Integrated Approach of Yoga Therapy towards Chronic Low Back Pain: A Case Report

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ABSTRACT
This case report represents the patient of lower back pain (LBP) who visited Arogyadhama (SVYASA University, Bangalore). Patient was suffering from low back pain and multiple joint pain at the time of visit and 14 days Yoga intervention was provided to the patient for pain management, which helped the patient in relieving the pain and improving the muscular strength and quality of life significantly. The present case study is an attempt to provide IAYT (Integrated approach of Yoga therapy) practices in combination with naturopathy and physiotherapy for the maintenance of LBP profile and symptoms.

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KEY WORDS
Lower back pain
Yoga therapy
Naturopathy
Physiotherapy
Quality of life

Introduction
Chronic low back pain (CLBP) is a chronic pain syndrome of the lower back region lasting at least for 3 months. It is the most common musculoskeletal condition affecting the adult population. Many authors define CLBP as pain that lasts beyond the expected period of healing (1). CLBP is a main cause of physical disability worldwide and needs significant government assistance and financial help to resolve the issue (2). Non-specific LBP does not have any recognizable pathology (such as infection, tumor, osteoporosis, rheumatoid arthritis, fracture, or inflammation) and traits (3).

Commonness of incessant LBP is 4.2% among the adults in the age group of 24 to 39 years and 19.6% among 20 to 59 years (5). Among nine investigations, six show prevalence of LBP in about 3.9%-10.2% people aged 18 or more, whereas other three investigations show prevalence range of the same between 13.1% and 20.3%. LBP predominance was noticed 25.4% among Brazilian population while it was 15 to 45% in French human services laborers. Pervasiveness of CLBP is evaluated to be 5.91% in Italy (2). The prevalence of acute and CLBP in adults doubled in the last decade and continues to increase dramatically in the aging population, affecting both men and women in all ethnic groups (6).

Side effects, pathology, and radiological appearances are ineffectively associated with CLBP. Intensity of pain is indefinite in about 85% of individuals suffering from CLBP. About 4% of individuals with CLBP in essential consideration has pressure breaks, and about 1% are known to be associated with tumor. The commonness of prolapsed intervertebral plate among individuals with CLBP is about 1% to 3%, while Ankylosing spondylitis and spinal diseases are more uncommon. These findings can’t be used for an authoritative conclusion on incessant LBP. Different factors, other than physical, may be associated with progression of CLBP which includes hazard factors such as substantial physical work, bowing, turning, lifting and Psychosocial chance elements, such as nervousness, gloom, and mental worry, at work. Having a past history of LBP and a more extended span of critical hazard factors for chronicity. One efficient survey of described that some mental components such as trouble, burdensome state of mind, and somatization are related with an expanded danger of constant LBP. Working environment and individual factors are also thought to be associated with the progress of interminable LBP (4).

Case presentation

Recruitment of patient
A 51 year old female from Telengana who visited Prashanti Kutiram (Arogyadhama) SVYASA for treatment of her CLBP was enrolled as a participant for this case study after taking her written consent and explaining her about the treatment regimen. She was kept in section ‘E’, which deals with spinal disorders and explaining her about the treatment regimen. She was kept in section ‘E’, which deals with spinal disorders and back pain. She resided in the campus for a period of 14 days (6th March, 2020 to 19th March, 2020). Yoga therapy, which included loosening practices (Table 1), Pranayams (Table 2), breathing practices (Table 3) and asanas

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(Table 4) was combined with Naturopathy (Table 5) and Physiotherapy (Table 6) for her CLBP treatment. Specific diet plan (Table 7) was also followed by participant. Below is a treatment regimen that was provided to the patient during her stay in SVYASA.

