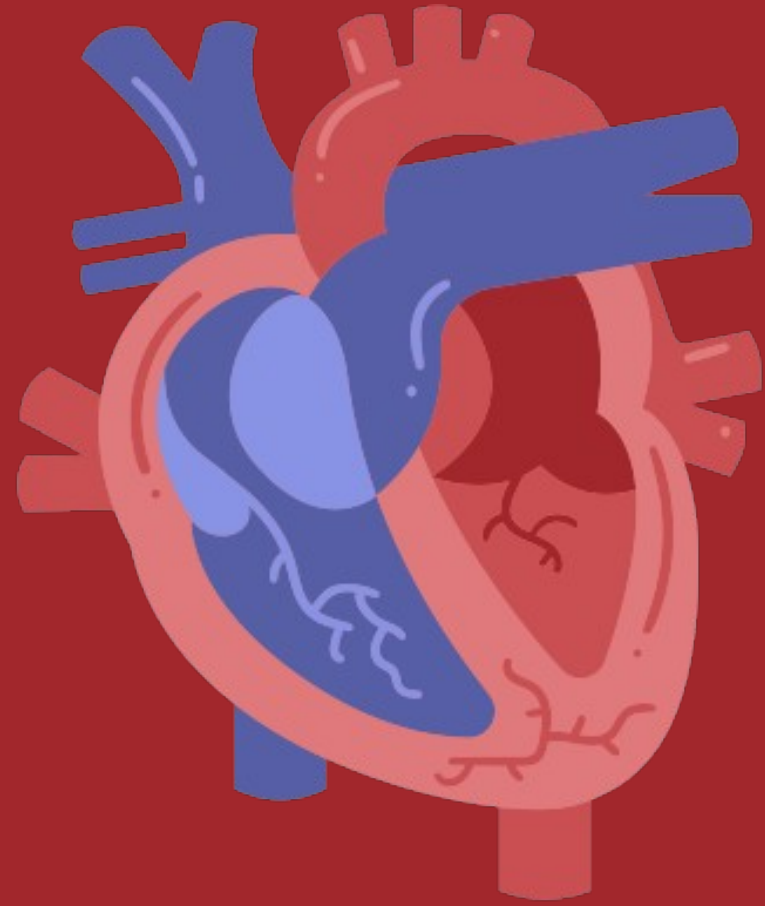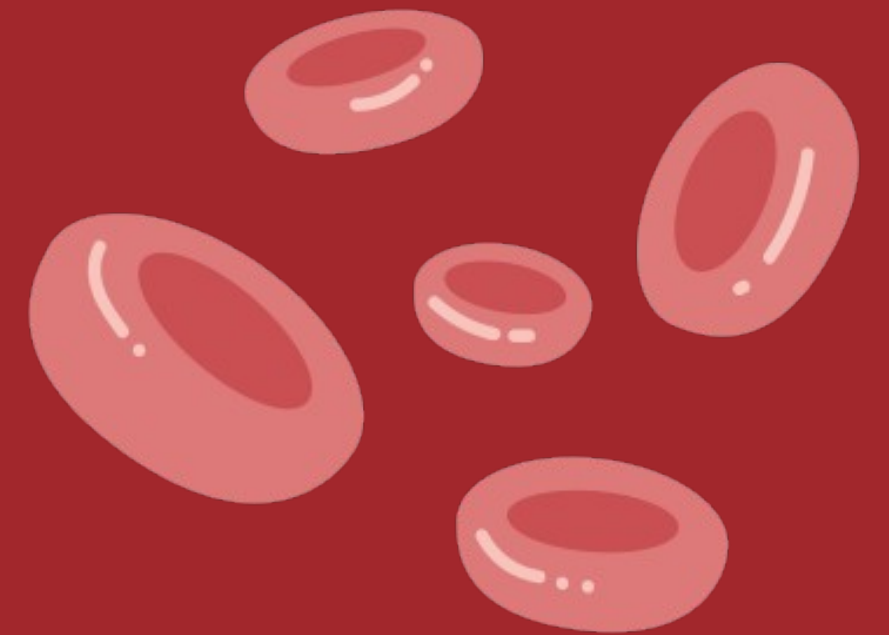# THE EFFECT OF INCREASING TRIGLYCERIDE-GLUCOSE INDEX (TGG) ON BLOOD PRESSURE AND
HEART RATE RECOVERY VALUES EXAMINED IN EXERCISE STRESS TESTS IN TERMS OF
CARDIOVASCULAR DISEASE RISK

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Plan

- Triglyceride-Glucose Index (TgG)
- Exercise Induced Hypertension
- Heart Rate Recovery (HRR)
- Aim of Our Study
- Methods
- Data Analysis
- Results
- Conclusion
- References

Triglyceride-Glucose Index (TgG)

2008 ➡️ Triglyceride-Glucose Index (TgG) used as a tool in literature for the first time

2010 ➡️ Its relation with with insulin resistance was proven.

