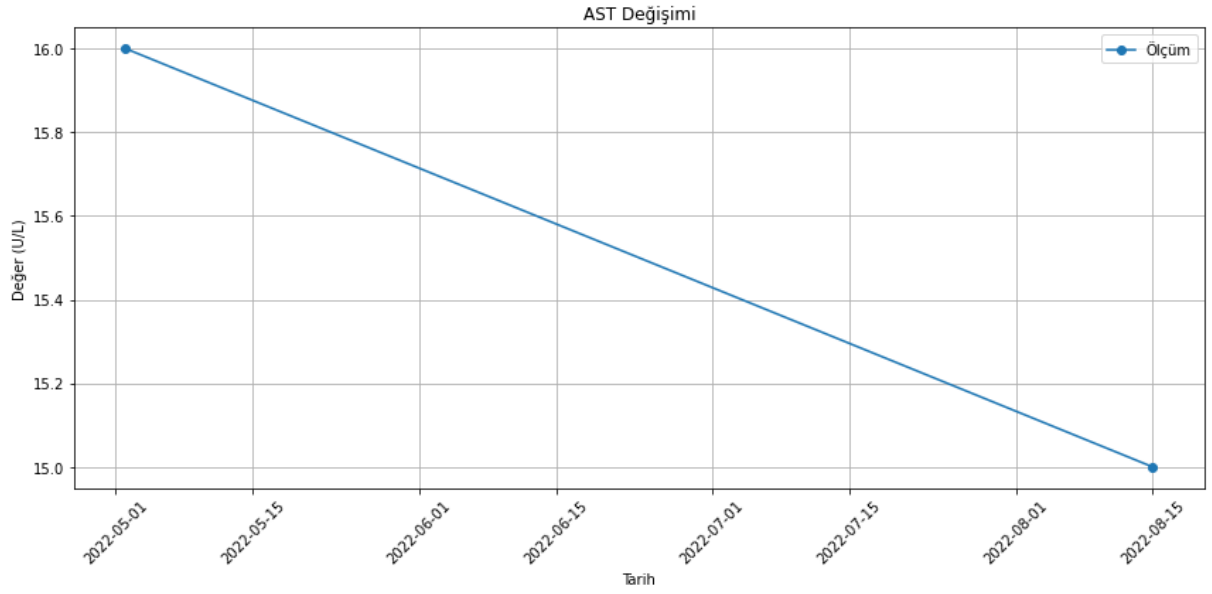
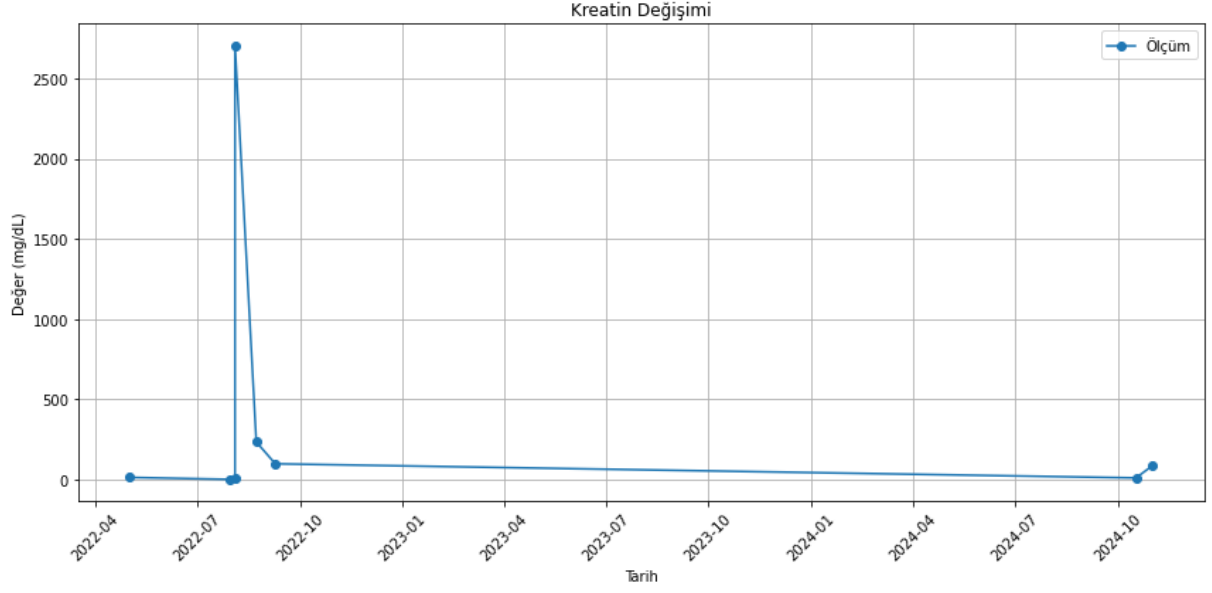
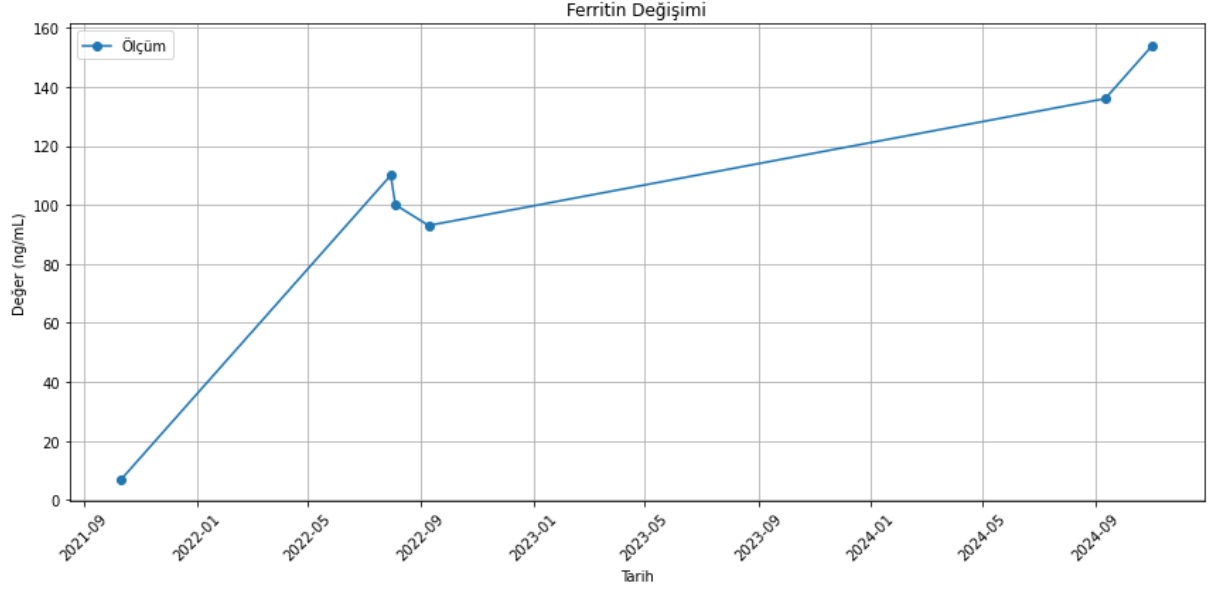


