Characteristic	Beta	95% CI[1]	p-value
Intercept	13.22	2.87, 23.56	0.013
Slope	0.99	0.98, 1.01	<0.001

[1]CI = Confidence Interval

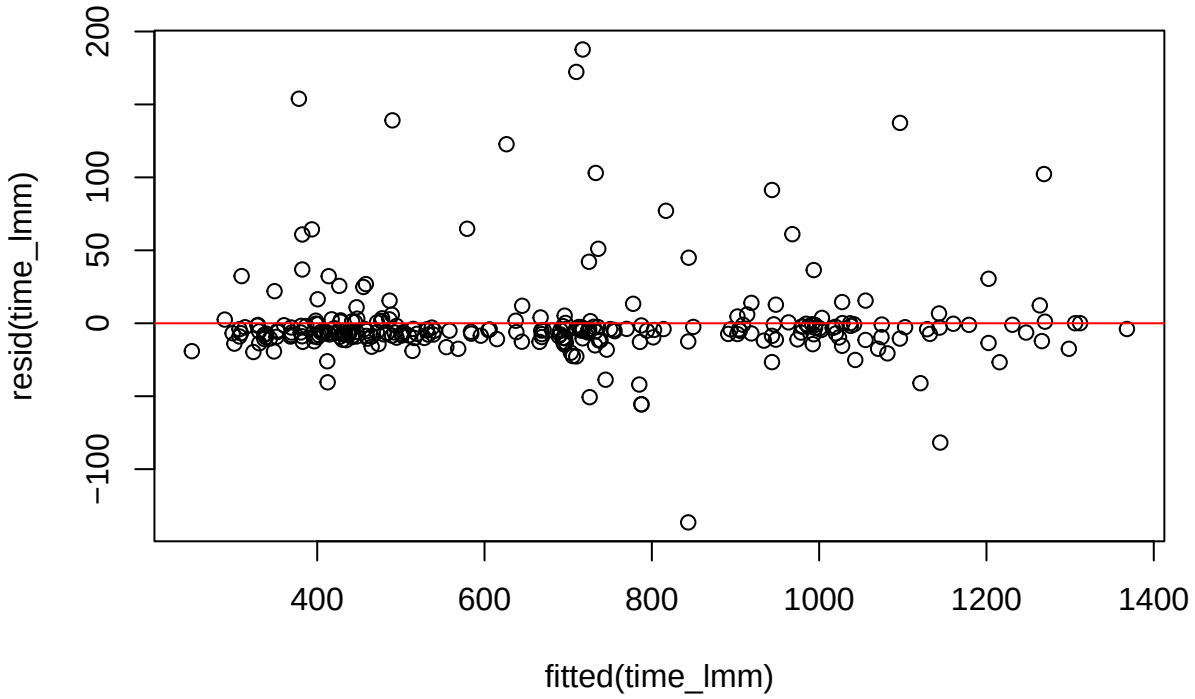
Project 0 - Report Analysis

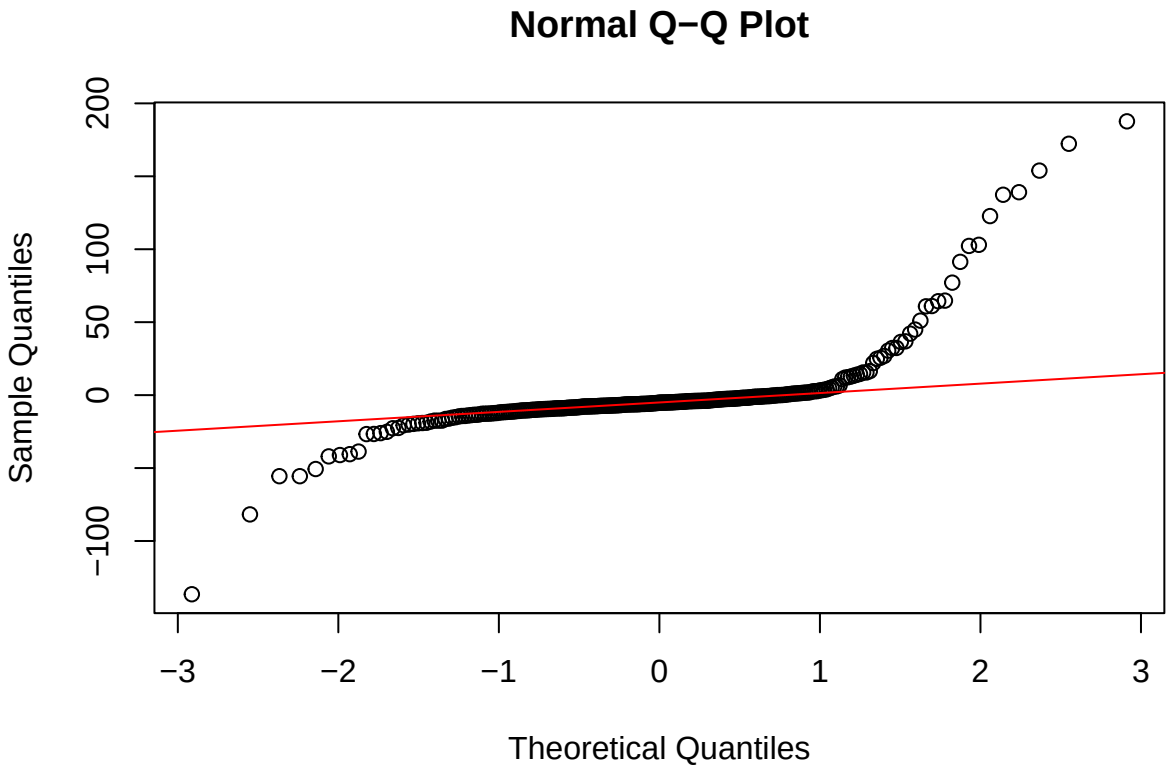
