2026 PCRS ANNUAL MEETING

REPRODUCTIVE FRONTIERS: BRIDGING BIOLOGY, PRACTICE, AND POSSIBILITY

MARCH 18-22 | RANCHO MIRAGE, CA

PACIFIC COAST REPRODUCTIVE SOCIETY

Evidence Based Frozen Embryo Transfer

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REPRODUCTIVE FRONTIERS:
BRIDGING BIOLOGY, PRACTICE, AND POSSIBILITY
MARCH 18-22 | RANCHO MIRAGE, CA

Kate Devine, MD
Medical Director &
Chief Research Officer USFertility

Disclosure Slide

- Consultant: EMD Serono, Ferring, Future Fertility, LabCorp
- Speaker: EMD Serono
- Shareholder: USFertility, SGFertility

Learning Objectives

- Characterize the current state of the evidence regarding **programmed FET vs. FET in the presence of a corpus luteum** in terms of **live birth**
- Describe the current state of the evidence regarding **programmed FET vs. FET in the presence of a corpus luteum** in terms of risk of **hypertensive disorders** of pregnancy
- Describe the **logistical / experiential** pros and cons of **programmed FET vs. FET performed in the presence of a corpus luteum** for the **patient and clinic**
- Review **modifications to natural cycle FET**
- Determine whether **changing from programmed FET to FET in the setting of a corpus luteum (or vice versa)** improves live birth outcomes

Rationale for Optimizing FET protocols

- FET utilization continues to increase:
  - Improvements in cryopreservation techniques
  - PGT utilization
  - ESET
  - Operational efficiency
  - Desire for fertility preservation
- 2014 ~40% (800 000 cycles) of the estimated 2 million annual worldwide assisted reproductive technology treatment cycles.[1] Current estimate is ~ 60% of embryo transfers.[2]
- In 2020, more than 75% of treatment cycles involved embryo cryopreservation[3]
- SART online 2023 preliminary data indicate ~270,000 FETs were performed by SART clinics alone[3]

1. Chambers GM, Dyer S, Zegers-Hochschild F, et al. International Committee for Monitoring Assisted Reproductive Technologies world report: assisted reproductive technology, 2014†. Hum Reprod. 2021;36(11):2921-2934. doi:10.1093/humrep/deab198
2. Wei et al. BMJ 2026
3. Sartcorsonline.com

