



“PG lecture Series – Respiratory System”

Department of Physiology from Velammal Medical College Hospital and Research Institute in collaboration with Physiology departments of Madurai Medical College, Vinayaka Mission Kirupananda Variyar Medical College, Salem and Government Coimbatore Medical College organized and conducted a comprehensive lecture series in Respiratory system to augment the academic repertoire of the post graduates students through a well drafted 12 segment online lecture series. The online teaching module spanned over 4 months starting from 19/10/2024 to 25/01/2025. The sessions were laden with post session Q&A's and ultimately it provided the academic enrichment it warranted.

The topics and the stipulated date and timings are as below:

Timing of online lectures: Saturdays, 11.00 AM to 12.00 PM

Sl. No.	Topic	Faculty	Date
1	Organization of RS <ul style="list-style-type: none">• Respiratory passage• Muscles of Respiration• Dead space and its measurement Gas Laws	Dr. M. Renu Meena, Assistant Professor, Velammal Medical College.	19.10.2024
2	Lung Compliance Measurement of compliance Factors affecting compliance Static versus specific lung compliance	Dr. P. S. L. Saravanan, Director, Institute of Physiology, Madurai Medical College.	26.10.2024
3	Mechanics of Ventilation Pressure-Volume Curve	Dr. Noel Naveen Johnson Assistant Professor, Velammal Medical College.	23.11.2024
4	Diffusion <ul style="list-style-type: none">• Laws of Diffusion• Diffusion and Perfusion Limitations• Measurement of Diffusing Capacity	Dr. S. Anu, Professor and Head, Velammal Medical College.	16.11.2024



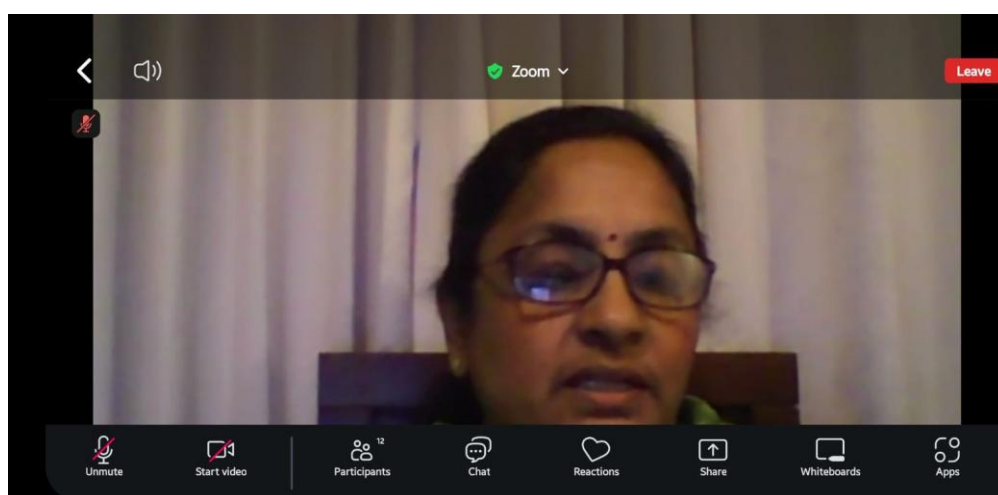
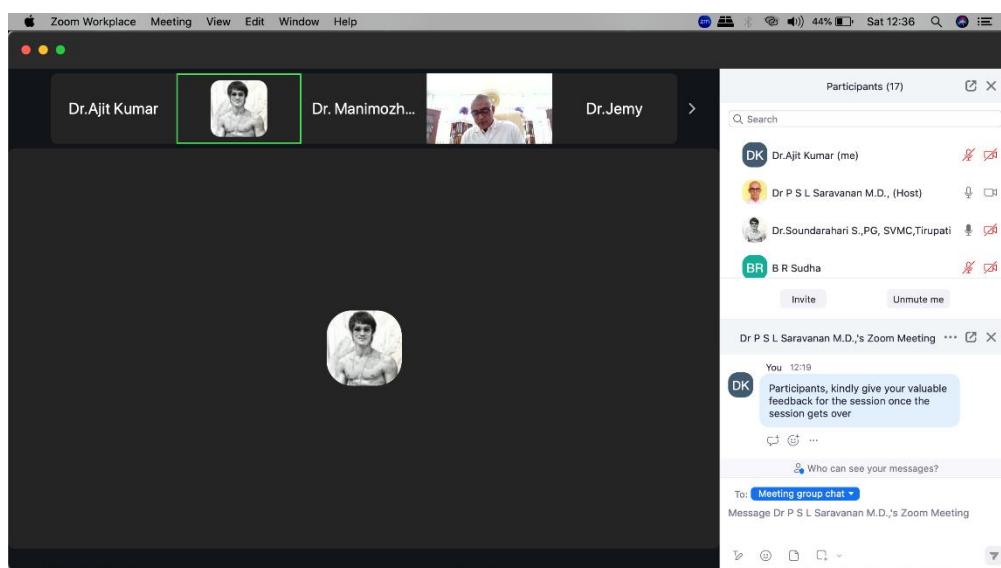
5	Transport of O ₂ <ul style="list-style-type: none">• Two forms O₂ of transport• Oxygen Dissociation Curve Effect of Carbon Monoxide Poisoning Peculiarities in Foetal circulation	Dr. V. Suganthi, Professor and Head, VMKVMCH.	29.11.2024
6	Transport of CO ₂ <ul style="list-style-type: none">• Forms of CO₂ transport• Haldane Effect/Carbon Dioxide Dissociation Curve Respiratory membrane Layers and determinants of Diffusion across themembrane	Dr. John Rajpathy, Professor, Velammal Medical College.	6.12.2024
7	Elastic Properties of the Lung & of Chest Wall Surfactant and Surface tension	Dr. J. T. Ajit Kumar, Assistant Professor, Velammal Medical College.	21.12.2024
8	Ventilation & Perfusion <ul style="list-style-type: none">• Limitations of diffusion & Shunt• Ventilation-Perfusion Ratio• Regional difference in Gas Exchange• Distributions of Ventilation- Perfusion Ratios• Effect of Ventilation-Perfusion inequality on Overall Gas Exchange• Measurement of Ventilation-Perfusion Inequality	Dr. R. Durai Arasan, Assistant Professor, Velammal Medical College.	04.01.2025
9	Neural Regulation of Respiration <ul style="list-style-type: none">• Respiratory centers• Circuitry of neural regulation• Other nonchemical receptors regulating respiration	Dr. M. Suresh, Associate Professor, VMKVMCH	18.01.2025
10	Chemical Regulation of Respiration <ul style="list-style-type: none">• Central chemoreceptors• Peripheral chemoreceptors• Other receptors Regulation by chemoreceptors based on levels of CO ₂ , O ₂ & pH Abnormal breathing patterns	Dr. P. P. Sheela Joice, Associate Professor, VMKVMCH.	25.01.2025
11	Hypoxia Sleep apnoea Asphyxia Dyspnoeic index Metabolic & other non-respiratory functions of the Lung	Dr. R. Shanmuga Vadivu, Professor and Head, Coimbatore Medical College.	18.02.2025



