my breathing and my body"</i>
	Physical changes including energy levels/endurance, stiffness, and breathing	<i>"It (yoga) helps to get the body moving again"</i>
	Changes in the way participants perceived their body's functioning and abilities	<i>"Even now I do half hour of yoga in the morning, I notice a big difference in that day, I feel more alert"</i> <i>"I realized that I can do more, that I can challenge myself"</i>
Practices affecting pain	Decreased pain overall and in area of maximum pain	<i>"Today I do not have pain in my buttocks anymore, my primary pain site"</i>
	Certain poses were more beneficial, and modifications to other poses were needed	<i>"Warrior pose - It felt like it was stretching everything"</i>
Emotional changes	Positive changes in mood and stress, self-confidence, and sleep	<i>"I had a feeling of letting go and relaxing"</i> <i>"I gained confidence in myself and my abilities"</i>
Practice motivators and barriers	Motivators included desire for physical fitness, feeling of pride to be taking action toward healing, and practicing in a free of judgment context	<i>"It (yoga program) gave me some goals"</i> <i>"I need to do it at least every other day"</i>
	Barriers included scheduling, time, and transportation and decreased motivation to continue practice after the study	
Group effect	Practicing in a group that they had connection to was positive and engendered accountability, but felt like a judgment-free context	<i>"It was pretty inspiring. It made me feel normal"</i> <i>"It is better to do it with others, it makes you do it, you cannot stop it, it is like peer pressure in a good way"</i>
	Yoga videos were helpful, but there was a strong preference for group practice	

"The breathing increased my lung capacity."

"The breathing exercises come in handy when stuck in traffic."

Participants reported sleep difficulties and noted that many previous remedies had not been effective in improving their sleep. Many reported that being in the program improved their sleep quality and latency:

"When I practiced the yoga or meditation before bed I would sleep faster."

"I sleep deeper, my sleep quality is better!"

Theme 2: Practices affecting pain

There was variability in the extent to which pain decreased after the program, with some participants expressing more profound relief, although the majority expressed that pain decreased either during or after yoga, particularly in the area of maximum pain: *"Today I do not have pain in my buttocks anymore, my primary pain site."*

A recurrent observation was that participants reported that the improvements in pain were gradual.

For participants who experienced pain as weight, or heaviness, they described a lightening of that pain:

"Oh, I am lighter."

"There was no elephant sitting on my shoulder."

With regard to the particular poses, participants' responses were divided into two categories: (i) practices extremely helpful for

pain and (ii) less helpful practices/practices worsening pain. Most participants found stretching practices to be helpful for pain, including ankle and wrist bending ("Pawanmuktasanas"), palm tree pose, and warrior pose.

"Warrior pose – It felt like it was stretching everything."

Poses that were more physically demanding or requiring a lot of flexibility were deemed as less helpful, as this sometimes meant that participants were unable to perform them. In some cases, performing the pose would cause pain. There was variability between individuals as to which specific poses were more challenging, but salutation to the sun and any poses involving knee bending were regarded as less beneficial.

"I was okay for the first part, but when I had to get on my knee I had trouble."

However, they felt that the study staff provided enough guidance in how to modify poses for pain, through extra support by pillow or mat, alternate version of pose, or visualization rather than actual performance of pose, mentioned in class and videos.

Theme 3: Emotional and mental changes

Emotional and mental changes included improved mood, self-confidence, and decreased stress. Participants spoke about how yoga reduced stress and negative emotions, articulating that yoga practice helped them to relax and improve their mood. They described it as allowing them to detach themselves from these things.

“A step back from stress and pain.”

“I had a feeling of letting go and relaxing.”

“I think I felt happier.”

Participants who had not been previously exposed to yoga talked about their hesitancy to begin, as they were not sure if they could do it. However, participants noted gaining self-confidence in their body and an internal shift to their self-control.

“I felt better about myself because I was doing something to improve my pain symptoms.”

Participants also realized the importance of identifying and accepting their own limitations and working with and around them. One participant who had previously practiced yoga in more distant past but given it up after FM, noted:

“It (program) made me realize I can get back to practicing yoga while being aware of my limitations.”

Moreover, participants described gaining generally increased confidence, surprisingly going beyond the practice of yoga and encompassing other parts of life:

“I gained confidence in myself and my abilities.”

