ACYTER extends a hearty welcome to the new Director of JIPMER, Dr TS Ravikumar. We are confident that he will guide and motivate us to achieve greater heights.

We express our heartfelt gratitude to Dr KSVK Subba Rao during whose tenure as director, ACYTER came into being. His constant guidance and support has enabled us to undertake many activities in the past three years. This issue of the bulletin gives a report on the activities of ACYTER since its inception in June 2008.

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<thead>
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<td>1</td>
<td>Dr Madanmohan awarded DSc (Yoga)</td>
</tr>
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<td>2</td>
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</tr>
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<tr>
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Published by the Advanced Centre for Yoga Therapy, Education & Research (ACYTER), JIPMER, D Nagar, Puducherry, India 605 006
**Dr MADANMOHAN AWARDED DSc (YOGA)**

Dr Madanmohan, Professor and Head, Department of Physiology, and Programme Director, Advanced Centre for Yoga Therapy, Education and Research (ACYTER) was honoured with DSc (Yoga) by SVYASA University, Bengaluru on January 12, 2012. This prestigious award was bestowed upon him in recognition of his yeoman service towards the cause of scientific validation of yoga.

Dr Madanmohan was awarded MBBS in 1968 from Jammu & Kashmir University and MD Physiology in 1974 from Delhi University. He joined Maulana Azad medical College in October 1970 and JIPMER in March 1977. He completed PG Diploma in Yoga in 2005 and MSc Yoga in 2010 from Annamalai University. His vast teaching and research experience spanning more than four decades has resulted in 90 research papers (including original research work in Physiology and Yoga) in national and international journals and 73 abstracts and 28 magazine articles. He was honored as a Fellow of the Indian Academy of Yoga (FIAY) and has personally given yoga training to hundreds of medical students, school children, police personnel and general public. He was awarded with Karma Yoga Shiromani by Yoganjali Natyalayam (2003) for his work in yoga.

He has guided 30 PG (MD, MS, MSc, and PhD) students in their thesis work, 14 medical students in their ICMR Research Studentship and been chief investigator / co-investigator in 26 research projects. He has participated in 63 national and international conferences/workshops and chaired many scientific sessions and delivered invited talks. He has served as an expert in many selection committees and is Officer-in-Overall Charge, Hindi Teaching Scheme, Pondicherry. He was awarded Gold medal and Scroll of Honor when he delivered the Annual Internal Oration (2009-10) of the JIPMER Scientific Society. He is on the Editorial / Advisory boards of many journals.
ATTENDANCE AT YOGA OPD AND PRACTICE SESSIONS

Yoga therapy OPD is functioning in the Super Specialty Block of JIPMER daily from 9 AM to 1 PM and yoga therapy sessions are being conducted at ACYTER yoga hall for diabetes everyday from 10 – 11 AM, for cardiovascular diseases from 11 AM – 12 noon on Mondays, Wednesdays and Fridays and from 12 noon – 1 PM everyday for other disorders. Sessions are conducted individually and in groups as per requirements of the patients and directions of therapists. Yoga classes for normal subjects are being conducted on Mondays, Wednesdays and Fridays at 6.30 AM and 4.30 PM and for senior citizens on Thursdays between 11 AM and 12 noon.

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ACYTER staff conducted 40 hour Foundation Course in Yoga for Paramedical Students at the department of Physiotherapy, Mother Theresa Post Graduate and Research Institute of Health Sciences, Pondicherry in November 2011. 16 students of BPT course participated in the training programme that included 20 hours of lectures and lecture-demonstrations and 20 hours of practice sessions. The sessions were conducted by Sri G Dayanidy and Selvi L Vithiyalakshmi. All participants had 100% attendance. 15 participants reported that they were practising at home daily for an average of 30 minutes.

A post intervention, retrospective wellness questionnaire compiled by ACYTER was used to evaluate the comparative feelings of the participants after the training programme. Five different responses ranging from “worse than before” to “complete relief / total satisfaction” were utilized to evaluate the physical and psychological aspects and results are given below.

