



## Experimental Pharmacology (Ex-Pharm) Series & Experimental Physiology (Ex-Physio) Series Software

Bureau For Health And Education  
Status Upliftment,  
{Constitutionally Entitled As Health-  
Education, Bureau}

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**BUREAU FOR HEALTH AND EDUCATION STATUS UPLIFTMENT**

Bureau For Health And Education Status Upliftment

{Constitutionally Entitled As Health-Education, Bureau}

### Objective

"To bring innovative & affordable health and education products, so as to make health and education in reach of every Indian"

### Genesis

The Health Education Bureau was launched, with the blessings of former President Dr.APJ Abdul Kalam. It's prime aim is to bring innovative & affordable health education products, so as to make health education in reach of every Indian.

## About Experimental Pharmacology (Ex-Pharm) Series

This is a computer assisted learning package containing various programs which simulate animal experiments in Pharmacology. These programs can be used to demonstrate drug on different animals systems. The package is user friendly, highly interactive and full of animated sequences which make simulation appear realistic. The current version of Ex-Pharm series consists of following computer simulated experiments:

### Experiments List

01. Experiment on effects of various drugs (Mydriatic, Miotic and Local Anaesthetic) on rabbit's eye.

- Epinephrine
- Atropine
- Ephedrine
- Physostigmine
- Lignocaine

02. Study of Analgesic activity with the help of "Tail Flick Apparatus" (Analgesiometer).

03. Study of Analgesic activity with the help of "Hot Plate Apparatus" (Analgesiometer).

04. To study analgesic activity by writhing test.

05. Study of Antihistaminic drugs/Anti allergic drugs by mast cell stabilization method with help of "Histamine Chamber"

06. Study of Muscle Relaxant activity with the help of "Rota-Rod Apparatus".

07 Study of CNS Depressants & Stimulants Using "Actophotometer".

08. Study of Drugs acting on CNS (Including Anxiolytic Activity) using following modules

- Elevated Plus Maze Method
- Pole Climbing Method

09. Study of anticonvulsant activity using "Electro Convulsimeter".

10. To study PTZ induced convulsions in mice

11. Study of effect of hepatic microsomal enzyme inducers on the phenobarbitone sleeping time in mice.

12. To study the action of strychnine/ anaesthetic on frog neurons (excitability).

13. Test for pyrogens using rabbits.

14. Effect of drugs on isolated guinea pig ileum (in-vitro).

15. To study respiratory depression effect on rabbit.

16. Study of stereotype and anti-catatonic activity of drugs on mice.

17. Experiments on thyroid and antithyroid drugs

- The effect of thyroxin, TSH, propylthiouracil, on metabolism.

18. Experiments on blood sugar

- The effect of insulin (hypoglycemic activity) and alloxan on blood glucose.

19. Study of anti-inflammatory activity using carrageenan induced paw oedema method

20. Study of diuretic activity using metabolic cage

21. Experiments on amphibian nerve-muscle (sciatic nerve and gastrocnemius) preparation.

22. Experiment on Effect of various drugs on Isolated Frog's Heart. (DRC- Dose Response Curve)

- Epinephrine
- Norepinephrine
- Isoprenaline
- Calcium Chloride
- Propranolol
- Acetylcholine
- Potassium chloride
- Atropine sulphate

23. Experiments on effect of different drugs on dog BP & heart rate.

1. Virtual Practice- Effects of drugs on the dog BP and Heart Rate.
2. Effects of Vasopressor and Vasodepressor with appropriate blockers.
  - a. Virtual Practice- Reversal action of adrenaline on blood pressure and heart rate.
  - b. Virtual Practice- Reversal action of acetylcholine on blood pressure and heart rate.

24. Experiments on Lagendorff's Apparatus

- Effect of coronary vasodilators on isolated heart
- Effect of parasympathomimetics

25. Experiment on Bioassay of Histamine on the Ileum of Guinea Pig.

26. Bioassay of Acetylcholine on the isolated rectus abdominis muscle of frog

- (a) By Matching Method,
- (b) By Interpolation Method,
- (c) By 3 Point Method,
- (d) By 4 Point Method.

27. Bioassay of oxytocin on the isolated rat uterine horn by following methods

- (a) By Matching Method,
- (b) By Interpolation Method,
- (c) By 3 Point Method,
- (d) By 4 Point Method.