“I surprised the heck out of myself.”

Theme 4: Yoga practice motivators and barriers

The prevailing attitude of respondents was their determination to do their best and everything possible to improve their pain.

“It (yoga program) gave me some goals.”

“With the study I felt stronger.”

A feeling of pride and gratitude for having taken action toward healing was reported:

“You were feeling your body and trying to heal it.”

Participants had a desire for physical fitness, and yoga provided a way to do this in a flexible, more enjoyable way, where they could learn to make modifications for themselves.

“Yoga is the exercise I want to go home and do!”

They also found it encouraging practicing yoga in a nonjudgmental context.

“It was nice to know that there are others in this with me, and that they also had a hard time with some poses.”

Participants reported feeling worse when not practicing regularly.

“I need to do it at least every other day.”

Scheduling, transportation, lack of time, and competing priorities were listed as key barriers to attending regular

yoga class, and to continuing to find the motivation to practice after the study.

Participants reported regularly practicing after the study was over, and 2/15 spontaneously mentioned that they signed up for formal weekly classes.

Theme 5: Group effect

One of the most prominent themes that emerged was the unique connection with the instructor and the other participants, and feeling accountable to them as drivers of effort.

“I loved the instructor... It made a big difference, and I did not want to disappoint the instructor by missing any of the classes.”

“It is better to do it with others, it makes you do it, you cannot stop it, it is like peer pressure in a good way.”

Participants enjoyed being in a group with others suffering from the same condition:

“I was always curious about others, but I didn't ask.”

“It was pretty inspiring. It made me feel normal.”

Despite the fact that participants did the yoga video alone at home, many of those interviewed believed that online yoga or video-led yoga was an important addition to the study, reminding and preparing them of what was to come in the next group session:

“The yoga videos were huge, they were very helpful... I could see the exercise demonstrated rather than read the instructions on paper.”

However, participants still expressed a strong preference for group practice over practicing alone at home using the yoga videos:

“I did it at home because I had to... I think it is nice to have others around if possible.”

Discussion

The themes that emerged from participants' individual responses to this pilot combination group/athome daily yoga intervention were wide ranging, and centered around important aspects of the lives of patients who suffer from FM, but also included information that addressed the actual practical uptake of this therapy in their lives. We identified these five key themes as a result of our analysis: (1) physical/body perceptual changes, (2) practices affecting pain, (3) emotional changes, (4) practice motivators and barriers, and (5) group effect.

Of great interest to FM patients, and their providers, is the potential for yoga to reduce pain, which is the most troubling symptom of FM. Complementary therapies have shown medium to large effect size in reducing pain for FM^[9] and have demonstrated to both reduce clinical pain

and improve function in nonspecific low back pain.^[34] Some biochemical changes have been previously reported with institution of a yoga program, including changes in stress hormones.^[19-23]

Participants in our study noted benefits specifically from yoga breathing practices (e. g. pranayama), which have previously shown to improve cognition, anxiety, and increase parasympathetic activation.^[35] Participants noted stress reduction, in agreement with previous studies demonstrating that yoga reduces perceived stress,^[23,36-38] with similar efficacy as other interventions such as relaxation, cognitive behavioral therapy, or dance.^[39]

Participants reported an increase in self-confidence, as in a previous study.^[40] Behavioral interventions such as yoga may empower patients to take an active role in altering their lifestyle habits, and overall, engendering a greater sense of agency. Yoga has previously been shown to modulate personality traits and promote self-growth.^[14,41]

The previous study indicates that moving one's body alongside others increases feelings of interpersonal connection.^[42,43] Similarly, we found that connection to the group fueled motivation and persistence, particularly in this group of people sharing the same diagnosis (FM) and yoga instructor, raising the possibility that the stigma of FM normally limits participation in group exercise and activity. A relatively greater importance of group practice and social connectedness was also clear in the noted preference of group over solo home practice. At the same time, the combination of online technology (videos) seemed to assist participants to adhere to the study intervention. The use of technological adjuvants is increasingly prevalent, with 8/15 studies using an online intervention in a recent review.^[44]

