# ASSOCIATION OF PHYSIOLOGISTS OF INDIA (ASSOPI)

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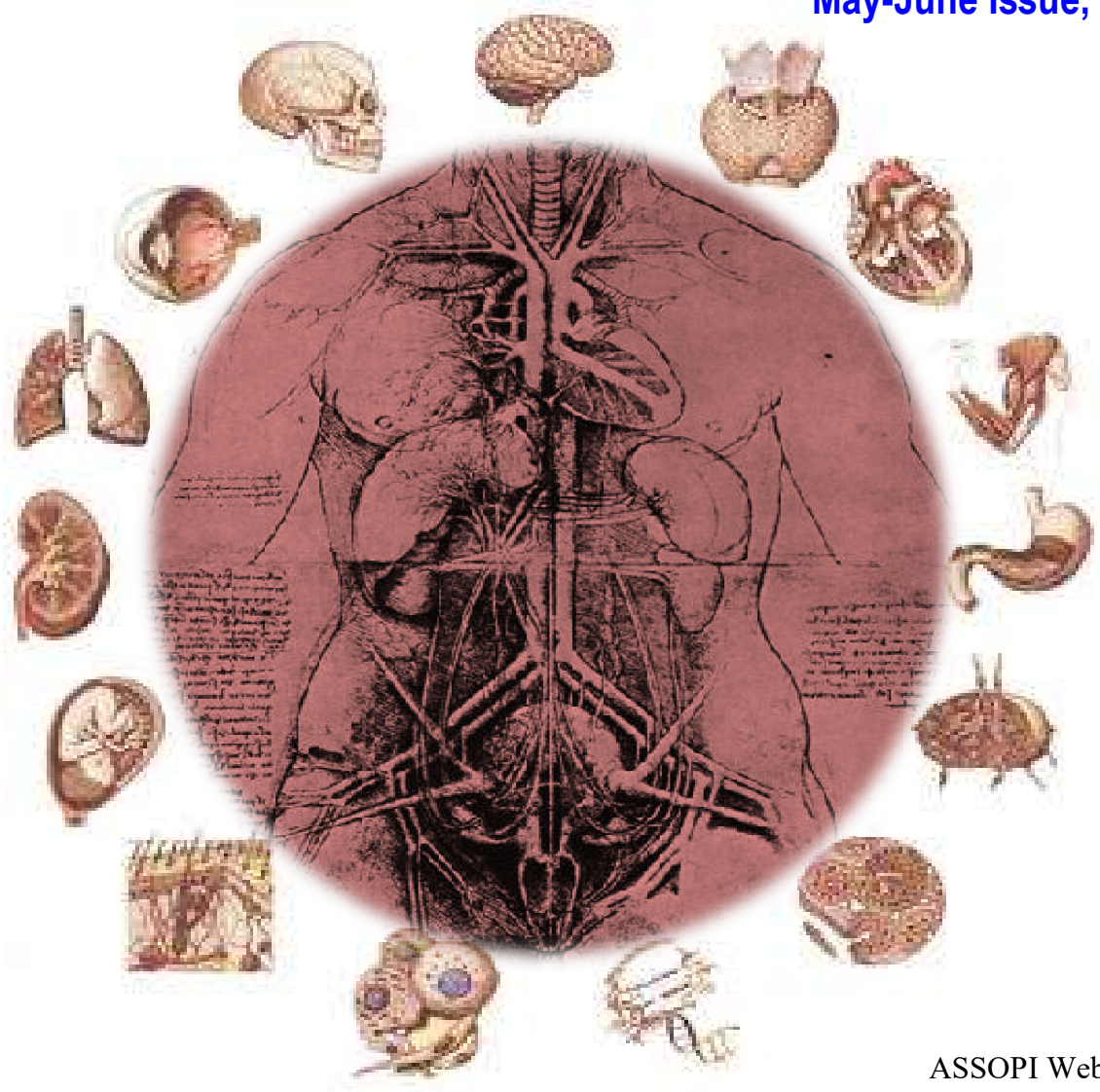
# ASSOPI NEWS BULLETIN

May-June Issue, 2019



ASSOPI Website:
**www.assopi.co.in**

*Motto of ASSOPI:*

*"Preventive and Promotive Physiology"*

*(Physiology for prevention of diseases and promotion of health)*

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**Head Office of ASSOPI:**

Department of Physiology,
Jawaharlal Institute of Postgraduate Medical Education and Research (JIPMER),
Pondicherry – 605006,
India.
E-mail ID: physiologistsindia@gmail.com
Website of ASSOPI: **www.assopi.co.in**

Head Quarter Office Secretary: **Dr. Y. Dhanalakshmi**, Associate Professor of Physiology, JIPMER.

**Published by:**

**Dr. G. K. Pal**
*General Secretary, ASSOPI, on behalf of Association of Physiologists of India*

Editorial Assistance:

**Ms. Allampalli Sirisha**
*PhD Scholar, Office Secretary to General Secretary*

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# *Executive BodyMembers of ASSOPI* (arranged alphabetically)

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JSS Medical College, Mysuru

**Dr. SABITA YOGARAJ**
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Govt. Medical College,
Kathua, Jammu & Kashmir

**Dr. SANDIP SARDESSAI**
Professor,
Department of Physiology,
Goa Medical College, Goa

**Dr. SATISH DIPANKAR**
Associate Professor,
Department of Physiology,
AIIMS, Patna, Bihar

## *1.ASSOPI Awards*

Applications are invited for the following awards of ASSOPI. All life members of ASSOPI are eligible to apply for the awards, as per the eligibility requirements listed for each award. The 'Cover Letter' of application duly signed by the nominee/applicant (clearly mentioning your ASSOPI Life membership Number, present designation, full communicating address, E-mail ID, Mobile Number, Residence/Office Phone number), PDF copy of the publication/manuscript and other supporting documents as mentioned in the eligibility requirements, should be sent by to Dr. G. K. Pal, General Secretary of ASSOPI, to his personal e-mail ID: drgkpal@gmail.com,with a copy attached to the e-mail ID of office secretary: siribangaram2020@gmail.com

Please note that the last date and time of submitting application is **22nd July, 2019, 5 PM**. Any application received by General Secretary in his e-mail account after **5 PM of 22nd July, 2019**, will not be considered for selection for the award. It is the responsibility of the applicant to ensure that his application is received by General Secretary of ASSOPI before the date and time prescribed.

All categories of award applications will be reviewed by subject experts in the corresponding field. Suggestion of name of experienced reviewers/judges for all the categories of awards with their designation, e-mail ID and cell phone numbers can be given by ASSOPI members, on or before 15th July, 2019. However, list of reviewers for each category of award will be finalized by office bearers of ASSOPI. If there is an applicant for a particular award from a department, the reviewer for that award from the same department will not be considered.

1. **Prof. A. S. Paintal Award** for best research work in Physiology.
2. **Dr. Artatran Nanda Memorial Award** for best research work in Respiratory Physiology.
3. **Prof. S. B. Deshpande Award** for best research work in Neurophysiology.
4. **Prof. G. K. Pal Award** for best research work in Cardiovascular Physiology.
5. **JIPMER Golden ASSOPICON Award** for best research work conducted by a postgraduatestudent in Physiology.
6. **Shri S. N. Chaudary Memorial Award** for best research work in Environmental Physiology.
7. **Shri Ram Murti Smarak Award** for best research work in Yoga and Naturopathy.