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<th>Aspect</th>
<th>Worse than before</th>
<th>Same as before</th>
<th>Better than before</th>
<th>Much better than before</th>
<th>Complete relief / Totally satisfied</th>
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<tr>
<td>Ability to concentrate</td>
<td>12.5%</td>
<td>62.5%</td>
<td>25%</td>
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<td></td>
</tr>
<tr>
<td>Control of anger / loss of temper</td>
<td>6.25%</td>
<td>12.5%</td>
<td>37.5%</td>
<td>37.5%</td>
<td>6.25%</td>
</tr>
<tr>
<td>Appetite</td>
<td>6.25%</td>
<td>43.75%</td>
<td>12.5%</td>
<td>25%</td>
<td>6.25%</td>
</tr>
<tr>
<td>Confidence level</td>
<td>18.75%</td>
<td>31.25%</td>
<td>37.5%</td>
<td></td>
<td>12.5%</td>
</tr>
<tr>
<td>Ease of breathing</td>
<td>18.75%</td>
<td>56.25%</td>
<td>18.75%</td>
<td></td>
<td>6.25%</td>
</tr>
<tr>
<td>Energy level</td>
<td>18.75%</td>
<td>50%</td>
<td>18.75%</td>
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<td>6.25%</td>
</tr>
<tr>
<td>Enjoyment of life</td>
<td>37.5%</td>
<td>18.75%</td>
<td>18.75%</td>
<td></td>
<td>25%</td>
</tr>
<tr>
<td>Feeling calm &amp; fresh</td>
<td>25%</td>
<td>31.5%</td>
<td>37.5%</td>
<td></td>
<td>6.25%</td>
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<tr>
<td>Feeling of hopelessness</td>
<td>12.5%</td>
<td>25%</td>
<td>25%</td>
<td>18.75%</td>
<td>18.75%</td>
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<tr>
<td>Feeling of loneliness</td>
<td>20%</td>
<td>43.75%</td>
<td>12.5%</td>
<td>6.25%</td>
<td>12.5%</td>
</tr>
<tr>
<td>General flexibility</td>
<td>6.25%</td>
<td>37.5%</td>
<td>43.75%</td>
<td></td>
<td>12.5%</td>
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<td>General mood</td>
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<td>6.25%</td>
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<td>General sense of relaxation</td>
<td>33.33%</td>
<td>33.33%</td>
<td>26.67%</td>
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<tr>
<td>General wellbeing</td>
<td>33.33%</td>
<td>33.33%</td>
<td>6.25%</td>
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<td>26.67%</td>
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<tr>
<td>Joint mobility</td>
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<td>Nervousness</td>
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<td>43.75%</td>
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<tr>
<td>Pain levels</td>
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<td>43.75%</td>
<td>25%</td>
<td>12.5%</td>
<td>12.5%</td>
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<tr>
<td>Performance of day-to-day activities</td>
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<td>37.5%</td>
<td>12.5%</td>
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<td>12.5%</td>
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<td>Normality of menstrual cycle</td>
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<td>7.69%</td>
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<td>15.38%</td>
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<td>Sleep quality / duration</td>
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<td>37.5%</td>
<td>37.5%</td>
<td>12.5%</td>
<td>6.25%</td>
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<tr>
<td>Stress levels</td>
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<td>37.5%</td>
<td>31.25%</td>
<td>18.75%</td>
<td>6.25%</td>
</tr>
<tr>
<td>Total wellbeing score</td>
<td>3.63%</td>
<td>28.40%</td>
<td>34.34%</td>
<td>22.17%</td>
<td>10.63%</td>
</tr>
</tbody>
</table>
SEMINARS, CONFERENCES, WORKSHOPS AND IEC ACTIVITIES

2008

**September & October:** 60 hour Foundation Course in Yoga conducted by Dr Madanmohan, Programme Director ACYTER for 100 undergraduate medical students of JIPMER.

2009

**February 16 to 20:** ACYTER organized mass yoga awareness programme in 48 schools of Puducherry with cooperation of Education Department, Government of Puducherry during the National Yoga Week 2009. More than 5,000 students, teachers and parents were sensitized to the importance of yoga for school health.

**March 18:** Release of a booklet “Introducing Yog to Medical students: The JIPMER experience” by Dr Madanmohan, Programme Director ACYTER. A report on this was also published in Yoga Vijnana, Journal of MDNIY.

**March 18 to 20:** ACYTER and Department of Physiology, JIPMER organized a three day National Workshop on “Introducing Yoga in the Medical Curriculum”

**June 1 to 15:** Orientation programme was conducted for ACYTER staff by Dr. Madanmohan, Programme Director. Workshop on HRV methods was conducted by Dr ES Prakash, Asian institute of Medicine, Science and Technology.

**July 15:** First edition of ACYTER Bulletin published.

**October 9:** ACYTER conducted Yoga and Healthy Lifestyle consultations for delegates attending the Regional Official Language Conference for South and South Western Zone, at JIPMER Auditorium.

