

## **DEPARTMENT OF PHYSIOLOGY**

### **1. Introduction**

Physiology is the study of the function of human body and the basis of understanding the diseased states and their treatment. The department of physiology was started in the year 1986 when the medical college was established to start the MBBS course. It was upgraded as a postgraduate department in 2003 with a permission to take in 3 students per year. Imparting knowledge of physiology to para medical courses for nursing (BSc & GNM), lab technicians, radiographers and OT technicians also come under its purview.

It has a well structured dynamic programme for both undergraduate and postgraduate students supervised by well qualified staff with a passion for teaching. Academic and extracurricular performances of students are closely monitored with a strong mentorship programme encouraged by the institution. Postgraduate students are encouraged to take on research projects other than their thesis, present their work in conferences and publish them. They are trained to adopt good teaching learning methods to make them better teachers and responsible persons.

Regular feed back is taken from students to assess the teaching learning methods employed, improve on them and reinforce concepts using computer aided learning or case studies. Physiology of all organ systems are stressed upon with invited talks from the clinical departments to highlight clinical physiology. Yoga has been introduced to familiarize students to holistic medicine.

Faculty is involved in research work, attends conferences and present papers at scientific meets. Special areas of research interests are medical education, Diabetes Mellitus, cardio respiratory and occupational health.

A CME on current topics are organized every year which are always well attended. On 21<sup>st</sup> September on World Alzheimer's Day the department holds awareness programmes which may vary from lectures, film shows to conduction of cognition tests for senior citizens.

### **Updated HOD list**

Dr.D.L.Ramchandra	17-12-1986	31-01-2001
Dr.Venkatesh	01-02-2001	30-11-2001
Dr.Nachal Annamalai	01-12-2001	30-08-2011
Dr.Karthiyanee Kutty	02-09-2011	Till date

## **2. Programme offered**

- Undergraduate Medical course (Recognized by MCI)
- Postgraduate course in Physiology (Recognized by MCI), three seats per year.
- BSc. (Nursing) and Diploma in Operation Theatre Technician (OT Tech).

## **3. Facilities**

- Well equipped with Hematology, Human Physiology, Clinical and Animal laboratories as per MCI regulation for undergraduate and postgraduate teaching.
- A Cardio respiratory and Exercise laboratory and Evoked potential laboratory are the main highlights of the research laboratory.
- Research facilities are extended to other departments and expertise offered.
- Services to the patients attending R.L.Jalappa Hospital for pulmonary function and Nerve conduction tests.
- Departmental library with over 100 books.

## **4. Publications-for the last 5 years (from January 2007 till date)**

1. The process of spermatogenesis in liberer significant heat and the scrotum has role in body thermoregulation. Skandan K.P and Raja Hariprasad. Medical hypothesis, 2007- 38/303-307.
2. A study of association of low density lipo protein levels and Glycaemic control in type-2diabetes mellitus – Electronic physician 2010;Vol 2, Pages 24-32.Yathish TR. NachalAnnamalai. <sup>2</sup>Vinutha Shankar M.S<sup>2</sup>
3. A study of Intermittent claudication among smokers. Journal of Institute of medicine, December;2009;31:3.T.R.Yathish,N.Annamalai,V.Shankar
4. Standardized visual estimation of blood loss during vaginal delivery with its correlation haematocrit changes – A descriptive study – in south Asian Federation of obstetrics and Gynaecology, Jan –April 2009;1 (1) 29-34 pgs. Dr.Aswath Kumar
5. Gender variation in pain perception after intravenous cannulation in adults. The Internet Journal of Anaesthesia April 2011; Vol 28. Jagadamba A,KarthiyaneeKutty, Vinutha Shankar, NachalAnnamalai, Ravi Madhusudhana.