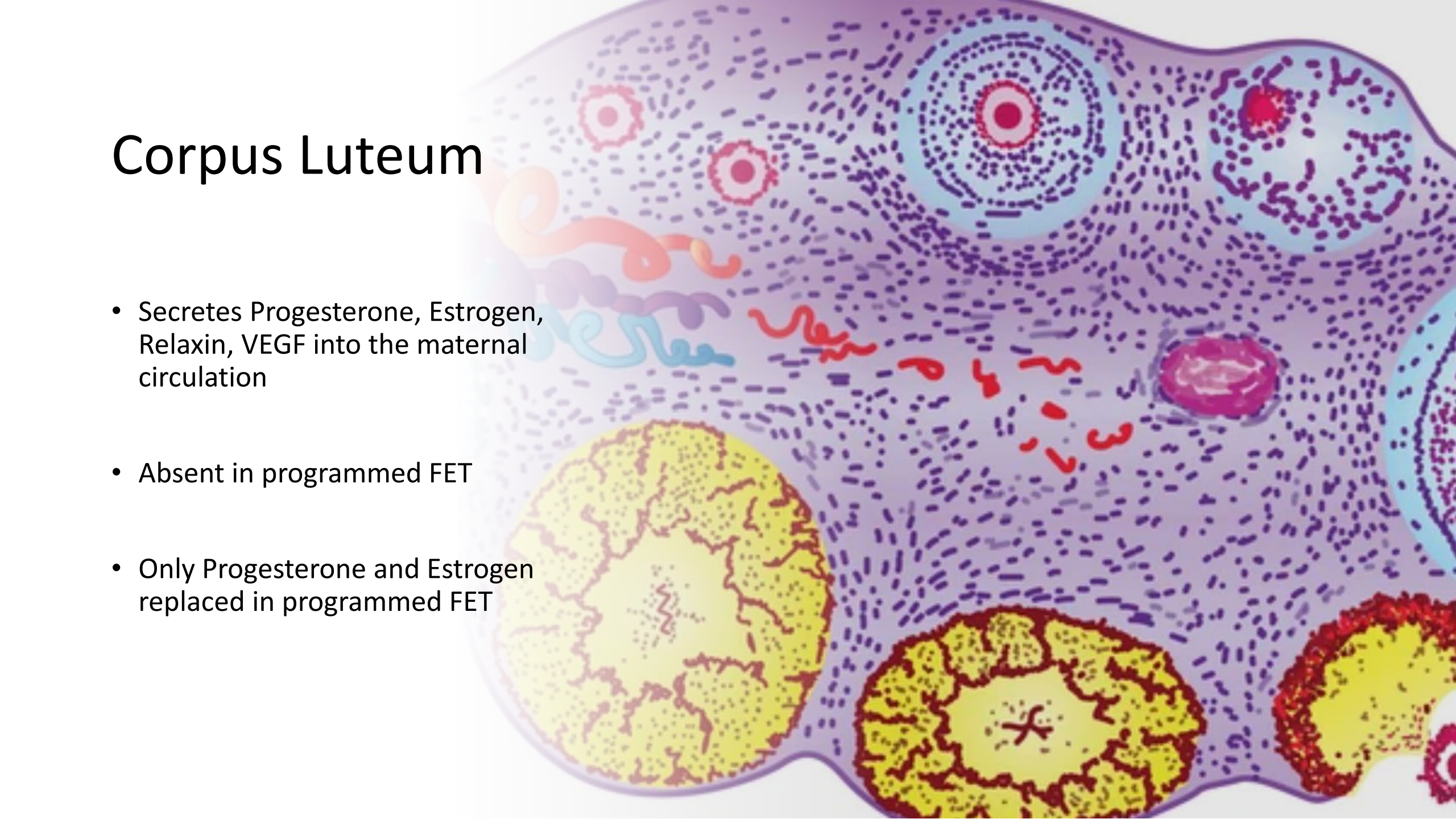
Definitions

- True natural cycle (t-NC): natural spontaneous ovulation and formation of the corpus luteum[1]
- Modified natural cycle (m-NC): ovulation is triggered with hCG once leading follicle reaches 16–20 mm[1] or smaller[2]
- Programmed cycle: Follicular development and luteinization is suppressed and replaced with exogenous estradiol (E2) and progesterone (P)
- Luteal phase support (LPS): exogenous P may be considered in both t-NC and m-NC
- Luteal *replacement*: exogenous P ***must*** be given in programmed cycles

1. Mumusoglu et al., 2021 Sartcorsonline.com
2. Alonso-Mayo et al., 2024

Corpus Luteum

- Secretes Progesterone, Estrogen, Relaxin, VEGF into the maternal circulation
- Absent in programmed FET
- Only Progesterone and Estrogen replaced in programmed FET



- FET is associated with an increase in hypertensive disorders of pregnancy[1]
- Prospective cohort study demonstrated higher rate of PEC with programmed than NC FET (13% vs. 4%, P=0.02). Maternal cardiovascular adaptation to pregnancy was perturbed in the programmed FET group[2]

1. Chen 2016; Ishihara 2014; Maheshwari 2018; Opdahl 2015; Roque 2019; Sazonova 2012; Sha 2018; Sites 2017; Wong 2017; Conrad 2024
2. von Versen-Hoynck 2019