This study has several limitations of note. First, its relatively small size potentially reduces generalizability. Second, participant inclusion in the parent study and poststudy interview was based on willingness and ability to physically attend yoga classes (self-selection bias), which may be limiting for many FM patients. However, a large multicountry internet-based study indicated that the majority of patients with FM view yoga positively and over half had previously attended at least one yoga class.^[45] Third, interviews were conducted using a semi-structured format, which was not exhaustive in content, and may have potentially omitted important reactions of FM patients to yoga, and participation in the poststudy interviews was voluntary, thus potentially not comprehensive in representing the viewpoints of all participants. Nevertheless, this study provided significant insight into patients' individual experience with the present yoga program aiming at alleviating their FM symptoms. However, the qualitative analysis allowed us to explore subjective experiences that were not previously measured and can help us better understand individual needs of FM patients in regard to yoga practice and ways to improve the

implementation of such therapies in the future in order to maximize benefit.

As uptake of yoga in FM is unlikely to be universal, and the availability may be limited, future research should focus on determining and predicting which participants are more likely to benefit from complementary therapies such as yoga, by using careful patient psychosocial and demographic phenotyping. Future larger-scale studies with such robust phenotyping of patients will help determine the potential of yoga to be implemented in a more widespread fashion, which could also be personalized to meet patients' individual needs, as a safe and cost-effective intervention for chronic pain.

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Conflicts of interest

There are no conflicts of interest.

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Appendix 1: Yoga practice**(a) Overview of weekly yoga schedule**

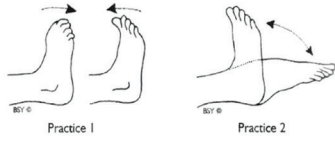
Week 1	Week 2	Week 3
Short Meditation*	Short Meditation*	Short Meditation*
Neck Movement (<i>Greeva Sanchalana</i>)	Swaying Palm Tree Pose (<i>Tiryaka Tadasana</i>)	Salutation to the Sun (<i>Surya Namaskara</i>) 3 stages: Prayer Pose (<i>Pranamasana</i>), Raised Arms Pose (<i>Hasta Utthanasana</i>), Hand to Foot Pose (<i>Padahastana</i>)
Palm Tree Pose (<i>Tadasana</i>)	Wrist Bending (<i>Manibandha Naman</i>)	Knee Bending (Janu Naman)
Hand clenching (<i>Mushtika Bandhana</i>)	Shoulder Rotation (<i>Skandha Chakara</i>)	Wrist Bending (<i>Manibandha Naman</i>) (Kehuni Naman)