6. Relationship between handedness and ocular dominance in healthy young adults – A Study .JagadambaAswathappa, KarthiyaneeKutty, NachalAnnamalai. Int J Pharm Biomed Res May 2011, 2(2), 76-78.
7. Low achievers: Are they really slow learners? Vinutha Shankar MS, NTTTC Bulletin, Sep2011, Vol 18.2, p4
8. Relationship between handedness and ocular dominance in healthy young adults – A Study .JagadambaAswathappa, KarthiyaneeKutty, NachalAnnamalai. Int J Pharm Biomed Res May 2011, 2(2), 76-78.
9. Effect of mobile phone usage on hearing threshold: A pilot study. C.S.Ramya, KuttyKarthiyanee, Shankar Vinutha. Indian Journal of Otology/October 2011/Vol 17/Issue 4.
10. Study of association between noise levels and stress in traffic policemen of Bengaluru city. Kavana G. Venkatappa, M.S. Vinutha Shankar. Biomedical Research 2012; 23(1): 135-138
11. Visual evoked potentials in non insulin dependent diabetes mellitus without retinopathy: A pilot study. Bhanu R., Vinutha Shankar M.S., KarthiyaneeKutty, Nachal Annamalai<sup>2</sup> .Current Neurobiology 2012; 3 (1):55-59.
12. Assessment of Knowledge, attitude and practices of traffic policemen regarding the auditory effects of noise. KavanaG.Venkatappa, Vinutha Shankar M.S and NachalAnnamalai. Indian J PhysiolPharmacol 2012; 5(1): 69-73.
13. Ischaemic heart disease and glycaemic control in type-2 diabetes mellitus by questionnaire method. Yathish TR, NachalAnnamalai, Vinutha Shankar. Pak J Physiol 2012;6(2)
14. Relation between anthropometric measurements and serum lipid profile among cardiometabolically healthy subjects: A pilot study. Sumit Garg, Vinutha Shankar, Karthiyanee Kutty, Nachal Annamalai. Indian Journal of Endocrinology & metabolism Sept-Oct 2012. Vol

- 15.Changes in the Learning Style in Medical Studentsduring Their MBBS Course. Usha G Shenoy, Karthiyanee Kutty, Vinutha Shankar MS, Nachal Annamalai. International Journal of Scientific and Research Publications, Volume 2, Issue 9, September 2012
- 16.Age Related Changes in the Parasympathetic Control of the Heart. Vinutha Shankar MS, Shivakumar Veeraiah "International Journal of Scientific and Research Publications, Volume 2, Issue 6, June 2012 Edition".
- 17.Helicobacter Phylori infection and hypertension: Is there an association? Vinutha Shankar MS, AVM Kutty, Nachal Annamalai. Biomed Res-India 2012;23(4): 537-539.
- 18.Jagadamba A, Karthiyanee Kutty. Effect of Ocular Dominance on the latency and Amplitude of visual evoked potentials IOSR Journal of Dental and Medical sciences 2012:2:19-24.
- 19.Raja Reddy P<sup>1</sup>, Jayarama N<sup>2</sup>, Lakshmaiah V<sup>3</sup> and Anil NS<sup>4</sup>. Study of prevalence and stages of diabetic nephropathy in a rural tertiary care centre – Southern India. GJMEDPH, Vol 1(5) September-October 2012
20. Revathi M, Kutty TK, Annamalai N (2012) Pulmonary Function in Rural Women Exposed to Biomass Fuel. J Pulmon Resp Med 2:133.

## 5. Research – ongoing projects in hand and projects completed

### Ongoing Research projects:

Sl.No.	Name of the Investigators	Title of Project
1.	Dr.Jagadamba Dr.Sumit Garg	Neck circumference as an anthropometric measure of obesity in diabetics
2.	Dr.Jagadamba Dr.Sumit Garg	Association of neck circumference between diabetics & non diabetics
3.	Dr.Raja Reddy	Physiological and Biochemical markers to assess the risk factors for diabetic Nephropathy. A retrospective rural hospital based case control study

4.	Dr.Raja Reddy	To study the relationship between lipid profile, anthropometric variables in vegetarian and non-vegetarian diabetes- Research project
5.	UshaShenoy, Karthiyanee Kutty, Vinutha Shankar, Sumitra	Effect of exercise on cardio respiratory changes in school children.
6.	Sumit Garg, Jagadamba A, Vinutha Shankar MS, KarthiyaneeKutty	Does positive family history predispose to early development of diabetes mellitus?
7.	Ramya C.S, Karthiyanee Kutty, Vinutha Shankar M.S.	Influence of BMI and Physical activity on heart rate variability in school going children of 10- 14 years of age.
8.	Bhanu R, Vinutha Shankar M S, Karthiyanee Kutty	Does gender influence P300 latency and MMSE score in type 2 diabetes patients?
9.	Sumit Garg, Ramya CS, Vinutha Shankar, Karthiyanee Kutty	Relationship of peripheral median motor nerve conduction velocity to grip strength
10.	Dr.Sumit Garg, Dr.Jagadamba, Dr.Vinutha Shankar, Dr.Karthiyanee Kutty	Obesity & risk of Type 2 diabetes mellitus in medical students