**December:** Compilation and publication of Tamil translations of MDNIY IEC materials on Asana, Pranayama, Yoga for Diabetes, Yoga for Hypertension and Yoga for Cardiovascular Diseases for free distribution. 3000 copies of each booklet were distributed

2010

**January 1:** Workshop on “Chakra Healing” by Sri Bala Ratnam, founder Vibrational Breath Therapy, Melbourne, Australia.

**January 4 to 7:** ACYTER participated in 17th International Yoga Festival conducted by Department of Tourism, Govt of Puducherry.

**January 12 & 13:** ACYTER actively participated in “Workshop on yoga for stress management and personality development” organized by Anandita Trust, at Hotel Surguru at Pondicherry.

**January 30:** Workshop–cum-seminar on “Role of Yoga and CAM therapies in HIV/AIDS” organized at JIPMER Nursing College in collaboration with Pondicherry AIDS control society.

**February 12 to 18:** ACYTER participated in National Yoga Week 2010 organized by MDNIY at New Delhi. Programme Director, Programme Co-ordinator, Shri E Jayasettiasaeeleon, SRF and Shri G Dayanidy, Yoga instructor attended. Poster presentation was given on ACYTER activities.

**March 18 to 20:** National Workshop on “Role of Yoga in Prevention and Management of Hypertension” organized at JIPMER.

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April: Compilations by ACYTER on “Yoga and Diabetes” and “Yoga and Hypertension” were circulated amongst JIPMER doctors.

June 2 to 30: 48 hour Foundation Course in Yoga conducted for 15 medical and paramedical staff of JIPMER.

October 18 – November 20: 48 hour Foundation Course in Yoga conducted for 63 medical doctors, paramedical professionals, students and staff members of JIPMER.

November 13: Dr Ananda Balayogi Bhavanani, Programme Coordinator ACYTER delivered a lecture on “Yoga for Women” during 8th National Conference, Puducherry Chapter of Society of Midwives.

November 27 – 28: ACYTER staff participated as jury in 25th Pondicherry State Yogasana competition. IEC materials were distributed and free consultation given to general public.

December 5: Dr Ananda Balayogi Bhavanani, Programme Coordinator ACYTER was a guest speaker at the one day workshop on “Yoga therapy for Psychiatric Disorders” held at the Advanced Centre for Yoga, NIMHANS, Bangalore.

2011

January 4-7: Staff of ACYTER participated in 18th International Yoga Festival Conducted by Government of Pondicherry from 4-7 January 2011. Invited talks were given by Programme Coordinator and free consultation on yoga and healthy living was provided to delegates and members of the public. Sri G Dayanidy, Yoga Instructor ACYTER won first place and was selected to participate in the Final Championship Round.

January 17: Staff of ACYTER presented talks and lecture demonstrations during the “CME on Physiological Effects of Yoga”, organized by Department of Physiology, Sri Satya Sai Medical College and Research Institute, near Chennai. The CME was attended by more than hundred participants from management, faculty, staff and students who gave positive feedback and expressed appreciation for the entire programme.

January 20-21: Programme Director and Programme Coordinator were invited to give invited talks and conduct workshops during Golden Jubilee National Seminar-cum-Workshop on “Role of Yoga in Respiratory Tract Disorders” organized by the Advanced Centre for Yoga Education and Research, Gujarat Ayurved University, Jamnagar.

January - March: As part of the pre-hypertension research project, yoga therapy sessions were conducted for staff members of Kendriya Vidyalaya. Screening of the participants for pre-hypertension was done and then sessions conducted thrice weekly at the school premises.

February 12-18: Dr Madanmohan, Programme Director, Dr Ananda Balayogi, Programme Coordinator and Dr Zeena Sanjay, SRF participated in the National Yoga Week conducted by MDNIY, New Delhi.

March 1: Released proceedings of previous national workshop-cum-seminar on “Role of Yoga in Prevention and Management of Hypertension”. Also released Tamil books on “Yogic Management of Diabetes Mellitus” and “Yogic Management of Cardio Vascular Disorders”. Tamil translation of MDNIY booklet on “Normal healthy diet” was also released.

March 1-2: ACYTER conducted National Workshop-cum-Seminar on “Role of Yoga in Prevention and Management of Diabetes Mellitus”.

May 20-June 20: Pranayam classes were conducted for 20 senior and junior residents and research scholars of Physiology Department.
July 6: The ACYTER Yoga Research Lab was inaugurated by Dr. KSVK Subba Rao, Director, JIPMER in the Super Speciality Block. Dr. AK Das, Medical Superintendent and Dr. Balachander, Professor and Head, Dept. of Cardiology were special invitees.