Wrist Bending (<i>Manibandha Naman</i>)	Neck Movement 1 (<i>Greeva Sanchalana</i>)	Shoulder Rotation (<i>Skandha Chakara</i>)
Cat Pose (<i>Marjariasana</i>)	Moon Pose (<i>Shashankasana</i>)	Neck Movement (<i>Greeva Sanchalana</i>)
Elbow Bending (Kehuni Naman)	Ankle Bending (<i>Goold Naman</i>)	Moon Pose (<i>Shashankasana</i>)
Toe Bending (Padanguli Naman)	Cobra Pose (<i>Bhujangasana</i>)	Cobra Pose (<i>Bhujangasana</i>)
Ankle Bending (Goold Naman)	Palm Tree Pose (<i>Tadasana</i>)	Palm Tree Pose (<i>Tadasana</i>)
Abdominal Breathing Yoga Nidra*	Waist Rotating Pose (<i>Kati Chakrasana</i>)	Warrior Pose (<i>Virabhadrasana</i>)
	The psychic breath (Ujjayi Pranayama)	Alternate Nostril Breathing (<i>Nadi Shodhana Pranayama</i> stage 1)
	Yoga Nidra*	Yoga Nidra*
Week 4	Week 5	Week 6
Short Meditation*	Short Meditation*	Short Meditation*
Salutation to the Sun (<i>Surya Namaskara</i>) 4 stages: Prayer Pose (<i>Pranamasana</i>), Raised Arms Pose (<i>Hasta Utthanasana</i>), Hand to Foot Pose (<i>Padahastana</i>), Equestrian Pose (<i>Ashwa Sanchalanasana</i>)	One-legged Tree Pose (<i>Vrksasana</i>)	Locked Hand Raising Pose (<i>Bandha Hasta Utthanasana</i>)
Wrist Bending (<i>Manibandha Naman</i>)	Salutation to the Sun (<i>Surya Namaskara</i>) all 12 stages: Prayer Pose (<i>Pranamasana</i>), Raised Arms Pose (<i>Hasta Utthanasana</i>), Hand to Foot Pose (<i>Padahastana</i>), Equestrian Pose (<i>Ashwa Sanchalanasana</i>), Mountain Pose (<i>Parvatasana</i>), Salute with 8 Parts of Points (<i>Ashtanga Namaskara</i>), Cobra Pose (<i>Bhujangasana</i>), Mountain Pose (<i>Parvatasana</i>), Equestrian Pose (<i>Ashwa Sanchalanasana</i>), Hand to Foot Pose (<i>Padahastana</i>), Raised Arms Pose (<i>Hasta Utthanasana</i>), Prayer Pose (<i>Pranamasana</i>)	Salutation to the Sun (<i>Surya Namaskara</i>) all 12 stages
Shoulder Rotation (<i>Skandha Chakara</i>)	Twisting Cobra (<i>Tiryaka Bhujangasana</i>)	Ankle Bending (<i>Goold Naman</i>)
Knee Bending (Janu Naman)	Ankle Bending (<i>Goold Naman</i>)	Hand Clenching (<i>Mushtika Bandhana</i>)
Boat Rowing Pose (<i>Nauka Sanchalanasana</i>)	Shoulder Rotation (<i>Skandha Chakara</i>)	Locust Pose (<i>Ardha Shalabhasana</i>)
Moon Pose (Shashankasana)	Moon Pose (<i>Shashankasana</i>)	Ankle Bending (<i>Goold Naman</i>)
Cat Pose (Marjariasana)	Cat Pose (<i>Marjariasana</i>)	Knee Bending (Janu Naman)
Alternate Nostril Breathing (<i>Nadi Shodhana Pranayama</i> stage 2)	Leg Lock Pose (<i>Supta Pawanmuktasana</i>)	Twisting Cobra (<i>Tiryaka Bhujangasana</i>)
One-legged Tree Pose (<i>Vrksasana</i>)	Humming Bee Breath (<i>Bhramari Pranayama</i>)	Cat Pose (<i>Marjariasana</i>)
Warrior Pose (<i>Virabhadrasana</i>)	Yoga Nidra*	Alternate Nostril Breathing (<i>Nadi Shodhana Pranayama</i> stage 2)
The psychic breath (Ujjayi Pranayama)		Yoga Nidra*
Yoga Nidra*		