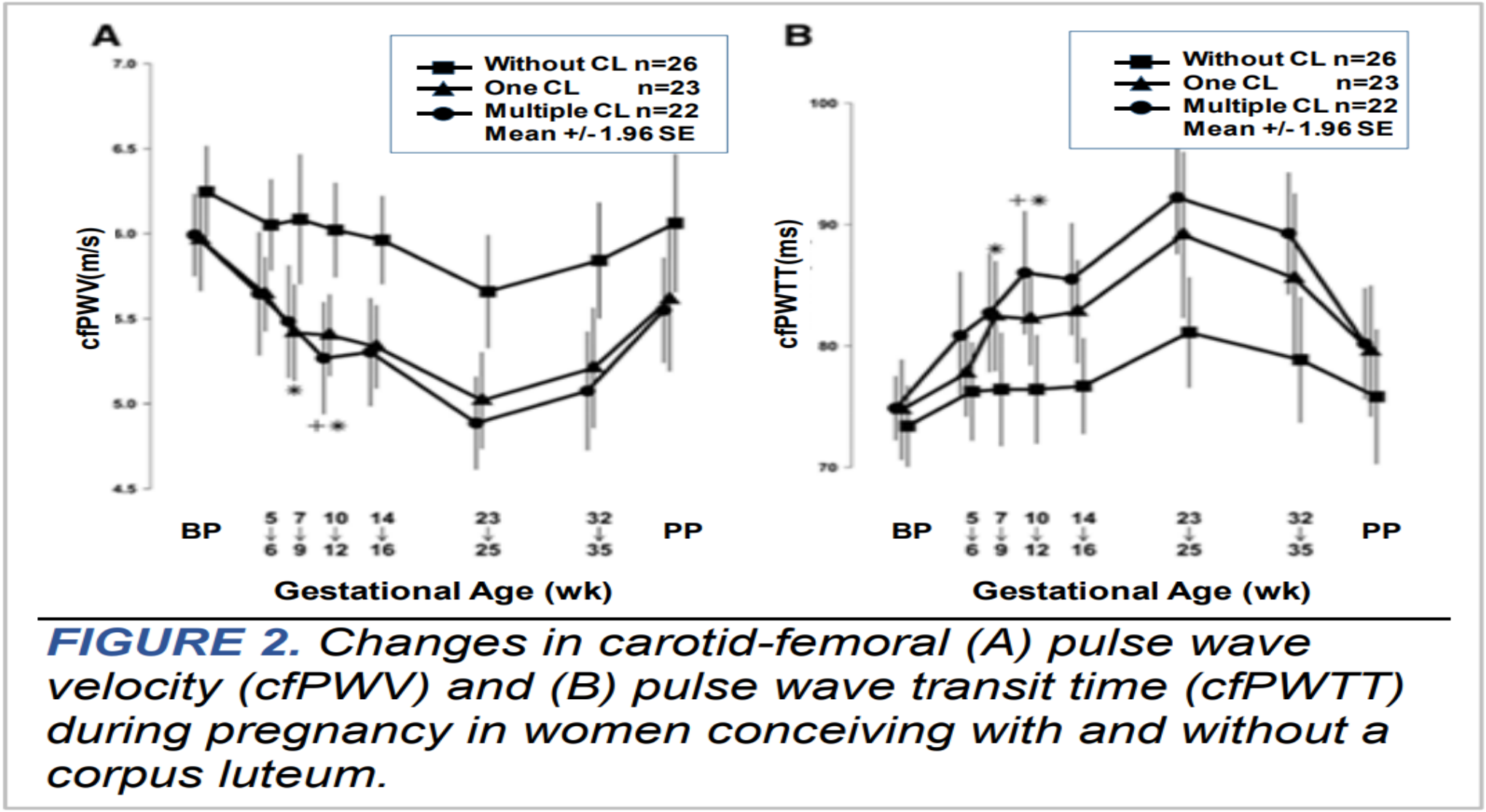


FIGURE 2. Changes in carotid-femoral (A) pulse wave velocity (cfPWV) and (B) pulse wave transit time (cfPWTT) during pregnancy in women conceiving with and without a corpus luteum.

Increased Preeclampsia Risk and Reduced Aortic Compliance With In Vitro Fertilization Cycles in the Absence of a Corpus Luteum.

von Versen-Hoynck, F., Baker, V. L., et al (2019). Hypertension, 73(3), 640-649.

