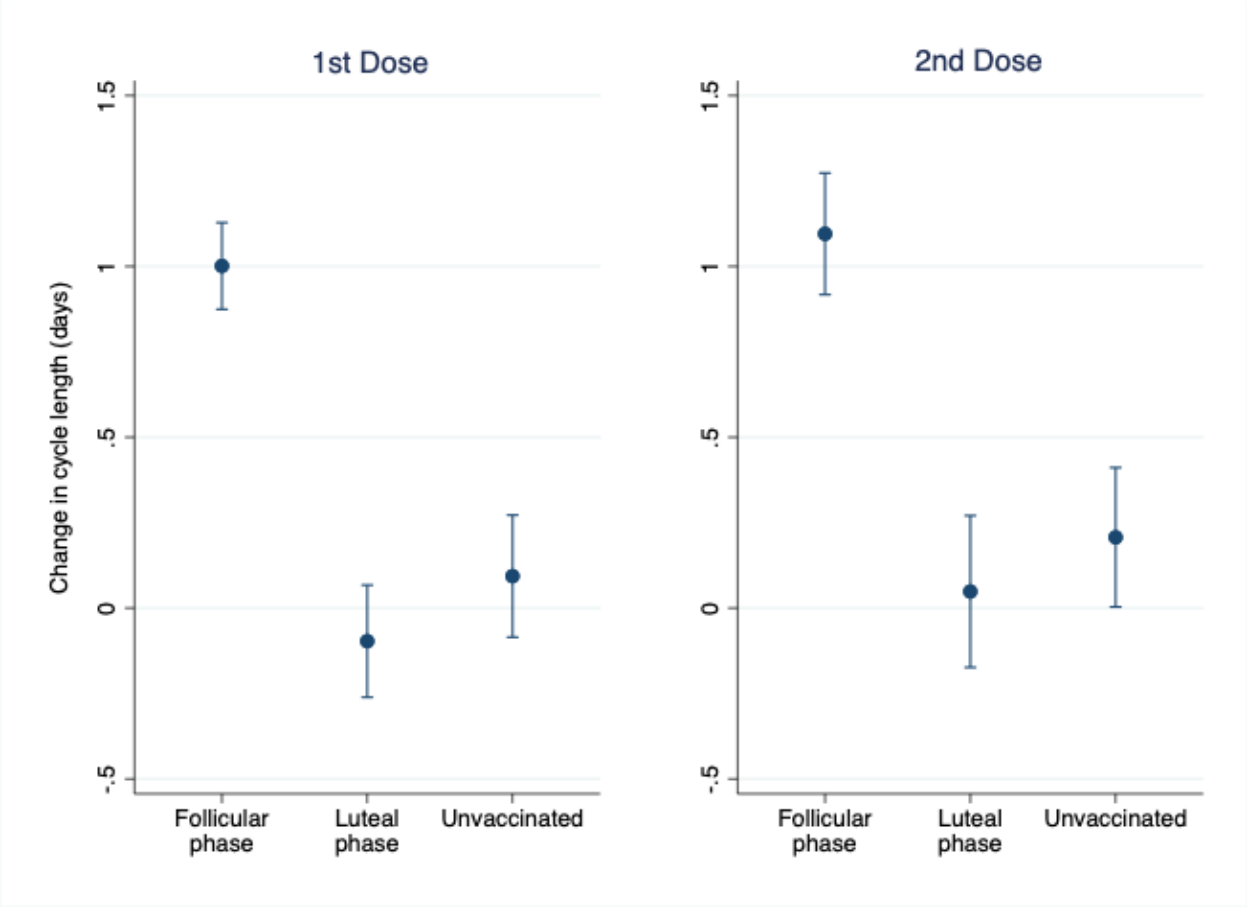
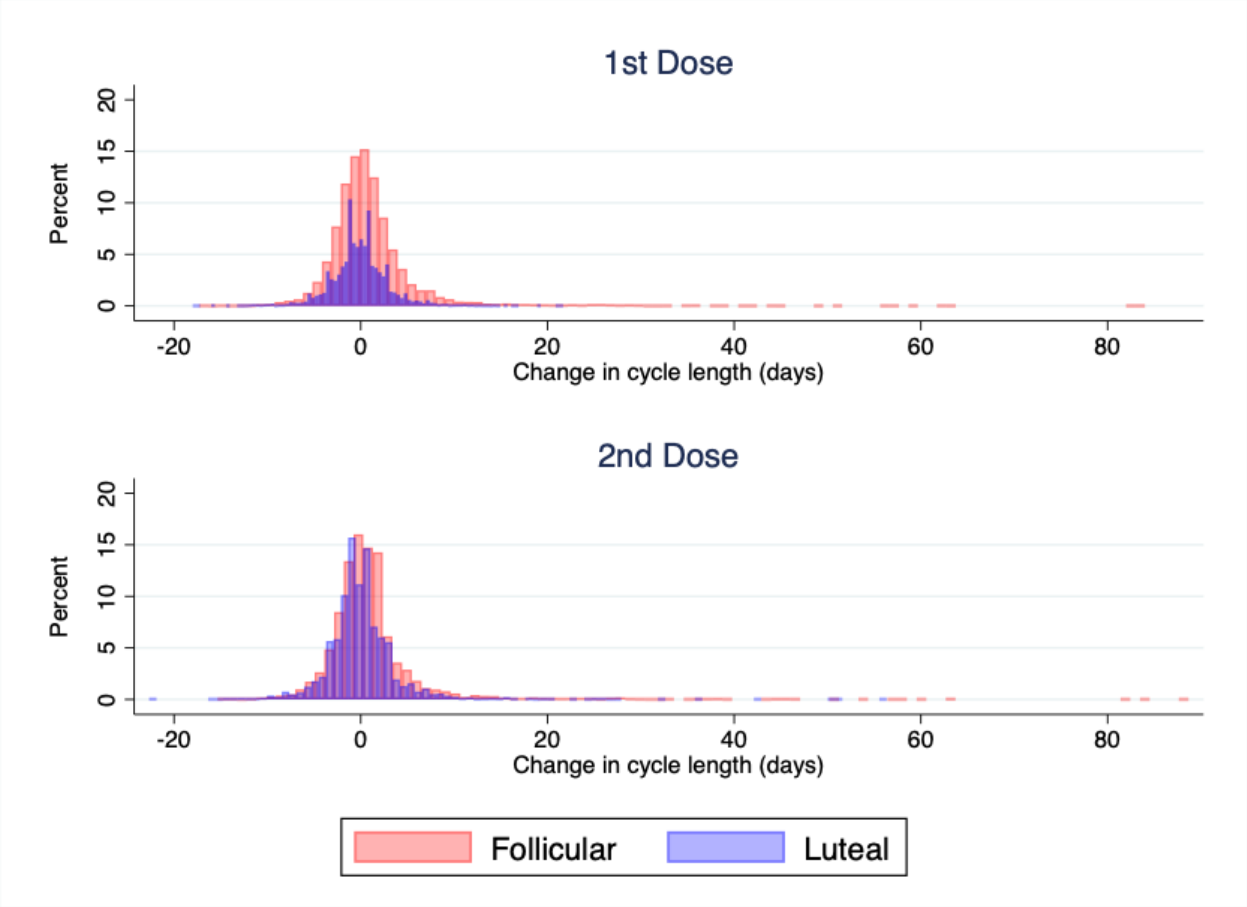
Appendix 1. Unadjusted within-individual change in menstrual cycle length (in days) from three prevaccination cycle average to vaccination cycle, by timing of vaccination, for first (left) and second (right) coronavirus disease 2019 (COVID-19) vaccine doses. *Error bars* represent 98.75% confidence intervals.