August 6: Free hypertension screening and yoga consultation programme conducted in Lawspet, Pondicherry. Residents and PhD scholars of the Department of Physiology and staff members of ACYTER conducted the programme in coordination with the local MLA Sri Vaithiyanathan and his colleagues.

August 7: Programme Co-ordinator presented an invited talk on “Dealing with obesity the Yoga way” during the CME on obesity organized by Woman Doctors Association (TN) at Sri Lakshminarayana Institute of Medical Sciences, Pondicherry. Mr. G Dayanidy, Yoga Instructor gave an excellent yoga demonstration to complement the talk.

August 20: Yoga instructors started taking yoga sessions for physiotherapy students at Mother Theresa Institute of Health Sciences, Pondicherry.

October 15: Eleventh edition of ACYTER bulletin published

December 10-11: IEC materials were distributed and free consultation given for general public by the ACYTER team during the 26th Pondicherry State Yogasana competition.

December 21: Dr Ananda Balayogi Bhavanani, Programme Coordinator ACYTER was invited to present a lecture on “Yoga and Education” in the 19th International Yoga conference at SVYASA, Bangalore.

2012

January 21: Staff of ACYTER conducted a special Yoga Awareness programme for more than 50 corporate executives and invitees of the Harmoney Company at Hotel Athiti.

February 4: Programme Director presented an Invited talk on “My work in yoga” at Golden Jubilee Celebrations of Kashmir Medicos Association and CME, New Delhi.

February 10: Programme Director presented an Invited talk on “Integrating naturopathy and yoga in conventional medical education” and chaired a session in the International Conference on Yoga, Naturopathy and AROGYA Expo – 2012, Bangalore.

February 12-18: Dr Madanmohan, Programme Director and Dr Ananda Balayogi Bhavanani, Programme Coordinator presented Key Note addresses and chaired scientific sessions during National Yoga Week at MDNIY, New Delhi. Poster presentation of ACYTER activities was exhibited by Sri E Jayasettiselon, SRF and Miss L Vithiyalakshmi.

**RESEARCH WORKS**

Many research projects are being conducted at JIPMER as collaborative efforts between ACYTER and the Departments of Physiology, Medicine, Biochemistry, Cardiology and Obstetrics & Gynecology. Papers and abstracts have been published and also submitted for publication. Details of various studies completed / in progress are given below:

**PhD theses: (in progress):**

1. Effect of yoga therapy on cardiac autonomic functions and oxidative stress in prehypertensive subjects: a randomized controlled study.

2. Effect of yoga therapy on cardiac function, response to exercise, oxidative stress and quality of life in heart failure patients: a randomized controlled trial.
MD dissertations:

**Completed:**

1. Effect of 12 week yoga therapy as a lifestyle intervention in patients of type 2 diabetes mellitus with distal symmetric polyneuropathy – a randomized controlled study.

2. Effect of yoga therapy on cardiac autonomic function in patients of essential hypertension – a randomized controlled study.

**In Progress:**

1. Effects of slow and fast pranayams on pulmonary function, handgrip strength and endurance in young healthy volunteers – a randomized controlled trial.

2. Effect of yoga training on autonomic functions and reaction time in young healthy females during different phases of menstrual cycle.

3. Effect of pranayam on maximal exercise performance, pulmonary function, recovery heart rate and blood pressure in healthy adults.

MSc dissertations (completed):

1. Effect of yoga training on cardiorespiratory functions of normal young volunteers

2. Effect of yoga therapy on reaction time, biochemical parameters and wellness score of peri and post menopausal diabetic patients.

3. Effect of yoga training on heart rate, blood pressure and lipid profile of patients with essential hypertension.

4. Effect of yogic training on physical and biochemical variables of type 2 diabetes mellitus patients.

**OTHER RESEARCH PROJECTS:**

**Completed:** Patient feedback survey and retrospective wellness questionnaire was completed for 100 patients in June 2011.

**In progress:**

1. Effect of slow and fast pranayams on cognitive and autonomic parameters in young healthy subjects.

2. Effect of mid trimester yoga on the incidence of pre-eclampsia in high risk women.

**PILOT STUDIES:**

**Completed:**

1. Immediate effect of sukha pranayama on heart rate and blood pressure of patients with hypertension.

2. Immediate cardiovascular effects of kaya kriya in normal healthy volunteers.

3. Immediate effect of shavasana and savitri pranayama on heart rate and blood pressure of hypertensive patients.

4. Immediate effect of chandra nadi pranayama on heart rate and blood pressure of hypertensive patients.

5. Immediate cardiovascular effects of shavasana and pranava pranayama on heart rate and blood pressure of hypertensive patients.

