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# ELECTROPHYSIOLOGY OF THE HEART AND THE ELECTROCARDIOGRAM (ECG)

## Visual Depictions

-

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and Hugo Plácido da Silva  
IT-Instituto de Telecomunicações, 2020

# INDEX

<i>Acknowledgments</i>	03
<i>Electrophysiology of the Heart</i>	04
<i>Electrophysiology of the Heart Complexes</i>	06
<i>Electrophysiology of the Heart Features</i>	08
<i>Heartbeat Waveform</i>	16
<i>Heartbeat Waveform Complexes</i>	20
<i>Heartbeat Waveform Features</i>	22

**Cardiac Anatomy**

The depicted anatomical elements build upon the work of Eric Pierce [1]. His heart anatomy drawings [2] are licensed under the Creative Commons Attribution-Share Alike 3.0 Unported [3], and this work extends the base drawings with the electrical conduction system of the heart and related details.

**Heartbeat Complexes**

The representation of the main complexes found in the cardiac cycle are based on the annotations by Anthony Atkielski [4], which are a public domain resource [5].

**Electrophysiology of the Heart**

The details pertaining the electrophysiology of the heart and different waveforms produced by the specialized cardiac cells are adapted from the book Jaakko Malmivuo & Robert Plonsey: Bioelectromagnetism - Principles and Applications of Bioelectric and Biomagnetic Fields [6], Oxford University Press, New York, 1995. All the material of this web edition is free for publishing elsewhere.

[1] <https://en.wikipedia.org/wiki/User:Wapcaplet>

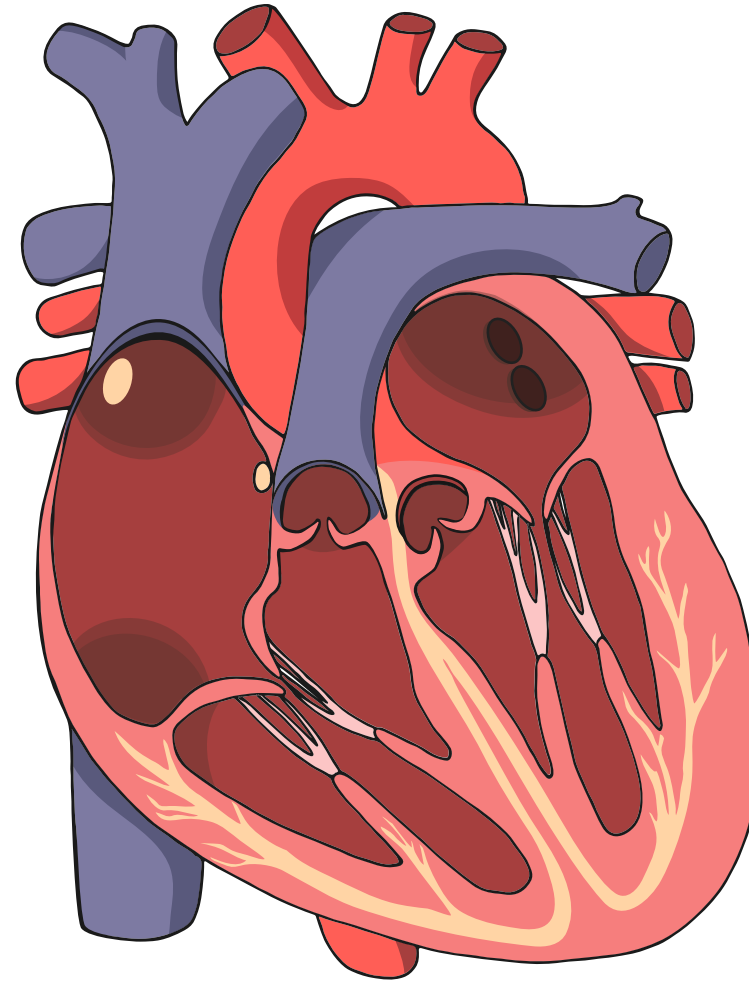
[2] [https://commons.wikimedia.org/wiki/File:Heart\\_labelled\\_large.png](https://commons.wikimedia.org/wiki/File:Heart_labelled_large.png)

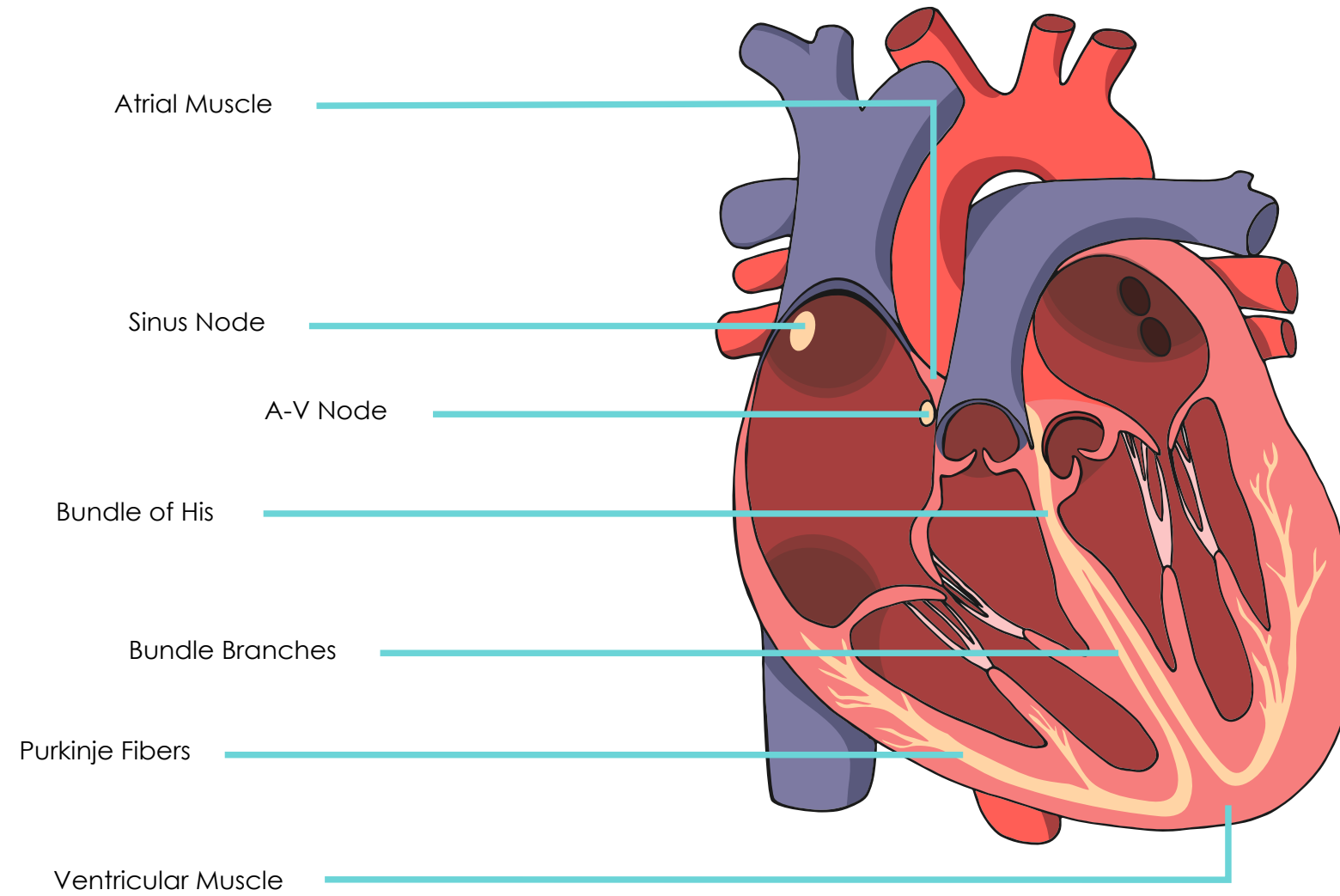
[3] <https://creativecommons.org/licenses/by-sa/3.0/>

