

SUPPLEMENTAL MATERIALS

Title: Intra-individual consistency in endocrine profiles across successive pregnancies

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This supplement contains:

Supplemental Table 1. Cortisol levels residualized by time of collection

Supplemental Table 2. Variable transformations.

Supplemental Table 3. Cases excluded from models and justification.

	25 weeks' gestation	31 weeks' gestation	37 weeks' gestation	3-months postpartum
PREG 1	$F(1,21)=4.16$ $R^2=0.13$ $p=0.05$	$F(1,22)=5.32$ $R^2=0.16$ $p=0.03$	$F(1,17)=0.10$ $R^2=-0.05$ $p=0.75$	$F(1,23)=5.34$ $R^2=0.15$ $p=0.03$
PREG 2	$F(1,24)=19.9$ $R^2=0.43$ $p=0.00$	$F(1,24)=3.36$ $R^2=0.09$ $p=0.08$	$F(1,23)=0.05$ $R^2=-0.04$ $p=0.83$	$F(1,24)=15.50$ $R^2=0.37$ $p=0.00$

Supplemental Table 1. Cortisol levels residualized by time of collection.

Results of linear regressions reveal that time of day at sample collection was significantly related to cortisol concentrations at 25 and 31 weeks gestation for both pregnancies. Time of day at sample collection was also significantly related to 3-months postpartum cortisol for both pregnancies. Consequently, all cortisol values were residualized by time of day at collection, before distribution evaluation and transformation. R^2 refers to adjusted R^2 values.

	Variable	Transformation	Shapiro-Wilk normality test <i>p</i> -value
PREG 1: MEAN	ACTH	Inverse: x^{-1}	0.1612
	pCRH	None: x	0.6198
	Cortisol (residualized)	Constant added, cube-root: $(x + 7)^{1/3}$	0.3931
	Estradiol	Exponentiated: x^3	0.449
	Progesterone	Natural log: $\log(x,e)$	0.5758
PREG 1: DELTA	ACTH	Constant added, square root: $(x+2)^{1/2}$	0.2795
	pCRH	None: x	0.5249
	Cortisol (residualized)	Constant added: $x + 11$	0.781
	Estradiol	None: x	0.0649
	Progesterone	Constant added, exponentiated: $(x + 40)^{7/8}$	0.04894
PREG 1: 25 weeks	ACTH	Natural log: $\log(x,e)$	0.3534
	pCRH	Natural log: $\log(x,e)$	0.2103
	Cortisol (residualized)	Constant added, square root: $(x+9)^{1/2}$	0.2968
	Estradiol	Cube-root: $(x)^{1/3}$	0.8428
	Progesterone	Log: $\log_{10}(x)$	0.8395
PREG 1: 31 weeks	ACTH	Inverse: x^{-1}	0.7411
	pCRH	Natural log: $\log(x,e)$	0.1702
	Cortisol (residualized)	Constant added, square root: $(x+5)^{1/2}$	0.1752
	Estradiol	Exponentiated: x^2	0.7793
	Progesterone	Inverse reversed: $(-1)*x^{-1}$	0.7444
PREG 1: 37 weeks	ACTH	Log: $\log_{10}(x)$	0.9061
	pCRH	Constant added, exponentiated: $(x)^{1.5}$	0.3781
	Cortisol (residualized)	Constant added, square root: $(x+11)^{1/2}$	0.3491
	Estradiol	Square root: $(x)^{1/2}$	0.9579
	Progesterone	Log: $\log_{10}(x)$	0.8000
PREG 2: MEAN	ACTH	Inverse: x^{-1}	0.3018
	pCRH	Log: $\log_{10}(x)$	0.6198
	Cortisol (residualized)	Constant added, square-root: $(x + 6)^{1/2}$	0.9643