Corpus Luteum vs. Programmed Live Birth

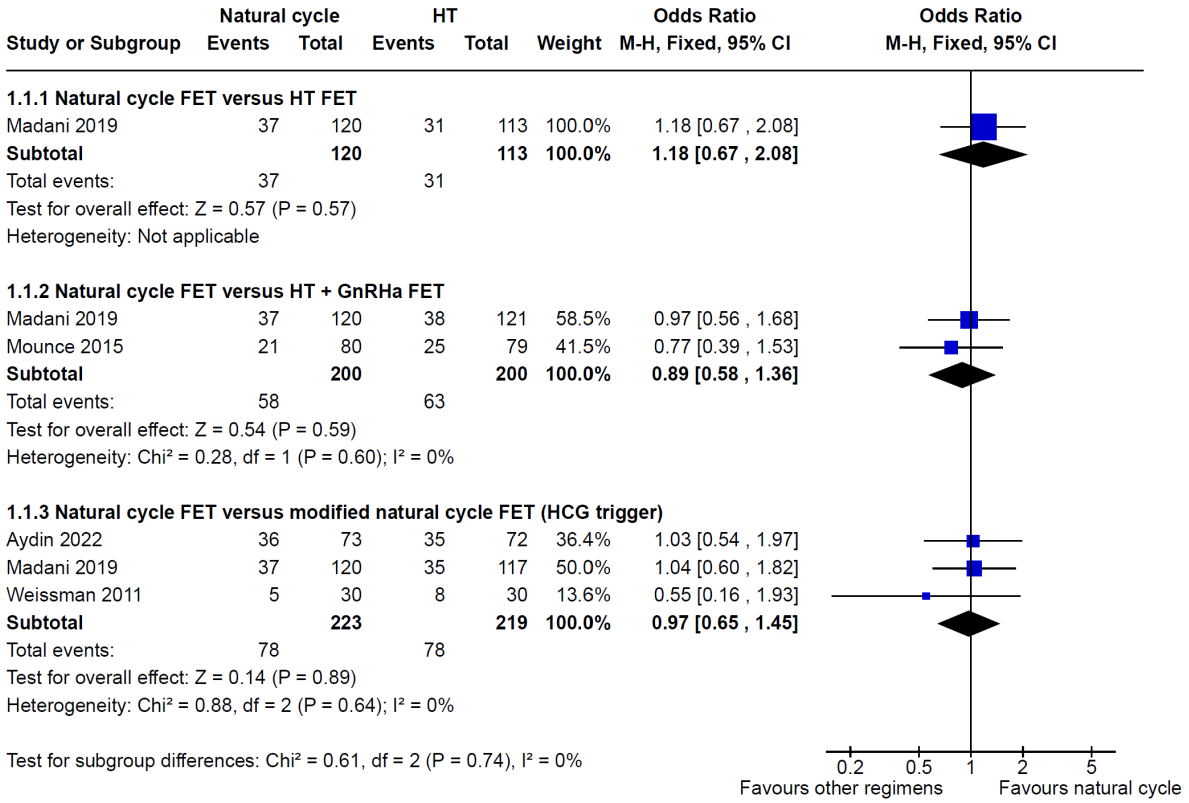
Cochrane Library
Trusted evidence.
Informed decisions.
Better health.