Madelynn Schina

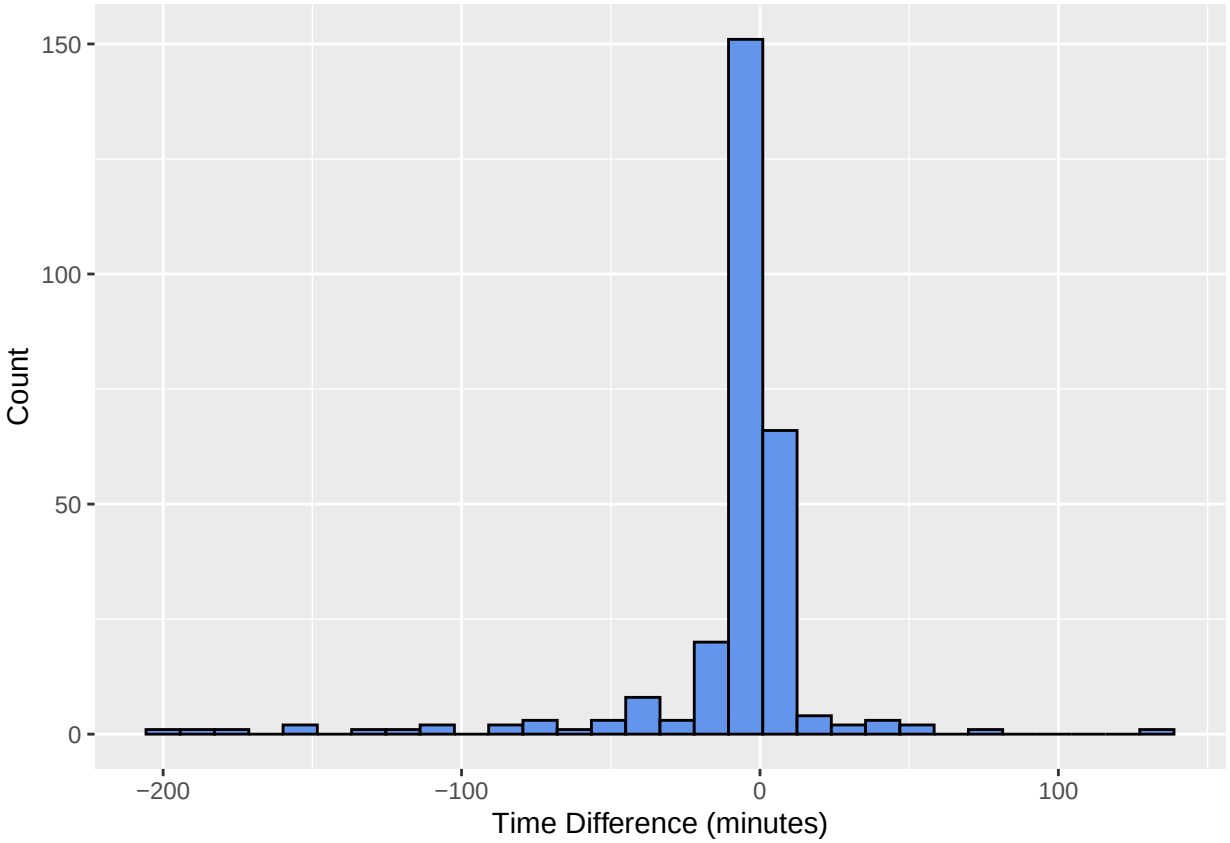
January 2026

Question 1

Question: What is the agreement between the subject's recordings of sampling times compared to the times recorded by an electronic monitoring cap?