### **Proposed Research Projects**

Sl.No.	Name of the Investigators	Title of Project
1.	Dr.Raja Reddy.P	To study the relationship between lipid profile waist hip ratio and Hb A <sub>1</sub> C in type 2 diabetes
2.	Dr.Raja Reddy.P	The association between estimated average glucose levels and fasting plasma glucose levels in a rural tertiary care centre
3.	Mrs.Usha Shenoy, Dr.Karthiyanee Kutty, Dr.Vinutha Shankar,	Relationship between Anaemia and Cognition in the rural schools of Kolar.
4.	Dr.Karthiyanee Kutty Dr.Vinutha Shankar Mrs.Usha Shenoy	Relevance of traditional hematological practicals in I MBBS in this era of technology

### **Completed research projects**

Sl.No.	Name of the Investigators	Title of Project
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1.	Dr. Vinutha Shankar M.S Dr.Ashwini K Shetty	Study on upper limb muscle strength and co ordination in professionals: Drivers, Typists and Computer operators
2.	Dr.NachalAnnamalai, Mrs.Usha Shenoy	Effectiveness of teaching learning media in the medical students and nursing students
3.	Dr.VinuthaShankar, Mrs.Usha Shenoy, Dr.Karthiyanee Kutty, Dr.NachalAnnamalai	Introducing Modified Team Based Learning in Physiology
4.	Dr.Vinutha Shankar, Mrs.Usha Shenoy, Dr.Karthiyanee Kutty, Dr.Nachal Annamalai	Fostering active learning by self directed learning in Physiology
5.	Dr.Sumit Garg Dr.Vinutha Shankar M.S	Study of profile of dietary status, BMI & Physical activity in patients with type-II diabetes mellitus
6.	Mrs.Usha G Shenoy	Relationship between types of memory & learning style preferences in I MBBS students
7.	Dr.Jagadamba Dr.KarthiyaneeKutty Dr.Ravi Madhusudhana.	A study of heart rate variability to determine the stability of blood pressure during general Anaesthesia
8.	Dr.Kavana G Venkatappa Dr.Jagadamba Dr.Vinutha Shankar M.S	Correlation between neuropsychological test result (MMSE) & P300 latency in adults above 50 years of age
9.	Dr.Ashwini K Shetty	Age and gender variation in motor performance by bimanual coordination test
10.	Dr.PadminiThalanjeri	A study on relation of iron deficiency anemia & cognition among school children
11.	Dr.Soumya P Kori	A Study of effects of nutritional status on audiovisual reaction time
12.	Dr.Nachal Annamalai Dr.B.G.Ranganath	Orientation of first year Medical students to community health settings in a rural teaching Hospital
13.	Dr. Ramya C.S Dr.Manjunath(S-Vyasa)	Influence of short term yoga retreat on anxiety levels and stress levels in patients suffering from psychosomatic disorders
14.	Dr. SumitGarg Dr.Manjunath(S-Vyasa)	Efficacy of short term yoga therapy program on quality of life in patients with psychosomatic ailments
15.	Dr. Bhanu R. Dr.Manjunath(S-Vyasa)	Influence of one week integrated approach of yoga therapy on quality of living and memory in patients with type ii diabetes mellitus
16.	Dr.Vinutha Shankar Mrs.Usha Shenoy	Making a blueprint for OSPE as formative assessment tool and assessing its reliability