8. **Shri B. M. Patil Memorial Award** for best research work in Physiology by a physiologistbelow the age of 45 years.
9. **Ramesh Bijlani Lifetime Achievement Award** in Medical Sciences.
10. **Prof. S. K. Singh Award for** best research work conducted by an undergraduate medicalstudent in Physiology**.**

**Eligibility Requirements**

**A. For Award No. 1 to 4 & 6, 7 :**

i) This award is meant only for the life members of ASSOPI.

ii) The work should be a recent one and preferably be published in a peer reviewed journal in the year 2017-2019 (a PDF Copy of the published paper or the manuscript of the work should be submitted).

iii) The same work should neither have received nor have been submitted for any other award from other organizations/associations/scientific bodies.

iv) If it is a multiple author work, and the author nominated for award is not the first author or corresponding author in the publication, all other authors should give a signed declaration for the person nominated for the award.

**B. For Award No. 5 (JIPMER Golden ASSOPICON Award for best PG Research Paper):**

i) This award is meant for postgraduates in Physiology who are the life members of ASSOPI.

ii) The work should have been conducted by a postgraduate student (M.D./M.Sc.) in physiology, during his or her postgraduate training.

iii) The same work should not have received or submitted for any other award from other organizations /associations/scientific bodies.

iv) The nomination should be accompanied by a PDF copy of the published article and a declaration from the guide certifying that the work has been done by the applicant under his guidance during his/her postgraduate study.

v) If the work has not been published in a journal, the manuscript of the work should accompany a certificate from the Head of the Department stating that the work was

conducted by the student (student's name) under the guidance of a faculty (guide's name), in his department during this period (month and year).

**C. For Award No. 8 (Shri B. M. Patil Memorial Award):**

i) This award is meant only for the life members of ASSOPI below the age of 45 years (a copy of Birth Certificate or School Leaving Certificate or Passport or Driving License should be attached as a proof for age)

ii) The work should be a recent one and preferably be published in a peer reviewed journal in the year 2017-2019 (a PDF Copy of the published paper or the manuscript of the work should be submitted).

iii) The same work should neither have received nor have been submitted for any other award from other organizations/associations/scientific bodies.

iv) If it is a multiple author work, and the author nominated for award is not the first author or corresponding author in the publication, all other authors should give a signed declaration for the person nominated for the award.

**D. For Award No. 9 (Ramesh Bijlani Lifetime achievement Award):**

i) Nomination for this award will be invited along with other nominations of ASSOPI Awards and the award will be presented to the awardee in the inaugural ceremony of the ASSOPICON of that year.

ii) The nomination for the award should be proposed and seconded by the life members of ASSOPI along with the consent of the nominee.

iii) The nominee should be an eminent physiologist or a scientist (not less than 55 years of age) in any branch of medicine and should have outstanding contribution in the field of medical research.

iv) The nomination should have a brief CV of the nominee that should contain the date of birth and age, along with the list of all publications (only list).

v) A duly constituted committee will scrutinize the nominations received and will recommend the name of the awardee, if anybody found suitable. The total number of publications, total

citations, scientist h index and i-10 index as displayed in the Google Scholar or ResearchGate will be considered for selecting the awardee.

vi) Any senior physiologist / medical scientist may be nominated for this award, but the person selected for the award should become a life member prior to the award being presented to him/her in the annual conference.

vii) The awardee will make a summary presentation of his/her research works, along with presentation of other award papers in the "Award paper presentation session" of the conference.

**E. <u>For Award No. 10 (Prof. S. K. Singh Award for best UG Research Paper):</u>**

i) This award is meant for an undergraduate medical (MBBS) student.

ii) The work should have been conducted by an undergraduate student during his or her undergraduate course.

iii) The same work should not have received or submitted for any other award from other organizations /associations/scientific bodies.

iv) The nomination should be accompanied by a PDF copy of the published article.

v) If the work has not been published in a journal, the manuscript for the award should accompany a certificate from the Head of the Department stating that the work was conducted by the student (student's name) under the guidance of a faculty (guide's name), in his department during this period (months and year).

vi) Application for this award will be invited along with other application/nominations of ASSOPI Awards, a duly constituted committee will recommend the name of the awardee and the award will be presented to the awardee in the inaugural ceremony of the ASSOPICON of that year.

vii) The student selected for the award should become a life member of ASSOPI prior to the award being presented to him/her in the annual conference.

viii) The awardee will present his/her research works, along with presentation of other award papers in the "Award paper presentation session" of the conference.

## *2.Fellowship Title of ASSOPI*

The ASSOPI invites self-nomination/application for Fellowship title "FAPI" (Fellow of Association of Physiologists of India) from eligible members. A maximum of five Fellowship titles will be conferred every year. The self-nomination/application should include a detailed bio-data (as given in the eligibility criteria) and a demand draft of Rs.11,000/- (rupees eleven thousand only) drawn in favor of Association of Physiologists of India (Payable at Puducherry), out of which one thousand will be paid as application fee (non-refundable) and ten thousand will be paid as the fee for fellowship title. A committee duly constituted by office bearers of ASSOPI will scrutinize the application and finalize the list of members (maximum five in a year) for the fellowship title. If the applicant is not selected for the fellowship title, Rs. 10, 000/- paid as fellowship fee will be refunded to him/her in the form of DD within one month of finalization of the fellowship list.

Eligibility Requirements:

1. Fellowship title is meant for life members of ASSOPI.
2. The member should have minimum 20 years post-MD or Post-PhD teaching and research experience (should attach a copy of MD/PhD certificate).
3. The member should have minimum 10 PubMed indexed publications (List of total publications, with one copy each of 10 best PubMed indexed papers, should be attached).
4. A detailed bio-data of the applicant should accompany the application / nomination for fellowship. The bio-data should highlight the month and year of MD/PhD degree awarded, number of years of service in various capacities, numbers of MD/PhD students guided, number of awards received, any patent developed, and any other relevant information for fellowship application.

EC members and Office bearers of ASSOPI are also eligible to apply for any award or fellowship title during their tenure as EC member and office bearer.

All correspondence related to awards and fellowship title should be made to personal e-mail ID of Dr. G. K. Pal: drgkpal@gmail.comwith a copy attached to the e-mail ID of Ms.Sirisha, (siribangaram2020@gmail.com), the Office Secretary to General Secretary, ASSOPI.

# *Nominations for Vice-President of ASSOPI for Eastern Zone (2019-20)*

Due to sudden demise of Dr. S. N. Sharma, the post of vice-President of Eastern Zone has fallen vacant. Therefore, this need to be filled by fresh nomination / election, for one year as an interim arrangement. Therefore, nomination for the post of Vice-President of eastern zone is invited from the eligible life members of ASSOPI.

The nomination in the format given below duly filled-in and signed by the nominee and proposer and seconder for the nomination along with a covering letter from the nominee addressed to General Secretary ofASSOPI may be sent by Speed Post/Courier to the following address:

Dr. G. K. Pal, General Secretary of ASSOPI,
Department of Physiology,
JIPMER, Puducherry – 605 006,
Cell No. 093442 91160
E-mail: drgkpal@gmail.com

Soft copy of the nomination can be sent to General Secretary by e-mail. Please note the last date and time of application: **5th September, 2019**. Any application received in the office of General Secretary after 5 PM of 5th September, 2019, will not be considered for nomination. It is the responsibility of the applicant to ensure that his nomination is received by the Office of General Secretary of ASSOPI before the date and time prescribed.