[4] <https://en.wikipedia.org/wiki/User:Agateller>

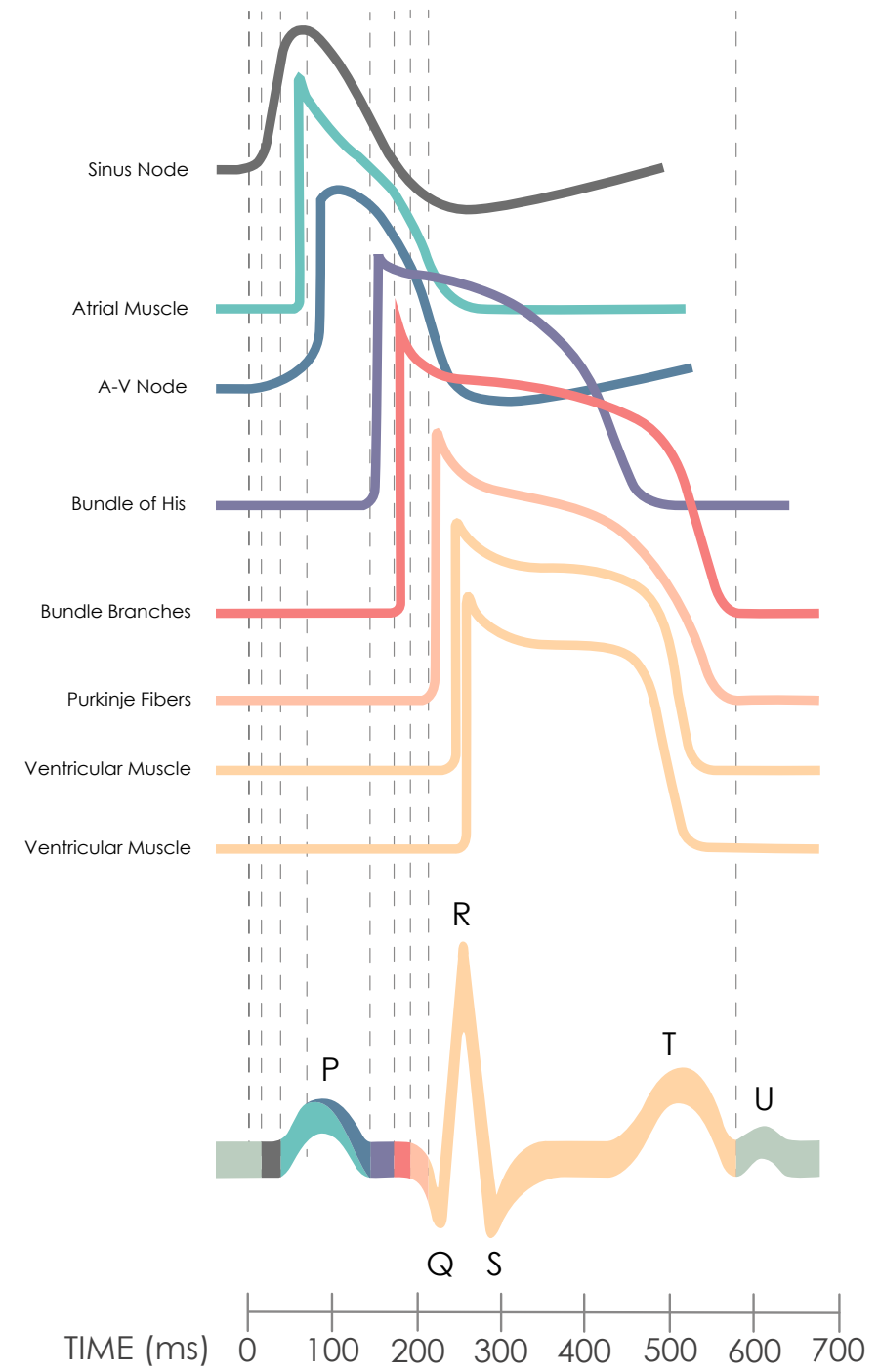
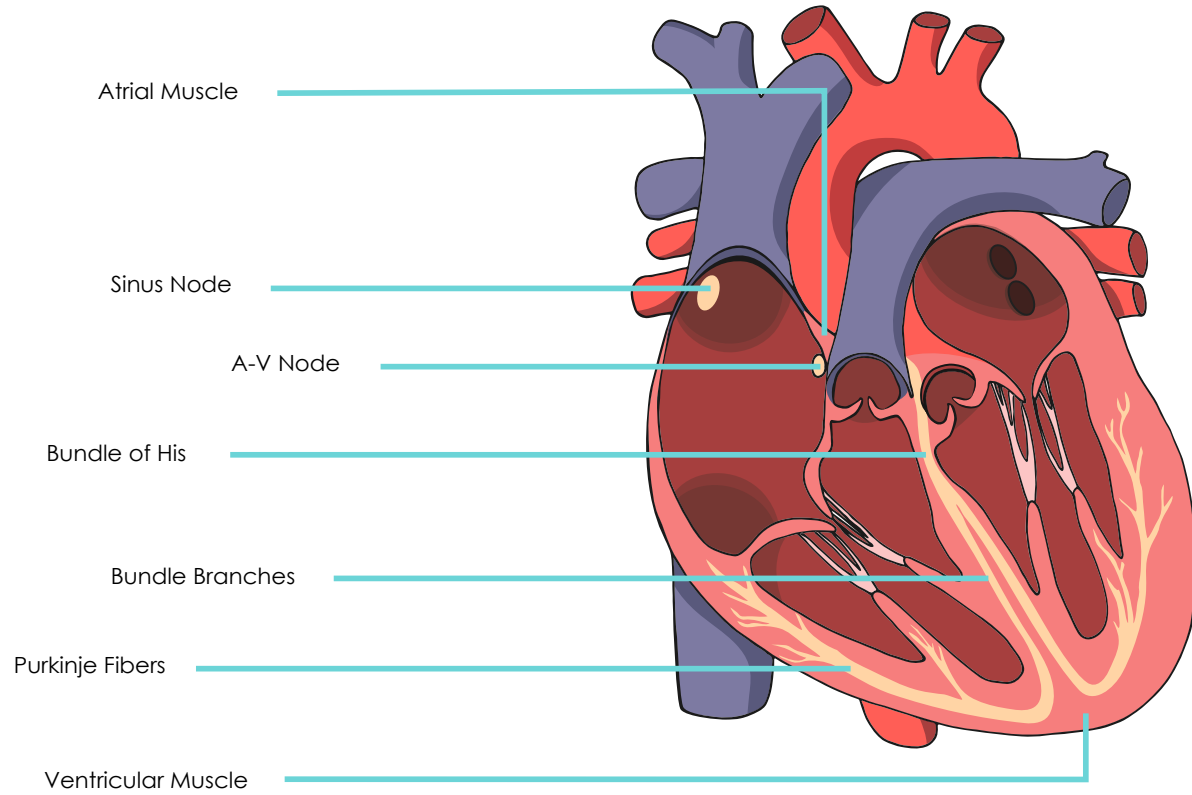
[5] <https://en.wikipedia.org/wiki/Electrocardiography#/media/File:SinusRhythmLabels.svg>