## 1. Introduction

Over the last few years, I have gathered information from several sources, including:

- **Blood test results** (various parameters such as iron, ferritin, B12, lipids, and more)
- **Continuous heart rate (HR) data** from wearable devices
- **Electrocardiogram (ECG) records** on specific dates
- **Workout (GPX) files** capturing running and cycling activities

This consolidated project examines how my **blood parameters, daily and hourly heart rate, ECG signals**, and **workout intensity** interrelate. By viewing them together, I can spot trends or anomalies and make informed decisions about my lifestyle, nutrition, and fitness goals.



**HDL Değişimi**

Değer (mg/dL)

Tarih

Tarih	HDL (mg/dL)
2022-07-30	44.00
2022-08-04	46.00

**Vitamin B12 Değişimi**

Değer (pg/mL)

Tarih

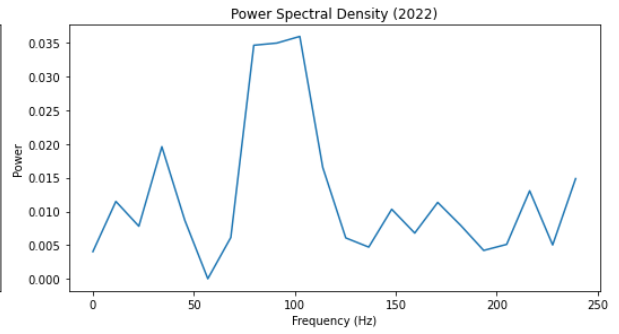
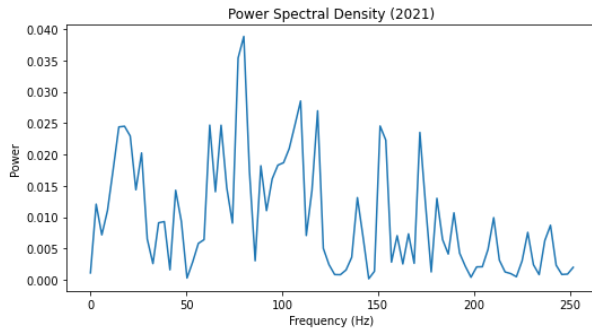
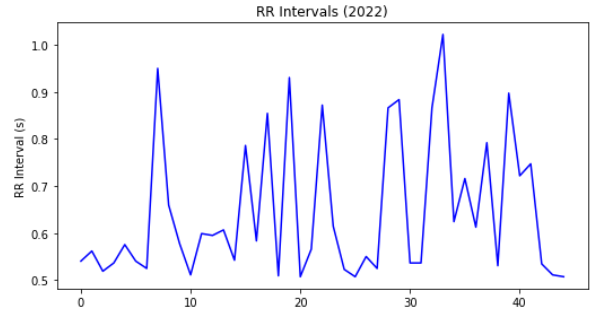
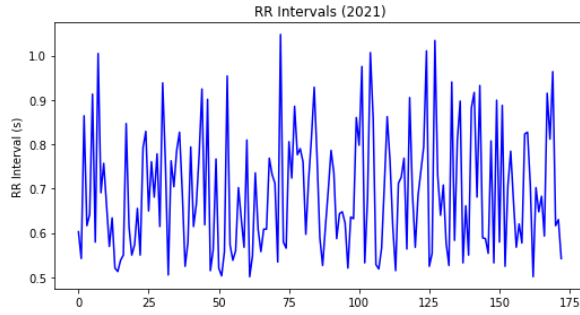
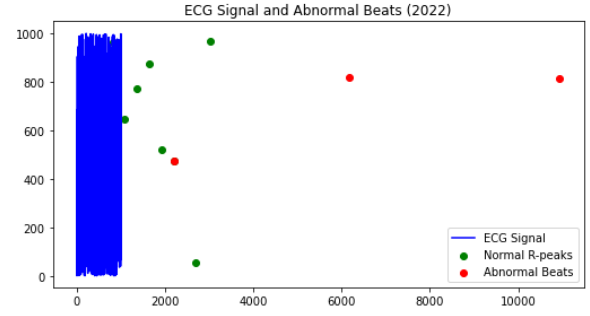
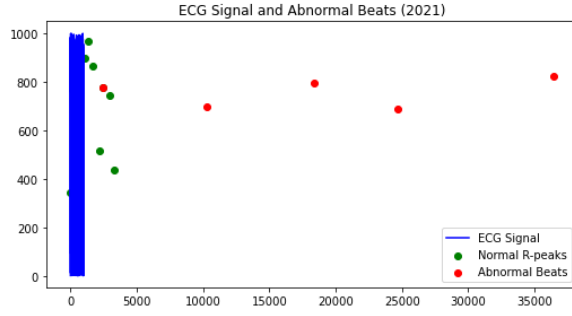
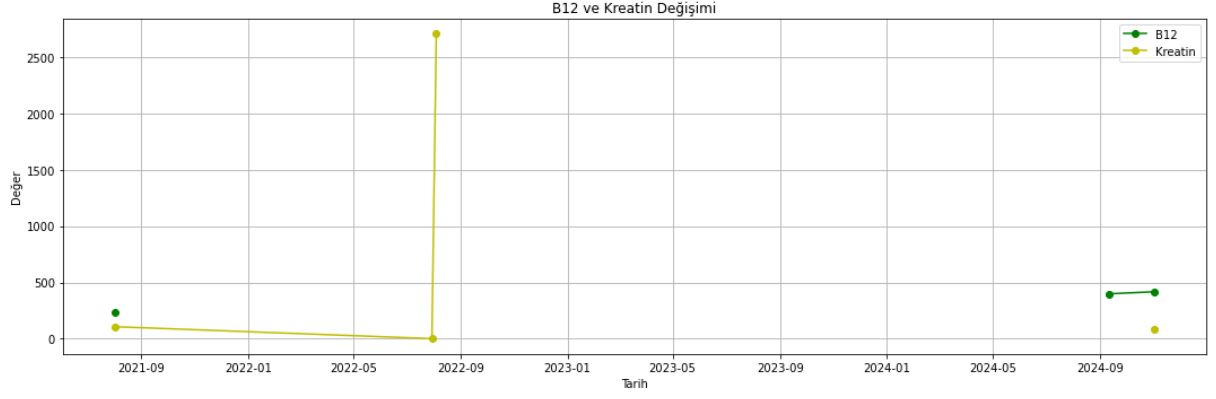
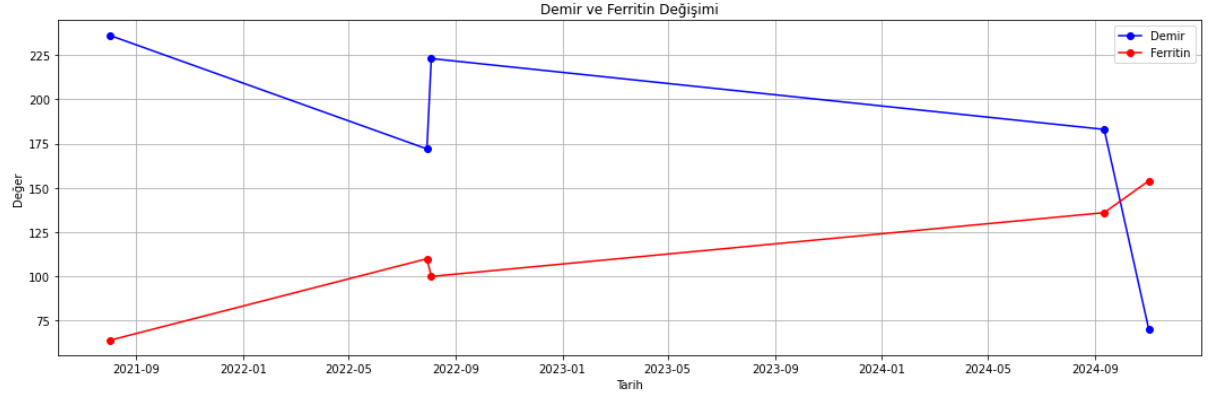
Tarih	Vitamin B12 (pg/mL)
2022-07	300
2022-10	290
2023-04	250
2023-10	220
2024-01	200
2024-04	180
2024-10	400
2024-11	410

### 3. **Vitamin B12 Variability**

B12 levels have ranged from **under 200 ng/mL** to **above 400 ng/mL**. Rapid changes may be tied to supplement habits or dietary shifts. Maintaining a stable intake helps avoid deficiencies (which can affect energy, mood, and neurological function).

