

To study the effect of
drugs on frog's heart

Introduction

- ▶ Heart is integrated by sympathetic as well as parasympathetic nervous system
- ▶ Heart has beta 1 adrenergic receptors and m2 cholinergic
- ▶ Sympathetic system increases heart rate and cardiac output while parasympathetic works in opposition directions

Notes Comments

To study the effect of drugs on frog's heart

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- ▶ **Cardiac stimulant drugs**
Adrenaline
Anticholinergic: Atropine
Direct cardiac stimulant drugs (calcium)
Drugs causing reflex tachycardia

- ▶ **Cardiac depressants**
Cholinergic drugs
Antiadrenergics (beta blockers)
Calcium channel blockers
Cardiac glycosides

1

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4

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no alpha blockers because they cause reflex tachycardia

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APPARATUS

- ▶ Kymograph, wooden board, dissecting box , dropper
- ▶ Ringer 's solution, adrenaline, propranolol, Ach, atropine
- ▶ Frog

☰ Notes 💬 Comments

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- ▶ Frog

> 2

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A frog is pitted and placed on a wooden board.

Heart is exposed by a midline incision and pericardium is removed.

A thread is passed through the tip of ventricle, the other end is attached to the horizontal lever to record contractions on moving drum.

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cycle lever



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- Now to
- Add D. control
- Wash 8 mins.
- Add D.
- Wait to

8

- ▶ Now take normal contractions
- ▶ Add 0.5 c.c of Ach wait for 2mins Now record contractions
- ▶ Wash the specimen with ringer's solution .Wait for 2 mins
- ▶ Add 0.5 c.c of atropine
- ▶ Wait for 2 mins and record contractions
- ▶ Again wash the specimen with ringer's solution

☰ Notes 💬 Comments

APPARATUS

- ▶ Kymograph, wooden board, dissecting box, dropper
- ▶ Ringer 's solution, adrenaline, propranolol, Ach, atropine
- ▶ Frog

Procedure

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- ▶ Wait for 2 mins and record contractions

> 5

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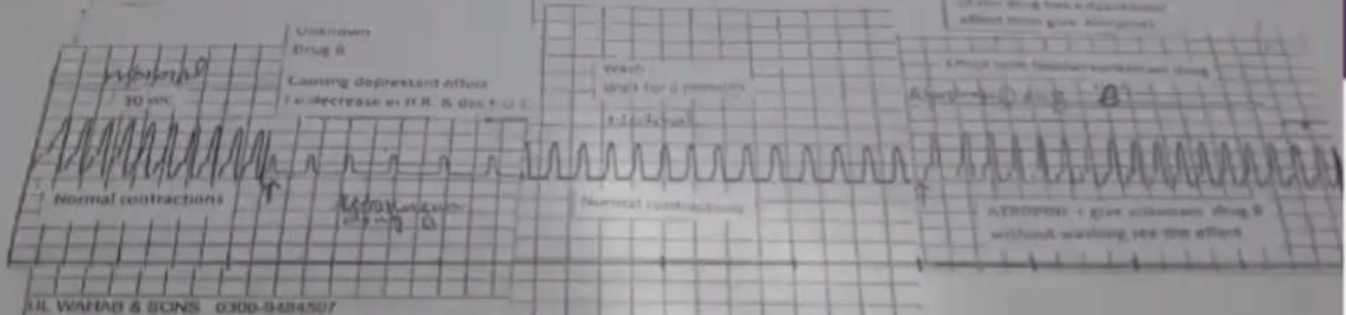
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Practical No. 2

Effect of unknown drugs on Frog's heart

part II



LIL WAHAB & SONS 0300-9484507

Take each reading for 30 seconds.

Time tracing is for after every 5 seconds

5 sec x 12 = 60 seconds

So heart rate is contractions in 5 seconds x 12 = _____ Heart rate

Calculation of the Heart Rate/min

No. of contractions in 5 sec x 12

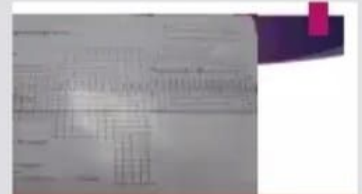
Notes Comments

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- ▶ Add 0.5 c.c of Ach wait for 2mins Now record contractions
- ▶ Wash the specimen with ringer's solution .Wait for 2 mins
- ▶ Add 0.5 c.c of atropine
- ▶ Wait for 2 mins and record contractions.



