# Influence of short term integrated approach of yoga therapy on quality of living in patients with Type II Diabetes Mellitus

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## Abstract

**Background:** Diabetes Mellitus Type 2 is a very common disease worldwide. 'Quality of life' evaluation is an important measure for chronic disease management. Yoga and meditation are potential interventions as their use has been associated with a variety of physical and mental health benefits.

**Aims and Objectives:** The aim was to investigate the influence of integrated approach of yoga on quality of living of diabetics by using Quality of life instrument for Indian diabetes patients (QOLID) questionnaire.

**Materials and Methods**: In the month of July 2011, all known diabetics aged 40 years and above, coming to SVYASA AROGYADHAMA for Yoga therapy, willing to volunteer for the study and who understood English were included in the yoga group after taking written informed consent. All diabetics (n=31) who were enrolled in the study underwent Integrated Approach to yoga Therapy (IAYT) and were assessed on the first day and again after one week of yoga practice at Arogyadhama with Quality of life instrument for Indian diabetes patients (QOLID) questionnaire. Data thus obtained was analyzed using paired t-test. Institutional Ethical clearance was obtained for the study.

**Results**: The quality of living of diabetics significantly improved after yoga intervention with mean±SD (77.40±7.17) as compared to before yoga intervention (72.54±7.27) with p value < 0.001 with minor variations in diabetics with various complications.

**Conclusion:** Short term integrated yoga practices can improve quality of living of diabetics and play a vital role in the management of diabetes.

**Key words:** Diabetes Mellitus, Yoga, QOLID questionnaire, Quality of living

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## Introduction

Diabetes affects approximately 300 million people worldwide and is further increasing due to life style changes, with excessive calorie intake, reduced physical activity and increased stress.[1] Stuckey has emphasized that unless the living conditions of diabetics and their social and behavioural limitations are understood, it is difficult to treat them.[2]

'Quality of life is defined as perceptions of individuals of their position in life in the context of the value and culture systems in which they live and in relation to their goals, standards, expectations and concerns. 'Quality of life' evaluation is an important measure for chronic disease management. Hence, there is a need for assessment of quality of life in Indian diabetic patients.[3] There is also a need for more studies in India to develop locally relevant, socially and culturally acceptable alternate models of care in diabetes.[4]

Yoga is an ancient system of Indian philosophy that emphasises the balance of physical, mental and spiritual health.[5] Yoga and meditation are potential interventions because their use has been associated with a variety of physical and mental health benefits.[6]

So, the present study was designed to assess the efficacy of short term Integrated Approach of Yoga Therapy (IAYT) in improving the quality of life in diabetic patients.

## Aim

To investigate the influence of short term Integrated approach of yoga on the quality of living of diabetics by using QOLID questionnaire

## Materials and Methods

**Sample size and study period**: In the month of July 2011, all known diabetics aged 40 years and above, coming to SVYASA AROGYADHAMA for Yoga therapy, willing to volunteer for the study and who understood English were included in the yoga group after taking written informed consent. 31 diabetics were enrolled for the yoga group. Ethical clearance was

obtained from Institutional Ethical committee of SVYASA before starting the protocol.

Diabetics from psychiatry section of Arogyadhama, who have come for rehabilitation and who were severely ill, were excluded from the study. The diabetics who were having hypertension, obesity, chronic backache, arthritis and bronchial asthma were divided into different departments according to their ailments.

**Program:** Each diabetic underwent Integrated Approach to Yoga Therapy (IAYT) which included physical postures (Asanas), voluntary breathing (Pranayamas), meditation, internal cleansing processes (Kriyas) and lectures on practice of yoga and derived the following special techniques in diabetic section.

**Breathing Exercises**: Hands in and out, Hands stretch, Ankle stretch, Tiger breathing. Sashankasana, Dhanurasana, Naukasana, Straight Leg raising, Pavanamukthasana, folded leg lumbar stretch, Setubandasana. And DYNAMIC EXERCISES: Jogging (forward and backward), Twisting, side bending, suryanamaskara, cycling, Deep Relaxation Technique (DRT), Chakki chalari, chapathi making, Bhujangasana, Boating. They underwent these procedures daily and each session lasted for 1 hour.

**Design**: 31 diabetics were given QOLID questionnaire on the first day of their admission and again after one week of yoga practice at Arogyadhama. The quality of life of diabetics was assessed before and after the yoga therapy by Quality of life instrument for Indian diabetes patients (QOLID) questionnaire consisted of 8 Components: a)Component I had 6 items related to role limitations (social life, work, travelling) due to physical health and hence designated *role limitation due to physical health*; b)Component II had 6 items which included physical activities and hence designated as *physical endurance*; c)Component III had 3 items related to *general health; d)*Component IV had 4 items related to *treatment satisfaction*; e)Component V had 3 items related to *symptom frequency*; f)Component VI had 4 items involved with finances and hence designated as *financial worries*; g)Component VII had 5 items related to emotional or mental health issues and hence designated as *emotional/ mental health*; h)Component VIII had 3 items related to diet advice tolerance and hence designated as *diet satisfaction* factor. This questionnaire was self-administered without any time limit and their doubts were cleared as they filled it up and their quality of living was assessed by calculating the QOLID score.[3]

Data thus obtained were analyzed by paired t-test using the statistical software namely SPSS version 20.0.

