

# Heart Health Analysis

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# Heart Disease - Source Data

## Source

This dataset was created by combining different datasets already available independently but not combined before. In this dataset, 5 heart datasets are combined with over 11 common features which makes it the largest heart disease dataset available so far for research purposes. The five datasets used for its curation are:

- Cleveland: 303 observations
- Hungarian: 294 observations
- Switzerland: 123 observations
- Long Beach VA: 200 observations
- Stalog (Heart) Data Set: 270 observations

Total: 1190 observations

Duplicated: 272 observations

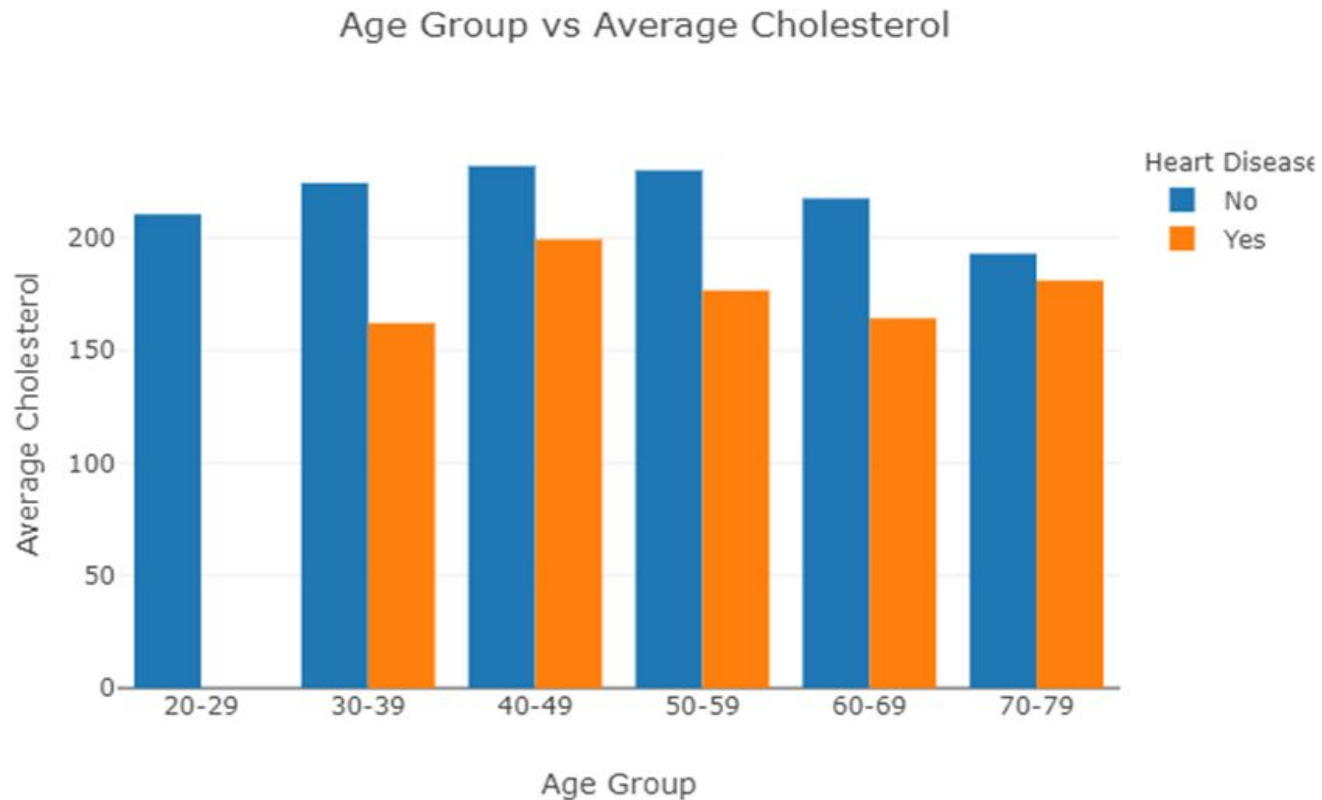
Final Data: 918 observations

Every dataset used can be found under the Index of heart disease datasets from UCI Machine Learning Repository on the following link: <https://archive.ics.uci.edu/ml/machine-learning-databases/heart-disease/>

## Citation

fedesoriano. (September 2021). Heart Failure Prediction Dataset. Retrieved [Date Retrieved] from <https://www.kaggle.com/fedesoriano/heart-failure-prediction>.