**IAYT Protocol**

**Treatment Regimen**

**Loosening Practice (7)**

Table 1: Loosening practices followed by participant

| S. No. | Practice            | Duration per session | Frequency per day | Duration of intervention |
|--------|---------------------|----------------------|-------------------|--------------------------|
| 1      | Ankle movement      | 10 times             | 2 times a day     | 2 weeks                  |
| 2      | Feet movement inward-outward | 10 times             | 2 times a day     | 2 weeks                  |
| 3      | Ankle rotation      | 10 times             | 2 times a day     | 2 weeks                  |
| 4      | Butterfly           | 20 times             | 2 times a day     | 2 weeks                  |
| 5      | St. leg raising     | 5 times              | 2 times a day     | 2 weeks                  |
| 6      | Shoulder Rotation   | 10 times             | 2 times a day     | 2 weeks                  |
| 7      | Upper arm stretch   | 10 times             | 2 times a day     | 2 weeks                  |
| 8      | Vertical stretch of knee | 10 times             | 2 times a day     | 2 weeks                  |
| 9      | Neck movement       | 10 times             | 2 times a day     | 2 weeks                  |
| 10     | Side leg raising    | 10 times             | 2 times a day     | 2 weeks                  |
| 11     | Alternate foot knee | 10 times             | 2 times a day     | 2 weeks                  |
| 12     | Sideward bending    | 10 times             | 2 times a day     | 2 weeks                  |
| 13     | Cross leg LS        | 10 times             | 2 times a day     | 2 weeks                  |
| 14     | Hip stretch         | 10 times             | 2 times a day     | 2 weeks                  |
| 15     | Back stretch with alternate leg | 10 times             | 2 times a day     | 2 weeks                  |
| 16     | Full butterfly      | 10 times             | 2 times a day     | 2 weeks                  |
| 17     | Alternate & both leg raising | 10 times             | 2 times a day     | 2 weeks                  |
| 18     | Side leg raising    | 10 times             | 2 times a day     | 2 weeks                  |

**Pranayama (8)**

Table 2: Pranayams followed by participant

| S. No. | Pranayama            | Duration of procedure | Frequency per day | Duration of intervention |
|--------|----------------------|-----------------------|-------------------|--------------------------|
| 1      | Nadishuddhi Pranayama| 27 Rounds             | 4 times a day     | 2 weeks                  |
| 2      | Brahmari             | 9 Rounds              | 2 times a day     | 2 weeks                  |
| 3      | Naadaanusandhna      | 5 Rounds              | 2 times a day     | 2 weeks                  |

Deep Relaxation Technique (10–15 minutes) (9)

Each session of passive exercise, pranayama was completed with D.R.T. (Deep Relaxation Technique). Deep Relaxation Technique (D.R.T.) is a deeper and more intense form of relaxation. For making participant comfortable during relaxation session, DRT was done in Savasana (Corpse Pose) because it is generally done for 15 minutes.

**Breathing Practices (10)**

Table 3: Breathing practices followed by participant

| S. No. | Breathing Practices | Duration of procedure | Frequency per day | Duration of Intervention |
|--------|---------------------|-----------------------|-------------------|--------------------------|
| 1      | Hand Stretch Breathing | 2 minutes           | 2 times a day     | 2 weeks                  |
| 2      | Hands In and Out Breathing | 2 minutes           | 2 times a day     | 2 weeks                  |
| 3      | Ankle stretch Breathing | 2 minutes           | 2 times a day     | 2 weeks                  |
| 4      | Tiger Breathing     | 2 minutes             | 2 times a day     | 2 weeks                  |

**Yogasana (11)**

Table 4: Asanas followed by participant

| Yogasanas                                                                 | Duration of procedure | Frequency per day | Duration of Intervention |
|---------------------------------------------------------------------------|-----------------------|-------------------|--------------------------|
| Standing Position                                                        |                       |                   |                          |
| 1. sasankasana                                                            | 2 minutes             | 2 times a day     | 2 weeks                  |
| 2. Dorsal stretch(naukasana)                                              | 2 minutes             | 2 times a day     | 2 weeks                  |
| 3. Pavanmuktasanakriya (without lifting the head)                          | 2 minutes             | 2 times a day     | 2 weeks                  |
| 4. Bhujanagasana                                                          | 2 minutes             | 2 times a day     | 2 weeks                  |
| 5. Dorsal stretch                                                         | 1 minute              | 2 times a day     | 2 weeks                  |
| 6. salabhasana                                                            | 2 minutes             | 2 times a day     | 2 weeks                  |
| 7. Walking                                                                | 2 times a day         |                   |                          |
| 8. Side leg raising                                                       | 1 minute              | 2 times a day     | 2 weeks                  |

Naturopathy (12)