	Dr.Karthiyanee Kutty	
17.	Dr.Karthiyanee Kutty Dr.Vinutha Shankar Mrs.Usha Shenoy	Student performance with reinforcement technique
18.	Dr.Vinutha Shankar Mrs.Usha Shenoy Dr.Karthiyanee Kutty	Use of Appreciative Inquiry in mentorship program
19.	Dr.Karthiyanee Kutty Mrs.Usha Shenoy	Students Performance with different learning styles
20.	Dr.Raja Reddy.P	Study of prevalence and stages of Diabetic Nephropathy in a rural tertiary care centre, southern India
21.	Dr.Sindhu.R Dr.Nachal Annamalai	A study of Motor performance in upper limbs among regular computer users.
22.	Dr.Sindhu.R Dr.Rudranath(S-Vyasa)	Effect of integrated yoga on emotional dimensions of the participants in SVYASA
23.	Dr.Ashwini Priyanka.V Dr.Karthiyanee Kutty	Effect of traffic noise exposure on professional drivers.
24.	Dr.Ashwini Priyanka.V Dr.Rudranath(S-Vyasa)	A short term integrated yoga practice improved the quality of life
25.	Dr.VineethaVittal Dr.Vinutha Shankar	Cardiorespiratory fitness in type 2 diabetes
26.	Dr.VineethaVittal Dr.Rudranath(S-Vyasa)	Interventional study of yoga on attention
27.	Mrs.Usha Shenoy Dr.Sumitra @ Sudharkodhy	Relationship between Anaemia and cognition in the rural school-A Pilot study

## **6. Highlights**

**Staff members actively take part in the various programmes conducted by MEU to improve teaching skills.**

- A CME was conducted by the department in association with Sri Devaraj Urs college of Nursing on Cognitive impairment in Alzheimer's disease on 21<sup>st</sup> September 2010.
- Department also took part in skit competition on 23-09-2010 as part of Kalothsava 2010 & won the 2<sup>nd</sup> place.
- Dr.Sumit Garg: 1<sup>st</sup> year postgraduate student won a gold medal for his oral presentation on “ Study of profile of dietary status, BMI & Physical activity

in patients with type-II diabetes mellitus” at APTCON 2010 held in Coimbatore on 08-10-10 & 09-10-10.

- Department organized a Guest lecture on “High altitude physiology” on 6<sup>th</sup> January 2011.
- Department conducted a workshop on “Orientation program on yoga therapy for medical professionals” on 5<sup>th</sup> February 2011 in association with Swami Vivekananda yoga Anusandhana Samsthanam at A.V Hall , SDUMC, Tamaka, Kolar.
- Dr.Vinutha Shankar M. S, Associate Professor presented FAIMER Fellowship Project Report at 2<sup>nd</sup> Onsite Session at PSG, Coimbatore, Tamil Nadu between April 28<sup>th</sup> and May 3<sup>rd</sup> 2011.
- Dr.Vinutha Shankar was awarded FAIMER fellowship in April 2011.
- Dr.Vinutha Shankar M.S, Professor was a resource person at the PG orientation course at AIMS, Bellur on 3<sup>rd</sup> and 4<sup>th</sup> of August 2011.
- Dr Vinutha Shankar MS has been nominated as External member of Board of Studies for pre clinical studies of Rajiv Gandhi University of Health Sciences, B’lore.
- On Alzheimer’s day, 21<sup>st</sup> September 2011.- Movie “ Away from her” was screened and movie discussed to create awareness of the disease and highlight the problems of caregivers by Dr.Chandrashekar , consultant Neurologist.
- On the occasion of World Alzheimer’s day, Department of Physiology in conjunction with Department of Psychiatry conducted a CME on 21<sup>st</sup> September 2012 at 2.00 PM in the A.V Hall A state level CME on “Emerging Areas of interest for research in Physiology” was held on 22<sup>nd</sup> September 2012 at A.V Hall , SDUMC, Tamaka, Kolar.