**Format of nomination for the posts of Vice President ASSOPI for Eastern Zone**

**ASSOCIATION OF PHYSIOLOGISTS OF INDIA (ASSOPI)**

Nomination for the post of …….. I ……,

a life member of ASSOPI is willing to be nominated for the post of …….

of ASSOPI for the year 2019-2021.

My nomination is proposed and seconded, as follows,

Proposed by: …… ……

(Name) (Signature)

Seconded by: …… ……

(Name) (Signature)

Signature of the Nominee: ……

Date:

Place:

## *ASSOPICON – 2019*

The 6th Annual Conference of Association of Physiologists of India will be organized by Dept. of Physiology, JSS Medical, Mysuru, Karnataka, from **11th to 14th September, 2019.** The update for the conference is currently available in the ASSOPICON Website: www.assopicon2019.com

The details of update about the conference may also be obtained by sending your request to:assopicon2019@gmail.com

All ASSOPI members are requested to register for the conference and also motivate their colleagues and students to register for the conference. The registration fees as proposed by the organizing committee are as follows.

| ASSOPICON 2019 (Conference) | **Early-Bird Registration Fee** 1st April to 31st July 2019 | **Late Registration Fee** 1st Aug to 15th Aug 2019 | **Spot Registration Fee** |
|---|---|---|---|
| ASSOPI Member | Rs. 6000 | Rs. 7000 | Rs. 8000 |
| Non-ASSOPI Member | Rs. 7000 | Rs. 8000 | Rs. 9000 |
| PG Student ASSOPI Member | Rs. 4000 | Rs. 5000 | Rs. 6000 |
| PG Student Non-ASSOPI Member | Rs. 5000 | Rs. 6000 | Rs. 7000 |
| International Delegates | $125 | $ 150 | $ 200 |
| **WORKSHOP** | | | |
| Delegates | Rs. 1000 | Rs. 1500 | Rs. 2000 |
| PG Students | Rs. 750 | Rs. 1000 | Rs. 1250 |

## Proposed Schedule of Scientific Programme - ASSOPICON-2019

### List of Workshops on 11th September 2019

**Workshop - 1: Behavioural and cognitive assessment in rodents**
Convenor: Dr. C. SaravanaBabu, Associate Professor &Coordinator,
Central Animal Facility, Dept. of Pharmacology, JSS College of Pharmacy, Mysuru

**Workshop – 2: Exercise Physiology testing in the Lab and Field**
Convenor: Dr. Om LataBhagat, Associate Professor, Department of Physiology, AIIMS Jodhpur.
Co-Convenor:Dr. Jean Fredrick, Assistant Professor, Department of Physiology, MGMCRI, Puducherry.

**Workshop- 3: Basics of statistical analysis using SPSS**
Convenor: Dr. Praveen Kulkarni, Associate Professor, Dept. of Community Medicine, JSS Medical College, Mysuru

**Executive Body Meeting of ASSOPI: 6.30 PM – 8.30 PM**

# ASSOPICON-2019 Conference 12th-14thSeptember

## Day1: 12.09.2019 (Thursday)

| | | |
|---|---|---|
| 08.00-9.00 | **Breakfast and Registration** | |
| | **Hall-A** | **Hall-B** |
| 09.00-9.40 | **Key note address:**<br>**Speaker:Dr. Rajesh Katare,** University of Otago, New Zealand<br>**Topic:** Stem cell research; physiological and clinical perspectives | |
| 9.50-11.00 | **Inauguration (with presentation of awards)** | |
| 11.00-11.15 | Tea break | |
| 11.15-11.45 | Guest lecture by **Dr. BasavanaGowdappa H**, Principal, JSSMC, Mysuru | |
| 11.45-1.15 | **Session for presentation of Award Papers** | |
| 1.15-2.00 | Lunch | |
| 2.00-3.30 | **Symposium 1: Neural Networks and Cognition**<br>1.Subicular theta modulation and cognitive functions - by **Dr.Bindu M. Kutty,** Professor of Neurophysiology&Head, NIMHANS<br>2. Neural mechanisms of spatial cognition in subicular complex network - by **Dr. YoganarasimhaDoreswamy,** AddlProf of of NeurophysiologyNIMHANS<br>3.Modulation of mood and cognition by neurosteroids by**Dr. B N Srikumar,** Associate Professor of Neurophysiology, NIMHANS<br>4. Novel treatment strategies to modulate abnormalepileptic networks and restoration of cognitive dysfunctions - by **Dr. B S ShankaranarayanaRao,** Prof. of Neurophysiology, NIMHANS | Oral and/ poster presentation **(Hall-C)** |
| 3.30-3.45 | Tea Break | |
| 3.45-5.15 | **Symposium 2: Heart Rate Variability and its Application**<br>1. Introduction and Concept of HRV - by **Dr. PravatiPal,** Professor of Physiology& Head, JIPMER<br>**2.** Measurement of HRV- by **Dr. R. Rajalakshmi,** Assistant Professor of Physiology, JIPMER<br>3. HRV Indices-how are they derived & what they represent - by**Dr. D. Amudharaj,** Assoc. Prof. of Physiology, AIIMS, Mangalagiri<br>4. HRV - Physiological variations and perspectives - by **Dr. S. Velkumary,** Additional Professor of Physiology, JIPMER<br>5. Application of HRV in patient care & research- by **Dr. G. K. Pal-** Sr. Professor of Physiology& Dean, JIPMER | Oral and/ poster presentation **(Hall-C)** |
| 7.30 pm onwards | **Banquet Dinner** | |

## Day 2: 13.09.2019 (Friday)

| | |
|---|---|
| 07.30-8.30 | Breakfast |
| 8.30-9.15 | **PlenaryLecture:**<br>**Speaker: Dr.T. S. S. Rao,** Professor, of Psychiatry, JSS Medical College and Hospital<br>**Topic-**Effect of stress on Health of Academicians & Health Care Professionals |