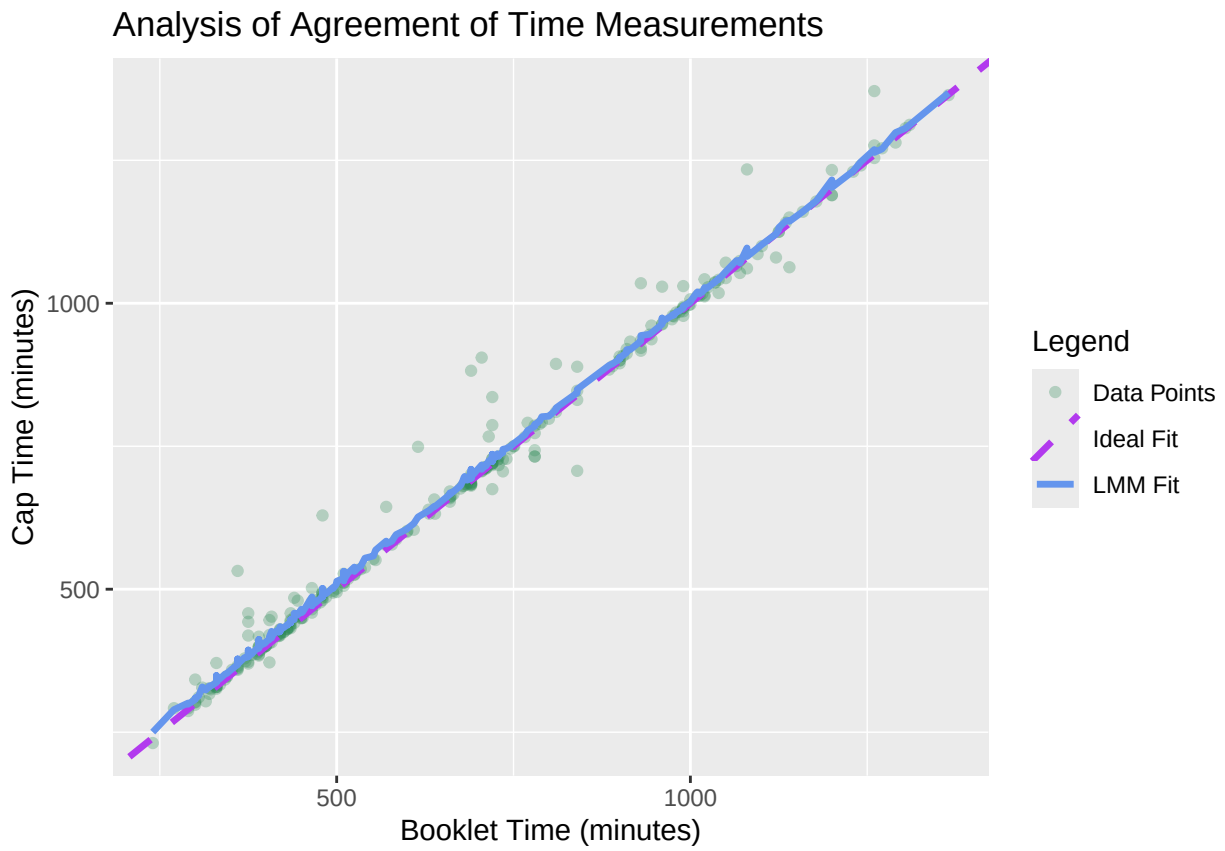



Normal Q−Q Plot
Sample Quantiles
200
100
50
0
−100
−3
−2
−1
0
1
2
3
Theoretical Quantiles


150
100
50
0
Count
−200
−100
0
100
Time Difference (minutes)

	30-Minute Sample(N=82)[1]	600-Minute Sample(N=76)[1]
Adherence Classification		
Good	64 (78%)	37 (49%)
Adequate	10 (12%)	6 (8%)
Poor	8 (10%)	33 (43%)

[1] n (%)



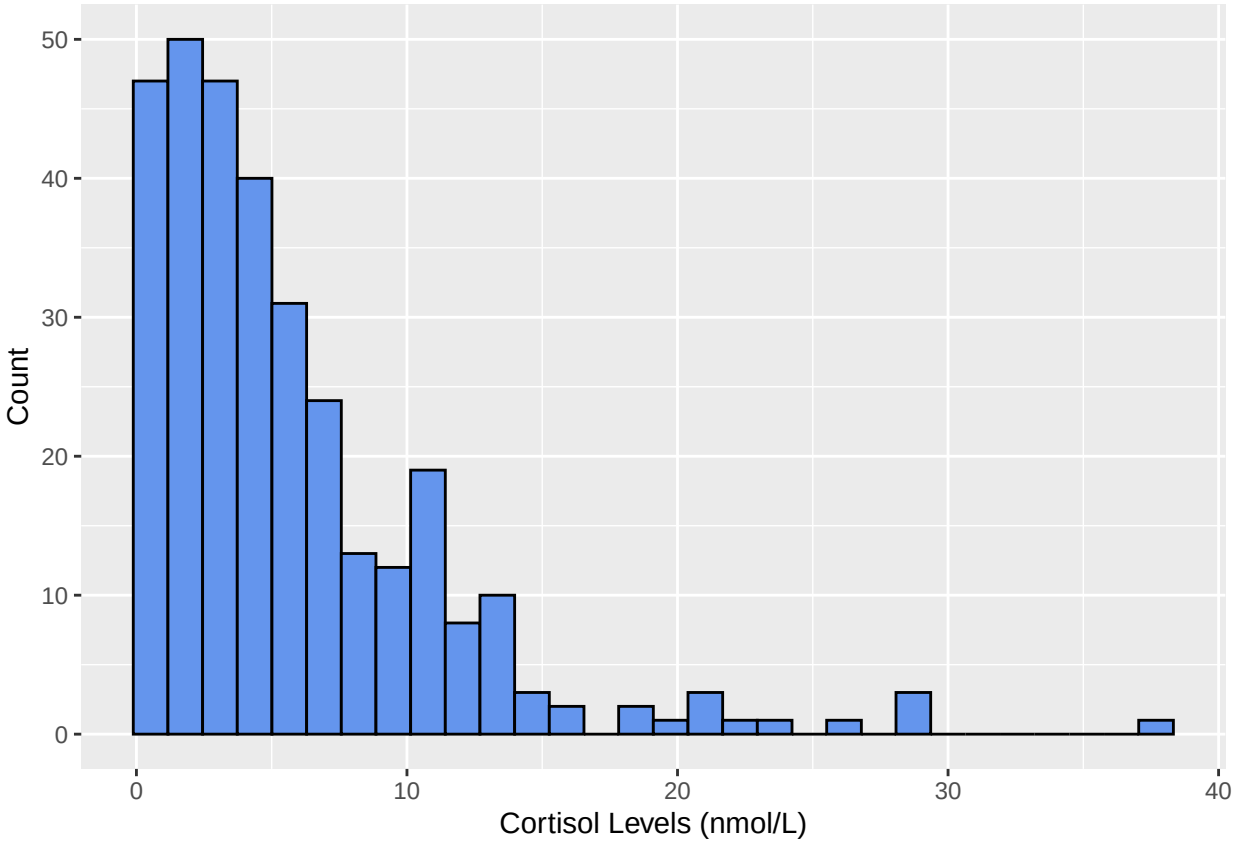
Notes/Comments for Write-Up: - Both plots, the histogram and scatterplot, indicate that the times are pretty close in agreement.
- The cap time was on average 13 minutes higher than the first, while the relationship between the two measurements was nearly perfectly linear (slope = 0.992), indicating minimal proportional bias but a small systematic offset.