Edelman A, Boniface ER, Male V, Cameron S, Benhar E, Han L, et al Timing of coronavirus disease 2019 (COVID-19) vaccination and effects on menstrual cycle changes. Obstet Gynecol 2024;143.
The authors provided this information as a supplement to their article.

Appendix 2. Overlayed histograms of the change in cycle length (days) between the three prevaccination cycle average and the vaccination cycle for first dose (top) or second dose (bottom). Histograms for individuals vaccinated in the follicular phase are shown in red, individuals vaccinated in the luteal phase are shown in *blue*, and overlapping distributions are shown in *purple*.



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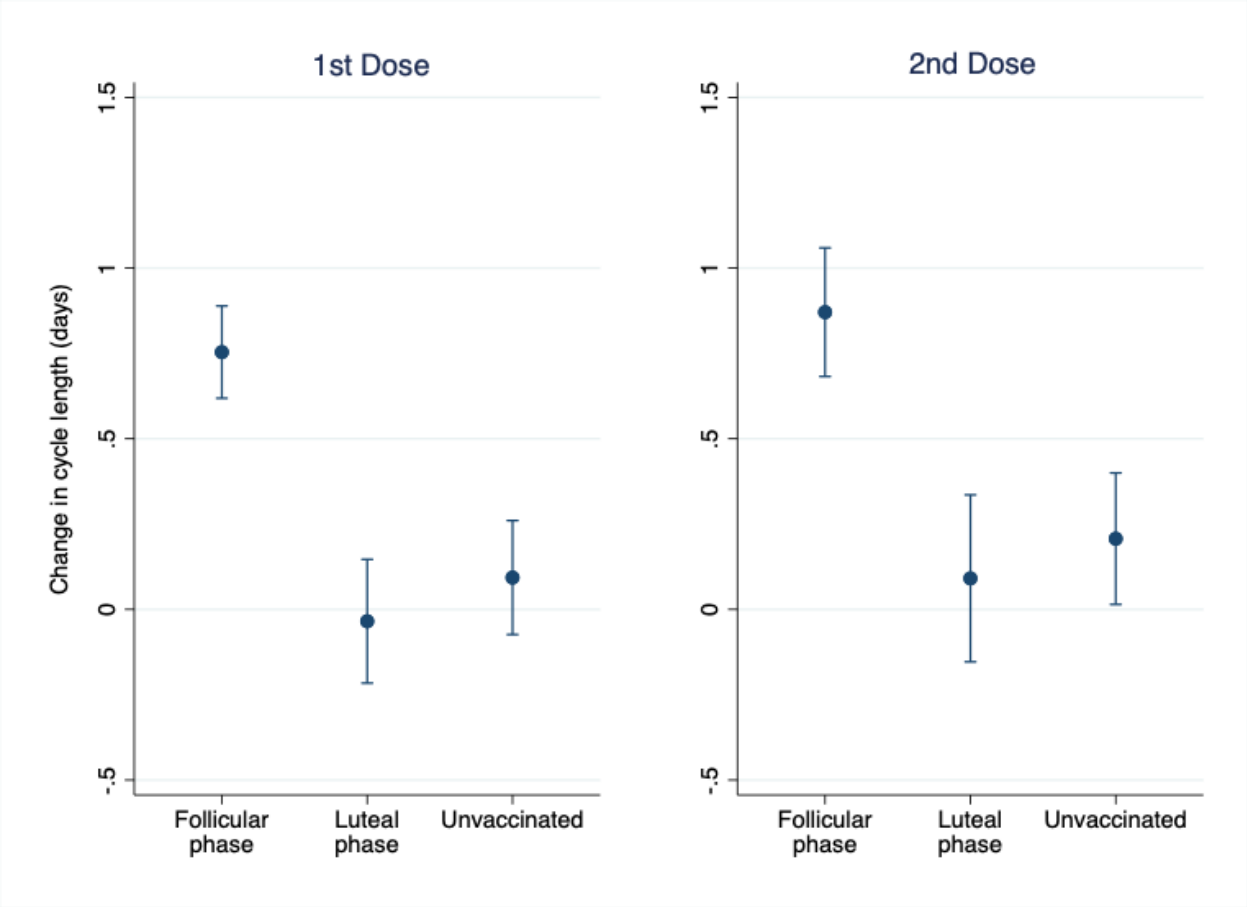
Appendix 3. Unadjusted within-individual change in menstrual cycle length (in days) from three prevaccination cycle average to vaccination cycle, by timing of vaccination, for first (left) and second (right) coronavirus disease 2019 (COVID-19) vaccine doses. *Error bars* represent 98.75% confidence intervals. Excludes individuals without a known ovulation date (excluded n=3,683 for first dose, n=2,155 for second dose).



