Heart Disease Risk Factors

Clinical Insights & Data-Driven Results

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codecademy

Bootcamp • Applied Data Science with Python

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Data Source

Data set is a sample patients who were evaluated for heart disease at the Cleveland Clinic Foundation.

The principal investigators responsible for data collection were:

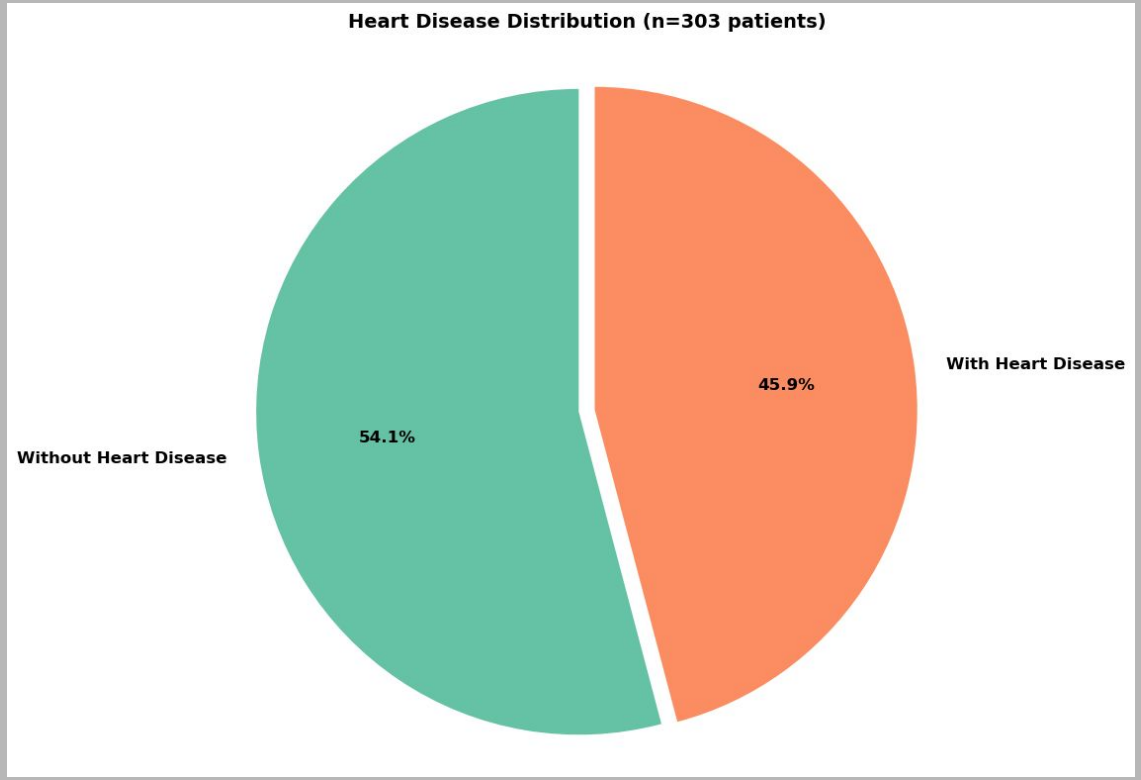
Hungarian Institute of Cardiology. Budapest: Andras Janosi, M.D.

University Hospital, Zurich, Switzerland: William Steinbrunn, M.D.

University Hospital, Basel, Switzerland: Matthias Pfisterer, M.D.

V.A. Medical Center, Long Beach and Cleveland Clinic Foundation: Robert Detrano, M.D., Ph.D.

Overall View Of Patients



CRITICAL: Maximum Heart Rate

WITH Heart Disease

139 bpm

WITHOUT Heart Disease

158 bpm

Difference: 19.12 bpm ↓ | Effect Size: LARGE (d = -0.918)

✓ Strongest predictor identified | p < 0.0001

Age: Pay Attention To Your Age

With Heart Disease
56.6 years

Without Heart Disease
52.6 years

Difference: 4.04 years | Effect Size: SMALL (d = 0.458)

✓ Significant & consistent | p < 0.0001

Notable Findings

Resting Blood Pressure

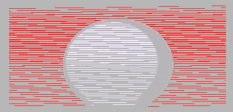
Heart Disease: 134.6 mmHg vs No-Heart Disease: 129.3 mmHg
Small effect (d=0.305)

Cholesterol

Heart Disease: 251.5 mg/dL vs No-Heart Disease: 242.6 mg/dL
Negligible effect (d=0.171)

Key Insight

Multiple factors matter—no single marker is deterministic. Risk is multifactorial.



BREAKTHROUGH:
Fasting Blood Sugar

Study Prevalence (FBS > 120 mg/dL)

14.85%

vs. 1988 Baseline: 8%

85% HIGHER than expected

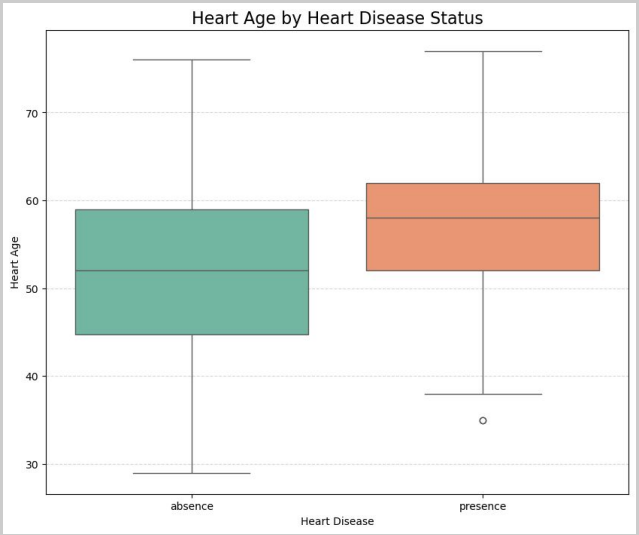
Statistical Significance: p = 0.0000469 ✓

SUMMARY TABLE: Effect Sizes and Statistical Significance

Comparison	Mean Difference	Cohen's d	Effect Size	p-value
Max Heart Rate (HD vs No HD)	-19.12 bpm	-0.918	Large	0.0000 ***
Age (HD vs No HD)	4.04 years	0.458	Small	0.0001 ***
Resting BP (HD vs No HD)	5.32 mmHg	0.305	Small	0.0085 **
Cholesterol (HD vs No HD)	8.83 mg/dL	0.171	Negligible	0.1391 ns

Effect Size Interpretation: |d| < 0.2 = negligible, 0.2-0.5 = small, 0.5-0.8 = medium, > 0.8 = large
Significance: *** p<0.001, ** p<0.01, * p<0.05, ns = not significant

Key Recommendations



Maintain cardiovascular fitness

Annual screening age 50+

Manage blood sugar proactively

The Bottom Line

Many Factors Causes Heart disease. Source New Baseline Data.

Focus on Fitness • Manage Multiple Risk Factors • Screen Proactively