

GROUP NO: 4

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INTRODUCTION

The mechanical activity of the heart, also known as the cardiac revolution or the *cardiac cycle*, is composed by the rhythmical succession of the distinct phases: 1) *Systole* or the contraction phase and 2) *Diastole* or the relaxation phase.

The excitability of the cardiac muscle is proven to be variable, this quality of the myocardium having cyclic revolution, following the phases of the cardiac cycle (the Marey reflex or the Law of periodical non-excitability of the heart): in systole the myocardium becomes unexcitable and in the diastole the cardiac excitability reaches the highest level.

OBJECTIVES

To demonstrate the phases of the cardiac cycle of the frog heart and the revolution of its excitability by using the graphical method.

Principle: The phases of the cardiac cycle of the frog heart are recorded on graphical surface and the effect of electrical stimuli on the heart is determined.

Graphical Recording:

The graphical recording consists of two moments:

- the graphical recording of the normal mechanical activity of the heart;
- the graphical recording of the effect of electrical stimuli on the mechanical activity of the heart, first in systole than in diastole

By applying the experimental electrical stimuli, we obtain different responses according to phase of the cardiac cycle in which the frog's heart is found:

- in systole, there is no change on the general aspect of the cardiogram;
- in the diastole the cardiogram changes and shows an extra-systole (ES) which is followed inevitably by a prolonged resting period (PRP).

METHODOLOGY, OBSERVATIONS AND DISCUSSION

1. Observe the normal activity of the heart for some time.
2. Push the stimulus button when the line (representing the cardiac cycle) is going down. Which phase of the cardiac cycle does this represent?

Diastole

What did you observe?

an extra systole appeared after the stimulus was applied which was inevitably followed by a prolonged resting period.

What does this mean?

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it could mean that the cardiac muscle is in non-excitabile phase which was followed by
a contraction that resulted to a long resting period.