| | | |
|---|---|---|
| 9.30-11.00 | **Symposium 3:Physiology of Virtue (Organized by speakers from USA)**<br>1.**Dr. Thomas M Ferrari**, Asst.Professor, Physiology & Neuroscience, Dept. of foundational Medical studies, Rochester<br>2. **Dr.SuzanelSayed**, Assoc. Professor, Physiology, Dept. of Foundational Medical studies, Rochester<br>3. **Dr. Serena Kuang**, Asst.Professor, Physiology & Neuroscience | **Symposium 4:Hematology**<br>1. Recent advances in Mechanism of Coagulation- by **Dr. Sitalakshmi Subramanian,**Prof &Head, Dept of Transfusion Medicine &Immune Heamotology, St.Johns Medical College<br>2. Recent advancesin Blood grouping and Blood Transfusion - by **Dr. Dolly Daniel,** Professor, Dept of Transfusion Medicine &Immuno-haematology, CMC, Vellore<br>3. Flow cytometry and its application in Hematology - by **Dr. Mahesh Rajashekaraiah,** Visiting Professor, JSS Hospital |
| 11.00-11.30 | Tea Break | |
| 11.30-12.30 | **Panel discussion:**<br>Topic: **Managing, mentoring and monitoring millennial (Gen Z) medical students** | |
| 12.30-1.00 | **Presentations by sponsors** | |
| 1.00-2.00 | Lunch | |
| 2.00-3.30 | **Symposium 5: Immunology**<br>1. Immunogenetics - by **Dr. Shivaprasad BN,** Consultant Rheumatologist, Apollo BGS Hospital, Mysuru<br>2. Autoimmunity in Health and Diseases - by **Dr.Subramanian R,**Associate Professor Deptof Rheumatology and Immunology JSS Medical College<br>3.Immunosenescence and Longevity - by **Dr. Yogesh Singh**, Consultant and Head Dept of Rheumatology, Manipal Hospital | **Invited Guest lectures:**<br>1.**Lt.Col.Srinivasa A Bhattacharaya –** Physiological changes at High altitude And prevention strategies with Emphasis on Hypoxia<br>2.**Dr. Padmaja Hari** - Hormonal interactions in PCOD<br>3. **Dr. Ramanjan Sinha**- Exercise & Mental health<br>Oral and/ poster presentation **(Hall-C)** |
| 3.30-3.45 | Tea Break | |
| 3.45-5.15 | **Symposium 6: Application of Chronomedicine in health and disease**<br>1.Introduction to Chronobiology & Chronomedicine - by **Dr. A. K. Pati,** Vice Chancellor, GangadharMeher University, Odisha<br>2. Application of Chrono-medicine in metabolic diseases - by **Dr. Narsingh Verma**, Professor of Physiology, King George Medical University<br>3. Circadian rhythm disturbances in respiratory diseases **- by Dr. Meenakshi Sinha**,Professor of Physiology,AIIMS Raipur<br>4.Comprehensive geriatric assessment – by **Dr. Pratibha Pereira,**Professor General Medicine, JSSMC<br>5. Cancer Chrono-therapy - by **Dr. Arti Parganiha,**Prof. of BioscienceSchool of Studies in Life Science, Pt. Ravishankar Shukla University, Raipur | **Symposium 7:Genomics & Proteomics**<br>1.Overview of Genomics - by **Dr.Ramachandra,** Professor & HOD Genetics & Genomics, University of Mysore<br>2.Obesity-fatty liver-cancer and gene knock Down - by **Dr. Madan Kumar,**Scientist CFTRI, Mysuru<br>3.Overview of proteomics**-** by **Dr. Gnanesh,** Scientist, CFTRI, Mysuru<br>4. Gene knock down**–** by**Dr. M V S S T Subbarao,** Prof., Biochemistry, JSSMC<br>Oral and/ poster presentation **(Hall-C)** |

| | |
|---|---|
| 5.30-7.30 PM | **General Body Meeting** |
| 7.30 PM | **Dinner** |

**Day 3:14.09.2019 (Saturday)**

| | | |
|---|---|---|
| 07.30-8.30 | Breakfast | |
| | Hall-A | Hall-B |
| 8.30-09.15 | **Plenary Lecture**<br>**Speaker :Dr Nagaraj Desai**, Senior Cardiologist, Adjunct faculty, JSS Academy of Higher Education and Research<br>**Topic**: Effects of Yoga on cardiovascular health | |
| 9.15-10.45 | **Panel discussion :**<br>**Topic: Future Prospects in Physiology** | |
| 10.45-11.15 | Tea Break | |
| 11.15-12.45 | **Symposium 8:Yoga & Stress**<br>1.Neurophysiology of Yoga**- by Dr. Satyaprabha,** Professor, Dept. of Neurophysiology, NIMHANS<br>2. Positive impact of regular practice of Yoga on Cytokine molecules - by **Dr. Ambarish V,** Assoc. Prof of Physiology, MS Ramaiah Medical College<br>3.Meditation for undergraduate medical students: Challenges and outcomes - by**Dr. AnumehaBhagat,** AssoProf. of Physiology, Govt. Medical College Chandigarh | |
| 12.45– 1.15 | **Valedictory function,** followed by lunch | |

For further details, please contact organizing secretary of ASSOPICON-2019 at following address:

**Dr. L. Rajeshwari,**
Organizing Secretary, ASSOPICON 2019.
Associate Professor of Physiology,
JSS Medical College, Mysuru.
Mobile: 09248386722
Mail IDs: lrajeshwari@jssuni.edu.in
raj0522004@gmail.com

## *Official Journal of ASSOPI:*

Due to technical issues,International Journal of Clinical and Experimental Physiology (IJCEP) could not be affiliated to ASSOPI. By the concurrence of Office Bearers and Executive Body Members the new official Journal of ASSOPI will be launched soon. For further details of the journal and submission of manuscripts to the journal, Dr. Raj Kumar Yadav, Editor-in-Chief & Prof. of Physiology, AIIMS, may be contacted at: raj3kr@gmail.com

As MCI has expressed interest to address the issues pertaining to MD seats lying vacant in nonclinical subjects in various medical colleges in the country, an ASSOPI Committee was formed to provide details of suggestion to MCI in this regard. The report of the Committee is give below.

## REPRESENTATION OF ASSOPI TO THE BOARD OF GOVERNORS, MEDICAL COUNCIL OF INDIA (MCI).

**Subject: Proposal for necessary amendments to be made in MD Physiology Curriculum and over-tune of career and Job prospects in the specialty of Physiology: submission to Medical Council of India**

**"Progress is impossible without change" – George Bernard Shaw**

Physiology is the core component of medical curriculum which provides the backbone of health science to a Medical Graduate. But gradually people are losing their interest in this discipline due to increase rate of unemployment and underemployment. If we analyze the data for the last few years, large number of PG seats remained vacant even after reducing the qualifying marks for National Eligibility Entrance Test by Ministry of Health, India.

As such, there is an urgent need to change the PG curriculum from producing physiologists competent in teaching and research work, to Physiologists who are competent to provide independent high quality health care services, adjunct to the clinicians in diagnosis and treatment of various disorders.

The major concern for medical graduates for not joining MD Physiology is the lack of job opportunity and lesser scope for career promotion in research and clinics in Physiology. Now Physiology in most of the Indian Medical Institutes remains as the only teaching oriented specialty.

In view of the above-mentioned problems, an **ASSOPI committee** was formed as given below to compile the suggestions from the members of Association of Physiologists of India (ASSOPI) and to submit the report to Medical Council of India (MCI), with a request to implement its recommendations.

1. Prof. G. K. Pal, General Secretary, ASSOPI: Patron
2. Prof. Nitin Ashok John, Finance Secretary(Former), ASSOPI: Chairman
3. Dr. ArvindKanchan (U.P.): Member
4. Dr. ArohiAbhinavJaiswal (Bihar): Member
5. Dr. Bharath T (Karnataka): Member

6. Dr. Chinmay Shah (Gujrat): Member
7. Dr. SujataBiswas (West Bengal): Member
8. Dr. Jolly Bhattacharjya (Assam): Member
9. Prof. NarsinghVerma, President, ASSOPI: Advisor
10. Prof. S. B. Deshpande, Immediate Past President: Advisor
11. Prof. H. B. Mehta, Vice-President, ASSOPI (West Zone): Advisor
12. Prof. Latika Mohan, Vice-President, ASSOPI (North Zone): Advisor
13. Prof. B. S. ShankaranarayanaRao, Vice-President, ASSOPI (South Zone): Advisor
14. Prof. Raj Kumar Yadav, Editor-in-Chief, (ASSOPI Journal): Advisor
15. Dr. S. Velkumary (Pondicherry): Special Invitee
16. Prof. Hasmukh Shah (Gujarat): Special Invitee
17. Prof. Pravati Pal (Pondicherry): Special Invitee
18. Prof. Rajeev Sharma (Punjab): Special Invitee
19. Dr. RituparnaBarooah (Meghalaya): Special Invitee
20. Dr. D. Amudharaj (Andhra Pradesh): Special Invitee

