

Cardiovascular Physiology

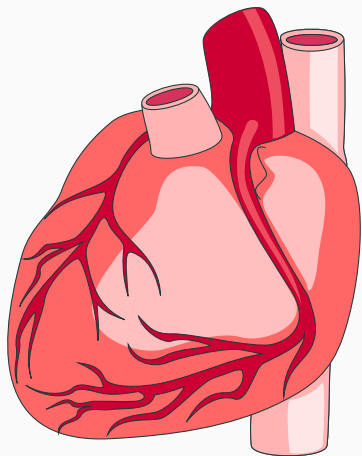
Saket Choudhary

February 14, 2017

BISC 104

Session 6

Today's Experiment



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- Please read the manual!

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- Activity 1: Direct heart stimulation

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- **Please read the manual!**
- Activity 1: Direct heart stimulation
- Activity 2: Indirect heart stimulation

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- Activity 3-6: Effect of chemicals on heart rate

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- Activity 7: Effect of Temperature

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- Activity 2: Indirect heart stimulation
- Activity 3-6: Effect of chemicals on heart rate
- Activity 7: Effect of Temperature
- Activity 8: Effect of Ions

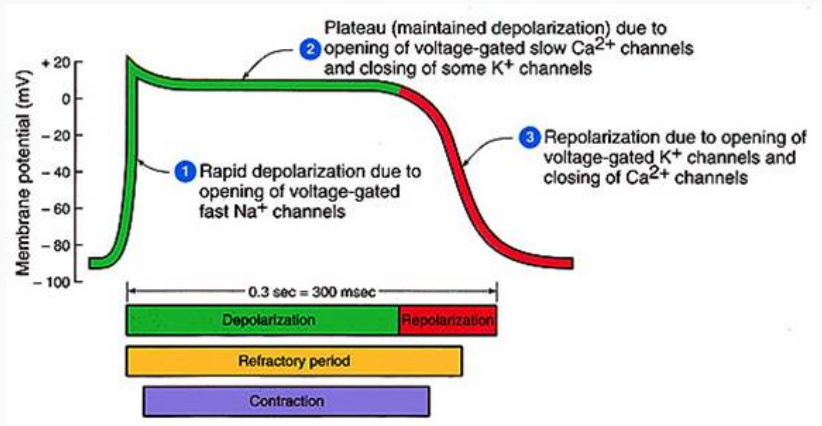
Today's Experiment

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- Activity 2: Indirect heart stimulation
- Activity 3-6: Effect of chemicals on heart rate
- Activity 7: Effect of Temperature
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- **Autorhythmicity**: Heart's ability to trigger its own contraction
- Two type of nervous systems acting: **sympathetic** and **parasympathetic**
- Sympathetic affect the **pacemaker** cells \implies Increased heart rate
- Parasympathetic counters sympathetic by decreasing the heart rate

Cardiac Muscles have long refractory period

Unlike skeletal muscles, summation is not always possible



Effect of chemicals, temperature, ions

- Heart rate can be modulated by varying the temperature, ions
- Chemicals also affect by inhibiting/mimicing/enhancing the action of organic chemicals such as acetylcholine
- Temperature may or may not have an effect
- Na^+ , K^+ decrease the strength of contraction, Ca^{+2} increases

Signup for presentations

- Presentations: Week of 17th, 24th, 31st October
- Sign-up with your topics
- 10 minute presentation followed by Q & A on topic of your choice
- Topic needs to pertain to physiology/biology
- Examples: Pancreatic cancer, muscular diseases etc.
- Sign-ups on first come basis.

No office hours next week.

Tuesday: 9-10AM

Thursday: 9-10AM

ZSH 372

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