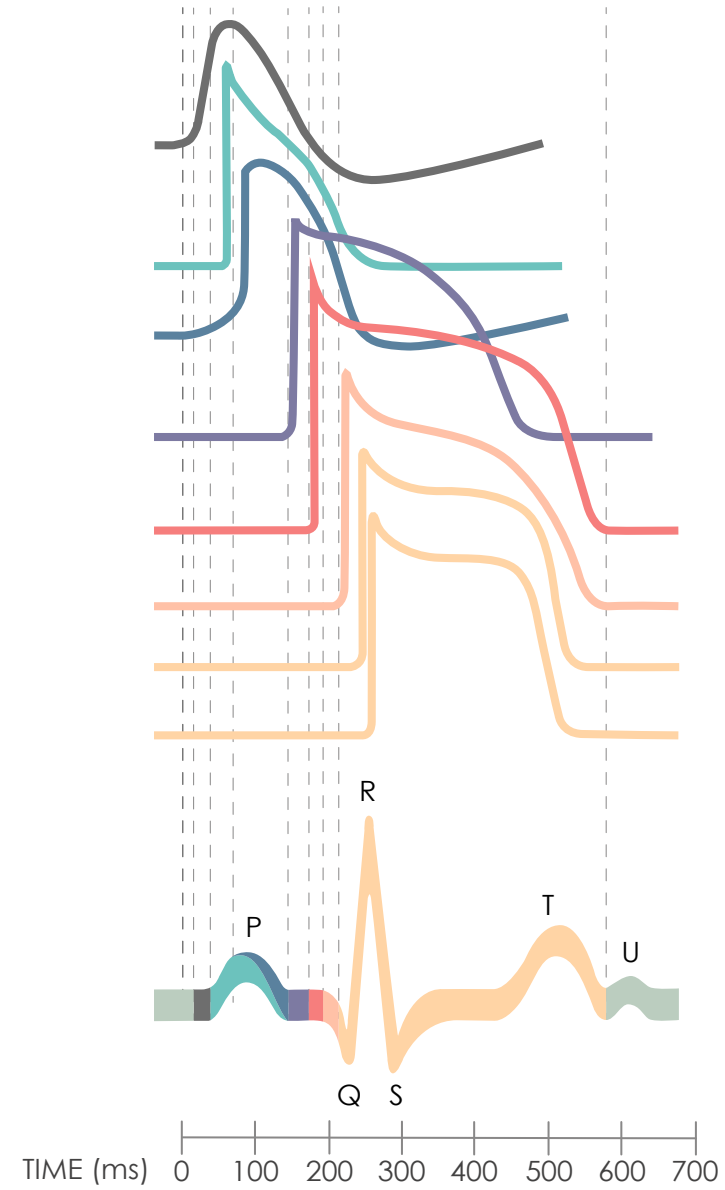
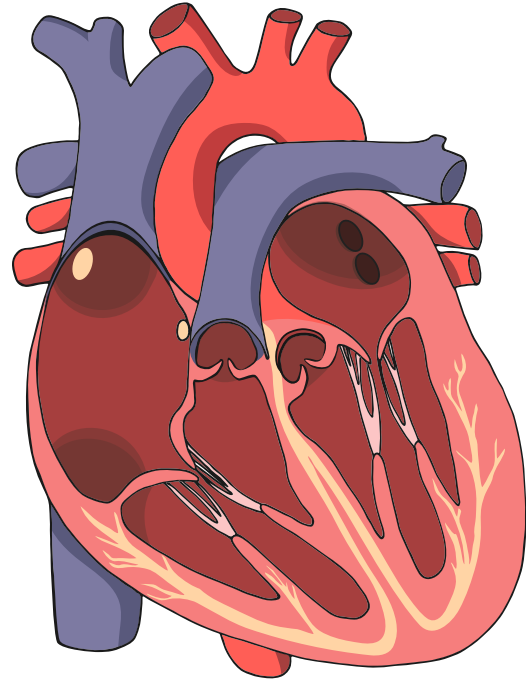
[6] <http://www.bem.fi/book/>