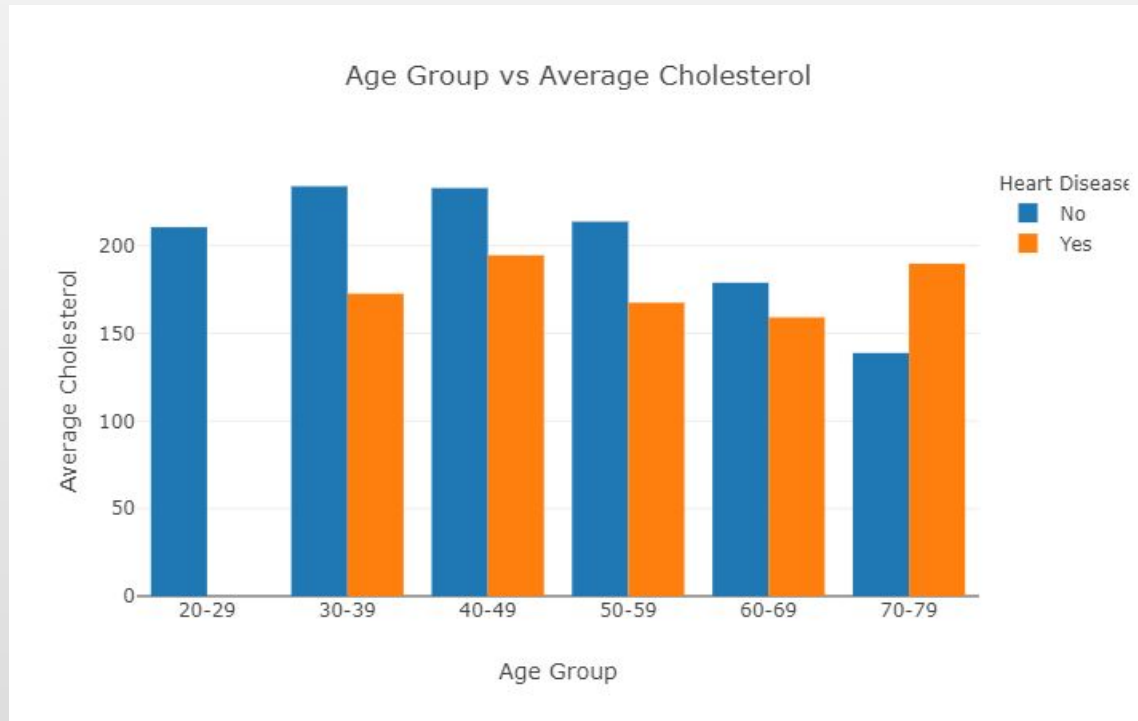
# Cholesterol's Impact



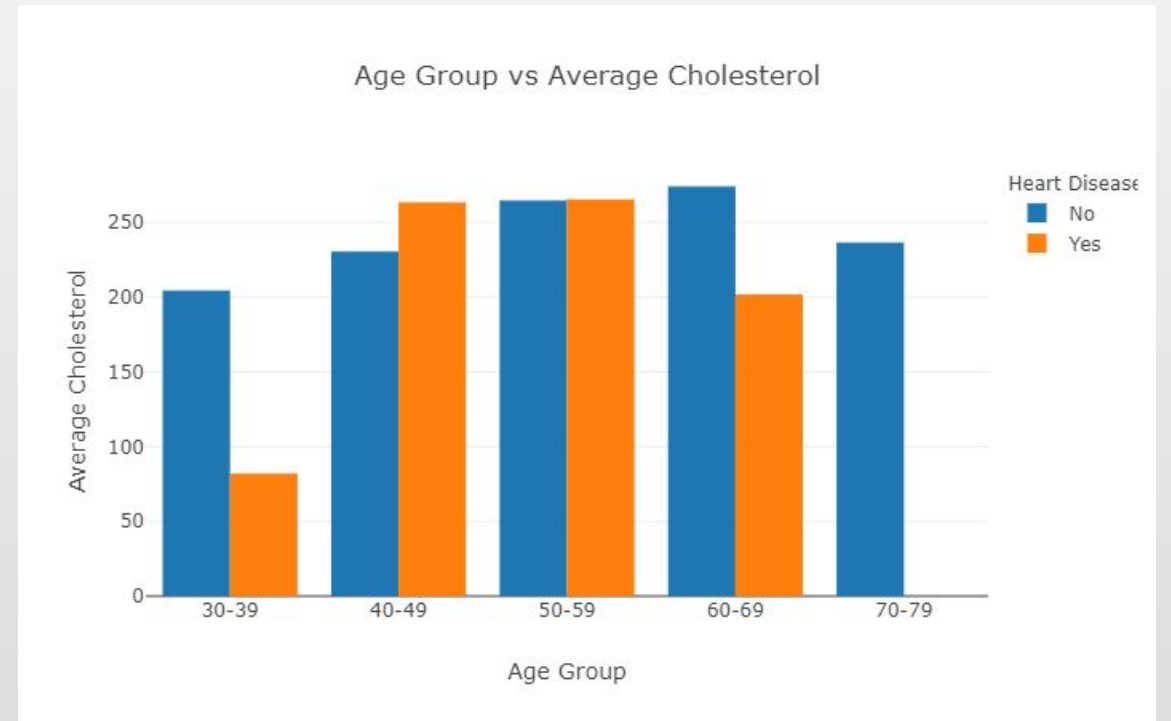
- Healthy adults have a cholesterol of less than 200 mg/dL
- Patients in the study who were diagnosed with heart disease had an average cholesterol of less than 200 mg/dL

# Cholesterol's Impact Cont.

Male Patients



Female Patients





# Chest Pain Types

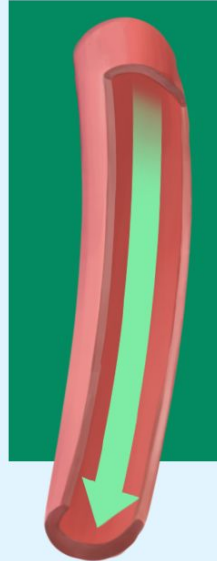
- Chest pain types consist of :
- ASY(Asymptomatic)