The committee members had a series of meetings and discussed various matters in detail in the following parts and have the following recommendations:

Part- 1: Proposed New Curriculum for MD (Physiology): 3 years course

Part- 2: Requirement of faculty: To Increase faculty strength in medical colleges

Part- 3: To start following courses in Physiology DM in Clinical Physiology (that includes Electrodiagnosis): Three years / PDCC in Clinical Physiology and Electro diagnosis (one year) / PhD in clinical Physiology (two years for MD candidates)

Part- 4: Restoring eligibility of MD (Physiology) candidates for pursuing DM (Endocrinology)/ DM (Immunology)/ DM (Medical Genetics) and to pursue DM (Cardiology), DM (Neurology), DM (Gastroenterology) and DM (Nephrology).

Part- 5:Scope to work as Occupational Physiologists in industries, mines, high altitudes, extreme cold and hot places, aviation industry etc. to work as Adjunct Faculty in Clinical Departments

## PART- 1:

## Proposed New Curriculum for MD (Physiology) - 3 years course

**Introduction:**

The purpose of new curriculum is to convert Physiology from teaching and research specialty to **health care specialty**. To equip trainees with the necessary knowledge and skill to become consultants providing the highest standards of service to patients who require clinical investigations in different fields. The fundamental of this Clinical Physiology course is to make trainees able to work in a multidisciplinary team with various clinical departments, clinical scientists, medical engineers and other ancillary staff, and to provide high quality health care services in the form of investigations in various fields and leadership wherever appropriate.

**Goal:**

The goal is to have uniform standards in the teaching of Physiology at Postgraduate level throughout the country to ensure availability of competent Physiologists equipped with required skills that will enable them not only in teaching and research work but also to provide health care services helping the clinicians in various fields.

Hence;

1. Dept. of Physiology should be re-designated as Dept. of Physiology and Health care Medicine.
2. MD (Physiology) degree should be known as MD (Physiology and Health care Medicine)

**Competencies:**

**A post graduate student having qualified the MD (Physiology) examination should be competent enough to:**

- Teach the basic physiological mechanisms of human body with reference to their implications in the pathogenesis of diseases (pathophysiology) and their management to undergraduate medical and paramedical students.
- Conduct such clinical and experimental research, as would have a significant bearing on human health and patient care.
- Participate actively in various workshops/seminars/journal clubs/demonstration in the allied departments, to acquire various skills for collaborative research.
- Contribute to society by imparting physiological understanding of health problems.
- Must be able to do various hematological, amphibian, mammalian, human physiology investigations that were included in previous PG curriculum.
- To provide the trainee with the knowledge and skills to be able to record and report on EEGs.
- Interact with other departments by rendering services in advanced laboratory investigations and relevant expert opinion. Various fields where PGs should be able to provide their independent opinions are -
- Record and interpret 12 lead Electrocardiography (ECG) at rest and ambulatory.
- **Perform Cardiac stress testing and Echocardiography (Echo)**
- **Radiology (Doppler, MRI, Blood flow status)**
- Record and interpret Blood-gas Analysis.
- **Record and interpret Computerized multifunctional spirometry (PFT) and impulse spirometry**
- **Record and interpret pulmonary diffusion capacity and functional residual capacity (FRC)**
- Measurement and interpretation of Cardiovascular function testing such as HRV, BPV, BRS and Tit-Table
- Cardio-pulmonary resuscitation (CPR) and Artificial respiration.

- **Train the medical and paramedical graduates in Basic Life support (BLS) and Advanced Cardiac Life Support (ACLS)**
- Determination of ovulation time by basal body temperature chart and pregnancy diagnostic test - Immunological Tests.
- **Biochemistry, Endocrine & Reproductive (Hormonal Assay)**
- Interpretation and reporting of semen analysis: sperm count and motility.
- **Recording and interpretation of electromyography (EMG) across all age groups and medical conditions.**
- **Recording and interpretation of nerve conduction velocity (NCV) across all age groups and medical conditions.**
- **Recording and interpretation of Electroencephalography (EEG) and Polysomnography(PSG) across all age groups and medical conditions.**
- **Recording and reporting on Ambulatory EEG recordings**
- Recording and interpretation of Autonomic Nervous System Function Testing (AFT).
- Recording and interpretation of Tests for physical fitness: Cardio-respiratory responses to steady state exercise using Harvard step test, Bicycle Ergometer, Treadmill test for determination of VO2 max (Sports Physiology).
- Train Yoga practices and lifestyle modification techniques

**TEACHING AND LEARNING METHODS:**

Active learning should form the main stay of postgraduate training.

There should be seminars (at least 4 per month) along with symposia, group discussions and Journal clubs (at least 2 per month).

A postgraduate student would be required to present one poster presentation, to read one paper at a national/state conference and to present one research paper which should be published/accepted for publication/sent for publication during the period of his postgraduate studies so as to make him eligible to appear at the postgraduate degree examination.

The postgraduate students shall be required to participate in the teaching and training programme of undergraduate students and interns.

The PG students should pay formal and scheduled visits to various hospital laboratories for the purpose of learning. In consultation with the concerned clinical departments periodic posting should be made for the post-graduate students to attend clinical settings to provide routine services initially under supervision followed by performing independently for health monitoring and diagnostics (disease).

**I semester: Department of Physiology to cover**

(i) General aspects of UG teaching,

(ii) Selection of thesis topics and collection of relevant references,

(iii) Posting in SPM/Community Medicine/Biostatistics department to learn research methodology and statistical analysis.

**II Semester:**

(i) Submission of thesis synopsis

(ii) Posting in departmental UG-PG laboratories

(iii) Posting in clinical investigationlaboratories

**III Semester: Institutional Peripheral Postings**

Instructions:

1. Learning Objectives for posting in each department have to be prepared based on the competencies, listed above.
2. Prior approval from coordinating departmental heads and Dean
3. Prescribed hours shall not be exceeded as it will dilute the course objectives
4. Activities performed without jeopardizing parent departmental activities.
5. They (Physiology PG students) shall strictly observe the diagnostic and interventional procedures.
6. They may perform diagnostic procedures on the discretion of the coordinating head.
7. Any other academic or research activity other than the intended, shall be promptly informed to Physiology HoD for approval or directions.
8. They shall not involve in any research or other academic activities without the consent of the head of the Physiology department.
9. Certification to beproduced from the head of the coordinating department/authorized officer.