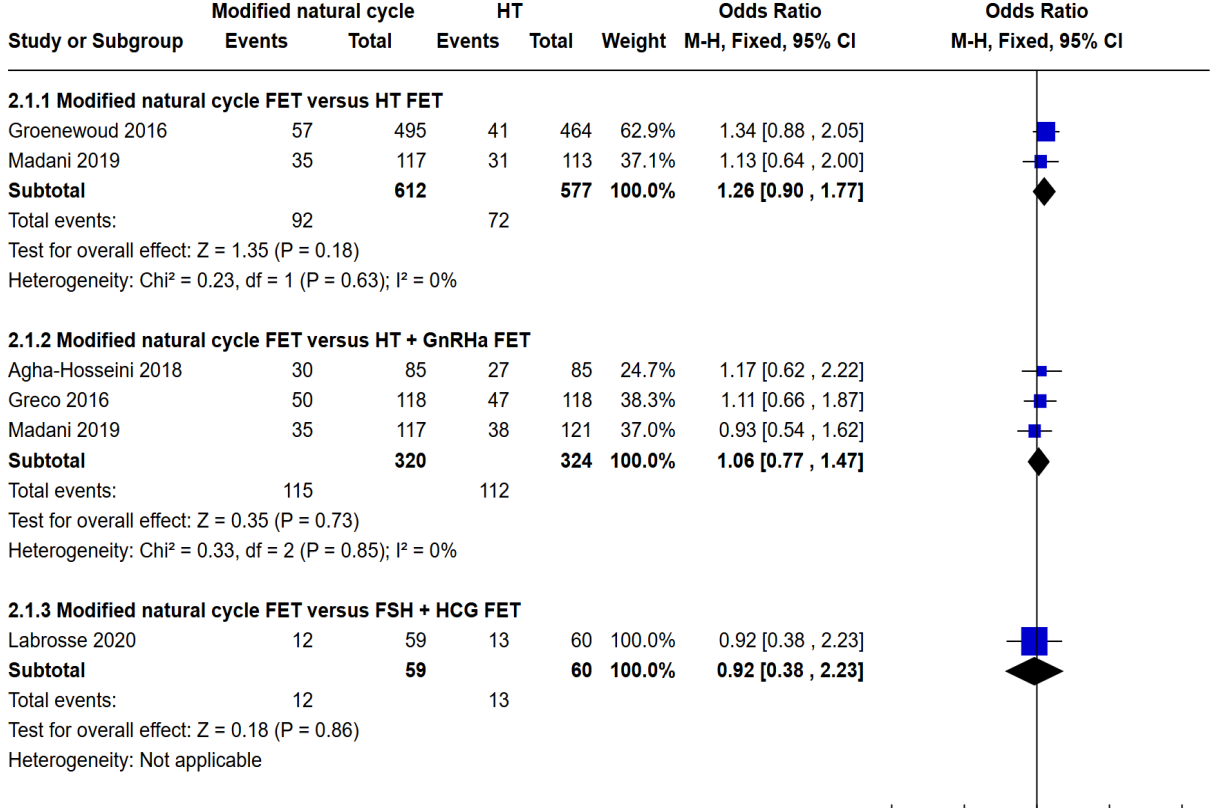
Cochrane Database of Systematic Reviews

[Intervention Review]

Cycle regimens for endometrial preparation prior to frozen embryo transfer

Tarek Ghobara[1], Tarek A Gelbaya[2], Reuben Olugbenga Ayeleke[3]





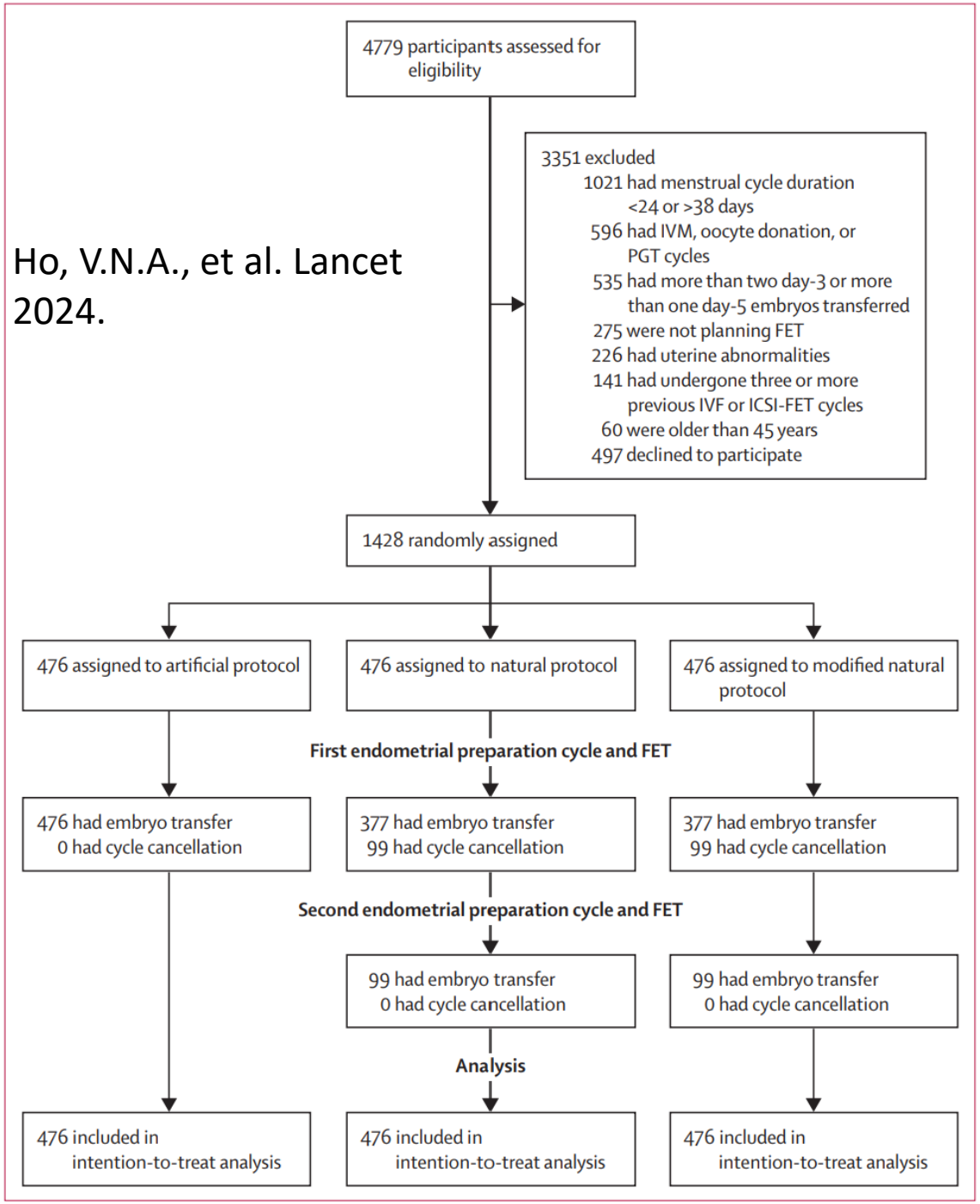
Cochrane 2025 (current through 2022): 'Uncertain'