### 4. **Lipids & Liver Enzymes**

LDL and HDL data points are limited. HDL slightly improved in recent readings, which might be linked to increased aerobic activity. AST and ALT appear within normal ranges, with AST showing a minor downward trend. While not alarming, consistent rechecks can catch early signs of liver stress, potentially influenced by exercise habits or diet.



## 2.2 Heart Rate & Workout Insights

### 1. Daily & Hourly HR Trends

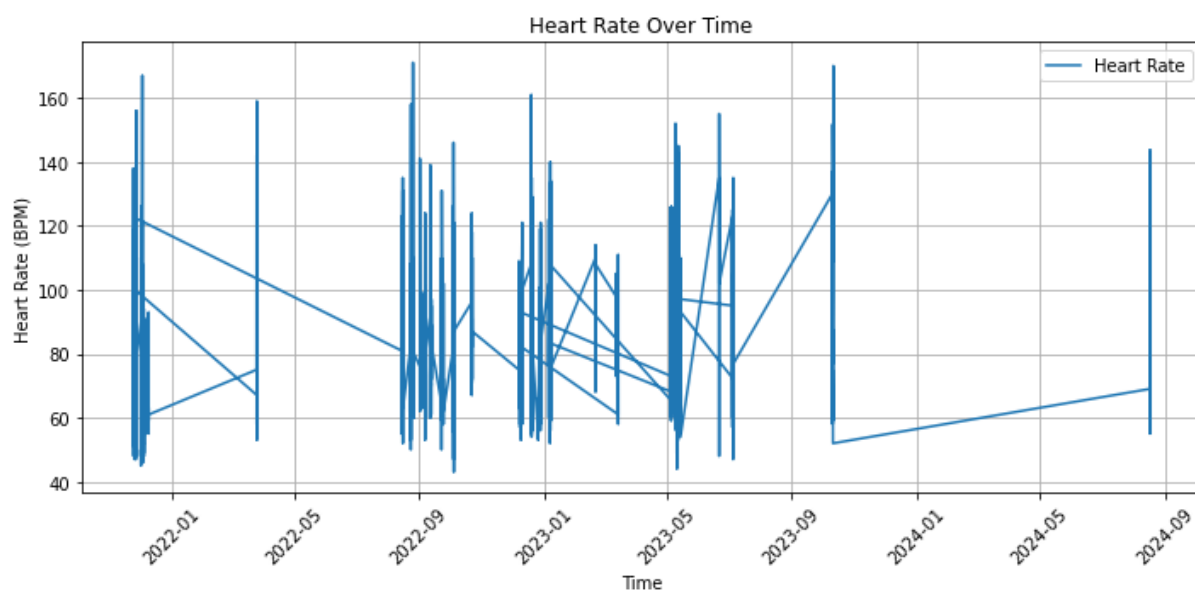
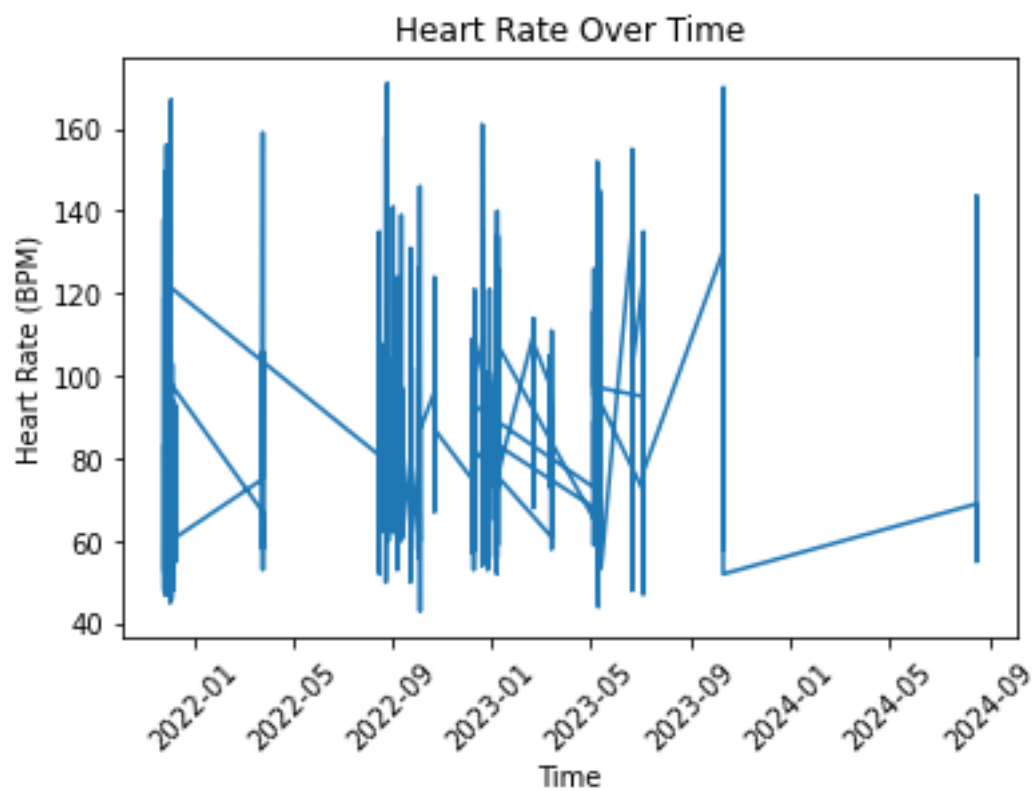
My heart rate typically remains **lower in early morning** hours (2–6 AM), suggesting healthy circadian rhythm control. Afternoon or early evening sees moderate increases (80–100 BPM) due to daily activities or mild workouts. Weekends, especially **Saturday**, show higher average HR, matching more intense or prolonged exercise sessions. By **Sunday**, HR often drops, reflecting rest or reduced activity.