- TA (Typical Angina)
- ATA (Atypical Angina)
- NAP(Non-Anginal Pain)



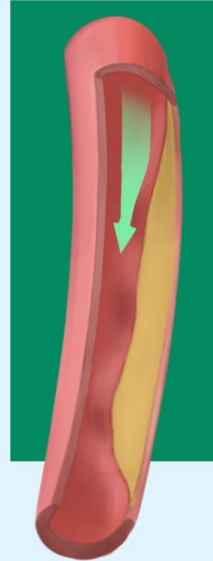
res-rehab

## Angina / Chest Pain

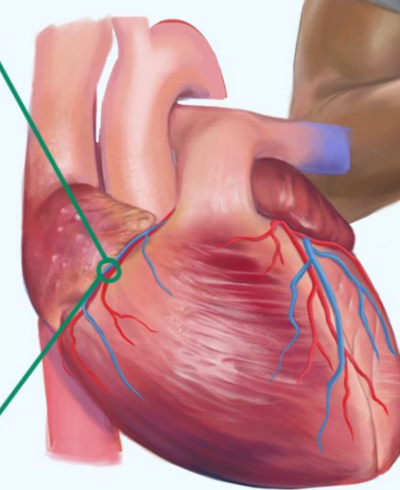
Angina is a type of chest pain or discomfort caused by a decreased blood flow to the heart muscle. To function properly, your heart muscle needs the oxygen carried by the blood. You may feel pressure or a squeezing ache in your chest if you have angina.