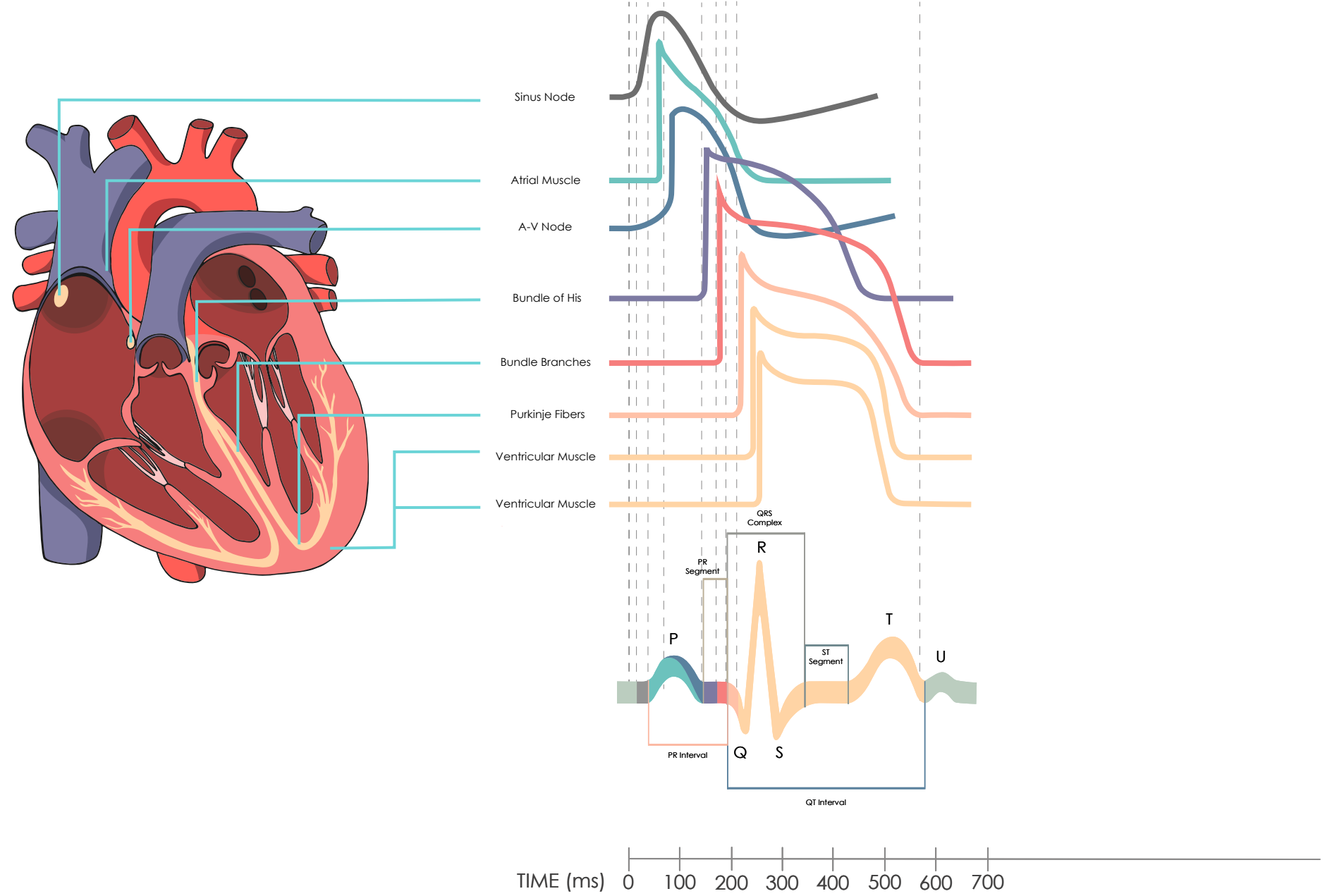


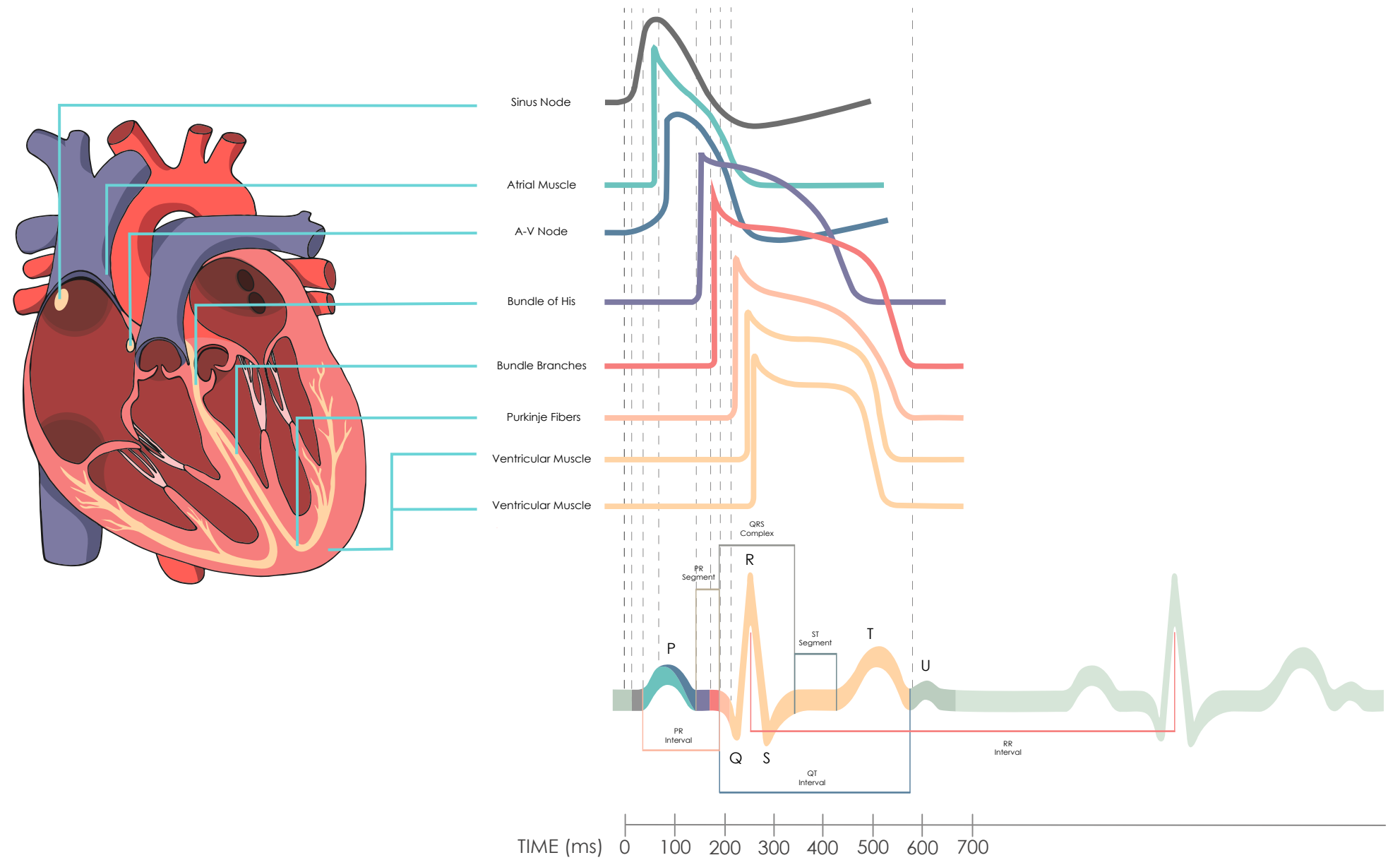
# Electrophysiology of the Heart Complexes