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12	<p>Environmental influence on respiration</p> <ul style="list-style-type: none">• High Altitude• Deep Sea• Space <p>Influence of exercise on respiration</p> <p>Hyperbaric oxygen therapy</p>	<p>Dr. P. Kavitha, Professor, Coimbatore Medical College.</p>	25.02.2025
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Altitude (ft) vs. Atmospheric Pressure (mmHg)

Altitude (ft)	Atmospheric Pressure (mmHg)	P_{O_2} (mmHg)	P_{CO_2} (mmHg)
0	760	159	40
3000	526	108	30
6000	253	54	15
9000	120	26	8

ACUTE RESPIRATORY FAILURE
Fluid build-up inside the lungs

Normal Amount of Red Blood Cells
Red Blood Cell
White Blood Cell

ANEMIA
Red Blood Cell
White Blood Cell

Inability of the cell to accept or use oxygen
Adequate oxygen
Blood moving slowly
Poisoned tissue

Summary of CO₂ Transport

Alveoli
Dry air = 760 mm Hg
 P_{O_2} = 160 mm Hg
 P_{CO_2} = 0.25 mm Hg

Arterial blood
 P_{O_2} = 100 mm Hg
 P_{CO_2} = 40 mm Hg

CO₂ transport
 HCO_3^- = 70%
 $Hb \cdot CO_2$ = 23%
Dissolved CO_2 = 7%

O₂ transport
 $Hb \cdot O_2$ > 98%
Dissolved O_2 < 2%
($\sim P_{O_2}$)

Venous blood
 P_{O_2} = 40 mm Hg
 P_{CO_2} = 46 mm Hg

Systemic circulation
 P_{O_2} = 40 mm Hg
 P_{CO_2} = 46 mm Hg



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Zoom Workplace Meeting View Edit Window Help

Renu Meena's screen

Ajit Kumar Dr Ajay Kuma... Anu S F

RESPIRATORY PASSAGE

Upper respiratory tract

- Nose
- Paranasal sinuses
- Pharynx
- Larynx & glottis

Lower respiratory tract

- Trachea
- Bronchi & bronchioles
- Lungs

Whole respiratory passage – branching network of trachea constitutes tracheo bronchial tree

Participants (20)

Search

AK Ajit Kumar (me)

Renu Meena (Host)

AS Anu S

Bs Birundha singh

Invite Unmute me

PHYSIOLOGY GUEST LECTURE SERIES...

OnePlus CPH2467 to Everyone 11:10

OC Dr.N.Tamilselvan
Physiology Postgraduate
Coimbatore medical college

Who can see your messages?

To: Everyone

Type message here...

