



## EFFECT OF INTEGRATED APPROACH OF YOGA THERAPY ON CHRONIC CONSTIPATION

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### Abstract

*Constipation is most common GI problem which significantly affects health related quality of life, social functioning and compromises the ability to perform daily activities. Yoga is one of the alternative and complementary therapies known to have positive role in various GI related chronic problems. There is lack of evidences for role yoga in constipation. Thirty-seven participants suffering from chronic constipation, who attended one week of LAYT program consisting of asana (physical posture), pranayama, meditation, devotional sessions, diet modification and interactive sessions on philosophical concepts of yoga, at holistic health center S-VYASA, were enrolled in this study. The quality of life and the bowel habits were assessed before and after the intervention using Patient Assessment of Constipation- Quality of Life (PAC-QoL) questionnaire. There is a significant change in different domains of PAC-QoL such as reduction in the scores of physical discomfort (61.25%), psychological discomfort (59.21%), worries and concern (55.92%) and satisfaction (44%) were found after one week LAYT intervention. This pilot study indicated the potential role of LAYT role in management of chronic constipation. However further randomized control studies need to be performed in order to confirm the findings of present study.*

**Keywords:** Yoga, Chronic constipation, PAC-QOL, LAYT

Constipation as the reduction in the bowel movement to three or fewer times per week (Jamshed et al., 2011). It is one of the most common functional gastrointestinal disorders (Liu, 2011) prevalent all over the world (Thomsen et al., 2010). Chronic constipation is found more commonly in women, elderly and patients with concurrent psychiatric illness (Liu, 2011). In the long run leads to self-medication and/or medical consultation (Dennison et al., 2005), poor health-related quality of life, disturbed social functioning and compromises the ability to perform daily activities (Jamshed, Lee, & Olden, 2011). 2-27% of world population is affected by chronic constipation (Ines, Sanchez, & Bercik et al, 2011). It is more prevalent in western countries which account for 30% (Longstreth et al, 2006) and eastern countries it 11% (A, Lissner S, & MA et al, 2010).

### Yoga

Recently Yoga has become popular as a complementary and alternative medicine due to its many health implications. It well documented that, Yoga is effective in management of various chronic health problems such as cardiovascular diseases, diabetes, obesity, anxiety disorder, depression menstrual problems etc.

### Yoga and gastro-intestinal (GI) problems

Yoga is has been used as complimentary therapies in gastrointestinal related problems such as irritable bowel syndrome (IBS). In one of the randomized controlled studies on 22 male IBS patients underwent two months of yoga practice, at the end of the study significant decrease in anxiety

and sympathetic activity along with improvement in parasympathetic activity was observed (Taneja et al, 2004). In a another randomized controlled study, twenty-five adolescent IBS subjects underwent one month of yoga intervention daily for one hour, significant improvement in gastrointestinal symptoms, pain, functional disability, coping, anxiety and depression was observed in yoga group as compared to control group (Kuttner et al, 2006). These studies indicate the role of yoga in GI related problems.

**Integrated Approach of Yoga therapy (IAYT):** IAYT is a yoga based lifestyle intervention and a form of yoga. It was consisted of asanas (physical postures), pranayama (breathing practices), meditation, kriyas (cleansing techniques), balanced diet, tuning to nature, counseling session etc.

Earlier studies on IAYT proved its effects on several chronic health conditions such as chronic low back pain (Padmini T et al, 2008), osteoarthritis (Ebnezar et al, 2014) etc.

### Materials and Methods

Thirty-seven chronic constipation subjects (age range; 35 to 55 years) visiting Arogyadhama (Holistic health center), SVYASA University, Bangalore, for IAYT treatment for chronic constipation were enrolled in this study. The subjects were having mean  $6.4 \pm 5.46$  years history of chronic constipation. Apart from the chronic constipation most of the subjects were having hypertension and diabetes as associated disease.

**Inclusion criteria**

Who fulfill the Rome criteria for constipation; Subjects with minimum 3 years history chronic constipation; Subjects within age range 35 to 55 years; Willing to participate in the study

**Exclusion criteria**

Subjects having neurological disorders; Subjects with any mental disorders or on any antipsychotics; History of any abdominal surgery

**Assessment**

All the subjects were administered with PAC-QOL before and after intervention. PAC-QOL is a self-reported questionnaire, was used to measure the quality of life of patients (McShane RE et al, 1985). The validated PAC-QoL is composed of 28 items grouped into four subscales: physical discomfort, psychosocial discomfort, worries and concerns, and satisfaction. The first three subscales are used to assess the patient dissatisfaction index, with an overall score ranging from 0 to 96 (where lower scores correspond to better quality of life). The satisfaction subscale includes four items with a global score ranging from 0 to 16, so that each patient's self-reported definitive outcome is defined as either poor (0-4), fairly good (5-8), good (9-12), or excellent (13-16)

**Results**

Suffering since (months) (Mean  $\pm$  SD): 81.24 $\pm$ 71.46, Age (Mean  $\pm$  SD): Male (48.61 $\pm$ 12.74), Female (44.14 $\pm$ 9.55)

Prominent ailments: hypertension, diabetes

The patient assessment of constipation- Quality of life questionnaire consists of 4 domains which are physical discomfort, psychological discomfort, worries and concern and satisfaction.

