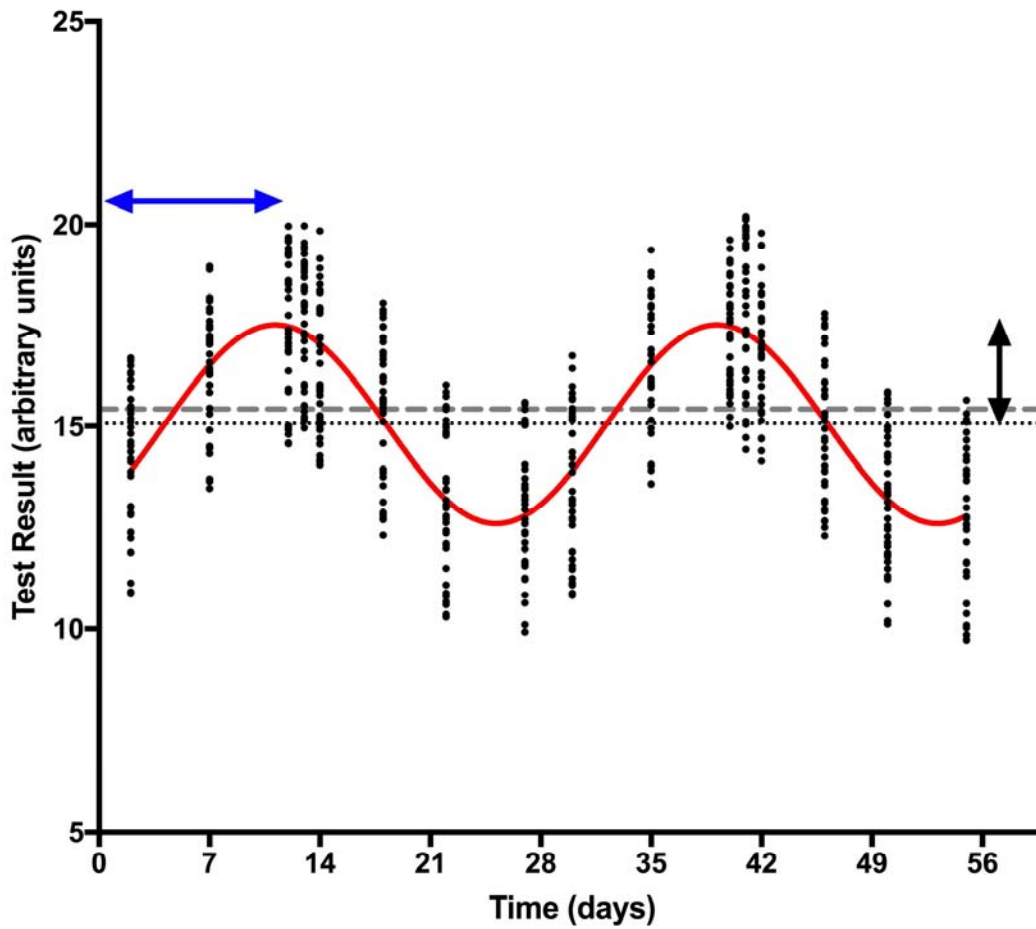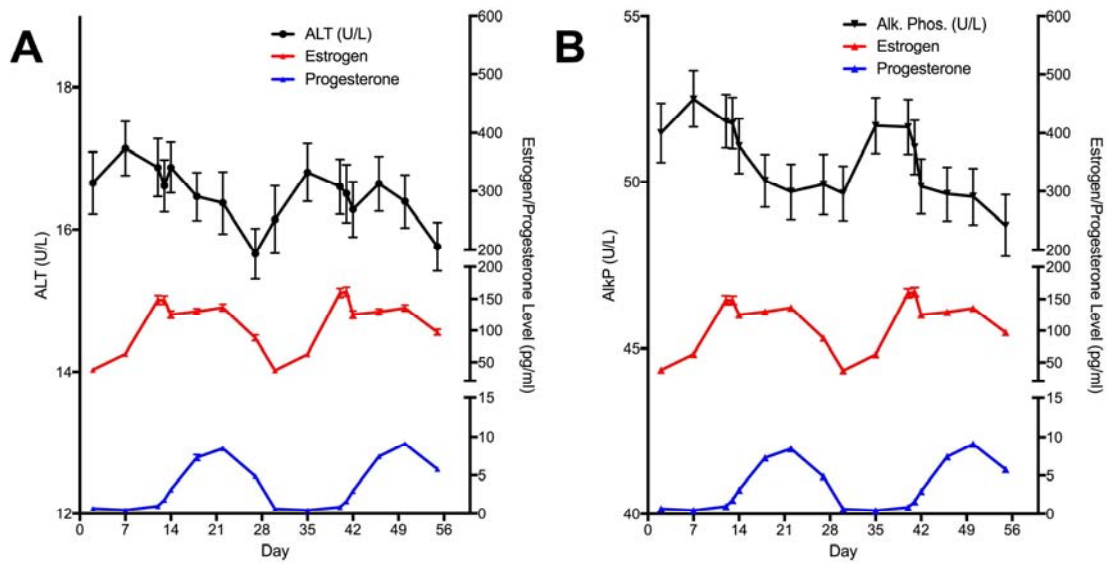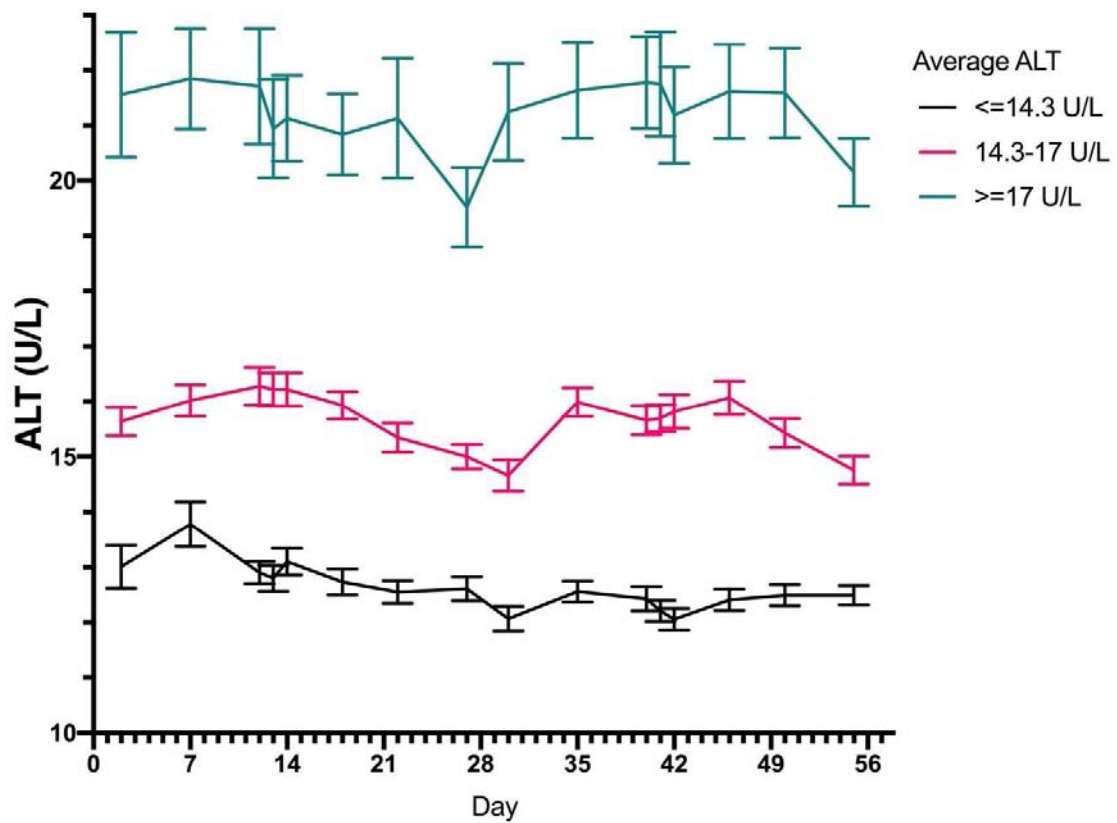## Supplementary Figures