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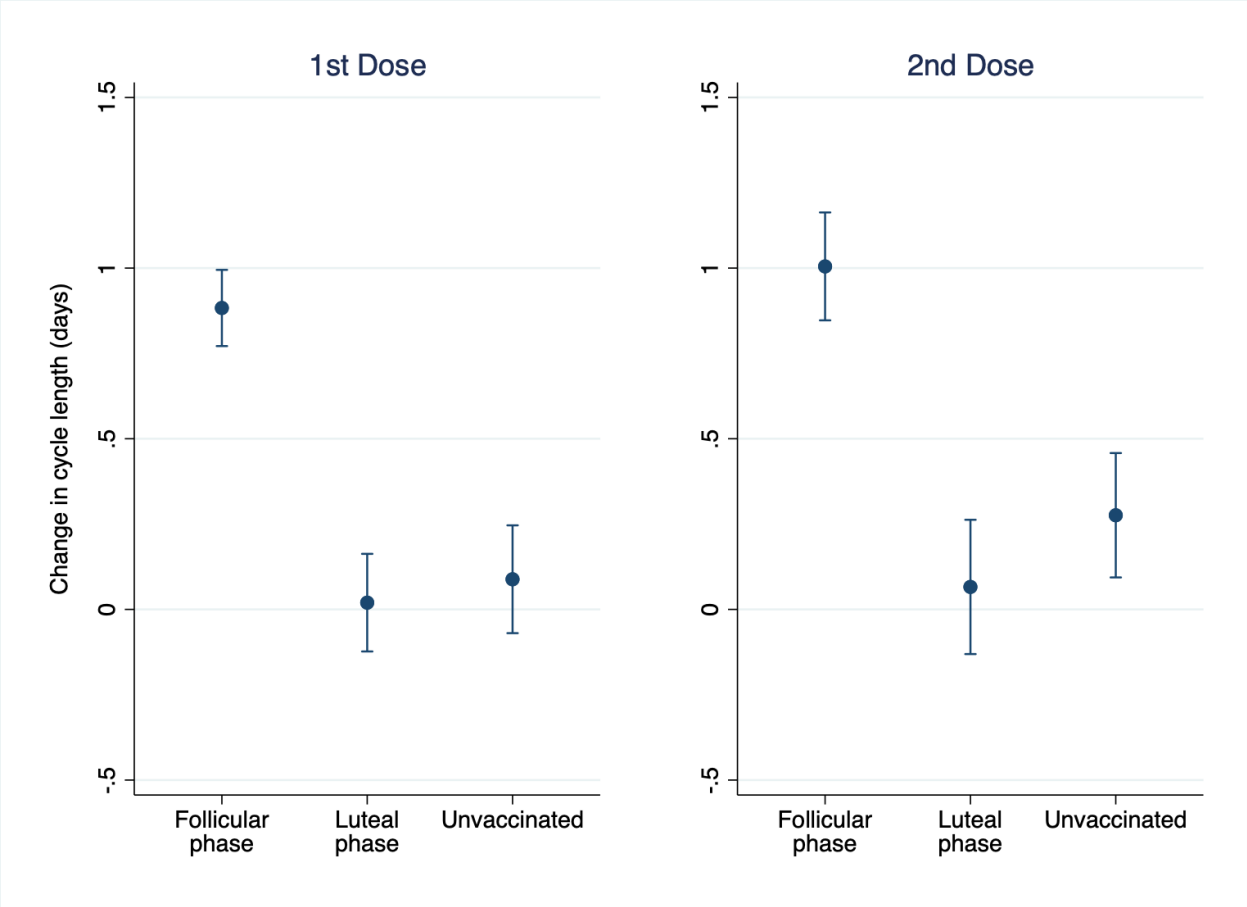
The authors provided this information as a supplement to their article.

Appendix 4. Unadjusted within-individual change in menstrual cycle length (in days) from three prevaccination cycle average to vaccination cycle, by timing of vaccination, for first (left) and second (right) coronavirus disease 2019 (COVID-19) vaccine doses. *Error bars* represent 98.75% confidence intervals. Excludes anyone with a prevaccination cycle length outside of the normal 24 to 38–day range (excluded n=2,951 for first dose, n=2,082 for second dose).