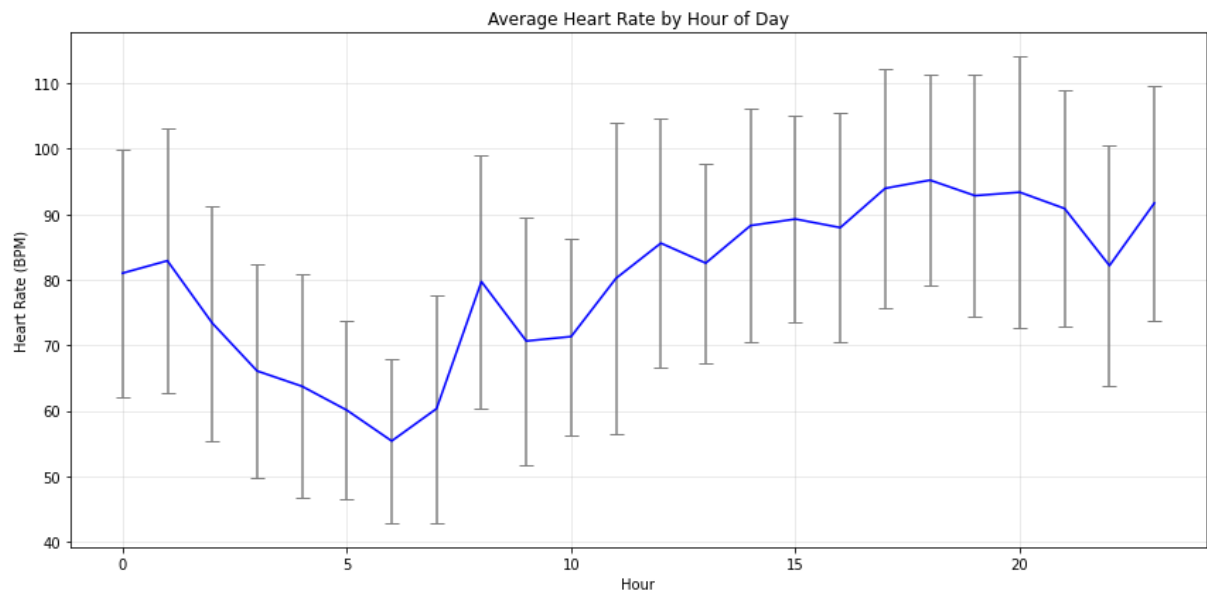
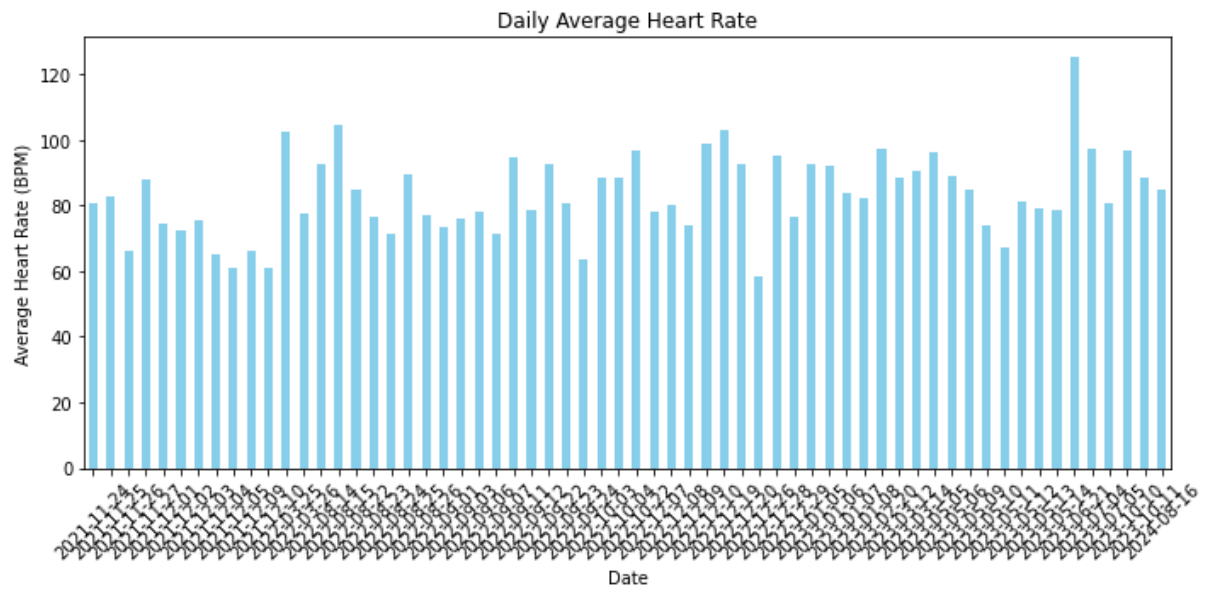
### 2. Workout Routes (GPX Analysis)