2016 ➡️ Its association with cardiovascular events started to be researched

Calculation

ln[fasting triglyceride value x fasting glucose value / 2]

Exercise Induced Hypertension

It is defined as elevated blood pressure (BP) > 190mm Hg for females and > 210 mmHg for males during exercise

A value exceeding the upper limit raises suspicion for cardiovascular diseases.

Arterial hypertension is currently the most common cause of preventable deaths due to cardiovascular reasons

Heart Rate Recovery (HRR)

How quickly your heart returns to normal after you stop exercising.

It is difference between your heart rate at its maximum in treadmill and heart rate at one or three minutes later while in rest.

Higher HRR value indicates better cardiac health generally

An Example

Heart Rates 70   17   13   90

                              1mi   2mi
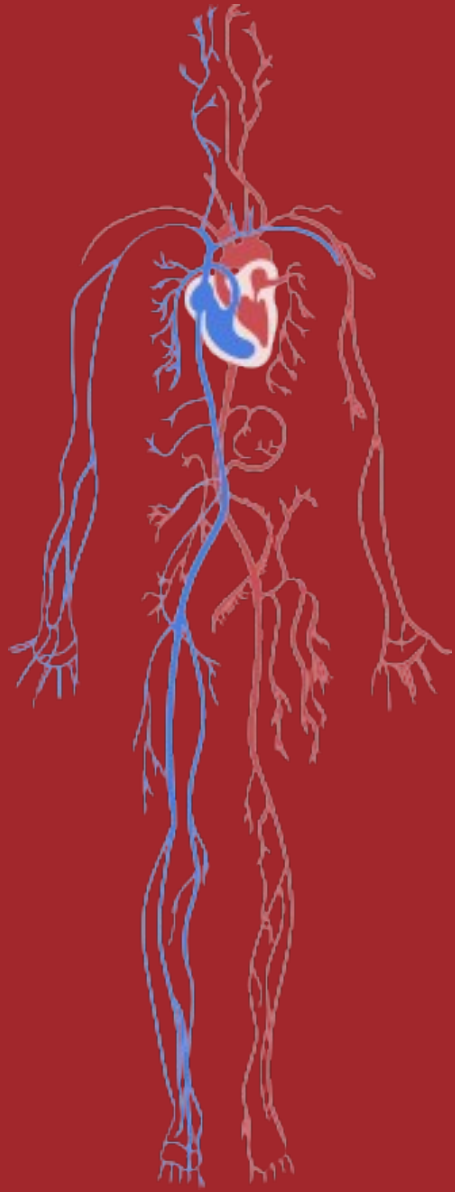
HRR   1 Min: 40   3 Min: 80

Aim of Our Study

Observe how does increase in TgG change HRR and maximum blood pressure values in exercise stress test

&

Compare the results of TgG and HRR for coronary artery disease patients and non coronary artery disease patients seperately to observe any difference

Method

The research project is a prospective study and data will be collected during the six-month period between April and September 2023 in Bezmialem Vakif University Hospital.