Livebirth rate after one frozen embryo transfer in ovulatory women starting with natural, modified natural, or artificial endometrial preparation in Viet Nam: an open-label randomised controlled trial

Vu N A Ho, Toan D Pham, Nam T Nguyen, Rui Wang, Robert J Norman, Ben W Mol, Tuong M Ho, Lan N Vuong

Ho, V.N.A., et al. Lancet 2024.

Ho, V.N.A., et al. Lancet 2024.



- Vietnam
- 18-45 y.o. and ovulatory
- Primary outcome Live Birth
- Autologous FET
- 1 blast or 2 cleavage
- Uterine factor, Recurrent implantation failure, and PGT excluded
- No hormonal support in NC and m-NC arms
- 800 mg vaginal micronized progesterone in ‘artificial’ arm; Serum P not measured

Ho, V.N.A., et al. Lancet 2024:

Intention-to-treat: No Difference in Live Birth per FET

	Natural cycle strategy* (n=476)	Modified natural cycle strategy* (n=476)	Artificial cycle strategy* (n=476)	RR	
				Natural *vs* artificial cycle strategy	Modified natural *vs* artificial cycle strategy
Livebirth					
After the first endometrial preparation	127 (27%)	117 (25%)	162 (34%)	0·78 (0·62–0·99)	0·72 (0·57–0·91)
After the second endometrial preparation	47 (10%)	42 (9%)	0	..	..
Total after one FET†	174 (37%)	159 (33%)	162 (34%)	1·07 (0·87–1·33)	0·98 (0·79–1·22)
After day-3 embryo transfer	56/216 (26%)	53/215 (25%)	43/214 (20%)	1·29 (0·87–1·93)	1·23 (0·82–1·84)
After day-5 embryo transfer	118/260 (45%)	106/261 (41%)	119/262 (45%)	1·00 (0·77–1·29)	0·89 (0·69–1·16)

PLOS Medicine

RESEARCH ARTICLE

Natural cycle versus hormone replacement therapy as endometrial preparation in ovulatory women undergoing frozen-thawed embryo transfer: The COMPETE open-label randomized controlled trial

Xitong Liu[1☯], Wentao Li[2☯], Wen Wen[1☯], Ting Wang[1☯], Tao Wang[1☯], Ting Sun[1☯], Na Zhang[1], Dan Pan[1], Jinlin Xie[1], Xiaojuan Liu[1], He Cai[1], Xiaofang Li[1], Zan Shi[1], Rui Wang[1], Na Lu[1], Haiyan Bai[1], Rong Pan[1], Li Tian[1], Bin Meng[1], Xin Mu[1], Hongran Jia[1], Hanying Zhou[1], Xu Cao[3], Tianxing Liu[1], Pengfei Qu[4], Danmeng Liu[4], Ben W. Mol[5,6], Juanzi Shi[1*]

Liu X, et al. Plos 2025.