Edelman A, Boniface ER, Male V, Cameron S, Benhar E, Han L, et al Timing of coronavirus disease 2019 (COVID-19) vaccination and effects on menstrual cycle changes. Obstet Gynecol 2024;143.
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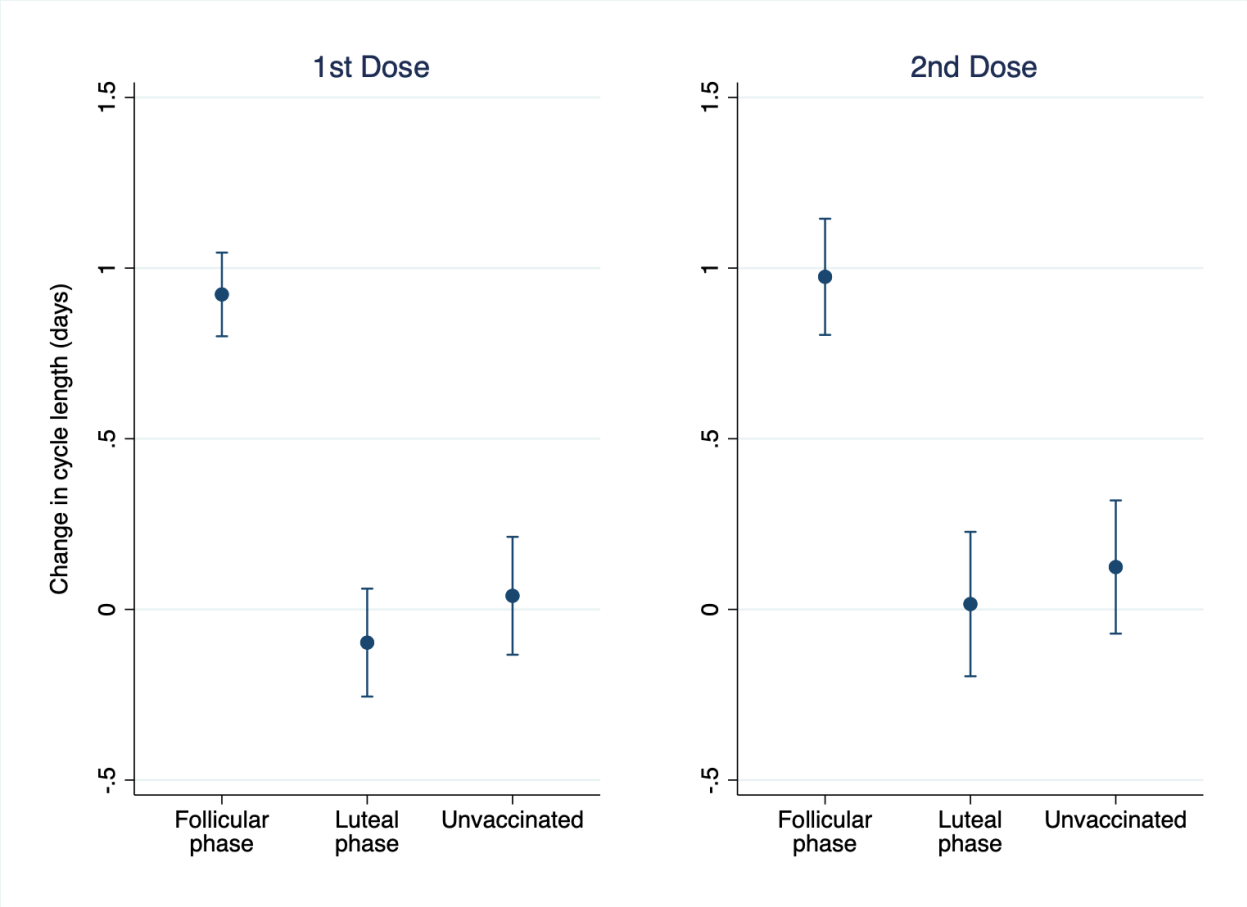
Appendix 5: Unadjusted within-individual change in menstrual cycle length (in days) from three prevaccination cycle average to vaccination cycle, by timing of vaccination, for first (left) and second (right) coronavirus disease 2019 (COVID-19) vaccine doses. *Error bars* represent 98.75% confidence intervals. Excludes anyone with a prevaccination cycle flagged as anovulatory by the Natural Cycles algorithm (excluded n=874 for first dose, n=607 for second dose).