The maximum blood pressure values in treadmill and heart rate recovery values at 1 and 3 minutes going to be recorded.
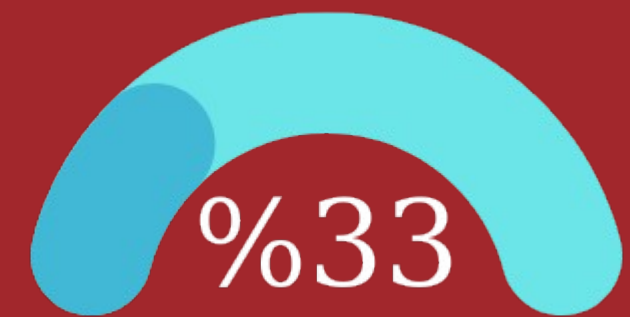
Examined parameters of 98 patients will be compared with calculated TgG values statistically.
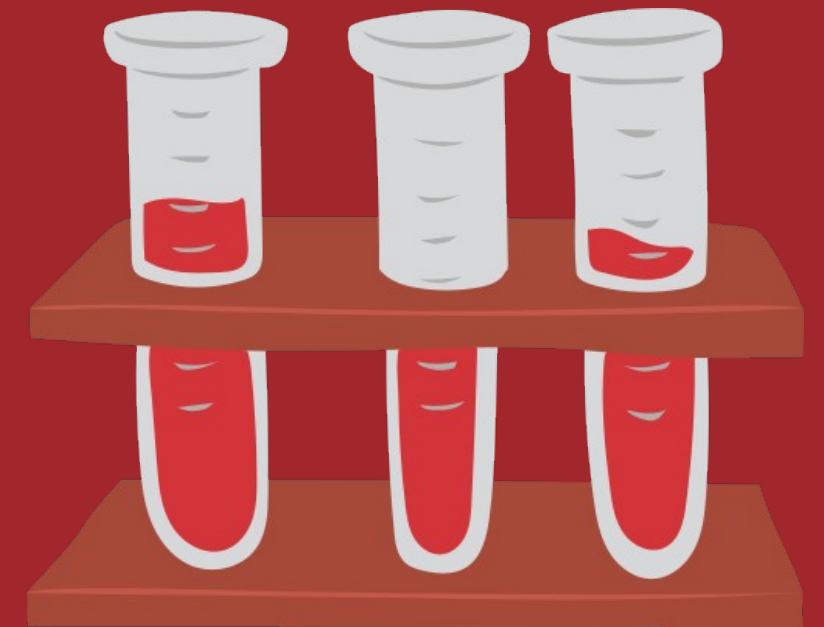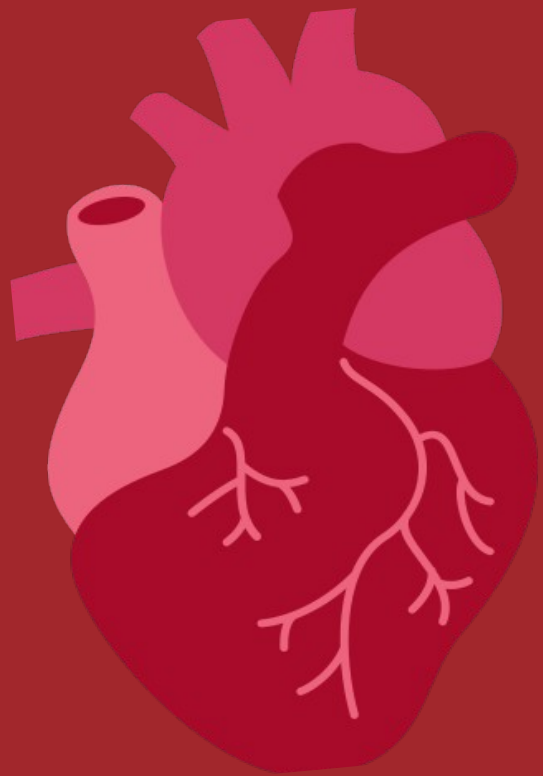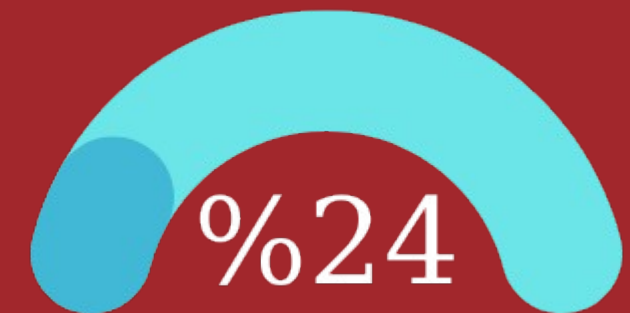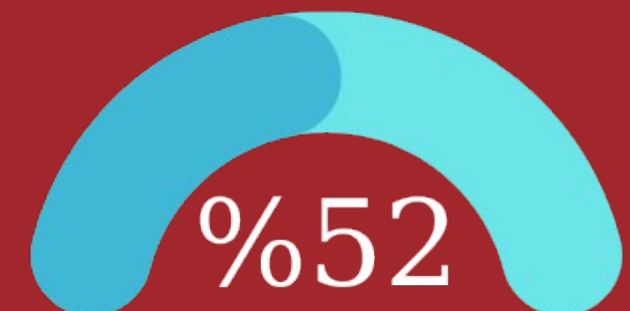
Data Analysis