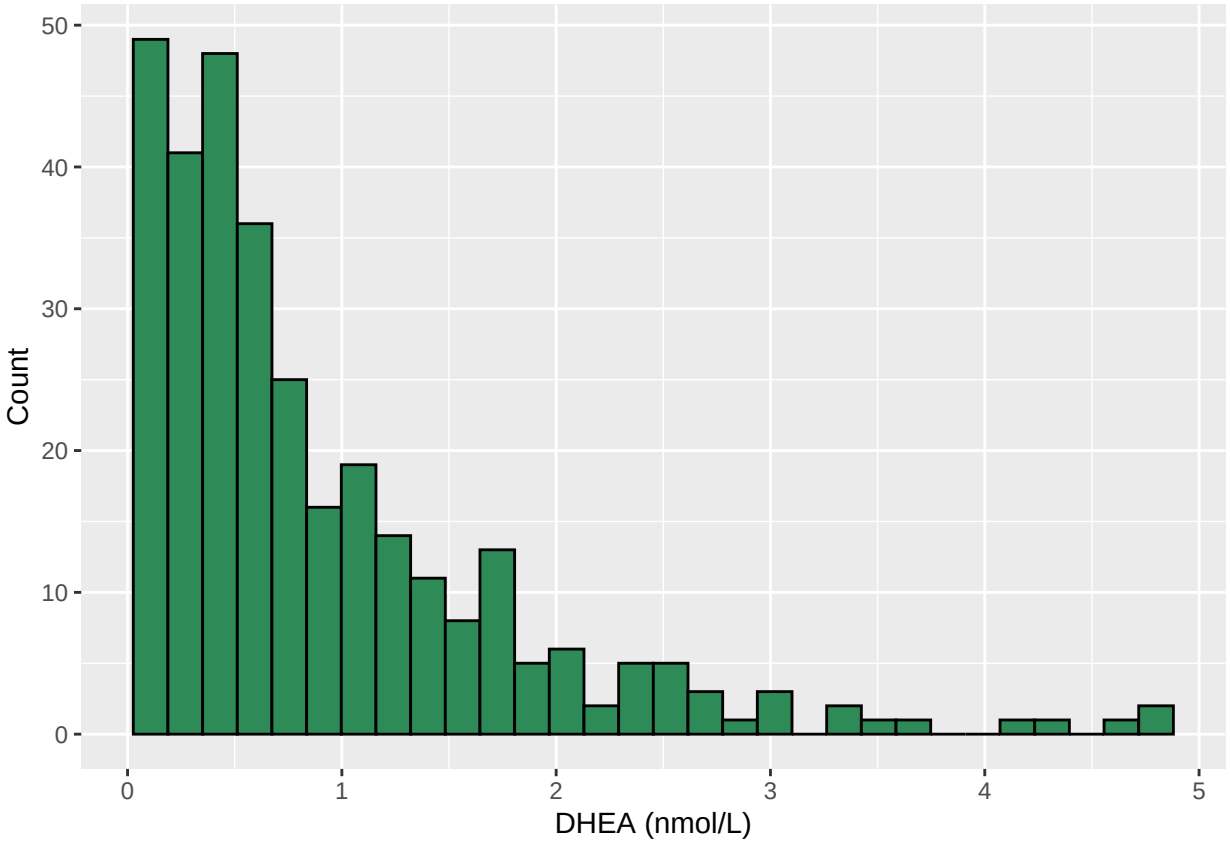
Question 2

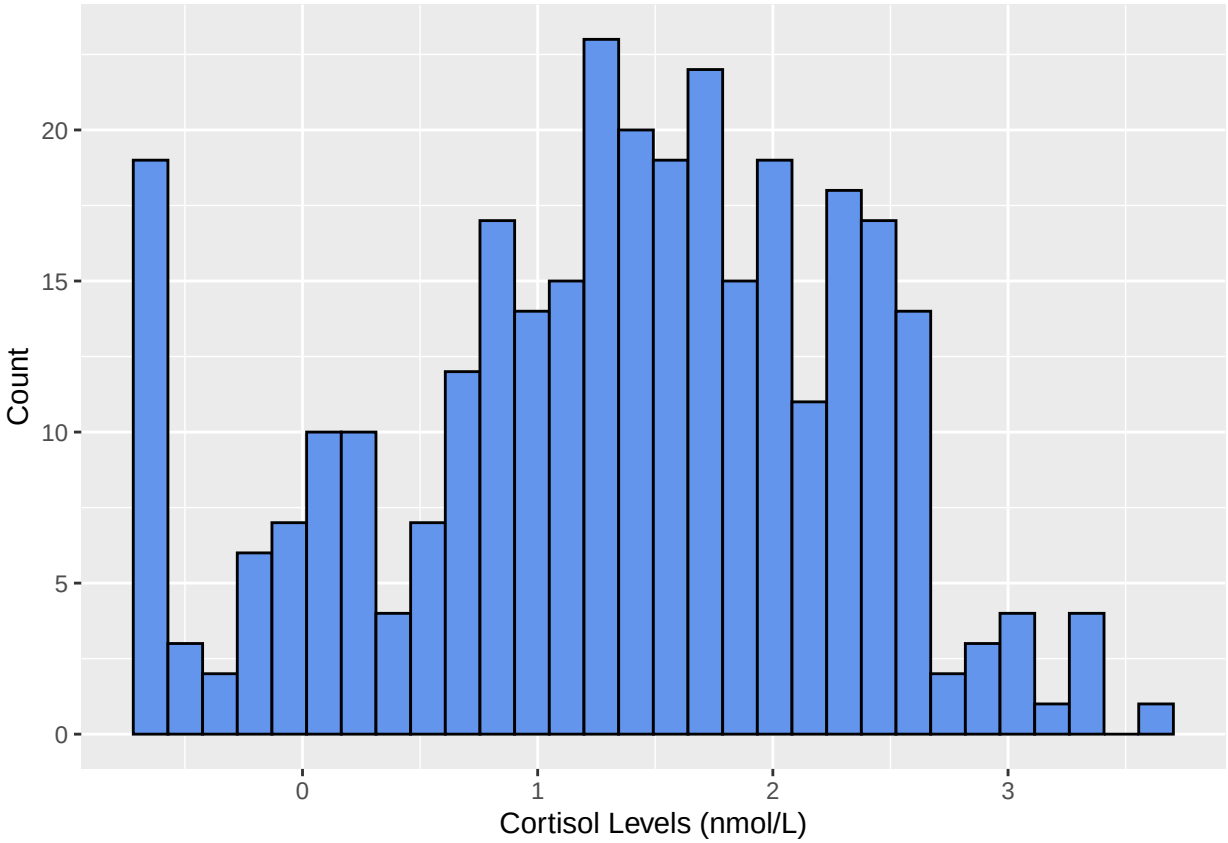
Are subjects adhering accurately to the +30min and +10 hour sampling times required by a study protocol?