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Now add 0.5 c.c of adrenaline. Wait for 2 minutes.

Now record contractions for 30 seconds.

Again wash the specimen with ringer's solution and wait for 2 minutes.

Record the normal contractions.

Now add 0.5 c.c of propranolol. Wait for 2 minutes. Now record contractions for 30 seconds.

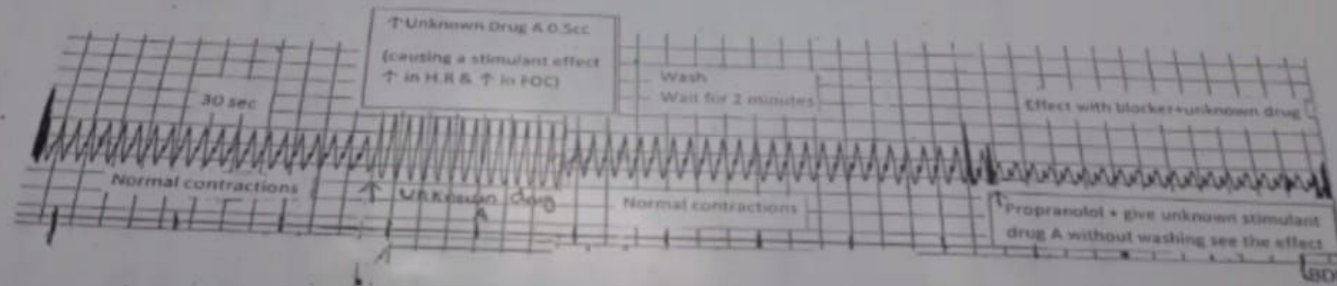
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Practical No. 2

Effect of unknown drugs on Frog's heart

Part I

- Effect
- Give blocker (for stimulant drug, blocker is
- Now without washing give unknown drug



Time tracing is for after every 5 seconds.

5 sec x 12 = 60 seconds.

So heart rate is contractions in 5 seconds x 12 = _____ Heart rate

Calculation of the Heart Rate/min

No. of contractions in 5 sec x 12

Suppose No. of contractions in 5 sec are 4 then the H.R will be

Notes Comments

- Now add 0.5 c.c. of adrenaline wait for 2mins
- Now record contractions for 30sec
- Again wash the specimen with ringer's solution and wait for 2mins
- Record the normal contractions
- Now add 0.5 c.c. of propranolol Wait for 2mins. Now record contractions for 30sec



Precautions

- The heart should be perfused of a constant rate of 20 - 30 drops/min
- Before recording contractions with each drug take normal contractions
- Heart should not be injured
- Syringe should be wasted before injecting each drug

Assignment

- Compare the effects of adrenaline and acetylcholine on heart
- What is physiological solution .What is its significance

Precautions

- ▶ The heart should be perfused at a constant rate of 20 – 30 drops/min
- ▶ Before recording contractions with each drug take normal contractions
- ▶ Heart should not be injured
- ▶ Syringe should be washed before injecting each drug

Notes Comments

- Now add 0.5 cc of adrenaline wait for 2mins
- Now record contractions for 30sec
- Again wash the syringe withinger's solution and wait for 2mins
- Record the normal contractions
- Now add 0.5 cc of propoxyphene for 2mins. Now record contractions for 30sec

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Precautions

- The heart should be perfused at a constant rate of 20 – 30 drops/min
- Before recording contractions with each drug take normal contractions
- Heart should not be injured
- Syringe should be washed before using each drug

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Assignment

- Compare the effects of adrenaline and acetylcholine on heart
- What is physiological solution. What is its significance

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Assignment

- ▶ Compare the effects of adrenaline and acetylcholine on heart
- ▶ What is physiological solution .What is its significance

Notes Comments

- Now add 0.5 c.c of adrenaline with for 2hrs.
- Now record contractions for 20sec.
- Again wash the specimen with Ringer's solution and wait for 2hrs.
- Record the normal contractions.
- Now add 0.5 c.c of physiological salt for 2hrs. Now record contractions for 20sec.



- ### Precautions
- The heart should be perfused at a constant rate of 20-30 drops/min.
 - Before recording contractions with each drug take normal contractions.
 - Heart should not be injured.
 - Sprigs should be washed before injecting each drug.

- ### Assignment
- Compare the effects of adrenaline and acetylcholine on heart.
 - What is physiological solution .What is its significance.

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