Normal Artery



Blocked Artery

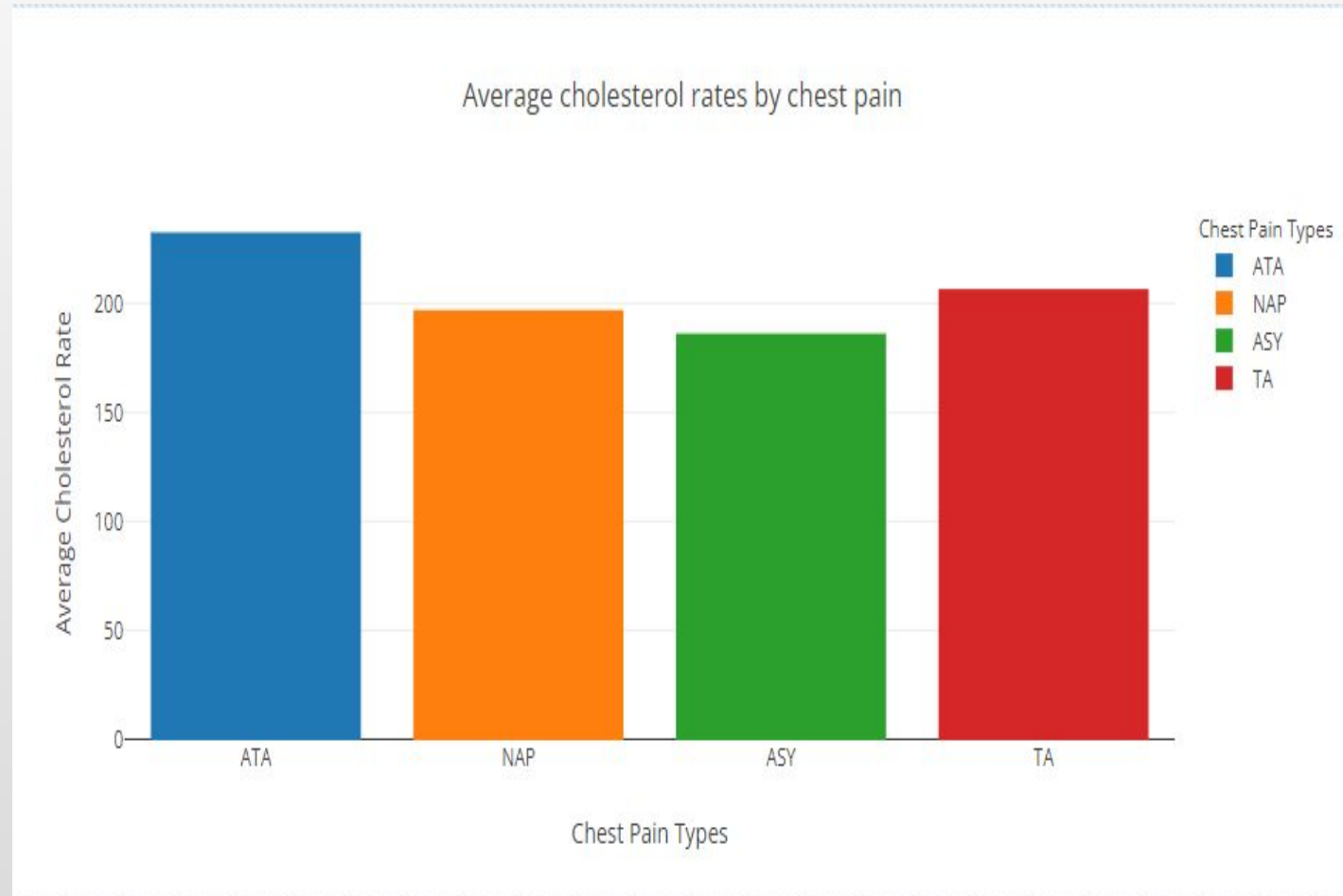


Human Heart



# Average Cholesterol by Chest Pain Type

- ATA: The average cholesterol rate for individuals with ATA 233.05
- NAP: The average cholesterol rate for individuals with NAP 197.44
- ASY: The average cholesterol rate for individuals with ASY 186.65
- TA: The average cholesterol rate for individuals with TA 207.06
- ATA Chest pain had the highest average rate of cholesterol among adults.