	Estradiol	Log: $\log_{10}(x)$	0.2174
	Progesterone	None: x	0.9546
PREG 2: DELTA	ACTH	Constant added, exponentiated: $(x+27)^{(2/3)}$	0.03066
	pCRH	Exponentiated: $x^{(2/3)}$	0.3556
	Cortisol (residualized)	Constant added: $x + 11$	0.5564
	Estradiol	Cube-root: $(x)^{(1/3)}$	0.999
	Progesterone	Constant added, square root: $(x+13)^{(1/2)}$	0.1063
PREG 2: 25 weeks	ACTH	Natural log: $\log(x,e)$	0.5969
	pCRH	Log: $\log_{10}(x)$	0.06737
	Cortisol (residualized)	Constant added, square root: $(x+8)^{(1/2)}$	0.40200
	Estradiol	Log: $\log_{10}(x)$	0.7661
	Progesterone	Square root: $(x)^{(1/2)}$	0.9854
PREG 2: 31 weeks	ACTH	Inverse: $x^{(-1)}$	0.5521
	pCRH	Log: $\log_{10}(x)$	0.8061
	Cortisol (residualized)	Constant added, natural log: $\log((x+7),e)$	0.3409
	Estradiol	Log: $\log_{10}(x)$	0.5041
	Progesterone	2/3-root: $(x)^{(2/3)}$	0.6324
PREG 2: 37 weeks	ACTH	Log: $\log_{10}(x)$	0.1837
	pCRH	Square root: $(x)^{(1/2)}$	0.2031
	Cortisol (residualized)	Constant added: $x+7$	0.8952
	Estradiol	Inverse: $x^{(-1)}$	0.8169
	Progesterone	Square root: $(x)^{(1/2)}$	0.9777
POST PREG 1	ACTH	Cube root: $x^{(1/3)}$	0.6403
	Cortisol (residualized)	Constant added, inverse: $(x + 7)^{(-1)}$	0.7299
POST PREG 2	ACTH	Log: $\log_{10}(x)$	0.3342
	Cortisol (residualized)	Constant added, natural log: $\log(x + 7, e)$	0.1399

Supplemental Table 2. Variable transformations.

“PREG 1” refers to the first pregnancy in this study, and “PREG 2” refers to the same woman’s subsequent pregnancy in this study. “MEAN” refers to the mean hormone level of 25, 31, and 37 weeks gestation. “DELTA” refers to the change in hormone level from 25 weeks to 37 weeks gestation. “POST” refers to postpartum. In the Transformation column, “x” refers to the variable in the Variable column.

	Proband ID #	Hat cut-off	Cook's D cut-off	Studentized residuals cut-off with Bonferonni test
ACTH: Mean	10		x	x
	28		x	x
ACTH: 25 wks	28		x	x
ACTH: 31 wks	28		x	x
ACTH: 27 wks	7		x	x
	10		x	x
pCRH: Mean	16		x	x
pCRH: 25, 31, 37 wks	n/a			
Cortisol: Mean	1		x	x
	7		x	x
	25	x		
Cortisol: 25 wks	16		x	x
	20		x	x
Cortisol: 31 wks	7		x	x
Cortisol: 37 wks	25	x		
Estradiol: Mean	28		x	x
Estradiol: 25 wks	n/a			
Estradiol: 31 wks	28		x	x
Estradiol: 37 wks	22	x	x	
Progesterone: Mean	6		x	x
	10	x		
Progesterone: 25 wks	10		x	
Progesterone: 31 wks	n/a			
Progesterone: 37 wks	6		x	x
	10	x	x	
Postpartum: ACTH	2	x	x	x
	16	x	x	x
	12	x	x	
	26	x	x	
Postpartum: Cortisol	12	x	x	x
	27		x	x

Supplemental Table 3. Cases excluded from models and justification.

All cortisol values were residualized by time of day at collection. Leverage was determined by consulting hat matrix diagonals using a cut-off of hat values greater than 3-times the number of coefficients in the regression model divided by N . Influence was determined by consulting Cook's distances using a cut-off of 4 divided by the difference of N and the number of coefficients in the regression model, minus two. Outliers were identified by consulting the Studentized Residuals (residual divided by an estimate of its standard deviation) using a cut-off of >2 or <-2 , with Bonferonni significance tests.