Supplementary Figure 1 – Parameters of harmonic regression (1st harmonic). Simulated data points (black dots) are fitted to a periodic function (red line) which can be described by the mean level (dotted line), amplitude (black double arrow) and phase shift (blue double arrow). Note that the mean level for the fluctuation (dotted line) is closely related, but not identical, to the overall average level (dashed line).

Supplementary Figure 2 – Temporal variation of mean (A) alanine aminotransferase (ALT) and (B) alkaline phosphatase (ALKP) levels during two consecutive menstrual cycles, and their relationship with estrogen (red) and progesterone (blue) levels. Error bars denote standard error of the mean.

Supplementary Figure 3 - Temporal fluctuation of ALT through menstrual cycles, grouped by tertiles of an individual participant's average ALT level across the entire study period. Error bars denote standard error of the mean.

Supplementary Table 1- Association of ALT and ALKP with sex hormones, limited to subjects with BMI <=25 kg/m^2 (n=163)

		Univariate[1]		Multivariate[2]		Multivariate adjusted[3]	
		Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
ALT	**Same-time Model**						
	Estrogen	0.005	0.24	0.006	0.14	0.01	0.086
	Progesterone	-0.002	0.41	-0.003	0.023	-0.006	0.13
	Lag Model						
	Estrogen	-0.013	0.01	-0.006	0.28	-0.007	0.39
	Progesterone	-0.017	1×10^{-8}	-0.016	2×10^{-7}	-0.016	0.002
ALKP	**Same-time Model**						
	Estrogen	0.0008	0.70	0.008	0.0003	0.009	0.02
	Progesterone	-0.012	2×10^{-25}	-0.013	3×10^{-28}	-0.014	1.4×10^{-12}
	Lag Model						
	Estrogen	-0.019	6×10^{-12}	-0.012	1×10^{-5}	-0.01	0.017
	Progesterone	-0.017	3×10^{-25}	-0.015	4×10^{-19}	-0.016	3×10^{-8}

[1]Univariate models including either estrogen or progesterone

[2]Multivariate model including both estrogen and progesterone

[3]Multivariate model including both estrogen and progesterone, adjusted for daily alcohol consumption and daily caloric intake