### **7. Conferences attended for the last 3 years**

<b>Sl.No.</b>	<b>Staff Attended</b>	<b>Name of the Conference</b>
1.	Dr.Jagadamba.A Dr.PadminiThanlanjeri Dr.Ashwini K Shetty Dr.Shankarappa.V Dr.Soumya.P.Kori Dr.Kavana G Venkatappa	VINBASIX 2010, National conference on basic sciences, April 2010
2.	Dr.Vinutha Shankar	International conference in Medical education ICME 2010 at Abu Dhabi-UAE 2010.
3.	Dr.KarthiyaneeKutty Mrs.Usha G Shenoy Dr.Jagadamba.A Dr.Kavana G Venkatappa Dr.Ashwini K Shetty Dr.Padmini Thalanjeri Dr.Soumya P Kori Dr.Sumit Garg Dr.Ramya.C.S Dr.Bhanu.R	South Asian Association of Physiologists' International conference, St.Johns Medical College, Bangalore 2010.
4.	Dr. Vinutha Shankar M. S	Presented FAIMER Fellowship project Report at 2 <sup>nd</sup> Onsite Session at PSG, Coimbatore, Tamil Nadu between April 28 <sup>th</sup> and May 3 <sup>rd</sup> 2010.
5.	Dr.Vinutha Shankar,	International conference at Nepal between 11-11-2010 to 18-11-2010. She presented a poster on "Introducing Modified Team Based Learning in Physiology".
6.	Dr.Sunanda V Nayak,	Workshop for Medical teachers in Educational Sciences & Technology conducted by MEU, SDUMC from 25-11-2010 to 27-11-2010
7.	Dr.Vinutha Shankar	The International conference in Medical education ICME 2010 at Abu Dhabi-UAE between 04-12-2010 to 07-12-2010. She also chaired the session on accreditation & admission

8.	Dr.KarthiyaneeKutty Dr.SumitGarg Dr.Ramya.C.S Dr.Bhanu.R	3 <sup>rd</sup> International summit on Generic Anticoagulant Drugs & 10th international conference on Atherosclerosis & thrombosis held on December 10 <sup>th</sup> & 11 <sup>th</sup> 2010 in Bangalore.
9.	Dr.NachalAnnamalai	25 <sup>th</sup> Scientific Meeting of the Malaysian Society of Pharmacology & Physiology, Malaysia 25 <sup>th</sup> -26 <sup>th</sup> May 2011.
10.	Dr.Jagadamba	7 <sup>th</sup> Medical Education Technology Workshop organized by the Medical Education Unit, SDUMC Kolar from 28 <sup>th</sup> to 30 <sup>th</sup> June 2011.
11.	DrKarthiyanee Kutty DrVinutha Shankar MrsUsha G Shenoy	Conference at Vellore, Christian medical college from September 16 <sup>th</sup> to 18 <sup>th</sup> 2011
12.	Dr.Jagadamba.A, Dr.Sumit Garg Dr.Ramya.C.S	Workshop on Emerging tools for exploring systems Physiology & Pharmacology New methods in teaching & Research on 7 <sup>th</sup> September 2011 at KIMS, Bangalore
13.	Dr.Vinutha Shankar Dr.Sumit Garg Dr.Ramya.C.S Dr.Bhanu.R Dr. Sindhu Dr.Ashwini Priyanka	Conference conducted at Vellore APTCON-2011 from 7 <sup>th</sup> to 8 <sup>th</sup> October 2011.
14.	Dr.Jagadamba.A	Training program of Orientation & Demonstration of New e-resources on 14 <sup>th</sup> December 2011 at RGUHS, Bangalore
15.	Dr.KarthiyaneeKutty Dr.Vinutha Shankar Dr.Bhanu R Dr.Ramya C Dr.SumitGarg	APPICON National conference at AIIMS, New Delhi from 13-12-2011 to 17-12-2011
16.	Dr.Prabha.V Dr. AshwiniPriyanka.V Dr.Sindhu.R, Dr. VineethaVittal.	PHYSICON national annual conference of physiological society of India at NRI medical college, Guntur from 21 <sup>st</sup> to 23 <sup>rd</sup> December 2011
17.	Dr. VinuthaShankar.M.S	Participated in the MET workshop as Resource person at MMCRI, Mysore from 5 <sup>th</sup> to 7 <sup>th</sup> Jan 2012.
18.	Dr.VinuthaShankar.M.S	1 <sup>st</sup> International Conference on Research