*Short meditation and Yoga Nidra was practiced in corpse pose (shavasana)

(b) Visual illustration of Pawanmuktasanas (English name followed by Sanskrit name), from Swami Satyanada Saraswati. Asana Pranayama Mudra Bandha (2008). Fourth Revised Edition

Toe and Ankle Bending

Padanguli Naman; *Goold Naman*



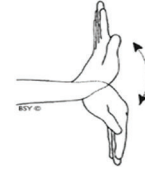
Hand Clenching

Mushtika Bandhana



Wrist Bending

Manibandha Naman



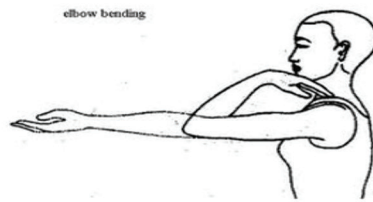
Shoulder Rotation

Skandha Chakara



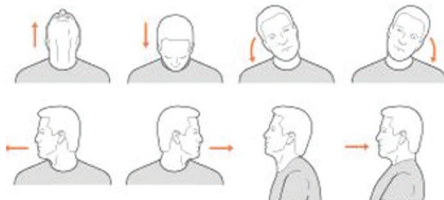
Elbow Bending

Kehuni Naman



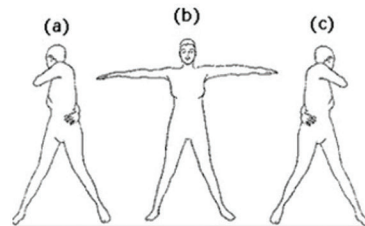
Neck Movements

Greeva Sanchalana



Waist Rotation Pose

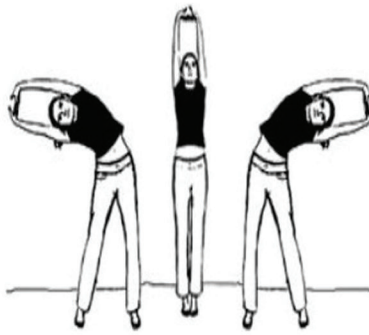
Kati Chakrasana



Palm Tree Pose
Tadasana



Swaying Palm Tree
Tiryaka Tadasana



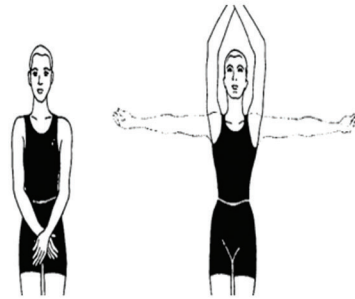
One-Legged Tree Pose
Eka Pada Pranamasana



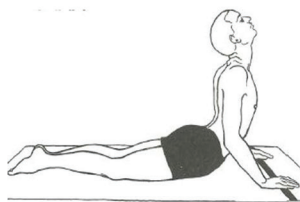
Cat Pose
Marjariasana



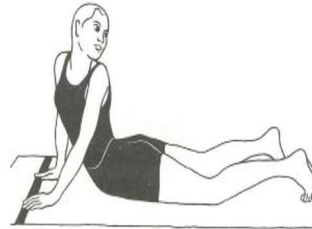
Locked Hand Raising
Bandha Hasta Utthanasana



Cobra Pose
Bhujangasana

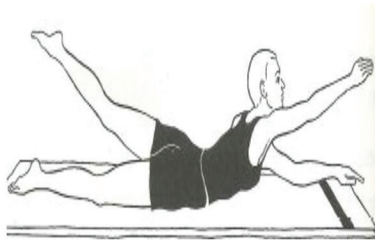


Twisting Cobra
Tiryaka Bhujangasana



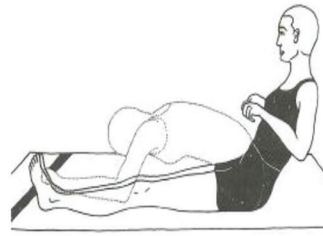
Locust Pose

Ardha Shalabhasana



Rowing Pose

Nauka Sanchalanasana



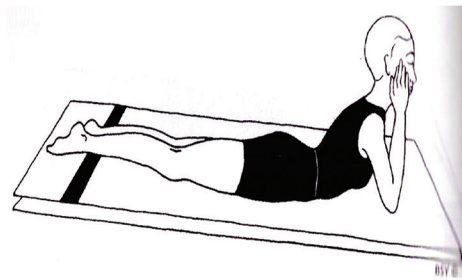
Rope Pulling Pose

Rajju Karshanasana



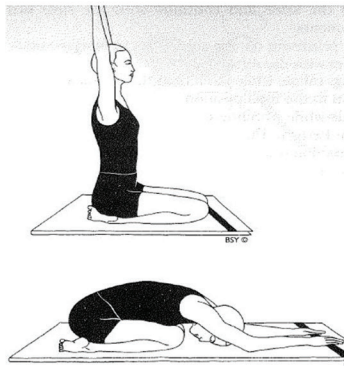
Crocodile pose

Makarasana



Moon Pose

Shashankasana



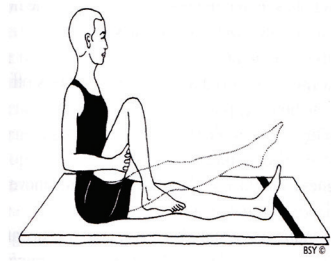
Humming Bee

Bhramari Pranayama



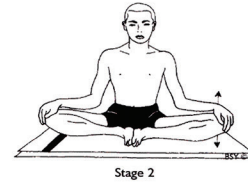
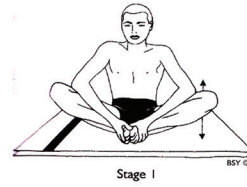
Knee bending

Janu Naman



Full butterfly

Poorna Titali Asana



Salutation to the Sun (12 Stages)

Surya Namaskara