They shall not disrupt the on-going activities of the coordinating department in any manner.

| S. No | Department | Per Day Hours | Per week | Total hours per week | Total Weeks | Total Hours |
|---|---|---|---|---|---|---|
| | | | | | | |
| 1 | Medicine | 2.5 | 3 times | 7.5 | 2 | 15 |
| 2 | Neurology | 2.5 | 3 times | 7.5 | 2 | 15 |
| 3 | Cardiology | 2.5 | 3 times | 7.5 | 2 | 15 |
| 4 | Neuro-Surgery | 2.5 | 3 times | 7.5 | 2 | 15 |
| 6 | Cardio - Surgery | 2.5 | 3 times | 7.5 | 2 | 15 |
| 7 | Obstetrics | 2.5 | 3 times | 7.5 | 2 | 15 |
| 8 | Endocrinology | 2.5 | 3 times | 7.5 | 2 | 15 |
| 9 | Otorhinolaryngology | 2.5 | 3 times | 7.5 | 2 | 15 |
| 10 | Ophthalmology | 2.5 | 3 times | 7.5 | 2 | 15 |
| 11 | Radiology | 2.5 | 3 times | 7.5 | 2 | 15 |
| 12 | Pulmonary Medicine | 2.5 | 3 times | 7.5 | 2 | 15 |
| 13 | Physical Medicine Rehab | 2.5 | 3 times | 7.5 | 2 | 15 |
| 14 | Optional | 2.5 | 5 times | 7.5 | 2 | 15 |

A total of about**210 hours** in the total course is allotted for institutional peripheral postings.

## IV Semester: Extra Institutional Postings

Instructions:

1. Prior approval from coordinating departmental head/authorized official and Dean
2. Prescribed hours shall not be exceeded as it will dilute the course objectives
3. Activities performed without jeopardizing parent departmental activities.
4. Extra institutional postings far from institutions are planned during vacations for UG students.
5. Certification to be produced from the head of the coordinating department/authorized official.
6. They shall not disrupt the ongoing activities of the coordinating department/office in any manner
7. The travel expenses and charges for accommodation at the place of posting during extra institutional postings should be borne by the institute of the PG student.

| S. No | Department | Per Day Hours | Days Visited | Total Hours |
|---|---|---|---|---|
| | | | | |
| 1 | Sports Authority Of India | 4 | 2 | 8 |
| 2 | Factory Visit | 4 | 2 | 8 |
| 3 | Mines (optional) | 4 | 2 | 8 |
| 4 | TB Hospital | 4 | 2 | 8 |
| 5 | AIIMS/JIPMER/DIPAS/NIMHANS/ NBRC etc | 4 | 2 | 8 |
| 6 | ICMR/ICMR labs | 4 | 2 | 8 |
| 7 | State Conferences | At least 1 | 2 | 8 |
| 8 | National Conferences | At least 2 | 6 | 30 |
| 9 | International Conference (Optional) | 1 | 6 | 30 |

A total of **140 hours** in the total course is allotted for extra institutional postings.

## V and VI Semester: Departmental Postings

| S. No | Laboratory | Days – forenoon |
|---|---|---|
| 1 | Autonomic Function Testing Lab (CAFTs, HRV, pupillometric, sudomotor, gastrointestinal and genitourinary) | 20 |
| 2 | Nerve Conduction and Evoked Potential studies | 20 |
| 3 | Pulmonary laboratory (arterial blood gas analysis, spirometry including diffusion studies, dead space and FRC assessments ) | 20 |
| 4 | Exercise Physiology Laboratory (treadmill, cycle ergometry, Blood pH studies) | 20 |
| 5 | Sleep laboratory (Video EEG, oesophagealpHmetry and manometry studies) | 20 |

| | | |
|---|---|---|
| 6 | Biomedical signal analysis with MATLAB. This will include all biomedical signal analysis such as HRV, EEG, Pulse wave etc. | 20 |
| 7 | Molecular Biology Laboratory (Autoanalyser, ELISA, RT-PCR) | 20 |
| 8 | Electrophysiology / Cell Physiology Lab | 20 |
| 9 | **Cardiovascular Function Studies** (Studies analyzing isotropy and lusitropy, Heart Rate and Blood Pressure variability studies, Echocardiography including Doppler studies, Pulse wave velocity, aortic augmentation index and flow mediated dilation, cerebral flow studies) | 20 |

Incase if the laboratory is not available in the department, PG students shall avail the facility from other departments. In case of non-availability, the HoD shall coordinate with a nearby facility with the concurrence from Dean of the parent institute.

In case of coordinating with extra institutional facility, the number of days shall be decided as per the availability.

**ASSESSMENT**

**FORMATIVE ASSESSMENT i.e.** during the training:

Formative assessment should be continual and should assess medical knowledge, patient care, procedural & academic skills, interpersonal skills, professionalism, self-directed learning and ability to practice in the system**.**

**General Principles**

Internal Assessment should be frequent, cover all domains of learning and used to provide feedback to improve learning; it should also cover professionalism and communication skills. The Internal Assessment should be conducted in theory and clinical examination.

Quarterly Assessment during the MD training programme should be based on:

1. Journal based / recent advances learning
2. Patient based /Laboratory or Skill based learning
3. Self-directed learning and teaching
4. Departmental and interdepartmental learning activity
5. External and Outreach Activities / CMEs

6. Workplace-based assessments (WPBAs) • Multi-Source Feedback (MSF) • mini-Clinical Evaluation Exercise (mini-CEX) • Direct Observation of Procedural Skills (DOPS) • Case-Based Discussion (CBD)

7. The PGs should have to get evaluation form from the supervising faculties of the clinical departments where students are posted on monthly basis.

**8**. **Special acknowledgement and certification of competencies:**

**i) Assessment for clinical competency after end of each clinical posting.**

**ii) Marks of Assessment:(Clinical Case)**

**Major: 50 marks; Minor: 25 marks; Viva Voce: 25 marks**

**N.B.:** Both HOD of Physiology and Respective super-specialty department like Neurology/ Cardiology/ Pulmonology/ Radiology shall certify that necessary competency has been achieved for patient reporting independently.

**SUMMATIVE ASSESSMENT i.e.**, Assessment at the end of training

The post-graduate examinations should be conducted in 3 parts:

**1. Thesis**

Thesis shall be submitted at least six months before the Theory and Clinical / Practical examination. The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, who shall not be the examiners for Theory and Clinical examination. A post graduate student shall be allowed to appear for the Theory and Practical/Clinical examination only after the acceptance of the Thesis by the examiners.

**2. Theory Examination**

The examinations shall be organized on the basis of 'Grading 'or 'Marking system' to evaluate and to certify post graduate student's level of knowledge, skill and competence at the end of the training. Obtaining a minimum of 50% marks in 'Theory' as well as 'Practical' separately shall be mandatory for passing examination as a whole. The examination for M.D. should be held at the end of 3rd academic year. An academic term shall mean six month's training period.

There should be 4 theory papers:

Paper I: General Physiology including history of Physiology and Medicine, Blood and Immunity

Paper II: Systemic Physiology (GIT, Endocrine, Reproduction, Kidney)

Paper III: Systemic Physiology (CVS, RS, Nerve and Muscle, Neurophysiology, Environmental Physiology)

Paper IV: Applied Physiology (including interdepartmental patient/skill base learning), Integrated Physiology and Recent Advances

**3. Practical and Oral examination**

Practical examination should be spread over two days and include the following components:

1. Objective Structured Practical Exam (OSPE)/ Spotting
2. Problem solving exercises pertaining to Clinical Physiology
3. Performing and reporting one case-based hematology laboratory investigation.
4. One animal experiments illustrating mechanisms, physiological concepts and their applications to humans. (Subject to current guidelines of Government of India regarding animal usage). This is optional. It is advisable to use simulated experiments for this purpose.
5. Four human experiments (one long case, one short case, two investigations), dealing with clinical Physiology as would have significant bearing on human health and patient care.
6. Micro-teaching session for assessing communication skills.
7. Viva-voce examination

**Special Note:** There should be **representation of Physiology faculty/consultant in the National Medical Commission and Board of Governors** of MCI and Important Committees of MCI. At least **FOUR senior faculties** should represent in MCI higher bodies to participate in decision making pertaining to Physiology.