## Results

Tables 1-2 present a descriptive summary of patients' characteristics and medical conditions.

In the present study, among 31 participants, 12 (38.7%) were males, and 19 (61.3%) were females. The mean age of the patients having diabetes type 2 was 61.51 ± 9.30 years.

The highest proportion of them (58%) had tertiary education, followed by 19.4% with secondary education, 9.7% with only primary education while the rest had no formal education.

With regards to medical conditions in table 2, among 31 diabetes type 2 patients, 10 (32.3%) had diabetic foot, 14(45.2%) had diabetic retinopathy, 18(58.1%) are hypertensive.

In the whole yoga group, there was a statistically significant improvement in quality of living in diabetic type 2 patients ($P < 0.001$) with minor variations in diabetics with various complications (Table 3) which are as follows:

A significant improvement was seen in quality of living in diabetic foot patients (p=0.022); in diabetic retinopathy (p=0.001); diabetics with hypertension (p=0.006).

**Table 1: Distribution of diabetic patients' characteristics**

| Characteristics | Numerical value |
|---|---|
| **Gender (%)** | |
| male | 12(38.7%) |
| female | 19(61.3%) |
| **Education level (%)** | |
| No education | 4(12.9%) |
| primary | 3(9.7%) |
| secondary | 6(19.4%) |
| tertiary | 18(58.0%) |
| **Mean age of DM(years)** | 61.51 ± 9.30 years |

**Table 2: Distribution by medical conditions**

| Variables | Numerical value |
|---|---|
| Diabetes type (%) | |
| Type 1 | 0 |
| Type 2 | 31(100%) |
| Diabetic foot (%) | |
| no | 21(67.7%) |
| yes | 10(32.3%) |
| Retinopathy (%) | |
| no | 17(54.8%) |
| yes | 14(45.2%) |
| Hypertension (%) | |
| no | 13(41.9%) |
| yes | 18(58.1%) |

**Table 3: Parameters at Baseline and after one week**

| | n | Baseline | After | p value |
|---|---|---|---|---|
| Diabetes type 2 | 31 | 72.54±7.27 | 77.40±7.17 | 0.000 |
| Diabetic foot | 10 | 72.64 ±7.68 | 76.76±6.59 | 0.022 |
| Retinopathy | 14 | 72.03± 8.72 | 75.46± 8.06 | 0.001 |
| Hypertension | 18 | 72.86 ± 6.47 | 77.87 ± 4.99 | 0.006 |

## Discussion

Previous studies have demonstrated that the life style changes chiefly dietary modification, physical exercise and stress relaxation have a vital role in diabetes management.[1] Therefore, in this study an attempt is made to identify association of life style modification which includes diet and yoga with management of diabetes.

The study intervention was short term IAYT, which comprised of daily practice of Asanas, Pranayamas, meditation, Kriyas and lectures on practice of yoga and special techniques and diet. The results showed that even a short term that is, just 7 days of yoga practice showed a significant improvement in quality of life in diabetics.

Diabetic patients have higher level of psychological disturbances especially depression and similar studies have shown significant improvement in stress scores by psychological assessment and self evaluation scoring system like satisfaction score, impact score and worry score.[1] Similar results were observed by Naga et al who found significant improvement in depression by Kriya Yoga (SKY).[7]

Yoga, a vedic science has shown improvement of oxidative stress as well as glycaemic status of diabetics through neuroendocrinal mechanism.[8,9] Various yoga-asanas may be directly rejuvenating cells of pancreas as a result of which there may be increase in utilization and metabolism of glucose in the peripheral tissues, liver and adipose tissues through enzymatic process.[10]

The patients also reported sense of well being with an improvement in their daily life activities. They were mentally more alert and happier.[11] Yoga brings about this change by releasing opioids and altering adrenocortical activity.[12] However, more studies are needed.

A study done by Bijlani RL and colleagues showed that an 9-day integrated program of yoga, stress management, diet, meditation and positive lifestyle modifications can improve important biochemical indices associated with heart disease, stroke, hypertension and diabetes mellitus.[13]

However, one study limitation is the lack of a control group in this investigation. A follow-up control-group design study by a group of interested investigators would be welcome.

Thus, this study shows that yoga life style intervention has several beneficial effects, in the form of improvement in quality of living. The present study also suggests that adjunctive use of yoga life style interventions significantly improves quality of living of diabetics.

## Conclusion

The present study suggests that a short term integrated yoga therapy can improve the overall general well-being of diabetics irrespective of their complications. To conclude, yoga could be prescribed as a supplement to conventional therapy of treatment for diabetes.

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