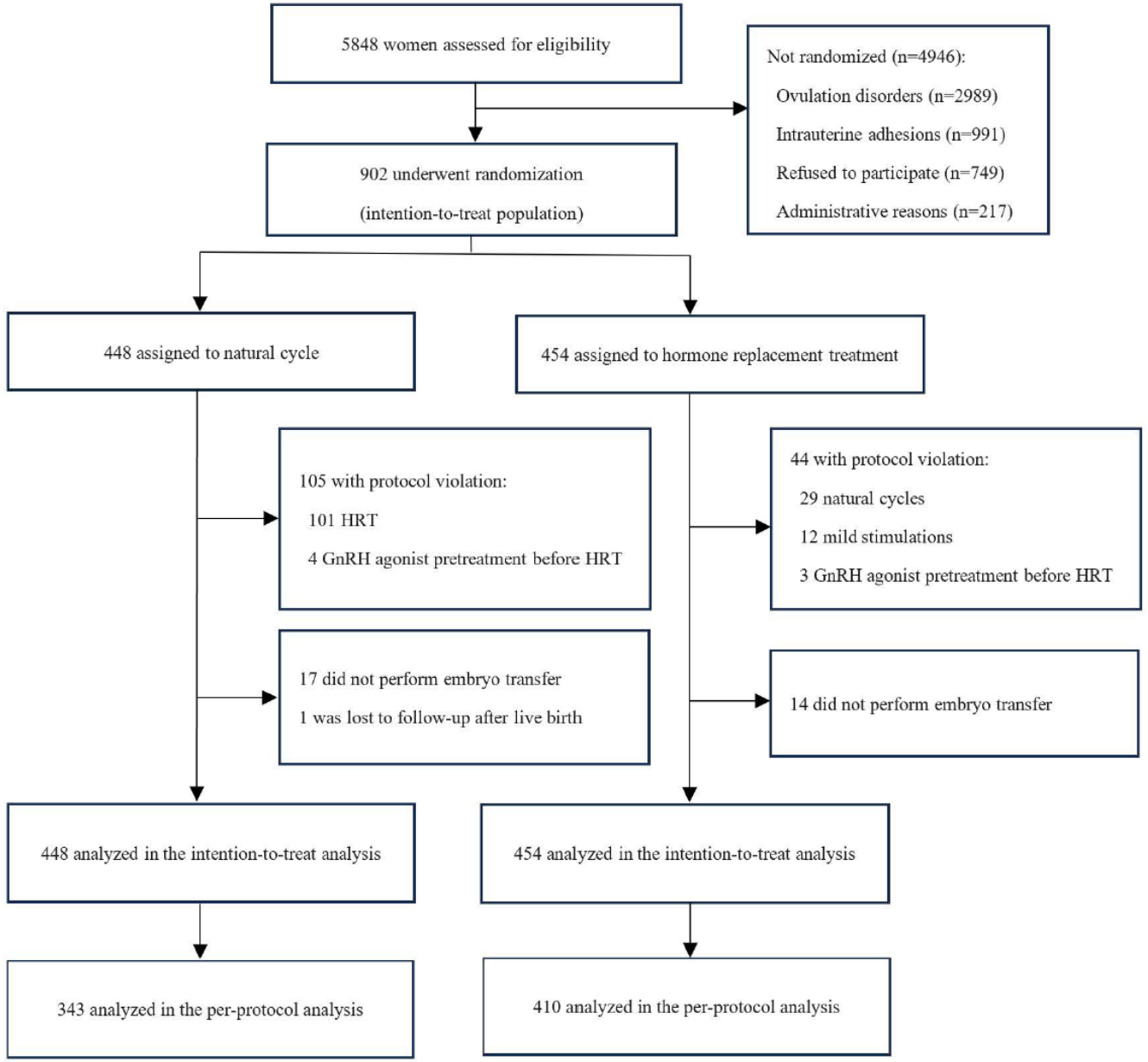


Fig 1. Flowchart of study cohort.