**Physical discomfort**

The PAC-QOL scores showed a significant reduction in the physical discomfort after the intervention and is significant ( $p < 0.01$ ). There was significant reduction in the scores from 1.91  $\pm$  0.85 to 0.74  $\pm$  0.73 with 61.25% of change.

**Psychological discomfort**

The PAC-QOL scores showed a significant reduction in the psychological discomfort after the intervention ( $p < 0.01$ ). There was significant reduction in the scores from 1.52  $\pm$  0.81 to 0.62  $\pm$  0.55 with 59.21% of change.

**Worries and concern**

The PAC-QOL scores showed a significant reduction in the worries and concern after the intervention ( $p < 0.01$ ). There was significant reduction in the scores from 1.52  $\pm$  0.85 to 0.67  $\pm$  0.55. The worries and concern reduction percentage was 55.92%.

**Satisfaction**

The PAC-QOL scores showed a significant improvement in the satisfaction after the intervention ( $p < 0.01$ ). There was significant reduction in the scores from 2.50  $\pm$  0.84 to 1.40  $\pm$  1.02 with percentage of 44%. There was a significant reduction in the total score from 1.86  $\pm$  0.46 to 0.86  $\pm$  0.36 ( $p < 0.001$ ).

**Discussion****Summary**

This pilot study was aimed to see the impact of IAYT in chronic constipation. There was significant reduction in the scores of physical discomfort ( $p < 0.01$ ), psychological discomfort ( $p < 0.01$ ), worries and concern ( $p < 0.01$ ) and satisfaction ( $p < 0.01$ ) of the PAC-QoL questionnaire. And the total score also reduced indicating a better quality of life.

Earlier studies have observed overall improvement after yoga intervention in IBS patients. There was significant decrease in the bowel symptoms, state anxiety and there was enhanced parasympathetic reactivity measured by heart rate parameters in diarrhea-predominant Irritable Bowel Syndrome (Taneja et al., 2004). Another study showed significant improvement in the physical functioning of adolescents while young adults recorded significant improvement in IBS symptoms, global improvement, disability, sleep quality, fatigue and psychological distress. A minimal clinical significant reduction in pain in 44% of adolescents and 46% of YA having IBS symptom was recorded (Evans et al., 2014). Previous study on IBS reported lower levels of functional disability, less use of emotion-focused avoidance and lower anxiety in adolescents in the yoga group and also adolescents had lower scores of gastrointestinal symptoms (Kuttner et al., 2006).

The exact mechanism behind these findings is not known. One of the possible mechanism can be; as constipation is psychosomatic problem (Nehra et al., 2000), various psychological components such as stress, anxiety, depression etc. leads to sympathetic overdrive (Tougas, 2000), which is related to reduced intestinal motility. Earlier studies have shown that yoga reduces anxiety (Gupta, Khera, Vempati, Sharma, & Bijlani, 2006), stress, depression (Streeter, Gerbarg, Ciraulo, Brown, & Saper, 2012) and it also improves the parasympathetic tone (Bharshankar, Bharshankar, Deshpande, Kaore, & Gosavi, 2003), improved parasympathetic activity might have lead to improvement in intestinal motility.

**Strength of the study & limitations**

To the best of our knowledge this is the first study which has looked into impact of yoga in chronic constipation; There was significant reduction in all the scores in such a short term; This



is also having several limitations a) Lack of control group, b) Small sample size, c) Lack of objective variables; Suggestions for future studies; Future studies conducted with randomized controlled design in larger sample size; Future studies should also include objective autonomic variables; Follow studies should be done in order to assess the consistency of the results.

**Conclusion**

This pilot study suggests the potential role of yoga in chronic constipation. However further randomized control trial need to be confirm the findings of current study.

**Table 1 - Results of Physical Discomfort (paired t test)**

Domain		Mean ± SD	95% CI	% Change	P value
PHY_DIS	Pre	1.91 ± 0.85	0.83 to 1.49	-61.25	<0.01
	Post	0.74 ± 0.73			

Abbreviation: PHY\_DIS - Physical Discomfort, CI – Confidence Interval, % Change – Percentage Change

**Table 2 - Results of psychological discomfort (paired t test)**

Domain		Mean ± SD	95% CI	% Change	P value
PSY_DIS	Pre	1.52 ± 0.81	0.64 to 1.16	-59.21	<0.01
	Post	0.62 ± 0.55			

Abbreviation: PSY\_DIS - Psychological Discomfort, CI – Confidence Interval, % Change – Percentage Change

**Table 3 - Results of worries and concern (wilcoxon signed rank test)**

Domain		Mean ± SD	% Change	P value
W_C	Pre	1.52 ± 0.85	-55.92	<0.01
	Post	0.67 ± 0.55		

Abbreviation: W\_C – Worries and Concern, % Change – Percentage Change

**Table 4 - Results of Satisfaction (wilcoxon signed rank test)**

Domain		Mean ± SD	% Change	P value
SAT	Pre	2.50 ± 0.84	-44	<0.01
	Post	1.40 ± 1.02		

Abbreviation: SAT – Satisfaction, % Change – Percentage Change

**Table 5 - Pre-post changes in total score of PAC-QOL**

Variable		Mean ± SD	P value
Total_score	Pre	1.86 ± 0.46	<0.01
	Post	0.86 ± 0.36	

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