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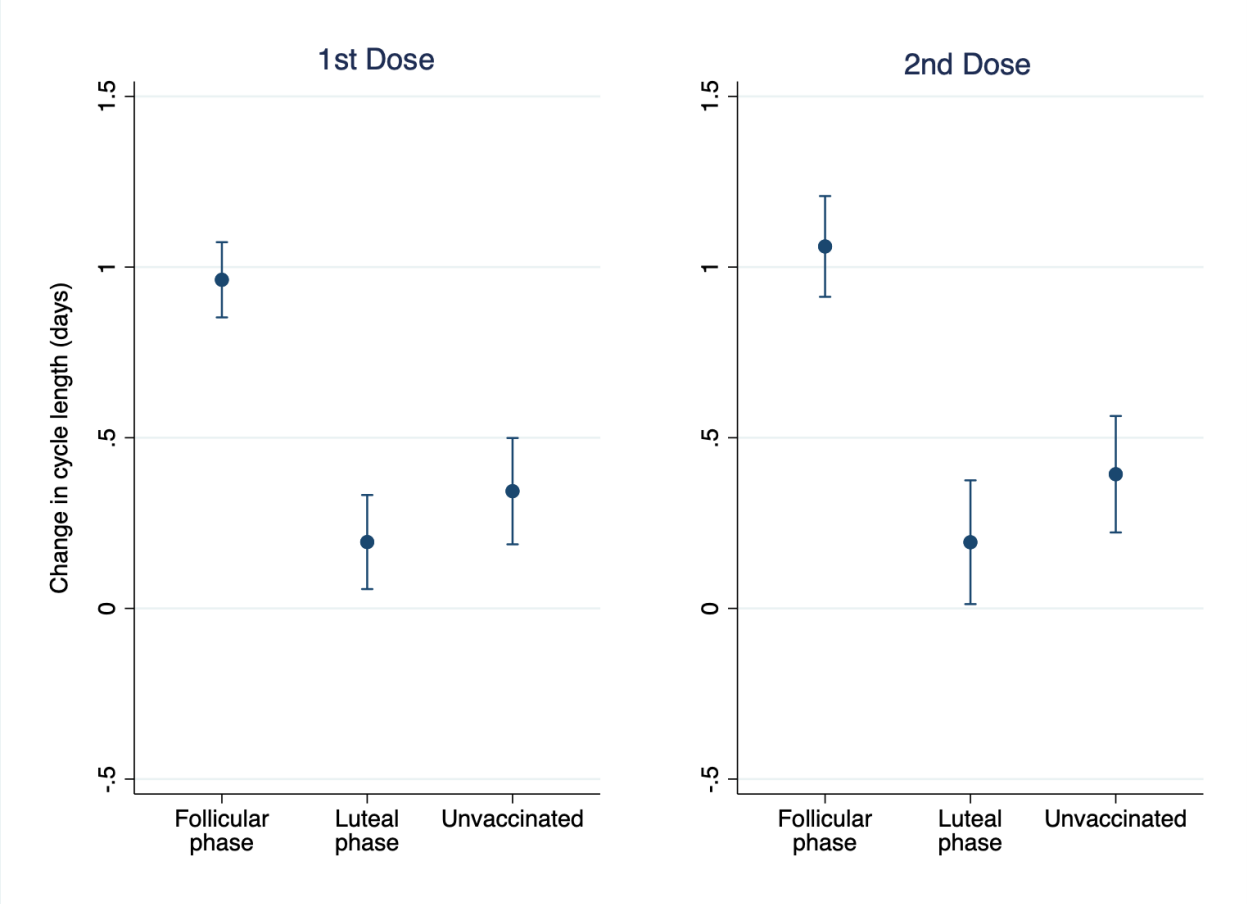
Appendix 6. Unadjusted within-individual change in menstrual cycle length (in days) from three prevaccination cycle average to vaccination cycle, by timing of vaccination, for first (left) and second (right) coronavirus disease 2019 (COVID-19) vaccine doses. *Error bars* represent 98.75% confidence intervals. Excludes anyone with a prevaccination follicular phase outside of the 8-to-21-day range (excluded n=4,822 for first dose, n=3,443 for second dose).



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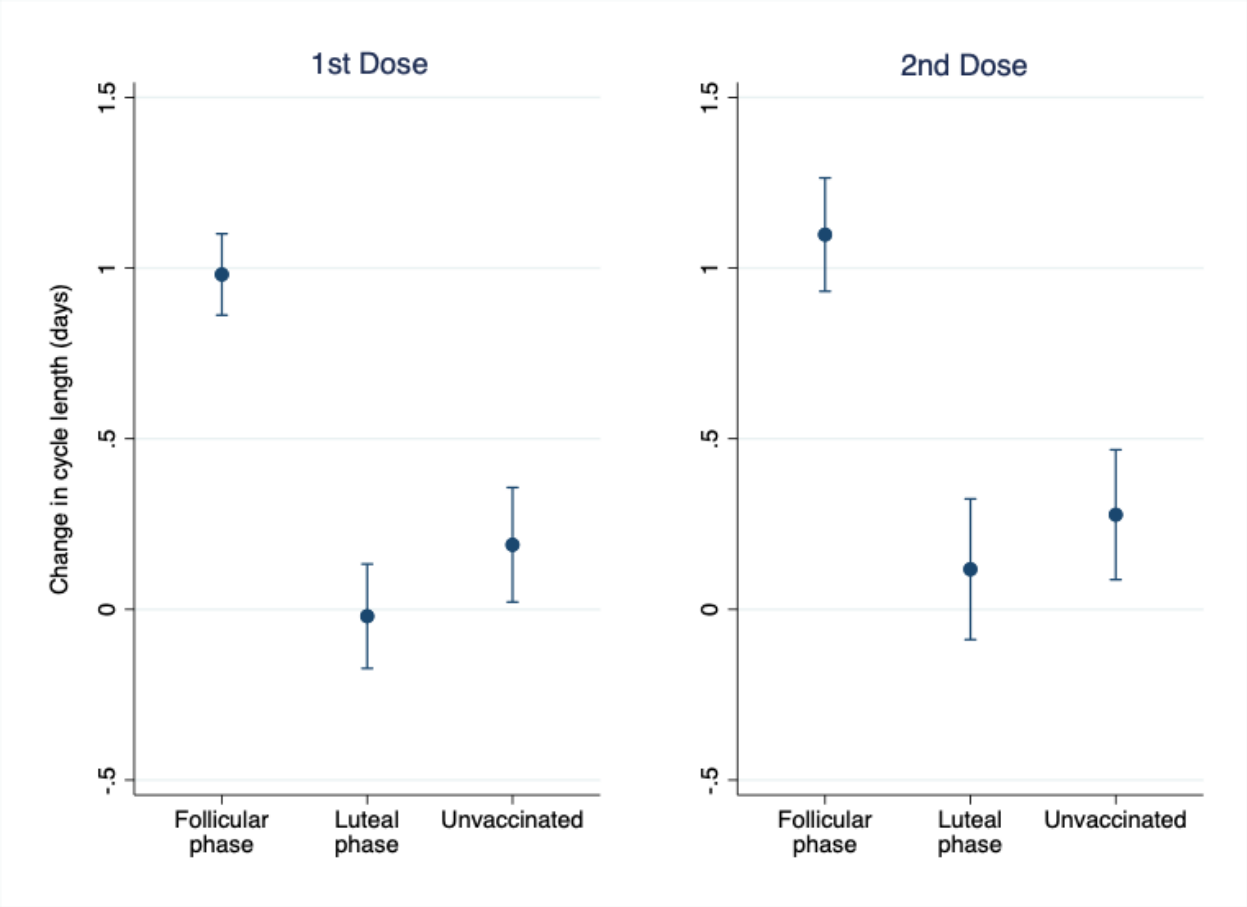
Appendix 7. Unadjusted within-individual change in menstrual cycle length (in days) from three prevaccination cycle average to vaccination cycle, by timing of vaccination, for first (left) and second (right) coronavirus disease 2019 (COVID-19) vaccine doses. *Error bars* represent 98.75% confidence intervals. Excludes anyone with reported polycystic ovarian syndrome or with prevaccination average cycle length over 35 days (excluded n=919 for first dose, n=661 for second dose).