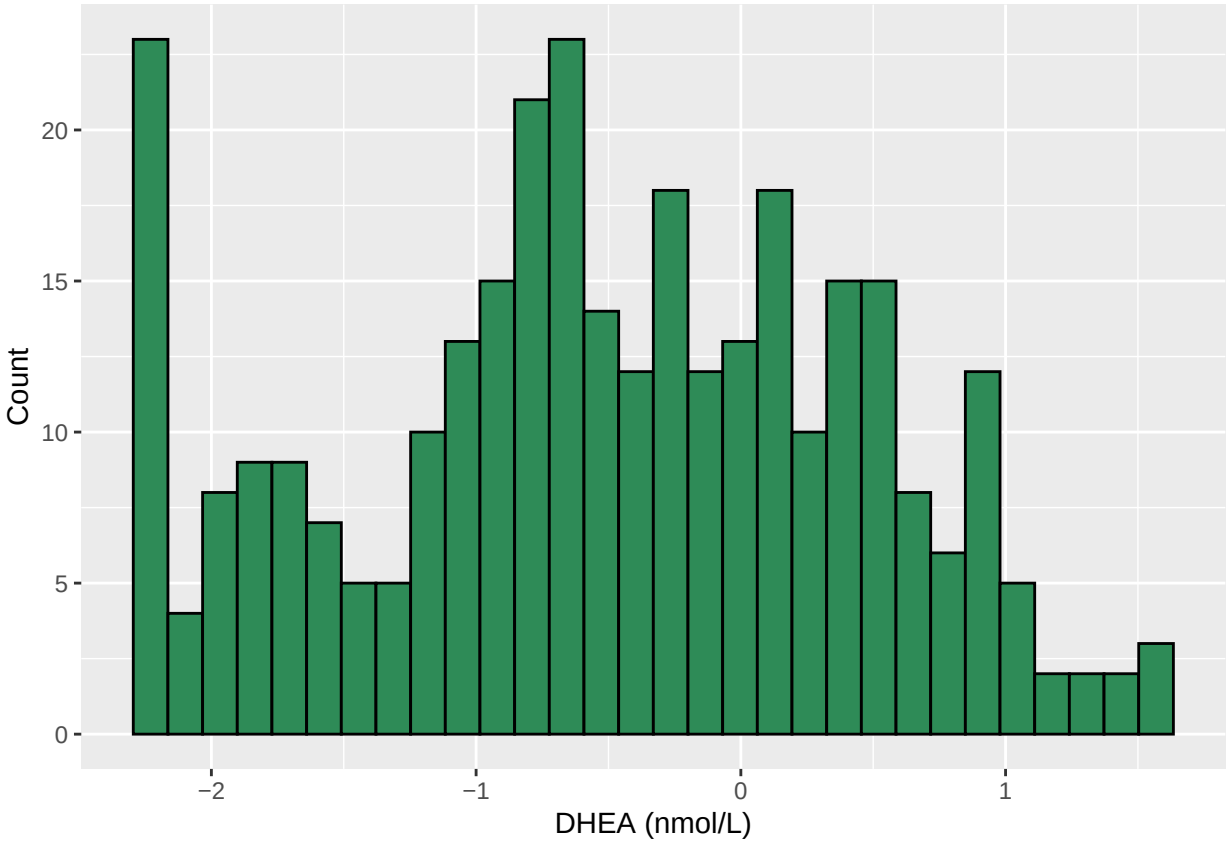
Question 3

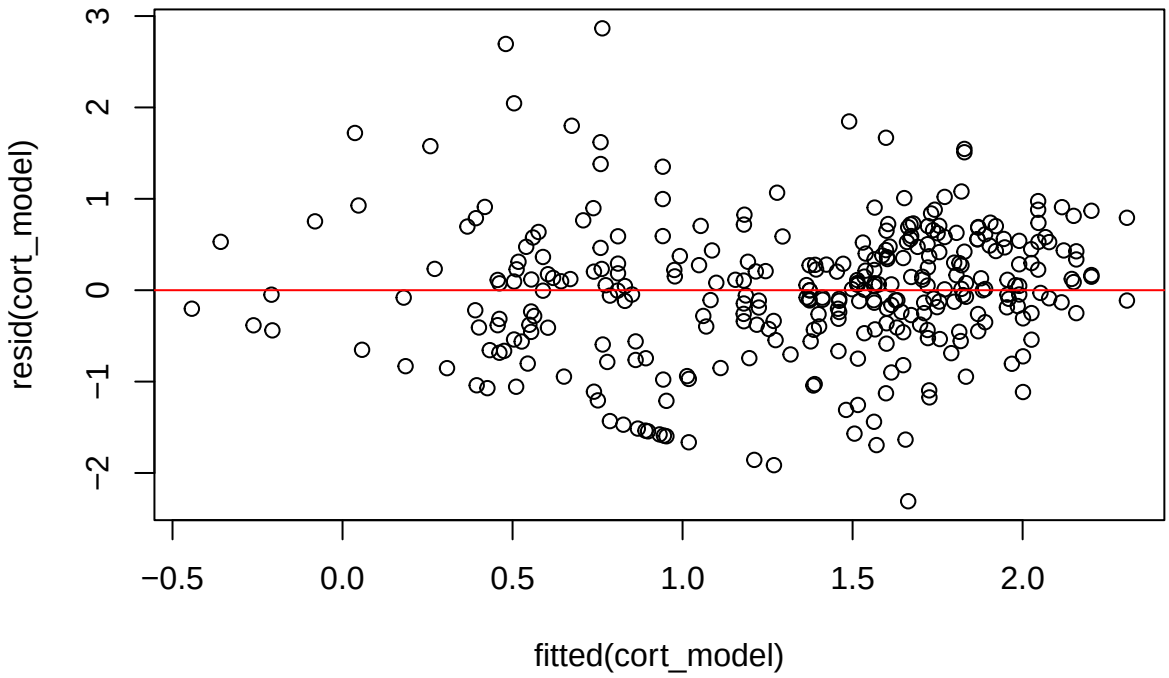
What are the changes of cortisol and DHEA over time?