28. Bioassay of serotonin on the isolated rat fundus strip by following methods

- (a) By Matching Method,
- (b) By Interpolation Method,
- (c) By 3 Point Method,
- (d) By 4 Point Method.

29. To record the DRC and to determine the PD<sub>2</sub> value for acetylcholine on frog rectus abdominis muscle.

30. Determination of PA<sub>2</sub> Value of prazosin using rat anococcygeus muscle (by Schild's plot method)

31. Study of anti-ulcer activity - using pylorus ligation method.

32. Evaluation of effect of acetylcholine (spasmogens) using rabbit jejunum

33. Evaluation of effect of different drugs on ciliary motility.

34. Evaluation of effect of saline purgatives on frog intestine.

35. Determination of acute irritation of a test substance.

- Skin irritation (Including edema formation)

- Eye irritation

- Examination mode will also be provided for modules.
- Latest feature to download observation table/findings of practical for each student with specific student name is available.
- With the above mentioned list of Interactive Software Experiments, Modules will also be provided for following
  - Study of different routes of drugs administration in mice/rats.
  - Common laboratory techniques of blood withdrawal.
  - Different methods of anaesthesia and euthanasia.

## About Experimental Physiology (Ex-Physio) Series

This is a computer assisted learning package containing various programs which simulate animal experiments in Physiology. These programs can be used to perform virtual physiology experiments. The package is user friendly, highly interactive and full of animated sequences which make simulation appear realistic. The current version of Ex-Physio series consists of following computer simulated experiments:

Experiments List

### A. AMPHIBIAN NERVE-MUSCLE EXPERIMENTS

- 1 Effect of temperature on simple muscle twitch.
- 2 Effect of two successive stimuli (of same strength) on skeletal muscle.
- 3 Effect of increasing strength of stimuli on skeletal muscle.
- 4 Effect of increasing frequency of stimuli on skeletal muscle (genesis of tetanus).
4. Effect of repeated stimuli on skeletal muscle (study of phenomenon of Fatigue).
- 5 Determination of conduction velocity of sciatic nerve.
- 7 Effect of free load (pre load) and after load on skeletal muscle.

### B. EXPERIMENTS ON HEART (CARDIOVASCULAR SYSTEM)

1. Effect of electrical stimuli application on the cardiac activity.
2. Effect of several drugs and some chemical mediators on cardiac activity.
3. The influence of the cardiac output, the peripheral resistance and vascular elasticity on arterial pressure.
4. The measurement of the arterial tension by the Auscultatory method.
5. The influence of pressure, viscosity, radius, and length of the vessel on the flow of a liquid through the vessel.

### C. EXPERIMENTS ON SKELETAL MUSCLES

1. The composed contraction of the skeletal muscles.
2. The simple contraction of the skeletal muscles.
3. The role of the motor end plate in initializing tiredness.
4. Action membrane potential.
5. Resting membrane potential.

### D. EXPERIMENTS ON GIT (DIGESTIVE SYSTEM)

1. Digestive system- Substrate specificity of Salivary amylase.
2. Demonstration of the action of pancreatic lipase in the presence and absence of the bile.
3. The influence of pH on the action of pepsin.

### E. EXPERIMENTS ON ISOLATED NEURON

1. The effect of anesthetic substance and low temperature on the excitability of nerve.
2. Determination of the action potential velocity.

### F. EXPERIMENTS ON CEREBRAL AND PERIPHERAL

#### INHIBITION

1. Cerebral inhibition.
2. Peripheral inhibition.
3. Pfluger's law.

### G. EXPERIMENTS ON KIDNEY

1. The effect of hydrostatic pressure, osmotic pressure, diameter of the glomerular afferent and efferent arterioles on urine flow.
2. Influence of aldosterone and antidiuretic hormone on urine flow.
3. Influence of glucose on urine flow.

### H EXPERIMENTS ON RESPIRATORY SYSTEM

1. Pulmonary volumes and capacities and the influence of the radius of the airways on them.
2. The influence of pleural space pressure on pulmonary ventilation.
3. The effect of surfactant on pulmonary ventilation.