Transpulmonary Pressure (TP)

- At normal static conditions IP pressure is -5cm
- $TP = P_A - IP$

$$TP = 0 - (-5)$$
$$= 5\text{cmH}_2\text{O}$$
$$TP = 760 - (756)$$
$$= 4\text{mmHg}$$

Participants (11)

Search

Ajit Kumar (me)

NOEL NAVEEN JOHNSON (Host)

AK Ajay Kumar PHYSIOLOGY PG VMKV

AS Anu S

Cm Coimbatore medical College PGs Dr

Cm Coimbatore medical College PGs- D

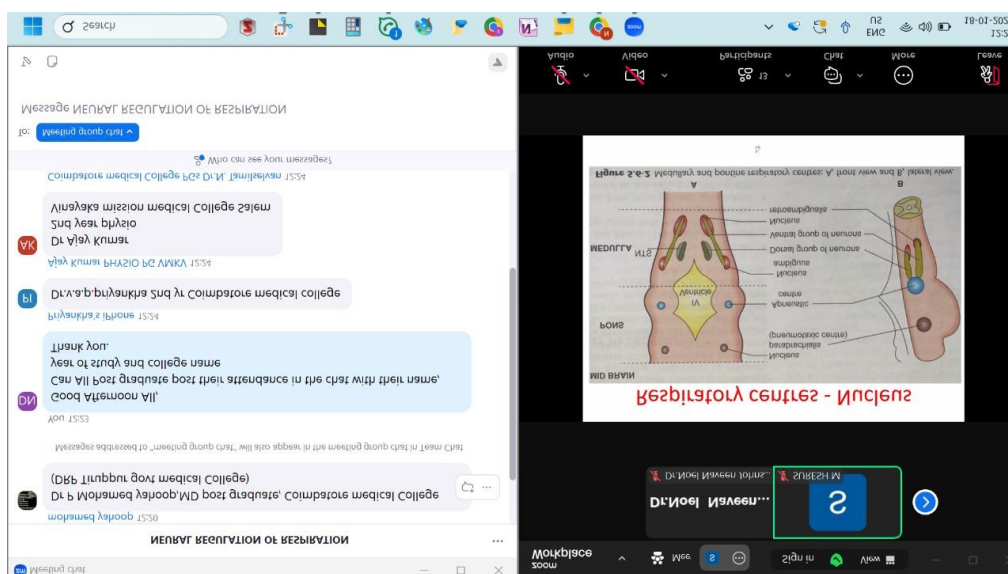
DP Dr.S.Kaviya Physiology PG Madurai.

Invite Unmute me

Dr.S.Kaviya Physiology...



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Velammal Medical College Hospital & Research Institute, Madurai**



Below is the total participant list of the program

S.no	Name	Designation	College
1	Dr. S. Anu	Professor and Head of the department	VMCH
2	Dr. Shanmuga Vadivu	Professor and Head of the department	Coimbatore Medical College
3	Dr. P. S. L. Saravanan	Professor and Director	MMC
4	Dr. V. Suganthi	Professor and Head of the department	Vinayaka Mission Kirupananda Variyar
5	Dr. P. P Sheela Joice	Associate Professor	Vinayaka Mission Kirupananda Variyar
6	Dr. M Suresh Kumar	Associate Professor	Vinayaka Mission Kirupananda Variyar
7	Dr. John Rajpathy	Professor	VMCH
8	Dr. M. Renu Meena	Assistant Professor	VMCH
9	Dr. J. T. Ajit Kumar	Assistant Professor	VMCH
10	Dr. R. Durai Arasan	Assistant Professor	VMCH
11	Dr. Noel Naveen Johnson	Assistant Professor	VMCH
12	Dr. Hari Viknesh	PG	VMCH
13	Dr. Ajay Kumar	PG	Vinayaka Mission Kirupananda Variyar



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14	Dr. Jinko Abraham	PG	Vinayaka Mission Kirupananda Variyar
15	Dr. Firdhouse	PG	Coimbatore Medical College
16	Dr. Jai Chandani	PG	Coimbatore Medical College
17	Dr. Jemy Aldrin	PG	Thanjavur Medical College
18	Dr. Vinothini Sivakumar	PG	Coimbatore Medical College
19	Dr. Tamilselvan	PG	Coimbatore Medical College
20	Dr. Preethy Ranganathan	PG	Coimbatore Medical College
21	Dr. Birundha Singh	PG	Coimbatore Medical College
22	Dr. M. Saipriya	PG	Coimbatore Medical College
23	Dr. Mohammed Yahooop	PG	Coimbatore Medical College
24	Dr. Prasanna Venkatesh	PG	Coimbatore Medical College
25	Dr. Vijayalakshmi	AP	Coimbatore Medical College
26	Dr. Manimozhi	PG	MMC
27	Dr. S. Kaviya	PG	MMC
28	Dr. T. Vijayalakshmi	PG	MMC
29	Dr. Durai Arava Mudhan	PG	MMC
30	Dr. Esther	PG	MMC
31	Dr. Soundarahari	PG	S.V.Medical College, Tirupati
32	Dr. Arumugam	PG	Amristar Govt. Medical College

We are so indebted to the Dr. Shanmuga Vadivu, Professor and Head of the department of Physiology, Government Coimbatore Medical College, Dr. P. S. L. Saravanan sir, Professor and Director of the department of Physiology, Madurai Medical College, Dr. V. Suganthi mam, Professor and Head of the department of Physiology, Vinaya Missions Kirupananda Varier Medical College, Salem and for their collaboration and successful completion of this program.