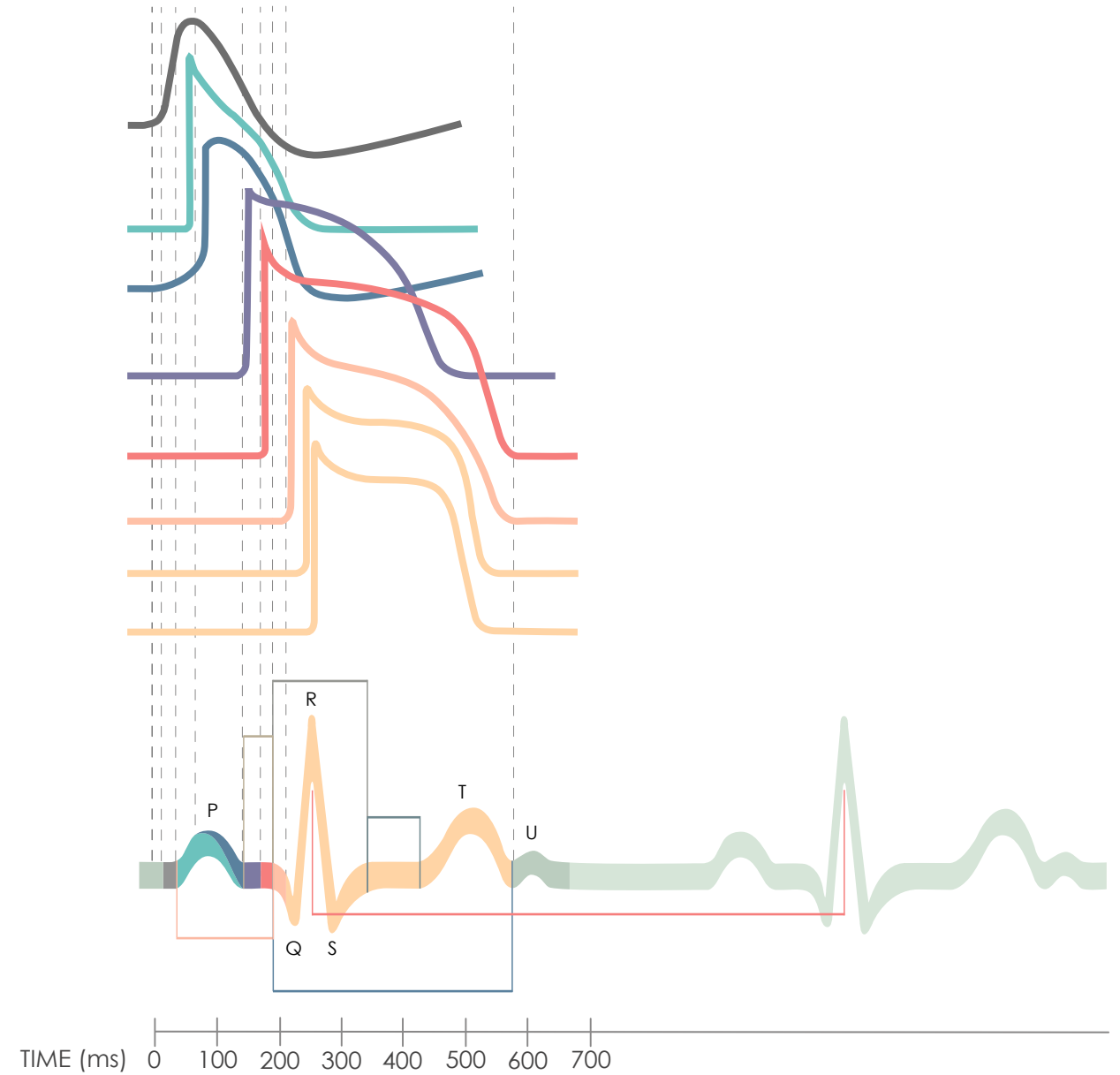
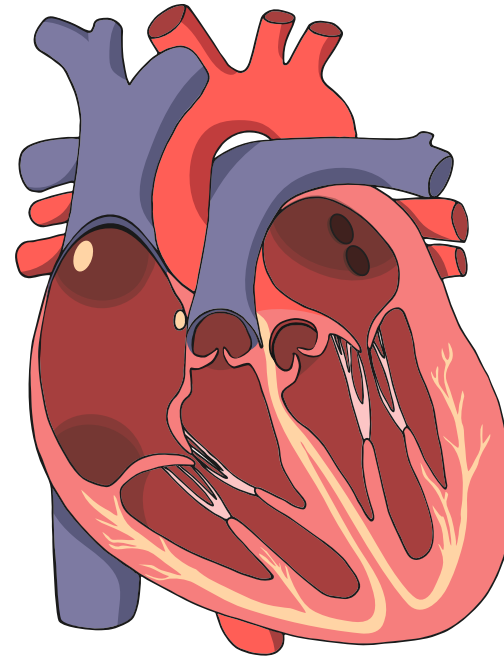