### I. EXPERIMENT ON EFFECT OF VARIOUS DRUGS ON ISOLATED FROG'S HEART. (DRC- DOSE RESPONSE CURVE)

1. Epinephrine
2. Norepinephrine
3. Isoprenaline
4. Calcium Chloride
5. Propranolol
6. Acetylcholine
7. Potassium chloride
8. Atropine sulphate

### J EXPERIMENTS ON EFFECT OF DIFFERENT DRUGS ON DOG BP & HEART RATE

1. The Effect Of Epinephrine, Acetylcholine, Atropine On the Arterial Pressure (Dog-Blood Pressure).
2. Simultaneous analysis of effect of different drugs on Dog Heart Rate and Blood Pressure.
3. Effects of drugs on blood pressure (vasopressor and vaso-depressors with appropriate blockers).

## Why it is Necessary

As per National Medical Commission

NMC has issued MSR for Medical Colleges through Gazette Notification, Dated 29 Oct 2020. The mentioned regulations has stated that pharmacology experiments should be done by computer assisted learning software

**AS PER PHARMACY COUNCIL OF INDIA**

PCI has issued guidelines through Gazette Notification No.10-1/2012- PCI; Dated 25 August 2014. The mentioned guidelines has stated that "Wherever animal experimentations are prescribed in the curriculum, the required knowledge and skill should be imparted by using computer assisted modules".

## Subscription Procedure

The software can be subscribed by sending the filled subscription form with the requisite fees (as mentioned in form), on below mentioned address.

Address:

Health Education Bureau  
55/20, Rajat Path, Mansarovar,  
Jaipur,( Rajasthan),PIN-302020

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**SUBSCRIPTION FORM**

I/WE WANT TO SUBSCRIBE BELOW MENTIONED PRODUCT, PLEASE ACCEPT MY/OUR SUBSCRIPTION APPLICATION WITH FOLLOWING PARTICULARS

**SUBSCRIPTION TARIFF**

Particulars	Duration of Subscription	Price	Price Including GST 18%	Tick in Application Box	Particulars	Duration of Subscription	Price	Price Including GST 18%	Tick in Application Box
<b>Journal of Hospital Pharmacy</b>	1 Year	2,970 ₹ (Print + Online)	GST-NA	<input type="checkbox"/>	<b>EWL [English - Wordsworth - Language Lab] - Wordsworth® Software</b>	1 Year	7790 ₹ (Regular Pack)	9192 ₹	<input type="checkbox"/>
		1,900 ₹ (Online)	GST-NA	<input type="checkbox"/>			14700 ₹ (Advance Pack)	17346 ₹	<input type="checkbox"/>
	3 Years	7,900 ₹ (Print + Online)	GST-NA	<input type="checkbox"/>		3 Year	19800 ₹ (Regular Pack)	23364 ₹	<input type="checkbox"/>
		4,690 ₹ (Online)	GST-NA	<input type="checkbox"/>			36900 ₹ (Advance Pack)	43542 ₹	<input type="checkbox"/>
<b>Ex Pharm Software</b> (All experimental pharmacology modules of B.Pharm - D.Pharm syllabus as per PCI)	1 Year (For all active Experimental modules)	4,150 ₹	4,897 ₹	<input type="checkbox"/>	<b>Ex Pharm Software</b> (Covering all experimental pharmacology modules as per PCI - NMC - VCI Syllabus) + Additional Supportive E Resources	1 Year (For all active Experimental modules)	9,920 ₹	11,705 ₹	<input type="checkbox"/>
	5 Years (For all active Experimental modules)	16,200 ₹	19,116 ₹	<input type="checkbox"/>		3 Years (For all active Experimental modules)	25,040 ₹	29,547 ₹	<input type="checkbox"/>
<b>Experimental Physiology (Ex Physio) - Series Software</b> (All active experimental physiology modules)	1 Year	9,920 ₹	11,705 ₹	<input type="checkbox"/>	<b>Digi-Frog Software</b>	1 Year (Regular Pack) (For Ten dissection modules)	4,250 ₹	5015 ₹	<input type="checkbox"/>
	3 Years	25,040 ₹	29,547 ₹	<input type="checkbox"/>		3 Year (Regular Pack) (For Ten dissection modules)	9,790 ₹	11552 ₹	<input type="checkbox"/>

\*Prices includes delivery and maintenance cost also.

\*Customized Packages (For desired duration/modules) are also available for all Journals/Softwares.

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**ADDRESS****HEALTH EDUCATION BUREAU**

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