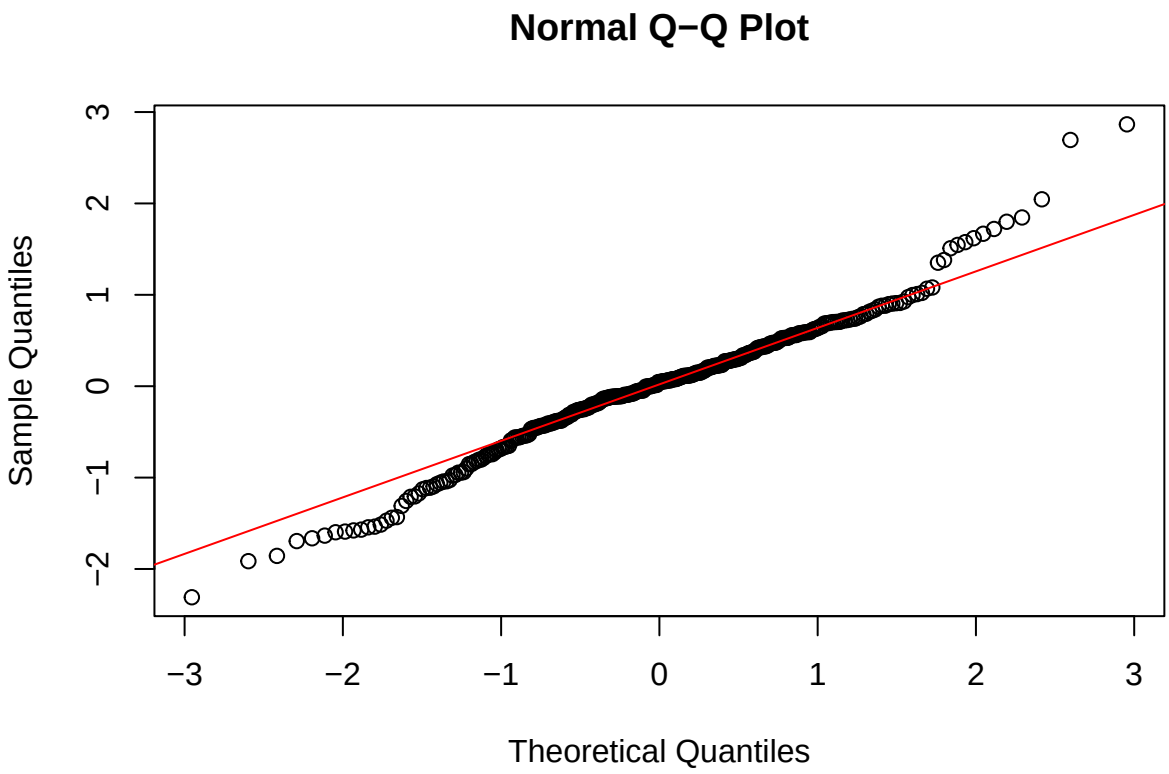

Count
50
40
30
20
10
0
0
10
20
30
40
Cortisol Levels (nmol/L)

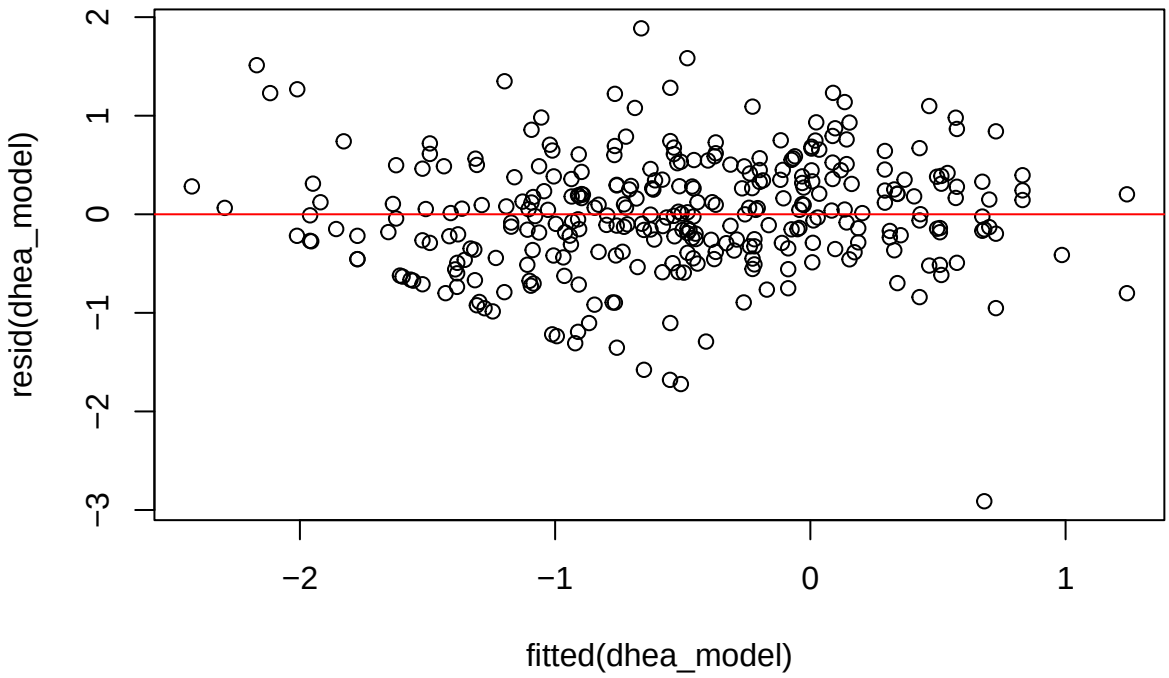

Count
50
40
30
20
10
0
0
1
2
3
4
5
DHEA (nmol/L)


Count
20
15
10
5
0
0
1
2
3
Cortisol Levels (nmol/L)


Count
20
15
10
5
0
−2
−1
0
1
DHEA (nmol/L)