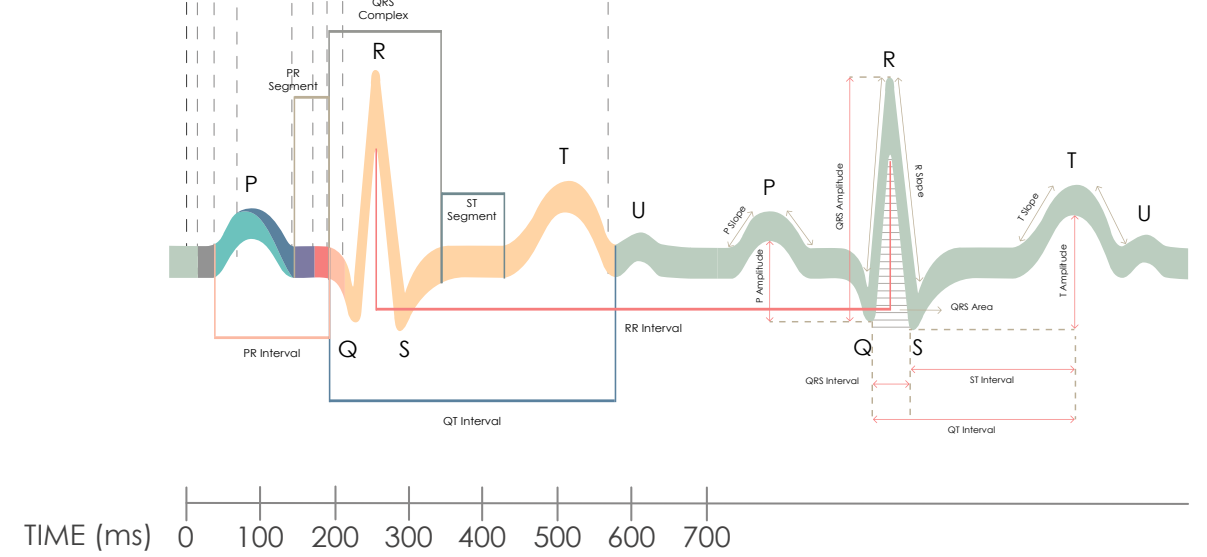
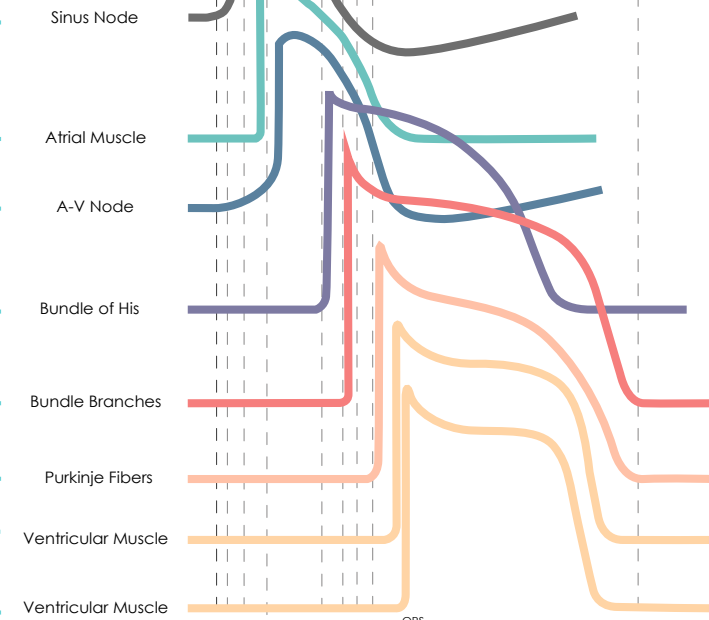
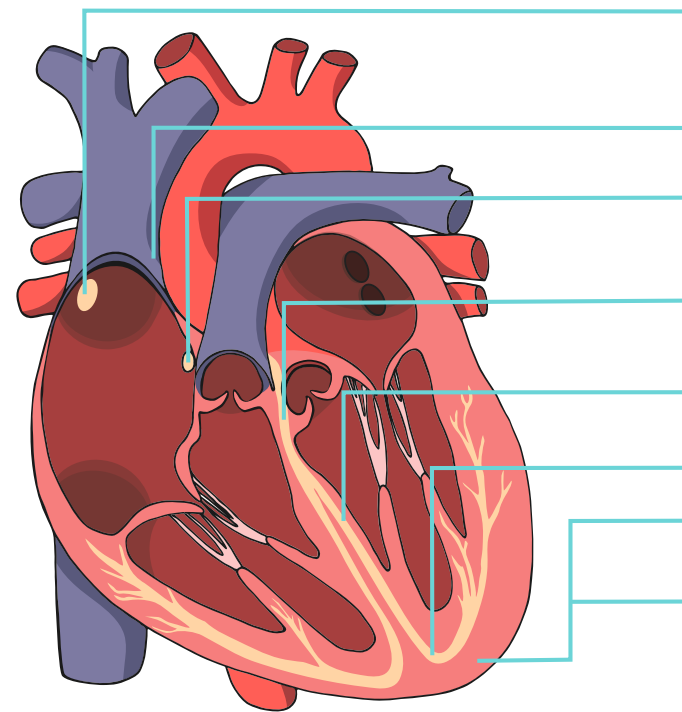