## PART - 2:

## Requirement of faculty (increasing faculty strength in medical colleges)

a. (Present) (Proposed change) for 100/150/200/250
b. Addition of faculty:
   1 Associate Professor/ 1 Asst. Professor for Dental
   1 Associate Professor/ 1 Asst. Professor for Paramedics
   1 Asst. Professor / Consultant for lifestyle modification clinic in Non-Communicable Disease Management
c. Post of Research Physiologist: At least one faculty in every Department of Physiology in all medical colleges.

| | 100 MBBS seats | | 150 MBBS seats | | 200 MBBS seats | | 250 MBBS seats | |
|---|---|---|---|---|---|---|---|---|
| | Present Structure | Proposed Changes | Present Structure | Proposed Changes | Present Structure | Proposed Changes | Present Structure | Proposed Changes |
| Professor | 1 | 1 | 1 | 2 | 1 | 2 | 1 | 3 |
| Associate Professor | 1 | 2 | 1 | 3 | 2 | 3 | 2 | 4 |
| Assistant Professor | 1 | 4 | 2 | 5 | 3 | 6 | 4 | 8 |
| Research Physiologist | | 1 | | 1 | | 1 | | 1 |
| Tutor | 3 | 4 | 3 | 4 | 4 | 5 | 5 | 6 |
| **Total** | **6** | **12** | **7** | **15** | **10** | **17** | **12** | **22** |

## Eligibility criteria for joining the post of Assistant Professor in Physiology:

**A. Eligibility criteria for Medical Postgraduate/PhD for joining the post of Assistant Professor in Physiology:**

1. MD (Physiology): Fresh candidates are eligible.

2. MBBS, PhD (Medical Physiology):Should have minimum three years of post-PhD teaching experience in a recognised medical college as senior resident / demonstrator / tutor / lecture or in any equivalent post.

**B. Eligibility criteria for Non-Medical candidate with PhD in Medical Physiology for joining the post of Assistant Professor in Physiology:**

1. MSc (Medical Physiology), PhD (Medical Physiology) without teaching experience post PG: Should have minimum three years teaching experience post PhD in a recognised medical college to be eligible for the post of Assistant Professor in Physiology.
2. MSc (Medical Physiology), PhD (Medical Physiology) with three years teaching experience post PG: Should have minimum one year teaching experience post PhD, in a recognised medical college to be eligible for the post of Assistant Professor in Physiology.
3. An MSc in Medical Physiology and a PhD in Medical Physiology (primary work done in department of Physiology of a medical college with the guide working as faculty, department of Physiology of a recognised medical college) are mandatory requirements to join for the post of Assistant Professor of Physiology in a medical college.

**C. Eligibility criteria for Non-Medical candidate in Medical Physiology for joining the post of Tutor in Physiology:**

1. MSc (Medical Physiology) and MBBS degree holdersare eligible for the post of Tutor in Physiology. However, MSc (Medical Physiology) with PhD (Medical Physiology) and MD Physiology also can apply.
2. Any MSc degrees other than MSc (Medical Physiology) will not be eligible to apply the post of Tutor in Physiology.

**What has been the impact of reducing the number of teachers?**

1. Many postgraduate MD Physiology candidates are rendered jobless after completion of their MD degrees.
2. Some are underemployed for the educational degrees they possess; as tutors or junior residents in some clinical departments based on their MBBS degrees.
3. Impact was such that many doctors who were already employed also lost their jobs as few private medical colleges sacked the faculty citing MCI requirements.
4. It has affected the quality of teaching, individual attention cannot be provided, and small group teaching and case-based learning cannot be dealt with effectively.
5. MCI permits teachers to teach other allied health courses provided courses are conducted by the same institution, with which present requirements burdens the teachers and decreases the quality of teaching for MBBS students.
6. It has affected the research abilities of the faculty due to work overload.

**Why increase teacher requirement in Physiology?**

1. Physiology being a basic medical science, provides knowledge which forms a foundation for being a good clinician, researcher and building a strong medical career. So, teaching quality in basic medical sciences should not be compromised.

2. Number of teachers required was reduced owing to shortage of qualified Physiologists; now on the other hand, there is unemployment as many MD Physiology graduates have completed their degrees (as number of PG seats were increased) and there is lack of job opportunities.
3. Opening of job opportunities would encourage students to take up MD Physiology for post-graduation.
4. New curriculum of MCI also requires Physiology to be taught across the MBBS course, hence as per teaching hours, more faculty would be required.
5. New curriculum of MCI recommends many clinical skills to be acquired in first year of MBBS and early clinical exposure, which requires more faculty for efficient execution.
6. Most of the exam duties of the universities, custodian duties are performed by the faculty of preclinical departments.
7. Most of the administrative work of the institutions is done by the preclinical faculty. Physiologists are also burdened with additional responsibilities by nominating them to various committees.
8. In some institutions, Physiologists are also involved in providing diagnostic services through electrophysiology lab, autonomic function lab etc.
9. Improves research abilities of the faculty by reducing workload.
10. Creating a post of Research Physiologist would improve overall research outcome of the department, institution and country in long run.

**How increasing teacher requirement would benefit all?**

1. It opens job opportunities for jobless postgraduate MD Physiology degree holders, decreases unemployment, underemployment and provides suitable jobs.
2. Helps in maintaining quality of teaching and to provide individual attention to students.
3. New curriculum of MCI recommends small group teaching, increasing the number of teachers would help students acquire requisite skills as teachers would be able to teach students in small groups in true spirit.
4. New curriculum of MCI also requires Physiology to be taught across the course; increasing staff requirement would ease the workload and increase efficiency of teachers.
5. It will increase the quality of research.

## PART- 3:

## Proposed Courses to be Started:

1. **DM in Clinical Physiology (including Electrodiagnosis): three years duration**
2. **Post-doctoral Certificate Course (PDCC) in Clinical Physiology and Electrodiagnosis: one year duration**
3. **PhD in Clinical Physiology (minimum two years for MD candidates)**

**Minimum Qualification for Admission: MD-Physiology**

**Program of study for DM Course:** The course consists of lectures, seminars, laboratory work and dissertation. The course aims at training students to acquire comprehensive knowledge of Clinical Physiology from system to the cellular level.

The areas covered include:

a. **EMG-NCV-BERA**
b. **Sleep Physiology**
c. **Electrophysiology**
d. **ECG-Echo & Stress testing**
e. **Pulmonary function testing including impulse oscillometry and Plethysmography**
f. **EEG and Reaction time calculation**
g. **Biochemistry, Endocrine & Reproductive (Hormonal Assay)**
h. **Hematology& Immunology**
i. **Radiology (Doppler, MRI, Blood flow status)**
j. **Autonomic functions testing**

The candidates will actively participate in seminars and journal clubs and acquire skills in critically evaluating research findings. They would be exposed to research methodologies covering various aspects of Clinical Physiology through postings in several laboratories of the department. Each candidate is expected to acquire experience in wide range of experimental skills. The candidates will carry out specific research project, which will be presented in the form of a dissertation.