6. Immediate effects of yoga nidra on heart rate and blood pressure.
7. Immediate effect of suryanadi and chandranadi on short term heart rate variability in healthy volunteers.
8. Immediate cardiovascular effects of pranava pranayama in hypertensive patients.
9. Immediate effect of yoga practices on blood pressure.
10. Immediate effect of suryanadi pranayam on heart rate and blood pressure of hypertensive patients.

In Progress:
1. Acute effect of anulom vilom pranayam on heart rate variability in healthy volunteers.
2. Immediate effect of 5 minutes chandranadi pranayam on heart rate variability in hypertensive patients.
3. Immediate effect of 5 minutes chandranadi pranayam on heart rate variability in Diabetes mellitus patients.
4. Acute effect of 5 minutes chandranadi pranayam on heart rate variability in patients with diabetes mellitus and hypertension.
5. Immediate effect of 5 minutes chandranadi pranayam on heart rate variability in patients of heart failure.
6. Effect of respiratory rate on heart rate variability in healthy volunteers.
7. Effect of yoganidra on short term HRV in heart failure patients.
9. A controlled trial of immediate effects of pranava pranayama in shavasana on patients having both diabetes and hypertension.

CASE STUDIES (completed):
1. Effect of yoga on subclinical hypothyroidism.
2. Effect of yoga in newly diagnosed hypertension.
5. Case report on bronchial asthma in a 4 year old child.

PUBLICATIONS

Published papers:


**Published abstracts**


**Papers in press**


3. Yoga is not an intervention, but maybe yogopathy is. Ananda Balayogi Bhavanani (International Journal of Yoga).


SUMMARY OF PUBLISHED PAPERS AND ABSTRACTS


Background: Yogic practices may aid in the prevention and management of diabetes mellitus (DM) and reduce cardiovascular complications in the population. The present study was undertaken to evaluate the effect of yoga therapy on reaction time, biochemical parameters and wellness score of peri and post menopausal diabetic patients. Materials and methods: 15 peri and post menopausal patients receiving standard medical treatment for type 2 DM were recruited and reaction time and biochemical investigations were done before and after a comprehensive yoga therapy programme comprising of three times a week sessions for 6 weeks. A post intervention, retrospective wellness questionnaire compiled by ACYTER was used to evaluate the comparative feelings of the patients after the therapy programme. Results: Yoga training reduced auditory reaction time (ART) from right as well as left hand, the decrease being statistically significant (p < 0.05) for ART from the right hand. There was a significant (p < 0.01) decrease in fasting and postprandial blood glucose levels as well as low density lipoprotein. The decrease in total cholesterol, triglycerides, and very low density lipoprotein and increase in high density lipoprotein was also statistically significant (p< 0.05). All the lipid ratios showed desirable improvement with a decrease (p<0.01) of TC/HDL and LDL/HDL ratios and increase (p<0.05) in the HDL/LDL ratio. Discussion: Shortening of RT implies an improvement in the information processing and reflexes and is the first such report in diabetic patients. This has clinical significance and is worth further exploration with wider, well controlled, randomized studies in the diabetic population. Changes in blood glucose levels may be due to improved insulin sensitivity, decline in insulin resistance and increased sensitivity of the pancreatic β cells to glucose signals. Yoga improved the ‘heart friendly’ status of lipid profile in our subjects and as our participants were peri and post menopausal, the decrease in cardiovascular risk profile is of greater significance. A comprehensive yoga therapy programme has the potential to enhance the beneficial effects of standard medical management of diabetes mellitus and can be used as an effective complementary or integrative therapy programme.


Hypertension is one of the most common health disorders, and yoga has been shown to be an effective adjunct therapy in its management. Earlier studies have reported blood pressure (BP)-lowering effects of slow, deep breathing after 3 weeks and 3 months of training and beneficial immediate effects of slow, deep breathing in reducing premature ventricular complexes and lowering blood pressure. None of these immediate studies used the concept of pranayama, involving conscious internal awareness of the whole breathing process. This study was undertaken to determine the immediate cardiovascular effects of sukha pranayama in hypertensive patients. Methods: Twenty-three hypertensive patients attending the Yoga OPD at JIPMER were recruited for the study and instructed to perform sukha pranayama for 5 minutes at the rate of 6 breaths/min. This pranayama involves conscious, slow and deep breathing with equal duration for inhalation and exhalation. Heart rate (HR) and BP were recorded before and immediately after the intervention. Results: Post- intervention statistical analysis revealed a significant (p <0.05) reduction in HR and a highly significant (p < 0.001) reduction in systolic pressure, pulse pressure, mean arterial pressure, rate-pressure product, and double product with an
insignificant fall in diastolic pressure. Discussion: It is concluded that sukha pranayama at the rate of 6 breaths/minute can reduce HR and BP in hypertensive patients within 5 minutes of practice. This may be due to a normalization of autonomic cardiovascular rhythms as a result of increased vagal modulation and/or decreased sympathetic activity and improved baroreflex sensitivity. Further studies are required to understand possible mechanisms underlying this beneficial immediate effect and to determine how long such a beneficial effect persists.