# Resting ECG vs Max Heart Rate

## Resting Electrocardiogram (ECG)

**Per the dataset attribute information, the categories for Resting ECG are:**

Normal: Normal

ST: has ST-T wave abnormality (T wave inversions and/or ST elevation or depression of  $> 0.05$  mV),

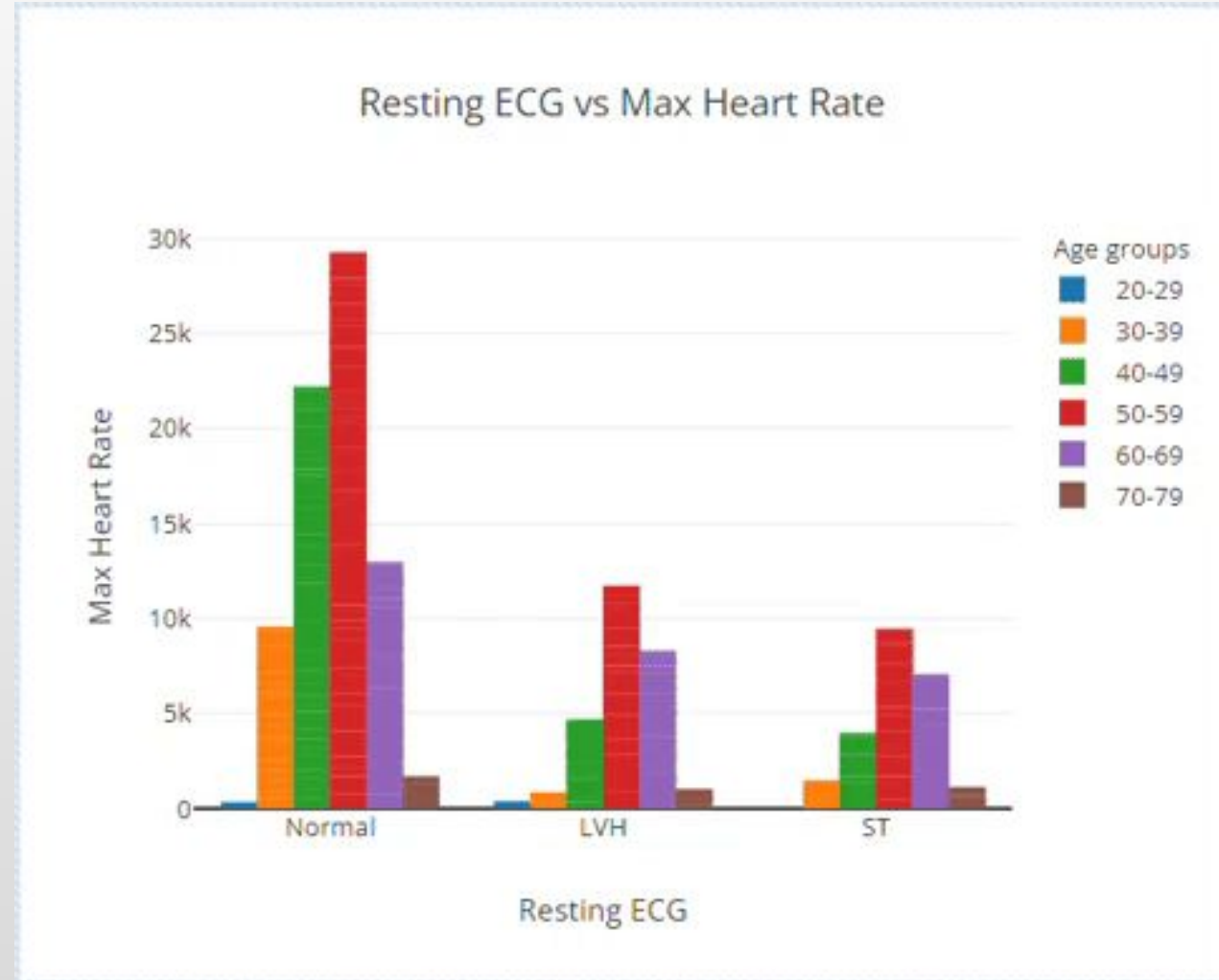
LVH: showing probable or definite left ventricular hypertrophy



# Resting ECG vs Max Heart Rate

In the study there were:

- 366 with LVH or ST-T abnormalities on ECG
- 552 with a normal resting ECG
- 285 with heart disease and a normal resting ECG





## Resting ECG vs Max Heart Rate

**A normal resting ECG  
may *not* indicate no  
heart disease!**

# QUESTIONS?