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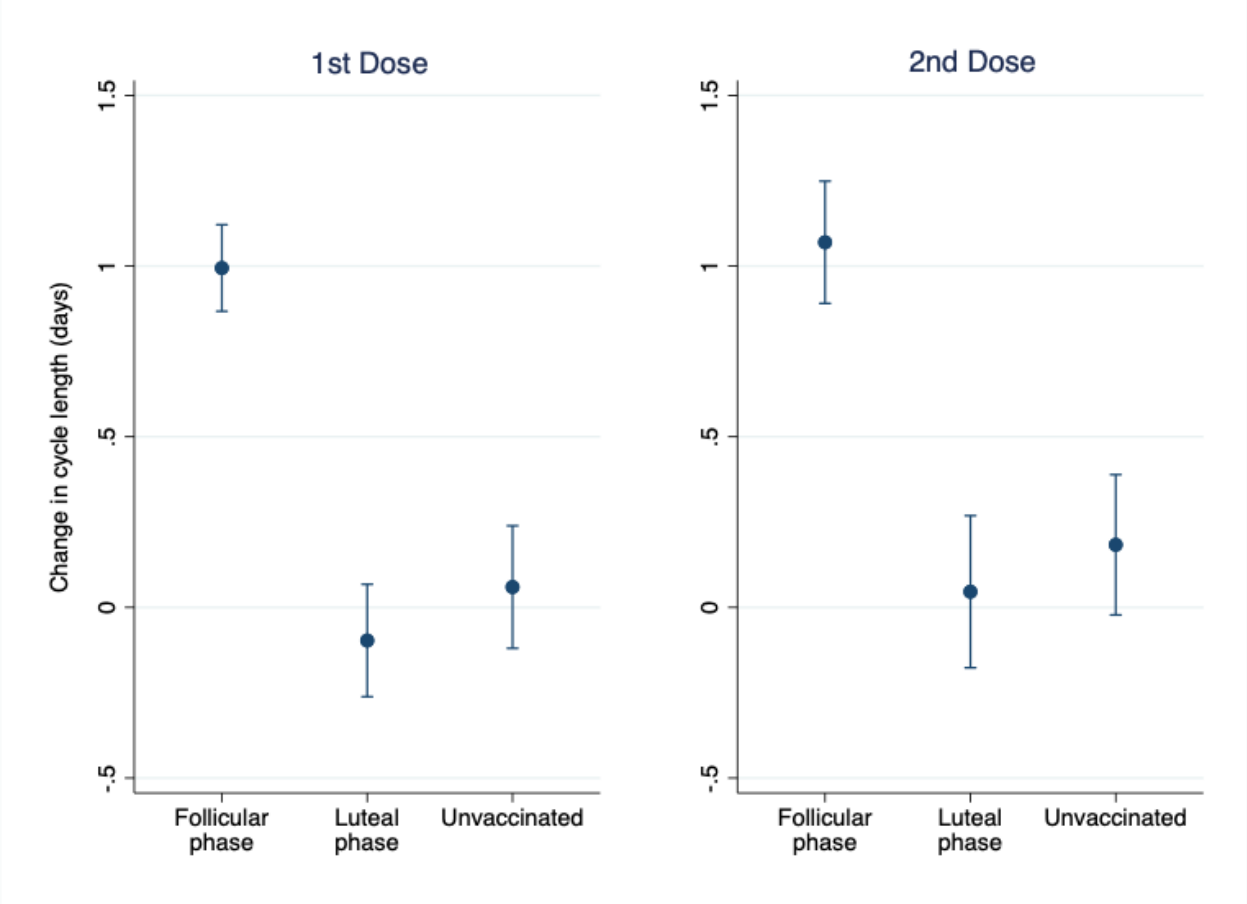
Appendix 8. Unadjusted within-individual change in menstrual cycle length (in days) from three prevaccination cycle average to vaccination cycle, by timing of vaccination, for first (left) and second right) coronavirus disease 2019 (COVID-19) vaccine doses. *Error bars* represent 98.75% confidence intervals. Excludes anyone with reported emergency contraception use in the vaccination cycle or any prior cycle (excluded n=508 for first dose, n=481 for second dose).