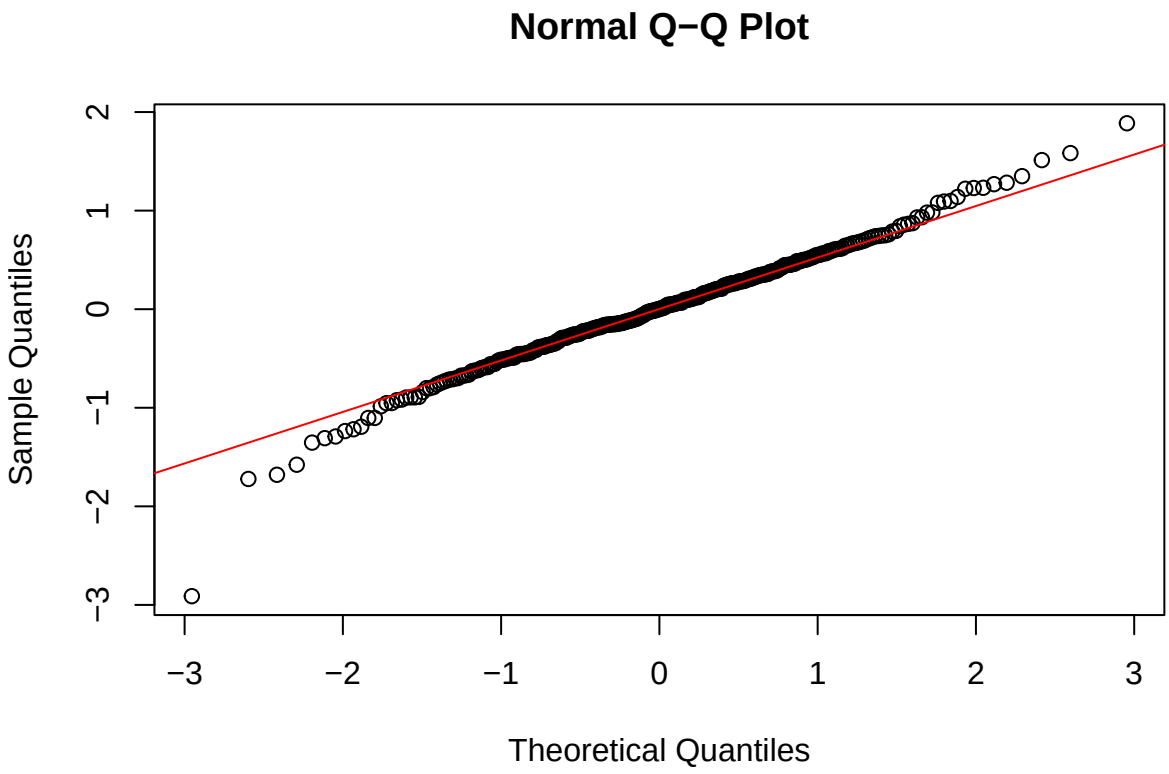

resid(cort_model)
3
2
1
0
−1
−2
−0.5
0.0
0.5
1.0
1.5
2.0
fitted(cort_model)