It is clearly important to legitimize yoga practices in the eyes of the scientific community. However, we need to move away from the current model of yoga research that resembles pharmaceutical companies trying to find wonder drugs for newer diseases. Most modern yoga researchers seem to be trying to find a single yoga pill for each ill. We need to focus more attention on the core concepts of yoga. This requires extensive basic research that is lacking in modern times, as there isn’t much money available for such an approach. We must not allow yoga to be made small as modern science tries to make yoga fit the demands of science. Putting yoga in a small box is as absurd as trying to put the ocean in a tea cup. We must remember that the origin of research in yoga dates back to the prehistoric origin of yoga itself. Our ancient seers, the rishis, were truly searching and researching the all important question, “Who am I?” One of the dangers in modern times is that many excellent scientists are researching yoga, but because their understanding of yoga is so limited, they end up missing the bus completely, in my opinion. Excellent papers are published from a scientific perspective, but they are truly very limited from a yogic perspective. There has to be a symbiotic relationship between yoga and modern science, and for this, human bridges combining the best of both worlds need to be cultivated. It is important that more scientists take up yoga and more yogis go into the study of science, so that we can build a bridge between these two great aspects of our civilization.


Background: Numerous scientific studies have reported beneficial physiological changes after short- and long-term yoga training. Suryanamaskar (SN) is an integral part of modern yoga training and may be performed either in a slow or rapid manner. As there are few studies on SN, we conducted this study to determine the differential effect of 6 months training in the fast and slow versions. Materials and Methods: 42 school children in the age group of 12-16 years were randomly divided into two groups of 21 each. Group I and Group II received 6 months training in performance of slow suryanamaskar (SSN) and fast suryanamaskar (FSN), respectively. Results: Training in SSN produced a significant decrease in diastolic pressure. In contrast, training in FSN produced a significant increase in systolic pressure. Although there was a highly significant increase in isometric hand grip (IHG) strength and hand grip endurance (HGE) in both the groups, the increase in HGE in FSN group was significantly more than in SSN group. Pulmonary function tests showed improvements in both the groups though intergroup comparison showed no significance difference. Maximum inspiratory pressure (MIP) and maximum expiratory pressure increased significantly in both the groups with increase of MIP in FSN group being more significant than in SSN. Conclusion: The present study reports that SN has positive physiological benefits as evidenced by improvement of pulmonary function, respiratory pressures, hand grip strength and endurance, and resting cardiovascular parameters. It also demonstrates the differences between SN training when
performed in a slow and fast manner, concluding that the effects of FSN are similar to physical aerobic exercises, whereas the effects of SSN are similar to those of yoga training.


Introduction: Complementary and Alternative Medical (CAM) therapies such as yoga are being increasingly used as adjuncts to modern medicine. Though it has been suggested that yoga may have a role in revitalizing thyroid function there are few studies on the effects of yoga on thyroid disorders. Case history: A 36 year old female with elevated TSH level (9.39 IU/ml) and low normal T4 levels (12.57 pmol/L) was diagnosed as having primary subclinical hypothyroidism and advised to start replacement therapy. She came for consultation to the ACYTER Yoga OPD at JIPMER, Pondicherry and was given appropriate yogic counseling and taught a series of techniques potentially beneficial to patients of thyroid conditions. She continued the practices for a year and reported back at the end of the year with her biochemical investigations. Results: After one year of therapy, there was a fall in TSH (2.66 mIU/L) and a normalization of free T4 values (8.98 pmol/L). A third biochemical analysis three months later showed that TSH further stabilized 2 mIU/L and FT4 at 9.78 pmol/L. As the anti TPO antibodies were positive both before and after the yoga intervention, the patient was advised to continue the yoga practices on a regular basis as long as possible with regular six-monthly follow up. Conclusion: it is suggested that yoga can be an effective adjunct therapy in thyroid conditions and further studies in larger samples are needed to confirm these findings and to better understand the mechanisms behind such beneficial effects in patients of thyroid disorders.


