

Properties of cardiac muscle

Preparation of frog heart muscle:

1. pith a frog and placed it on a frog pad.

2. by using scissor to make longitudinal incision through the skin and body wall of thorasic region in order to expose the heart.

3. hold the pericardium with forceps and carefully cut away the sac from the heart.

4. keep the heart moist by frog ringer solution.

5. By using forceps, gently lift the apex of the heart up word.

6.insert pin through the top of ventricle.

7.tie thread to the hook and connect the ventricle to transducer of myograph.

8.adjust the tension on the ventricle.

Structure of frog heart:

1.sinus venosus (pace maker).

2.two atria

3.single ventricle

*** the frog heart does not contain coronary artery and bundle of His.**

Experiment :

The sinus venosus is faster than other heart places ,

-the isolation of sinus venosus (pace maker) from other part of heart by ligature called first stannous ligature.

This lead to cease or stop the contraction of atria and ventricle for short period of time, then atria and ventricle begin to contract but slowly (due to atria begin to act as pace maker).

-separate the two atria from ventricle by second stannous ligature this lead to stop ventricle contraction for long period.

In order to study the response of heart muscle to stimulation: Stimulate the heart during the long period of cessation by enough voltage this lead to cardiac muscle contraction.

-Stimulate the heart with high voltage not lead to increase amplitude (i.e the amplitude not increase with increase strength of stimulus).

That mean the heart act under *All or Non law*.

Effect of physiological agent and drugs on cardiac muscle:

- 1. sympathomimetic agent: adrenaline**
- 2. sympatholytic agent: propranolol.**
- 3. parasympathomimetic agent:
acetylcholine**
- 4. parasympatholytic agent: atropine
sulfate**
- 5. cold and hot water.**