Table 5: Naturopathy treatment followed by participant

| S. No. | Treatments   | Duration (minutes) | Frequency per day | Duration of Intervention |
|--------|--------------|--------------------|-------------------|--------------------------|
| 1      | Mud pack     | 15                 | 1 time a day      | 1 week                   |
| 2      | Salt water bath | 45                 | 1 time a day      | 1 week                   |
| 3      | Mustard pack | 30                 | 1 time a day      | 1 week                   |
| 4      | Hot fomentation | 15                 | 1 time a day      | 1 week                   |
| 5      | Vibro massage | 15                 | 1 time a day      | 1 week                   |
**Physiotherapy (13)(14)**

**Table 6: Physiotherapy treatment followed by participant**

| S. No. | Treatments | Duration (minutes) | Frequency | Periods |
|--------|------------|--------------------|-----------|---------|
| 1      | IFT        | 5                  | 1 time a day | 1 week  |
| 2      | Ultrasound | 5                  | 1 time a day | 1 week  |

**Diet Protocol (8)**

The participant was advised to take naturopathic diet consecutively for 14 days of her stay in Prashanti kuteeram. The pattern was as follows.

Lunch: (boiled diet) 1 chapati, 1 cup adl, 1 cup rice, butter-milk, 100 gm boiled vegetables (beans + pumpkin + beetroot + methi + spinach + knolkhol)

Dinner: (Raw diet) 2–3 slices fruits (papaya + watermelon + pomegranate/muskmelon), Vegetable salad (cucumber + pomegranate + beetroot + carrot), Butter milk.

**Diagnosis**

Reduction of low back pain was noticed.

**Table 8: Score of different parameters before and after the treatment regimen**

| Parameters          | DOA     | DOD     |
|---------------------|---------|---------|
| Pulse Beats/min     | 80 bpm  | 74 bpm  |
| BP in mmHg          | 130/70 mm/Hg | 148/98 mm/Hg |
| Respiratory Cycles/min | 17 cpm  | 11 cpm  |
| Bhramari Time (Sec) | 15 sec  | 15 sec  |
| Symptoms score      | 03      | 01      |
| Straight leg raising| 80/80   | 90/90   |
| Lt/Rt in degree     |         |         |
| Sit and reach       | 46 cm   | 47 cm   |
| Pain Scale Reading  | 09      | 05      |

**Discussion**

It was observed that the patient was able to maintain a healthy living by adopting IAYT which may have helped improving the patient’s overall health. During her stay she had undergone

**Table 7: Weekly diet plan followed by participant**

|         | 8:00 am | 10:00 am | 12:00 pm | 2:00 pm | 5:00 pm | 7:30 pm | 8:30 pm |
|---------|---------|----------|----------|---------|---------|---------|---------|
| Saturday| Ash gourd juice | Barley water | Lunch | Buttermilk | Ash gourd juice | Dinner | Kashayam |
| Sunday  | Carrot juice  | Watermelon | Lunch | Buttermilk | Carrot juice  | Dinner | Kashayam |
| Monday  | Bottle gourd juice | Musk melon | Lunch | Buttermilk | Bottle gourd juice | Dinner | Kashayam |
| Tuesday | Bottle gourd  | Watermelon | Lunch | Buttermilk | Bottle gourd  | Dinner | Kashayam |
| Wednesday| Ash guard juice | Carrot juice | Lunch | Buttermilk | Ash guard juice | Dinner | Kashayam |
| Thursday| Carrot juice  | Ash guard  | Lunch | Buttermilk | Dinner | Kashayam |
| Friday  | Breakfast     | –         | Pongal + buttermilk | Buttermilk | –       | Dinner | –       |

![Fig. 1: Bars represent the intensity of different parameters diagnosed during treatment period of 14 days.](chart.png)
above mentioned yoga practice, meditation, relaxation techniques, Naturopathy treatments and Physiotherapy practices. There was marked positive changes in all vitals including Blood pressure, Respiratory rate and there was significant improvement in symptoms score and good number of reduction in straight leg raising and sit and reach scale.

**Conclusion**

Overall treatment of Yoga combined with physiotherapy, Naturopathy and specific diet plan helped her to reduce LBP and symptom score such as difficulty in performing day to day activities and disturbed sleep due to pain and helped her to maintain the better quality of life. Above mentioned integrated treatment can be recommended to the patients with CLBP.

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RJ and SM has written Article.
RN guided to write article.
AS has contributed in a treatment planning.

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Nil.