The dedicated practice of Yoga as a way of life is no doubt a panacea for problems related to psychosomatic, stress related physical, emotional and mental disorders and helps us regain our birthright of health and happiness. It is only when we are healthy and happy that we can fulfill our destiny. According to the Yoga Darshan codified by Maharishi Patanjali, depression or rather daurmanasya is one of the four vikshepa sahahubhuvah that are the manifestations that accompany the obstacles to yoga sadhana, the nava antaraya. The other sahahubhuvah are duhkhha or suffering, angamejayatva or tremors and shvasaprasvava or irregular respiration (duhkhadaurmanasya angamejayatva shvasaprasvava vikshepa sahahubhuvah -Yoga Darshan -1:31). When we analyze this sutra deeply we find that they are very true reflections of our inner state. The central theme of Yoga is the golden mean, finding the middle path, a constant search for moderation and a harmonious homoeostatic balance. Yoga is the “unitive impulse” of life, which always seeks to unite diverse streams into a single powerful force. Proper practice produces an inner balance of mind that remains stable and serene even in the midst of chaos. This ancient science shows its adherents a clear path to the “eye of the storm” and ensures a stability that endures within, even as the cyclone rages externally.


The Advanced Centre for Yoga Therapy Education and Research (ACYTER), a collaborative venture between JIPMER, Puducherry and Morarji Desai National Institute of Yoga (MDNIY), New Delhi was established by MOU between JIPMER and MDNIY in 2008. This advanced centre is focusing primarily on the role of yoga in the prevention
and management of cardiovascular disorders and diabetes mellitus. In the period from March to June 2011, a survey was done on 100 patients who were regularly attending yoga therapy sessions at ACYTER and had completed a minimum of one month of the regular programme. A questionnaire was given to them consisting of questions related to their age, gender and demographic characteristic in addition to their main health complaints, attendance at the yoga sessions, home practice as well as their physical and mental condition and changes in dosage of medication.


Unless we aim to correct the manifest psycho-somatic disassociation as well as the underlying ignorant jaundiced perception of reality in the individual, we are not practicing Yoga Chikitsa (Yoga therapy). Managing and suppressing the manifest symptoms with Yoga techniques is just as good or bad as modern Allopathy that focuses on symptomatic management without ever getting close to the real cause of most disorders. How many doctors look at the emotional and psychological issues that are the primary cause of the problem in so many of their patients? When Yoga therapists make the same mistake of merely treating the manifesting symptoms withoutremedying the cause, it is better referred to as yogopathy.


I have given yoga training to many batches of medical students, school children, police personnel and hospital patients with the aim of determining the effectiveness of yoga as a health-promoting and therapeutic intervention. The results have been gratifying and many papers have been published in indexed journals. It was my heart’s desire to introduce yoga to medical students as a branch of physiology and contemporary medicine. The opportunity came with financial support from Morarji Desai National Institute of Yoga, New Delhi. With the aim of motivating 30 students to join the initial programme, I took introductory lecture for the MBBS batch of 2008. However, after the introductory lecture, many students wanted to join and I enlisted the entire batch (n=100) for the programme. The objectives of the programme were: 1) To promote awareness among medical students about the effectiveness of yoga as an inexpensive means for achieving holistic health, 2) To impart knowledge, skill & attitude about the theoretical & practical aspects of yogic science, 3)To motivate medical students to take up further studies, therapy & research in yoga and 4) To introduce yoga in medical curriculum as a branch of physiology & contemporary medicine. I designed a 60 hour programme that included lectures, lecture-demonstrations, practice sessions, students’ seminar on yoga therapy modules and pre-test, post-test, administration of questionnaires to students and programme evaluation by the students. The programme had an overwhelming response with excellent co-operation from the medical undergraduates. In light of the encouraging student feedback it is suggested that yoga should be made an integral part of medical curriculum, as a branch of physiology and contemporary medicine. Complementary and alternative health systems are already being taught in many standard modern medical schools in different parts of the world. Yoga has a stronger scientific and philosophical basis. The ideal time in an undergraduate medical programme where yoga can be incorporated is during the first semester and again during sixth and / seventh semesters. The former will help them in combating and adapting to the totally new and stressful first year undergraduate medical curriculum. The latter will help in better understanding of the science of yoga and its applications in clinical practice. This will also enable them to shape themselves as holistic physicians and help them in their personal development as well as to become more efficient physicians. The present programme was constrained by lack of a space with
proper ambience which is very essential for yoga training. It is suggested that there should be a space fully furnished, having the right ambience and comfort that will facilitate the teaching and practice of yoga. The space should be exclusively devoted to the yoga training programme. From the students’ standpoint, practice sessions with integrated theory, morning practice sessions and training schedule within the college hours are among major recommendations. Students also wanted a facility to continue yoga practice on a regular basis even after the completion of the introductory programme.