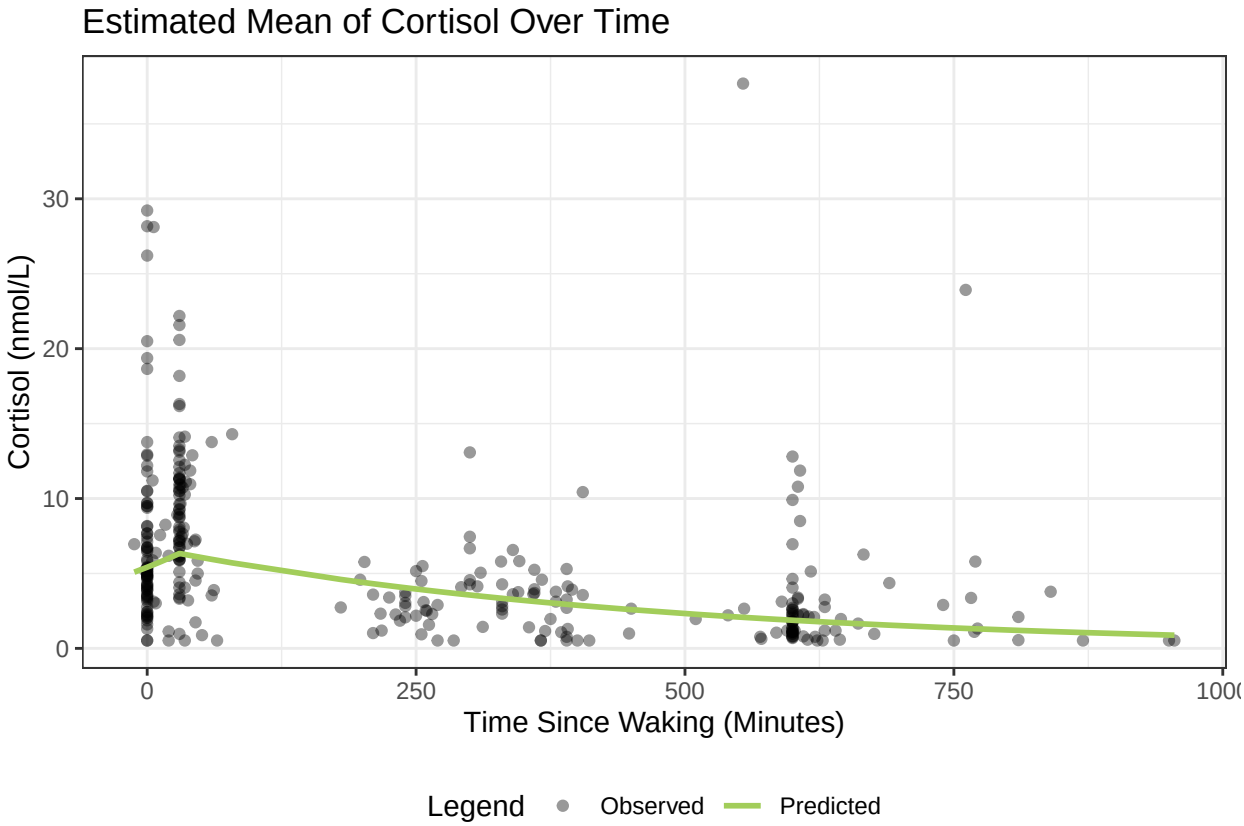

Normal Q−Q Plot
Sample Quantiles
Theoretical Quantiles
−3
−2
−1
0
1
2
3


resid(dhea_model)
fitted(dhea_model)
2
1
0
−1
−2
−3
−2
−1
0
1

Characteristic	Cortisol Model			DHEA Model		
	Beta	**95% CI[1]**	**p-value**	**Beta**	**95% CI[1]**	**p-value**
Intercept	1.6894	1.4840, 1.8948	<0.001	0.23630	0.00483, 0.46777	0.046
Waking to 30 minutes	0.0052	-0.0023, 0.0127	0.2	-0.01798	-0.02408, -0.01188	<0.001
After 30 minutes	-0.0021	-0.0025, -0.0018	<0.001	-0.00152	-0.00183, -0.00121	<0.001

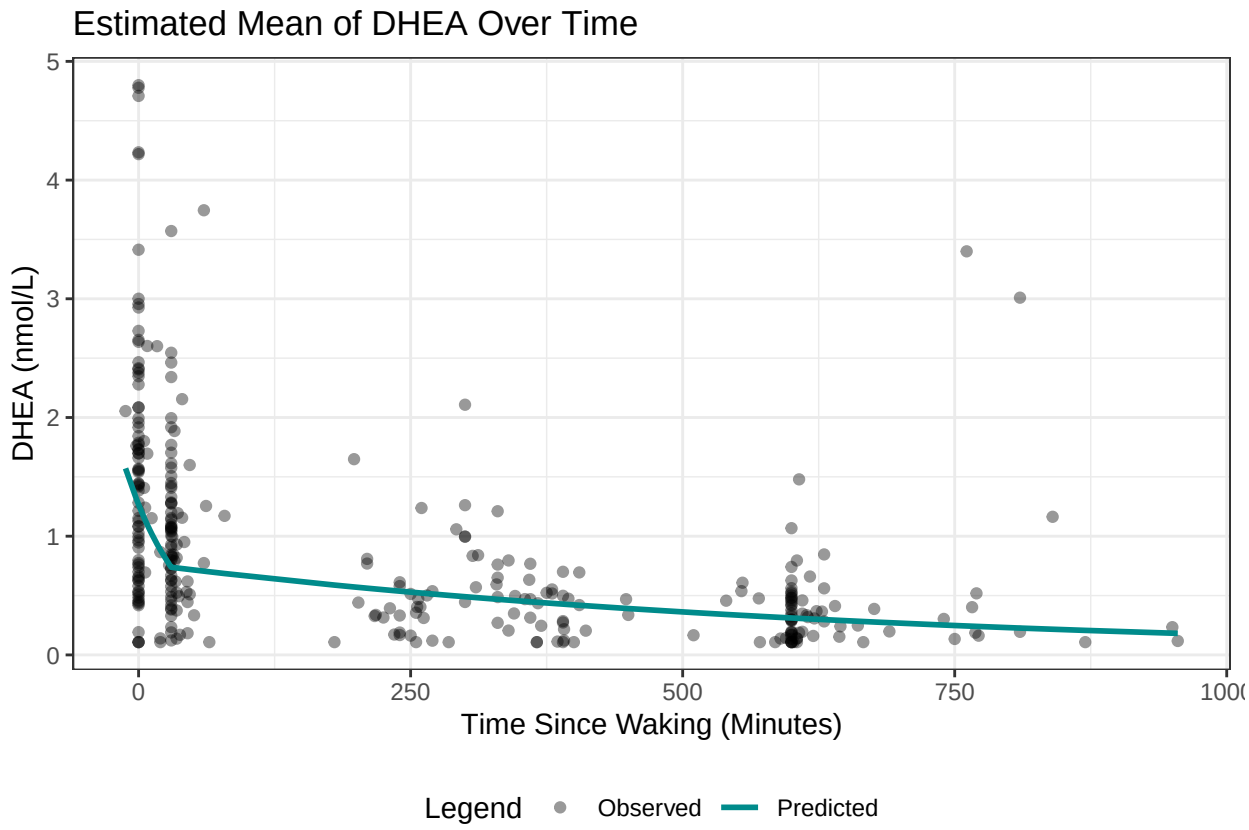
[1]CI = Confidence Interval




Estimated Mean of Cortisol Over Time
Cortisol (nmol/L)
30
20
10
0
0
250
500
750
1000
Time Since Waking (Minutes)
Legend
Observed
Predicted

Characteristic	**Overall** N = 360[1]	**Wake** N = 89[1]	**+30 min** N = 90[1]	**Lunch** N = 91[1]	**+60**
Cortisol (nmol/L)	5.7 (5.4)	7.3 (6.0)	9.0 (5.0)	3.2 (2.3)	
DHEA (nmol/L)	0.91 (0.88)	1.63 (1.06)	1.02 (0.69)	0.51 (0.46)	
Booklet Time (min)	656 (274)	415 (88)	446 (85)	737 (72)	
Missing	31	5	5	10	
Cap Time (min)	685 (281)	415 (88)	461 (90)	735 (69)	
Missing	55	14	22	11	

[1]Mean (SD)



Additional Plots & Tables for Report

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## Warning: Expected 2 pieces. Missing pieces filled with 'NA' in 31 rows [20, 55, 56, 104,
## 118, 119, 150, 163, 167, 174, 175, 190, 191, 313, 314, 315, 317, 318, 319, 321,
## ...].
```

```
## Warning: Expected 2 pieces. Missing pieces filled with 'NA' in 55 rows [30, 33, 49, 51,
## 52, 53, 54, 55, 57, 58, 62, 66, 70, 73, 75, 79, 82, 96, 112, 129, ...].
```