Edelman A, Boniface ER, Male V, Cameron S, Benhar E, Han L, et al Timing of coronavirus disease 2019 (COVID-19) vaccination and effects on menstrual cycle changes. Obstet Gynecol 2024;143.
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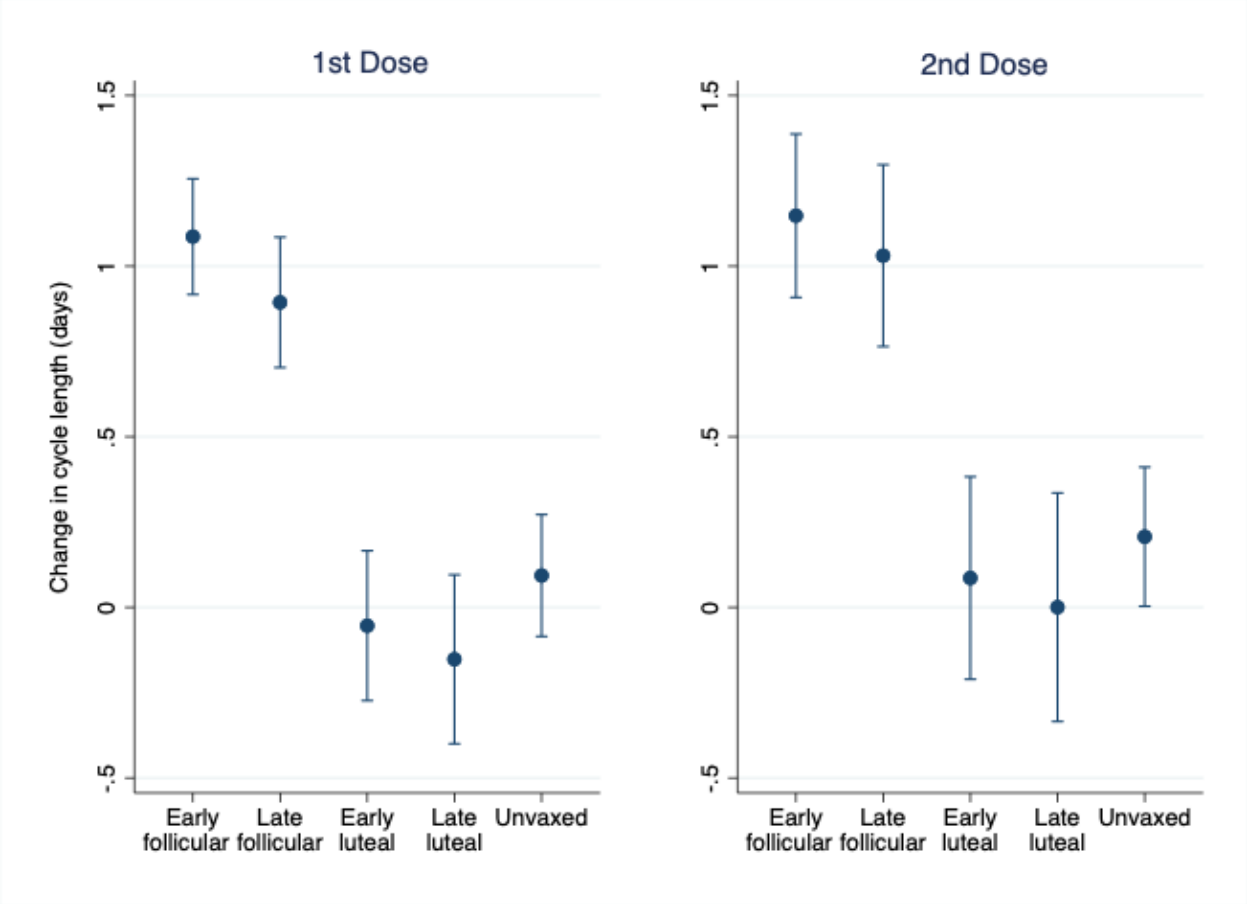
Appendix 9. Unadjusted within-individual change in menstrual cycle length (in days) from three prevaccination cycle average to vaccination cycle, by timing of vaccination, for first (left) and second right) coronavirus disease 2019 (COVID-19) vaccine doses. *Error bars* represent 98.75% confidence intervals. Comparing changes in cycle length for individuals vaccinated in early and late follicular phase, early and late luteal phase, and unvaccinated. *Early* and *late subphases* are defined as the first or second half of the cycle phase, respectively.