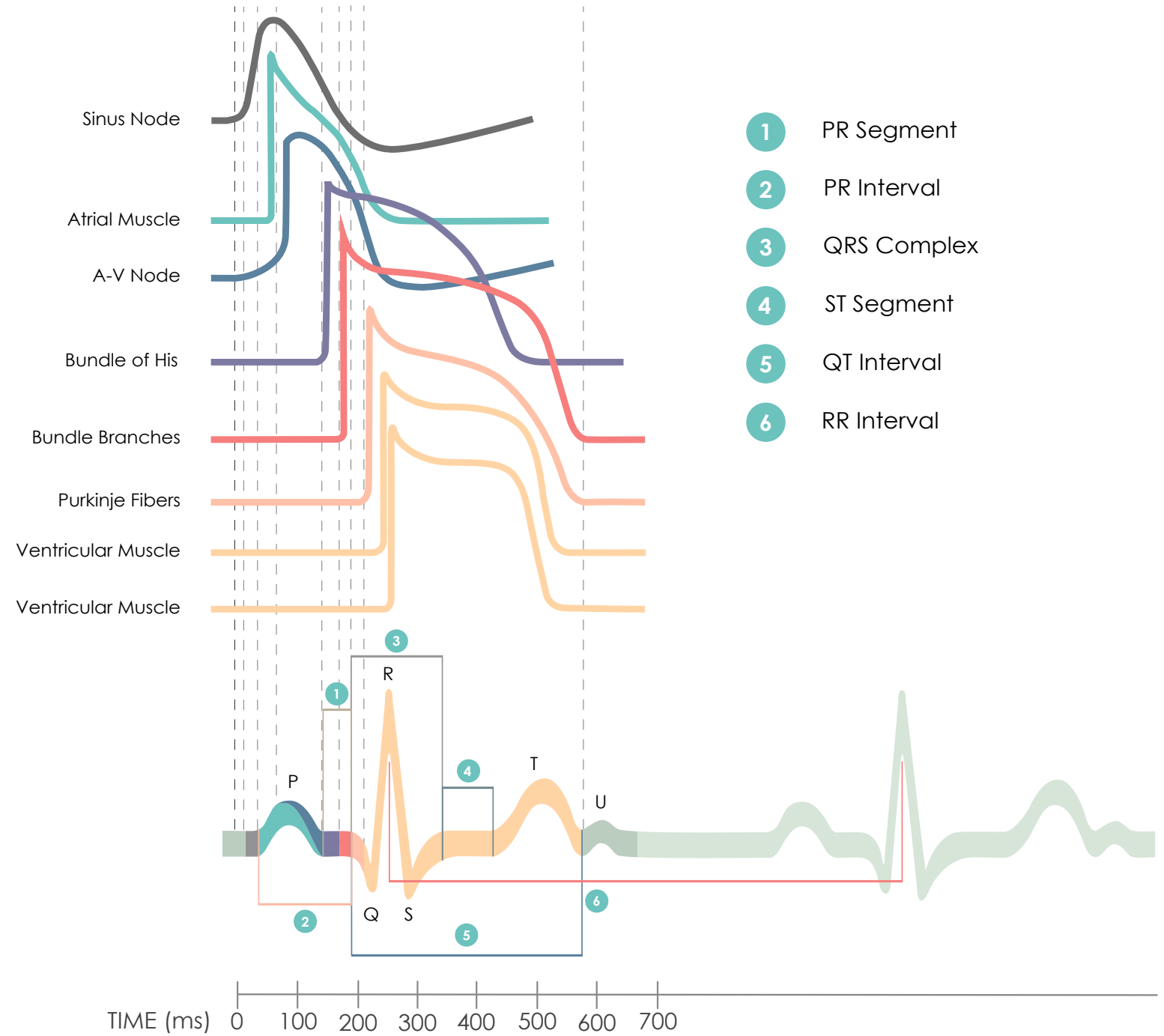
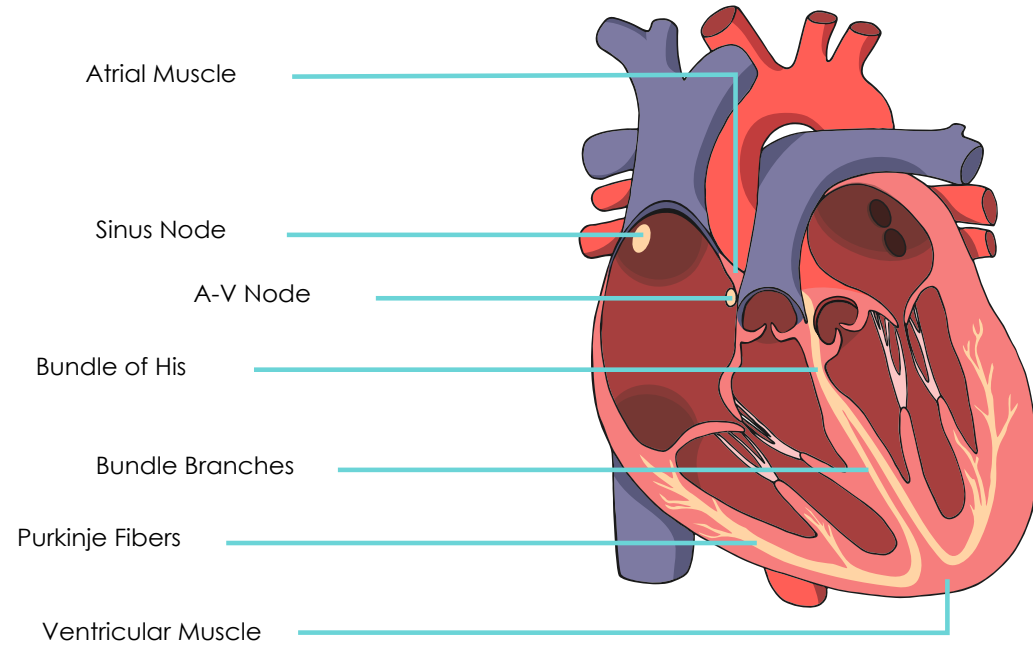