Detailed **pace** trends from the GPX files indicate that my performance (speed and average pace) improves when I maintain a regular exercise schedule and stable iron levels (ferritin), as I tend to fatigue less. In periods where I noticed **lower ferritin** or borderline anemia, my running pace slowed more quickly, and I felt higher perceived exertion. Conversely, stable iron and B12 correlated with improved endurance. Elevation changes and total distance from these GPX logs shed light on the stress placed on my cardiovascular system. On days with steep climbs, the heart rate data verifies more frequent spikes.

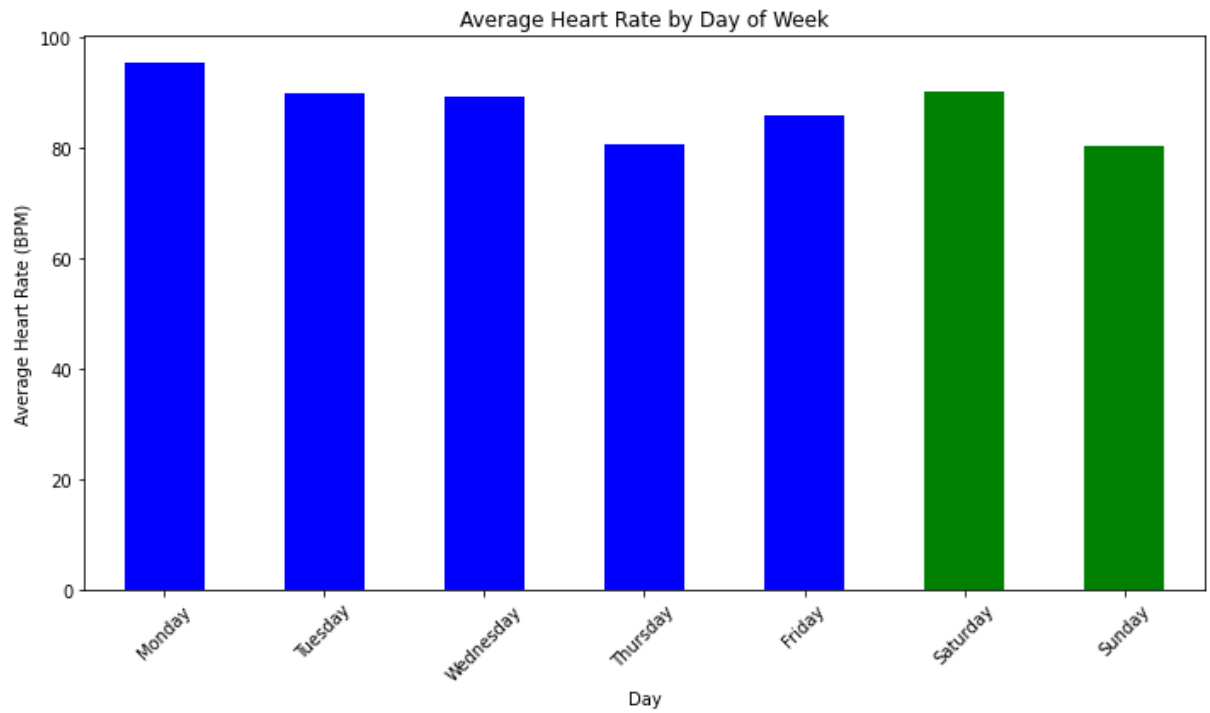
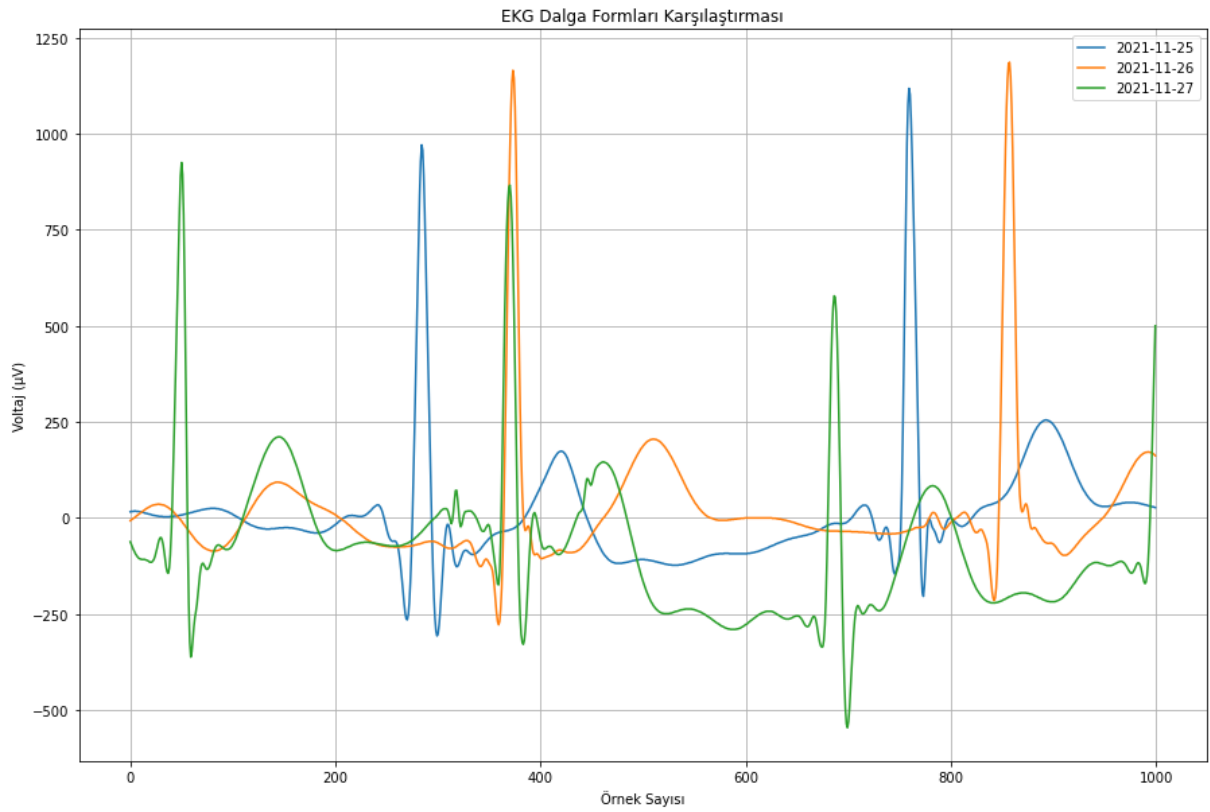
### 3. Connecting Heart Rate with Blood Tests