**Note:** Depending upon candidates' interest, during DM course they can choose to specialize in Cardiology/ Neurology/ Radiology/ Pulmonology/ Hematology/ Immunology & Biochemistry/Genetics. The entire duration of three years can be dedicated by the candidate in clinical care/ diagnostic care and so also the thesis can be chosen the concerned field of interest.

**For PhD in Clinical Physiology:** The topic and the details of course curriculum can be decided based on the PhD requirements of the Institute/University and the recommendation of the Doctoral Committee

**<u>Eligibility criteria for pursuing PhD in Physiology:</u>**

**A. Eligibility for a medical graduate to do PhD in Medical Physiology:**

1. MD (Physiology):
   For faculty-Minimum two years in-service experience will be needed to apply for a part-time PhD as an internal candidate. Minimum duration PhD is three years.
   For fresh MD - Minimum duration of fulltime PhD is two years.
2. MBBS: For MBBS graduate, minimum duration of fulltime PhD is five years

**B. Eligibility for a non-medical graduate to do PhD in Medical Physiology:**

1. MSc (Medical Physiology) fresh candidates: Minimum duration of fulltime PhD is three years.
2. MSc (Medical Physiology) working as tutor: Minimum duration of part time PhD is four years.
3. Candidates who have MSc in any branch other than Medical Physiology shall **not** be eligible for pursuing a PhD in Medical Physiology

**4. PART - 4:**

**i) Restoring eligibility of MD (Physiology) candidates for pursuing DM (Endocrinology)/ DM (Immunology)/ DM (Medical Genetics).**

**ii) Also, MD (Physiology) candidates should be allowed to pursue DM (Cardiology), DM (Neurology), DM (Gastroenterology) and DM (Nephrology).**

**5. PART - 5:**

**i) Scope to work as Occupational Physiologists in industries, mines, high altitudes and extreme cold and hot places, aviation industry.**

**ii) Professor or Faculty in Physiology should be allowed to be the Adjunct Professor or Adjunct Faculty in any of the Clinical Department of choice of the physiology faculty.**

## Summary:

**MCI is requested to ensure:**

1. **Re-designation of the name of the Department of Physiology to "Department of Physiology and Health Care Medicine".**
2. **Re-designation of the MD (Physiology) degree to 'MD (Physiology and Health Care Medicine)'.**
3. **To instruct government authority and institutional authority to provide infrastructure facilities to develop Clinical Investigation Facilities and patient care facilities to make Physiology Departments as Health Care Medicine Departments.**
4. **Increasefaculty strength in Physiology Departments** (as stated above)
5. **Implementation of new PG Course Curriculum in Physiology** (as suggested above)
6. **To start DM course in Clinical Physiology**
7. **Restoring eligibility of MD (Physiology) candidates for pursuing DM (Endocrinology)/ DM (Immunology)/ DM (Medical Genetics), and also to allow them to pursue DM (Cardiology), DM (Neurology), DM (Gastroenterology) and DM (Nephrology).**
8. **Improvement in job scope for physiologists in industries, mines, high altitudes and extreme cold and hot places, aviation industry, and sports medicine.**

9. **To allow Professors or Faculties in Physiology to be the Adjunct Professor or Adjunct Faculty in any of the Clinical Department of their choice.**
10. **Representation of Physiology faculty/consultant in the National Medical Commission** and Important Committees of MCI. At least **FOUR senior faculties** from Physiology should represent in MCI higher bodiesto participate in decision making pertaining to Physiology.

**Dr. G. K. Pal,**
**General Secretary,**
**Association of Physiologists of India (ASSOPI).**

## Even Moderate Exercise May Reduce Risk for Liver-Related Death:

Engaging in mild physical active may lower the risk of liver-related mortality, revealed researchers at the annual Digestive Disease Week.

Across two 26-year prospective studies, patients with the highest quintile of physical activity had a 51% lower risk of dying from liver disease compared with sedentary adults after adjusting for age, BMI, diabetes, and hypertension, among other factors.

Researchers also revealed that the magnitude of risk reduction was similar between participants who exercised vigorously, defined as ***≥6*** *metabolic* equivalent tasks (METs) per week, and moderately, defined as 3-6 METs/week.

Individuals who walked a minimum of 4 hours/week had >40% reduced risk compared to sedentary adults, which is particularly notable as >85% of those involved in the study reported walking as their primary form of exercise.

## LATE, a new type of dementia:

National Institutes of Health scientists have identified a new type of dementia and have named it **LATE or Limbic-predominant Age-related TDP-43 Encephalopathy** as reported April 30, 2019, in the journal Brain. LATE is an under-recognized condition and the "oldest-old" (80 years and older) are at greatest risk of developing it.

LATE affects multiple areas of cognition, ultimately impairing activities of daily life. It mimics the clinical features of Alzheimer's disease, but is more slowly progressing. But, LATE combined with Alzheimer's causes a more rapid decline than either condition alone would. Now there is rising appreciation that a variety of diseases and disease processes contribute to dementia. Each condition appears differently when a brain sample is examined at autopsy. However, it has been increasingly clear that in advanced age, a large number of people had symptoms of dementia without the telltale signs in their brain at autopsy. Emerging research seems to indicate that the protein TDP-43 may contribute to that phenomenon.

TDP-43 (transactive response DNA binding protein of 43 kDa) is a protein that normally helps to regulate gene expression in the brain and other tissues. Recent research has shown misfolded TDP-43 protein as being very common in older adults. Around 25% of people over 85 years of age have enough misfolded TDP-43 protein to affect their memory and/or thinking abilities.

Unusually misfolded TDP-43 has a causative role in most cases of amyotrophic lateral sclerosis and frontotemporal lobar degeneration. TDP-43 pathology is also commonly associated with hippocampal sclerosis. The hippocampal region of brain plays an important role in memory and learning. Therefore, cognitive impairment as the symptoms of hippocampal sclerosis may appear to be very similar to the effects of Alzheimer's disease.

# *Join ASSOPI*

## ***Membership Form***

Any person having a bachelor or postgraduate degree in Physiology or allied sciences can become a member of ASSOPI. Students pursuing PG course in Physiology or allied subjects are also eligible to become ASSOPI members.

Membership Fee: Annual Membership – Rs. 500/- and Life Membership – Rs. 3000/-

**Name:**

**Date of Birth:**

**Educational Qualification:**

**Present Designation and Institute:**

**Field of Interest:**

**Address for communication:**

**Pincode:**

**E-mail:**

**Mobile:**

**DD Number:**

**DD Date:**

**Name of the Bank & Branch:**

**Upload scanned DD copy:**

**Address to send DD:**

Application can be filled and submitted online in ASSOPI website: **www.assopi.co.in**. However, DD of membership has to be sent by speed-post to the address given below.

Pay by demand draft drawn in Favour of 'ASSOCIATION OF PHYSIOLOGISTS OF INDIA' Payable at 'Puducherry'and send it to:

Dr. G.K. Pal,
General Secretary, ASSOPI,
Senior Professor, Dept. of Physiology,
1st floor, JIPMER Academic Center,
JIPMER, Puducherry- 605 006

**OR,for new membership registration by online transfer of moneyto ASSOPI Account directly, General Secretary or Office Secretary to General Secretary may be contacted through his/her e-mail ID.**

Note: Kindly mention your individual name(s), college/institute name with contact number on the backside of Original Demand Draft while despatching the DD to above address.