Appendix 10. Multivariable Modeling Estimates Following Multiple Imputation

Covariate		1st Dose (n = 19,497)			2nd dose (n = 13,942)		
		Coefficient	98.75% Confidence Interval	p-value	Coefficient	98.75% Confidence Interval	p-value
Timing of vaccination	Follicular	0.92	0.74, 1.10	< 0.001	0.94	0.72, 1.16	< 0.001
	Luteal	-0.17	-0.37, 0.03	0.089	-0.11	-0.35, 0.13	0.379
	Unvaccinated	Referent	-	-	Referent	-	-
Age group (years)	18-24	Referent	-	-	Referent	-	-
	25-29	-0.04	-0.27, 0.19	0.725	-0.08	-0.39, 0.22	0.602
	30-34	-0.12	-0.36, 0.12	0.313	-0.28	-0.59, 0.04	0.084
	35-39	-0.12	-0.40, 0.16	0.409	-0.29	-0.66, 0.08	0.126
	40-45	-0.05	-0.43, 0.34	0.811	-0.01	-0.51, 0.49	0.957
Race and ethnicity	Asian	-0.07	-0.48, 0.27	0.585	-0.11	-1.01, 0.79	0.814
	Black/African/African American	-0.10	-0.48, 0.27	0.585	0.11	-0.33, 0.56	0.619
	Hispanic/Latina	0.16	-0.33, 0.64	0.518	0.28	-0.29, 0.85	0.329
	Middle-Eastern/North African	0.19	-0.88, 1.26	0.721	0.04	-1.26, 1.33	0.957
	Native Hawaiian/Pacific Islander	0.29	-1.16, 1.74	0.693	-0.43	-2.13, 1.28	0.625
	White	Referent	-	-	Referent	-	-
BMI category	Underweight	0.36	-0.03, 0.75	0.072	0.16	-0.39, 0.71	0.563
	Normal weight	Referent	-	-	Referent	-	-
	Overweight	0.16	-0.05, 0.37	0.131	-0.05	-0.33, 0.23	0.705
	Obese	0.22	-0.08, 0.52	0.157	0.45	0.02, 0.88	0.040
Parous		-0.08	-0.31, 0.14	0.460	-0.06	-0.35, 0.23	0.679
College degree or more		-0.08	-0.27, 0.11	0.414	0.00	-0.24, 0.25	0.975
In a relationship		0.05	-0.17, 0.26	0.673	-0.07	-0.34, 0.19	0.584
Global region	UK/Channel Islands	Referent	-	-	Referent	-	-
	Europe	-0.10	-0.27, 0.07	0.248	-0.27	-0.51, -0.04	0.021
	USA/Canada	-0.04	-0.22, 0.14	0.663	-0.04	-0.28, 0.20	0.749
	Australia/New Zealand	-0.17	-0.54, 0.21	0.384	-0.09	-0.56, 0.38	0.700

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Other	-0.14	-0.63, 0.34	0.561	-0.39	-1.11, 0.32	0.281
Constant	0.18	-0.15, 0.52	0.282	0.47	0.04, 0.90	0.032

Model outcomes are the within-individual change in menstrual cycle length (in days) from 3 pre-vaccination cycle average to vaccination cycle, for 1st and 2nd COVID-19 vaccine doses.

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Appendix 11. Collated Sensitivity Analysis Results of the Within-Individual Change in Menstrual Cycle Length (in Days; With 98.75% Confidence intervals) From Three Prevaccination Cycle Average to Vaccination Cycle, by Timing of Vaccination (Appendices 1-8), for First and Second Coronavirus Disease 2019 (COVID-19) Vaccine Doses

Analysis Details	Appendix #	1st Dose			2nd Dose		
		Follicular	Luteal	Unvaccinated	Follicular	Luteal	Unvaccinated
Unadjusted	1	1.00 (0.87, 1.13)	-0.10 (-0.26, 0.07)	0.09 (-0.09, 0.27)	1.10 (0.92, 1.27)	0.05 (-0.17, 0.27)	0.21 (0.00, 0.41)
Excluding anyone without known ovulation date	3	0.75 (0.62, 0.89)	-0.03 (-0.22, 0.15)	0.09 (-0.07, 0.26)	0.87 (0.68, 1.06)	0.09 (-0.15, 0.34)	0.21 (0.01, 0.40)
Excluding anyone with pre-vaccination cycles outside 24-38 day range	4	0.88 (0.77, 0.99)	0.02 (-0.12, 0.16)	0.09 (-0.07, 0.25)	1.00 (0.85, 1.16)	0.07 (-0.13, 0.26)	0.28 (0.09, 0.46)
Excluding anyone with an anovulatory pre-vaccination cycle	5	0.92 (0.80, 1.05)	-0.10 (-0.26, 0.06)	0.04 (-0.13, 0.21)	0.97 (0.80, 1.14)	0.02 (-0.20, 0.22)	0.12 (-0.07, 0.32)
Excluding anyone with pre-vaccination follicular phase outside 8-21 day range	6	0.96 (0.85, 1.07)	0.19 (0.06, 0.33)	0.34 (0.19, 0.50)	1.06 (0.91, 1.21)	0.19 (0.01, 0.38)	0.39 (0.22, 0.56)
Excluding anyone with PCOS* or pre-vaccination cycle length > 35 days	7	0.98 (0.86, 1.10)	-0.02 (-0.17, 0.13)	0.19 (0.02, 0.36)	1.10 (0.93, 1.26)	0.12 (-0.09, 0.32)	0.28 (0.09, 0.47)
Excluding anyone with reported emergency contraception in study cycles	8	0.99 (0.87, 1.12)	-0.10 (-0.26, 0.07)	0.06 (-0.12, 0.24)	1.07 (0.89, 1.25)	0.05 (-0.18, 0.27)	0.18 (-0.02, 0.39)

* PCOS = polycystic ovarian syndrome

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Appendix 12. Sensitivity Analysis Results of the Within-Individual Change in Menstrual Cycle Length (in Days With 98.75% Confidence Intervals) From Three Prevaccination Cycle Average to Vaccination Cycle, by Timing of Vaccination for Early and Late Subphases (Appendix 9), for First and Second Coronavirus Disease 2019 (COVID-19) Vaccine Doses

1st Dose					2nd Dose				
Early Follicular	Late Follicular	Early Luteal	Late Luteal	Unvaccinated	Early Follicular	Late Follicular	Early Luteal	Late Luteal	Unvaccinated
1.09 (0.92, 1.26)	0.89 (0.70, 1.08)	-0.05 (-0.27, 0.17)	-0.15 (-0.40, 0.10)	0.09 (-0.09, 0.27)	1.15 (0.91, 1.39)	1.03 (0.76, 1.30)	0.09 (-0.21, 0.38)	0.00 (-0.33, 0.34)	0.21 (0.00, 0.41)