During times of potential iron deficiency (low ferritin or low iron levels), I also observed a slightly **elevated resting HR** on some days, possibly because the body works harder to deliver oxygen. With improved ferritin (near 100+ ng/mL) and stable B12, my day-to-day HR variability has been more consistent, and extreme spikes are generally limited to scheduled workouts.









## 2.3 ECG Recordings & Cardiac Rhythm

### 1. EKG Waveforms

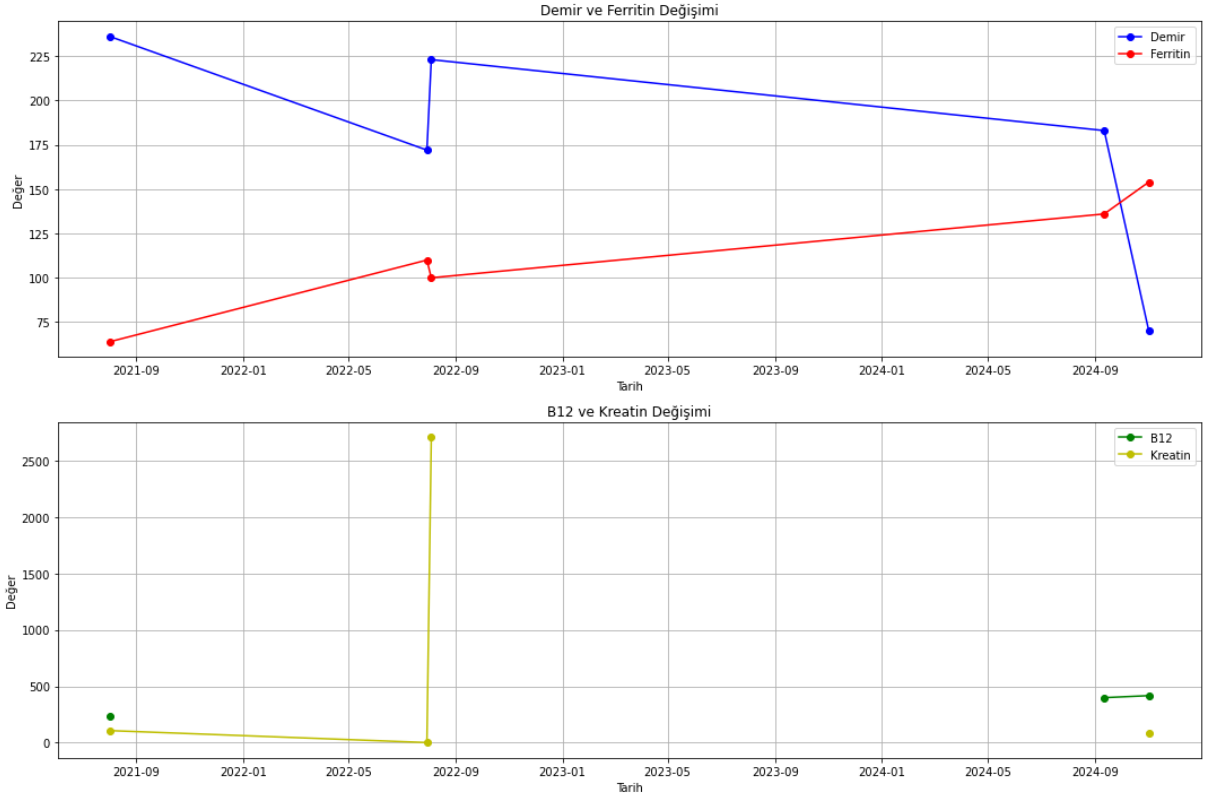
Multi-day ECG comparisons show relatively **consistent R-peaks**, with only minor amplitude variations. These variations could be due to normal daily changes or slightly different electrode placement. In certain EKG traces, I've detected a handful of irregular beats labeled as "abnormal." Occasionally, these might be **ectopic beats**, which are often benign but should be monitored if frequent.