		And Training in Health Professions Education (ICON-RIPE-2012) at KLE University, JNMC campus, Belgaum from 16-02-2012 to 20-02-2012.
19.	Dr.Ramya.C.S Dr.SumitGarg Dr.Bhanu.R	Guest lecture on “Cardiac Sympathovagal Balance: a critical reappraisal” in Neurophysiology Department, NIMHANS, Bangalore on 04-06-2012
20.	Dr.Vinutha Shankar	Attended the International Conference “SEARAME NCHPE 2012” held at PSG Coimbatore from Sep 5 <sup>th</sup> to Sep 8 <sup>th</sup> 2012.
21.	Dr.Jagadamba Dr.Sumit Dr.Ramya.C.S Dr.Bhanu.R	International conference RSSDI at Chennai from 26-10-2012 to 28-10-2012
22.	Mrs.Usha G Shenoy	Satellite symposium on neurobiology of cognition at NIMHANS from 01-11-12 to 02-11-12
23.	Dr.Vinutha Shankar, Dr.Raja Reddy Dr.Geetha	Attended the Workshop for Medical teachers in Educational Sciences & Technology conducted by MEU, SDUMC from 27-11-2012 to 29-11-2012
24.	Dr.VineethaVittal	Attended PHYSICON, Vishakapatnam from 12-12-2012 to 14-12-2012
25.	Dr.SumitGarg	Attended APPICON 2012, Meerut from 18-12-2012 to 22-12-2012.
26.	Dr.AshwiniPriyanka.V	Attended APPICON 2012, Meerut from 18-12-2012 to 22-12-2012.
27.	Dr.Sindhu.R	Attended APPICON 2012, Meerut from 18-12-2012 to 22-12-2012.
28.	Dr.SumitraSudharkhody	Attended PHYSICON, Vishakapatnam from 12-12-2012 to 14-12-2012
29.	Dr.Jagadamba,	Attended a workshop on National sleep medicine course at NIMHANS on 15 <sup>th</sup> & 16 <sup>th</sup> December 2012.

## 8. Dissertations – Completed and Ongoing

### Completed Dissertations :

Sl.No	Name of the Student	Title of Project
1.	Dr.Shashiraj.H.K.	Normative study of Brain stem auditory evoked potentials in young adults

2.	Dr.Poornima.S	A Normative study of median nerve somatosensory evoked potentials and its correlation with limb length
3.	Dr.Lakshminarayanappa.D.C	Visual evoked potential a normative study
4.	Dr.Jagadamba.A	Effect of Ocular dominance on the short and middle latency component of visual evoked potentials
5.	Dr.Kavana G Venkatappa	Effect of road traffic noise exposure on brainstem auditory evoked response(BAER) in traffic policeman
6.	Dr.Shankarappa	Effect of pranayama on lung volumes
7.	Dr.Raja Reddy	A study of Insulin levels and Glucose tolerance in euthyroid, hypothyroid and hyperthyroid individuals
8.	Dr.Ashwini K Shetty, Dr.NachalAnnamalai	Effect of Cigarette smoking on hearing loss: Cross sectional study
9.	Dr.PadminiThalanjeri, Dr.Vinutha Shankar	Effect of smoking on heart rate variability: A cross sectional study
10.	Dr.Soumya, Dr.KarthiyaneeKutty	The effect of handrail support on treadmill time and prediction of $VO_2$ Max

### **On going Dissertations:**

<b>Sl.No</b>	<b>Name of the Student</b>	<b>Title of Project</b>
1.	Dr.Ramya.C.S	Heart rate variability in obese and non-obese children
2.	Dr.Sumit Garg	A study on profile of dietary status, BMI and physical activity in patients with type II diabetes mellitus
3.	Dr.Bhanu.R	Assessment of cognitive function in patients with diabetes mellitus type II
4.	Dr.Ashwini Priyanka	Effect of industrial noise on hearing threshold
5.	Dr.Sindhu. R	Pulmonary function tests among quarry workers in Kolar district
6.	Dr.VineethaVittal	Interventional study of physical activity on $HbA_{1c}$ and $VO_2$ max in type 2 diabetes mellitus
7.	Dr.Sumitra @ Sudharkodhy.S	Efficacy of Integrated yoga practices on stress and heart rate variability in Medical students – A pilot randomized

		control trial
8.	Dr.S.Parasuraman	Effect of Pulmonary function Tests in Rice mill workers