32 patients had coronary artery disease

%33

Among 98 patients

24 patients had Diabetes

%24

51 patients had high blood pressure

%52

43 patients had dyslipidemia

%44

BEZMIALEM
VAKIF UNIVERSITY
1845

Results

		TgG	HRR1Min	HRR3Min	PeakExeHR	PeakExeSBP	PeakExeDBP
TgG	Correlation Coefficient	1,000	-,322	-,464	-,255	0,027	0,073
	P		0,001	0,001	0,011	0,791	0,479
	N	98	98	98	98	98	98

- Correlation coefficient of TgG with heart rate recovery at one minute, at three minutes, peak systolic pressure, peak diastolic pressure is (-.32/-.46/0.03/0.07) respectively.

- TgG is not related with peak systolic and diastolic blood pressures

- TgG and peak heart rate are slightly inversely proportional

Results

CAD		TgG	HRR1Min	HRR3Min	PeakExeSBP	PeakExeDBP	PeakExeHR
0	Mean	8,8940	38,5357	61,3214	194,2222	82,3333	164,3571
	Std. Deviation	0,49938	12,51176	11,35879	30,24470	13,61048	13,82939
1	Mean	9,1758	34,2857	55,9643	206,5000	85,8214	154,3571
	Std. Deviation	0,60616	11,36224	9,10223	25,01333	19,09635	14,61408

- Mean TgG values of CAD and non-CAD patients are 9.17 and 8.89 respectively

- Mean values of the HRR at three minutes are 55,9 and 61,3 in CAD and non-CAD patients

- Mean values of the HRR at one minutes are 34.3 and 38.5 in CAD and non-CAD patients

Conclusion

TgG and HRR are slightly inversely proportional at one minute and moderately inversely proportional at three minutes.

There is no significant correlation between TgG and maximum blood pressure.
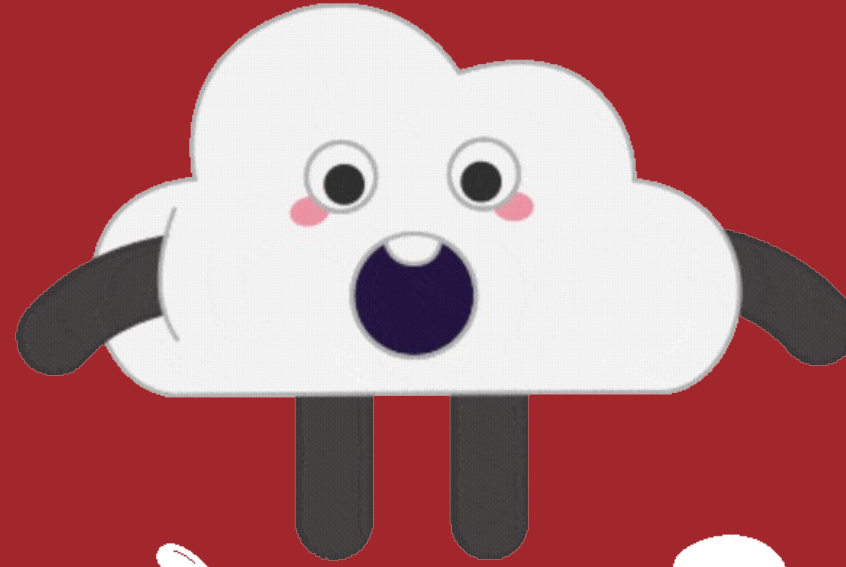
CAD patients have greater mean TgG values and their HRR values tend to be longer when compared to non-CAD patients.

References

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2.Mohammed L (Lina), Dhavale M, Abdelaal MK, Alam AB, Blazin T, Prajapati D, et al. Exercise-induced hypertension in healthy individuals and athletes: Is it an alarming sign? 2020 Dec 9

3. Shishehbor MH, Hoogwerf BJ, Lauer MS. Association of Triglyceride–to–HDL Cholesterol Ratio With Heart Rate Recovery. Diabetes Care. 2004 Apr

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THE END

Any Questions ?