## 2. Adaptive Threshold & RR Intervals

Most RR intervals fall into the **0.6–1.0 second** range (60–100 BPM). Sporadic outlier intervals could reflect short bursts of activity, anxiety, or just noisy data. If repeated clusters of abnormal intervals appear, a professional consult is advisable.

## 3. Workout Influence on ECG

Strenuous exercise within a day or two of an ECG reading sometimes yields **higher amplitude** signals, potentially from improved circulation or muscle tension. Extremely high CK values (if that was the actual reading) might connect to muscle stress from intense workouts. If so, it's not necessarily pathological but still worth tracking to avoid overtraining.



### 3. Overall Health Reflections

#### 1. Nutrient Monitoring

Ferritin and B12 levels are vital for energy and endurance. When either is too low, I experience fatigue; when they are too high, I remain cautious about potential oversupplementation.

#### 2. Exercise & HR

My typical heart rate patterns suggest a well-established circadian rhythm. However, consistent exercise scheduling helps avoid sudden spikes or irregular day-to-day variations. Tracking workout routes has highlighted how my running performance corresponds with stable iron/B12 levels and sufficient rest days.

#### 3. Possible Future Adjustments

Maintain **balanced supplementation** (iron, B12) and confirm that lab results match the correct units (avoid confusion between creatinine and CK). Integrate **additional rest** if I notice elevated resting HR or unusual EKG changes, as they might indicate overtraining or early signs of strain. Keep a closer eye on **cholesterol** (LDL & HDL) by scheduling more frequent lipid panels, especially if aiming for cardiovascular optimization.

### 4. Practical Self-Advice

#### 1. Regular Blood Panels

Aim for at least biannual checks to confirm the stability of ferritin, iron, B12, LDL, HDL, and liver enzymes. Early detection of a trend can help me adjust diet or training in time.

#### 2. Consistent Workout & Recovery

Capitalize on Saturday's high-intensity routine but ensure a **rest or light active recovery** on Sunday. Monitor for excessive muscle strain (if CK truly soared above normal) and avoid back-to-back intense sessions without proper recovery.

#### 3. Watch for Anomalies in ECG

Occasional ectopic beats can be benign, but if I feel palpitations or see frequent irregularities, I should consult a cardiologist. Keep an ECG log around heavy workout periods to see if any arrhythmias spike during or after intense exercise.

#### 4. Lifestyle & Diet

Keep an eye on **dietary iron sources** (red meats, legumes, leafy greens) and B12 (animal products, fortified foods, or supplementation). If lipids run high, consider more **cardiovascular-focused** exercise and potential adjustments in dietary fat intake.

## 5. Limitations

- **Potential Sensor/Labeling Errors:** The extremely high “creatinine” level is likely mislabeled. Overly high or low heart rate data can be device noise.
- **Individual Scope:** These findings are strictly based on my personal data and lifestyle. They do not generalize to anyone else.

## 6. Conclusion

By examining **blood test parameters, continuous heart rate tracking, ECG signals, and workout routes** as interconnected components, I have gained a clearer perspective on how my **nutritional status, physical training, and cardiac rhythms** influence one another. Key takeaways include ensuring balanced iron/B12 levels to support endurance, managing rest and exercise intensity to maintain a healthy heart rate pattern, and staying aware of potential anomalies (like mislabeled lab results or EKG irregularities). Although I am not a medical professional, these insights motivate me to refine my exercise routines, diet, and follow-up tests. Continuous monitoring and occasional professional checkups will help safeguard my health and guide more informed personal decisions in the future.