SUMMARY OF PUBLISHED ABSTRACTS


This article discusses some of the important research findings from JIPMER related to the role of yoga in prevention and management of cardiovascular diseases that demonstrate the health promoting and therapeutic potential of yoga. Yoga can play a significant role in prevention as well as management of cardiovascular disease, especially essential hypertension and coronary artery disease, whose incidence is increasing alarmingly. In the words of Dr Madanmohan, “Yoga is the mantra for avoidable attributes of ageing”.


Background: Yoga is a science practiced in India over thousands of years. It produces consistent physiological changes and have sound scientific basis. Pranayam or the control of prana or the life force yields control over bodily functions and the mind. Heart rate variability has come to be widely used as a non-invasive tool to assess autonomic function in a variety of physiologic as well as disease states. Different types of pranayams are known to improve autonomic function by changing sympathetic or parasympathetic activity. In view of this, the present study was aimed to study the effect of suryanadi and chandranadi pranayams on HRV in healthy young volunteers. Methods: The present study was conducted on 11 male volunteers 20-30yrs. Their height, weight were recorded and BMI was calculated. Volunteers were assigned to a sequence randomly. Each volunteer was taught both suryanadi (SNP) and chandranadi pranayam (CNP) by trained yoga teacher and made to practice under direct supervision until they were familiar. The procedures and recordings were carried out in lying down posture for all volunteers between 4-6.30 pm in ACYTER lab, JIPMER. Heart rate variability (HRV) was recorded by using BIOHARNESS AcqKnowledge 4.1 version and analyzed by Kubios HRV 2.00 software. Basal resting parameters and HRV were recorded for 5 minutes after that. SNP (only right nostril breathing) was performed in six cycles per minute (each cycle consists of 5 seconds for each inspiration and expiration) for 5 minutes followed by 5 min rest. Three such sessions (before, during and after) HRV were recorded. The same procedure and recording were followed for CNP (left nostril breathing only). Appropriate statistical analysis was done using SPSS version 16(Repeated measures of ANOVA followed by post hoc analysis with Benferroni adjustment) and the level of statistical significance is considered at a p value < 0.05.

Results: The results of our study were much in accordance with the previous studies. The time domain analysis of SNP revealed an increased heart rate with a decreased RMSSD, the index of short term HRV. However the SDNN which is considered the index
of long term HRV increased. Also, in the frequency domain analysis there is an increased LF power and decreased HF power. The index of sympathovagal balance as reflected by LF/HF ratio increased i.e from 1.8 to 2.2 after the intervention. All the observation showed that SNP is sympathomimetic. In CNP, the time domain analysis of HRV revealed a decreased heart rate and an increased pNN50. The frequency domain analysis revealed an increased HF power with decreased LF/HF ratio i.e. from 2.1 to 1.5. The observations of CNP clearly indicated that CNP is an activator of the parasympathetic activity. Conclusion: SNP increase the sympathetic activity and CNP increases the parasympathetic activity and these can be appropriately advocated in many chronic cardiovascular diseases where the autonomic imbalance is one of the primary derangements. The beneficial effect of SNP and CNP can be applied to all school children to improve the physical health and sports activities of the students.


Each individual has different inherent potentialities that need to be cultivated for their ultimate manifest expression. There is no, “One size fits all” in the Indian approach to either education or health care. The Indian system of education was centred on the Guru Kula, a mentor centric process similar to that seen in higher education with possibilities of one-to-one interaction on a regular basis. This was based on the principle of stimulating a yearning for the higher concepts of being, while learning the norms of natural living. The students developed themselves physically, emotionally, mentally and spiritually during this period of intense study at the feet of the Master. The emphasis was on the development of a purna purusha, a complete human being through all round development of physical, mental, emotional and spiritual qualities. Indian scriptures give us a deep understanding of the process of learning through shravana (attentive listening), manana (introspectional analysis) and nidhidhyasa (embodiment of the wisdom) as also different levels of students such as mridu (dull), madhya (average), adimatra (excellent) and adimatratma (supreme) samvegins. once the type of student and their nature is understood the teacher must judiciously apply the methods of teaching to maximize the inherent potential. The biggest challenge facing teachers today is how to deal with their students as they have been robbed of most of their authority. The traditional Indian approach to dealing with students is four-fold: sama (treating as an equal), dana (giving of gifts), bheda (separation) and danda (punitive correction). Of course this requires great viveka (discernment) and karuna (empathy) on the part of the teacher as also safety precautions as how many teachers today have these necessary qualities of wisdom and empathy?