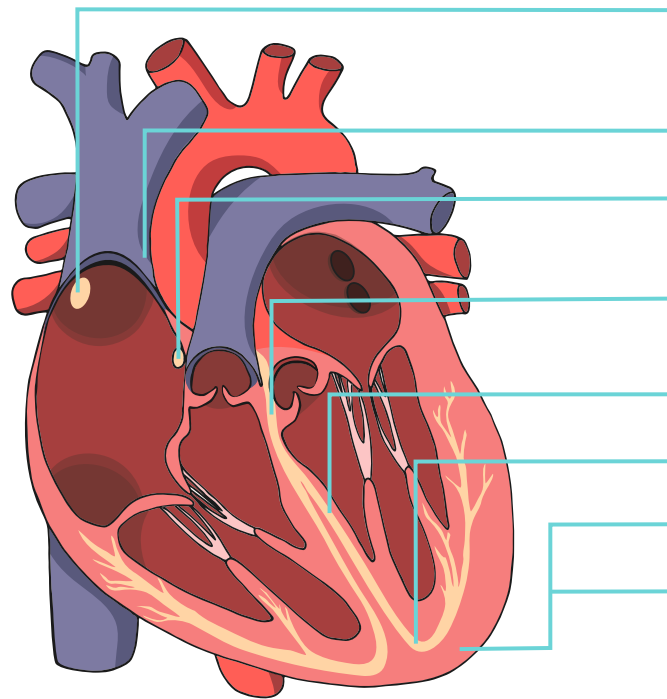


# Electrophysiology of the Heart Complexes

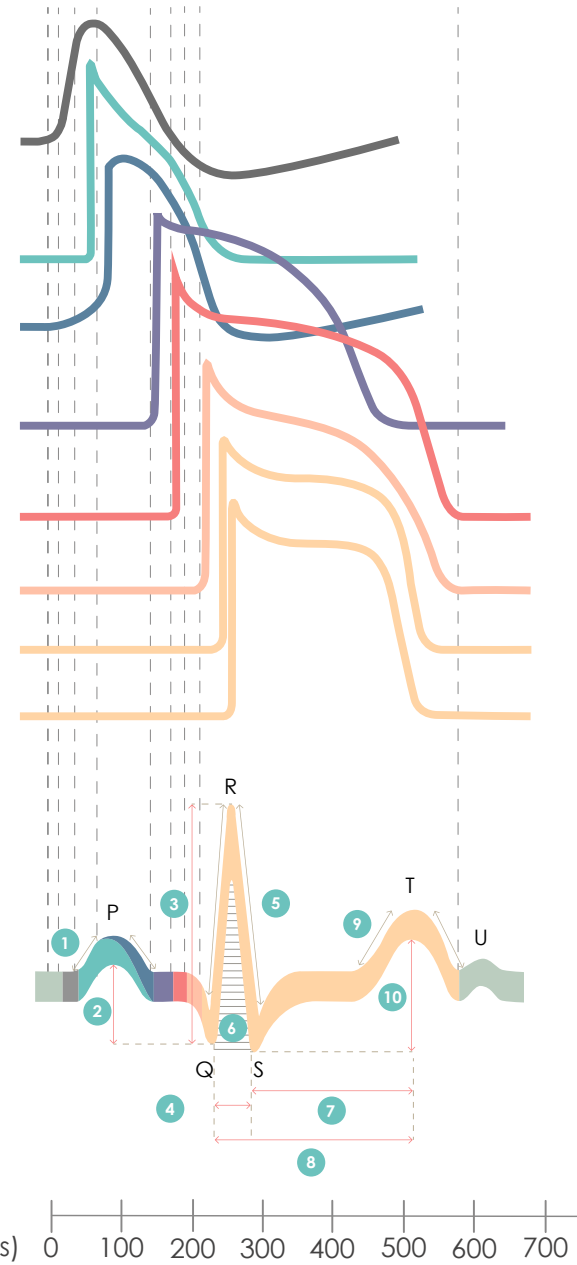




## Electrophysiology of the Heart Features

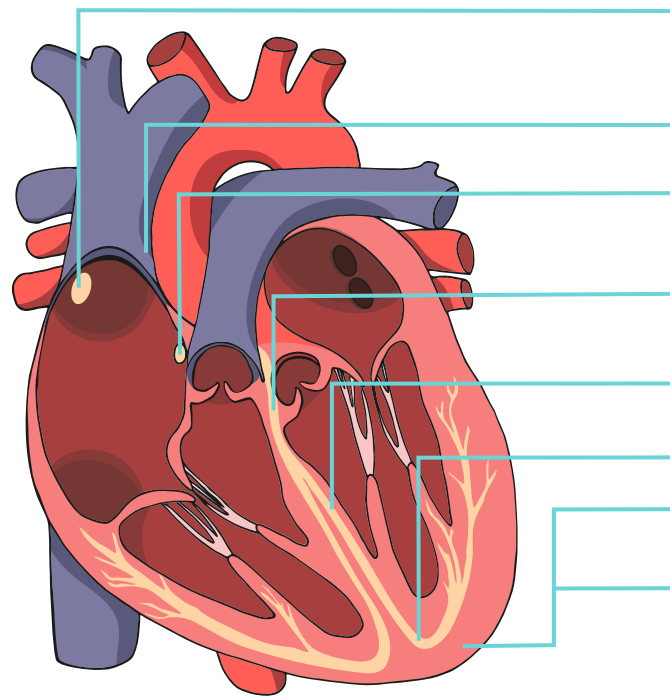


Sinus Node  
Atrial Muscle  
A-V Node  
Bundle of His  
Bundle Branches  
Purkinje Fibers  
Ventricular Muscle  
Ventricular Muscle

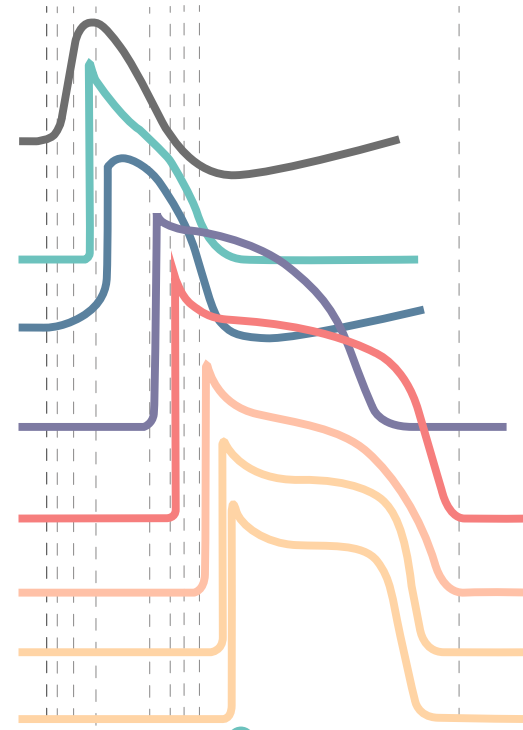


- 1 P Slope
- 2 P Amplitude
- 3 QRS Amplitude
- 4 QRS Interval
- 5 R Slope
- 6 QRS Area
- 7 ST Interval
- 8 QT Interval
- 9 T Slope
- 10 T Amplitude

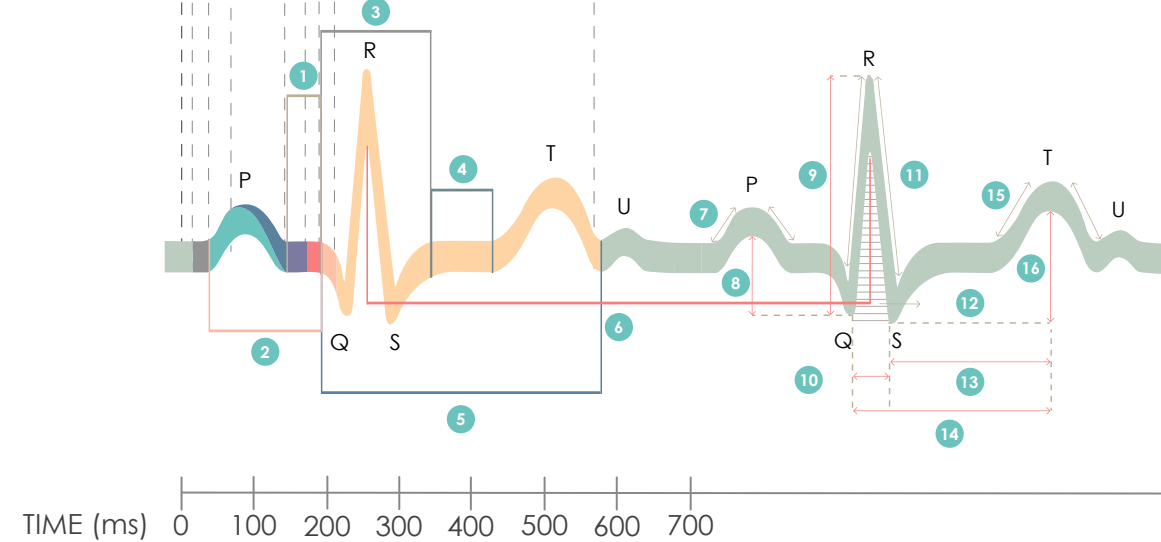
# Electrophysiology of the Heart Features



Sinus Node  
Atrial Muscle  
A-V Node  
Bundle of His  
Bundle Branches  
Purkinje Fibers  
Ventricular Muscle  
Ventricular Muscle



- 1 PR Segment
- 2 PR Interval
- 3 QRS Complex
- 4 ST Segment
- 5 QT Interval
- 6 RR Interval
- 7 P Slope
- 8 P Amplitude
- 9 QRS Amplitude
- 10 QRS Interval
- 11 R Slope
- 12 QRS Area
- 13 ST Interval
- 14 QT Interval
- 15 T Slope
- 16 T Amplitude



# Electrophysiology of the Heart Features