https://doi.org/10.1371/journal.pmed.1004630.g001

- China
- Ovulatory
- Autologous FET
- Primary outcome Live Birth
- 1-2 embryos transferred; ~80% blast transfer
- Uterine factor excluded; 3% PGT in both arms
- Substantial cross-over
- NC was t-NC but trigger could be given if surge not detected (~1/3)
- 600 mg vaginal micronized progesterone in ‘hormone replacement’ arm; serum progesterone not measured

Liu X, et al. Plos 2025: Live Birth Advantage with Corpus Luteum*

*But 101 / 448 randomized to NC received HRT

Table 3. Reproductive outcomes (intention-to-treat analysis).

Clinical outcomes	NC		HRT		Absolute difference/mean difference (95% CI)[a]	Risk ratio (95% CI)[a]
	N	*n* (%)/mean (SD)	*N*	*N* (%)/mean (SD)		
Live birth	448	242 (54.0)	454	195 (43.0)	11.1 (4.6, 17.5)	1.26 (1.10, 1.44)
Endometrial thickness (mm)	439	10.9 (1.6)	447	10.4 (1.3)	0.57 (0.38, 0.76)	–
Cycle cancelation	448	17 (3.8)	454	14 (3.1)	0.7 (−1.7, 3.1)	1.23 (0.61, 2.47)
Biochemical pregnancy	448	304 (67.9)	454	269 (59.3)	8.6 (2.4, 14.9)	1.15 (1.04, 1.26)
Clinical pregnancy	448	285 (63.6)	454	257 (56.6)	7 (0.6, 13.4)	1.12 (1.01, 1.25)
Miscarriage	285	37 (13.0)	257	55 (21.4)	−8.4 (−14.8, −2.1)	0.61 (0.41, 0.89)
Ongoing pregnancy	448	248 (55.4)	454	201 (44.3)	11.1 (4.6, 17.6)	1.25 (1.10, 1.43)
Multiple pregnancy	448	18 (4.0)	454	19 (4.2)	−0.2 (−2.8, 2.4)	0.96 (0.51, 1.80)
Ectopic pregnancy*	448	6 (1.3)	454	7 (1.5)	−0.2 (−1.8, 1.4)	0.87 (0.29, 2.56)

[a]HRT group was regarded as the reference group.

*Post hoc specified endpoints.

Abbreviations: NC, natural cycle; HRT, hormone replacement treatment; CI, confidence interval.

https://doi.org/10.1371/journal.pmed.1004630.t003

Natural ovulation versus programmed regimens before frozen embryo transfer in ovulatory women: multicentre, randomised clinical trial

Daimin Wei,[1,2,3,4] Yingying Qin,[1,2,3,4,5] Yun Sun,[6,7] Junhao Yan,[1,2,3,4] Han Zhao,[1,2,3,4] Yichun Guan,[8] Jichun Tan,[9] Ting Guo,[1,2,3,4] Ze Wang,[1,2,3,4] Fei Gong,[10] Cuifang Hao,[11] Xiang Ma,[12] Cuilian Zhang,[13] Aijun Zhang,[14] Ling Geng,[1,2,3,4] Mei Sun,[1,2,3,4] Xiufang Li,[1,2,3,4] Xiufeng Ling,[15] Qun Lu,[16] Hongchu Bao,[17] Lan Chao,[18] Wei Huang,[19] Qinghua Shi,[20] Junli Zhao,[21] Yao Lu,[6,7] Sheling Wu,[8] Shunji Zhang,[10] Jing Wang,[12] Meiling Guo,[11] Xiaoxi Sun,[22] Yanlin Ma,[23] Qiongfang Wu,[24] Yanping Li,[25] Xianghong Ou,[26] Zhou Fang,[27] Jiao Chen,[28] Guimin Hao,[29] Heping Zhang,[30] Richard S Legro,[31] Zi-Jiang Chen[1,2,3,4]; on behalf of the PnROVE Study Group

thebmj

Wei D, et al. BMJ 2026.

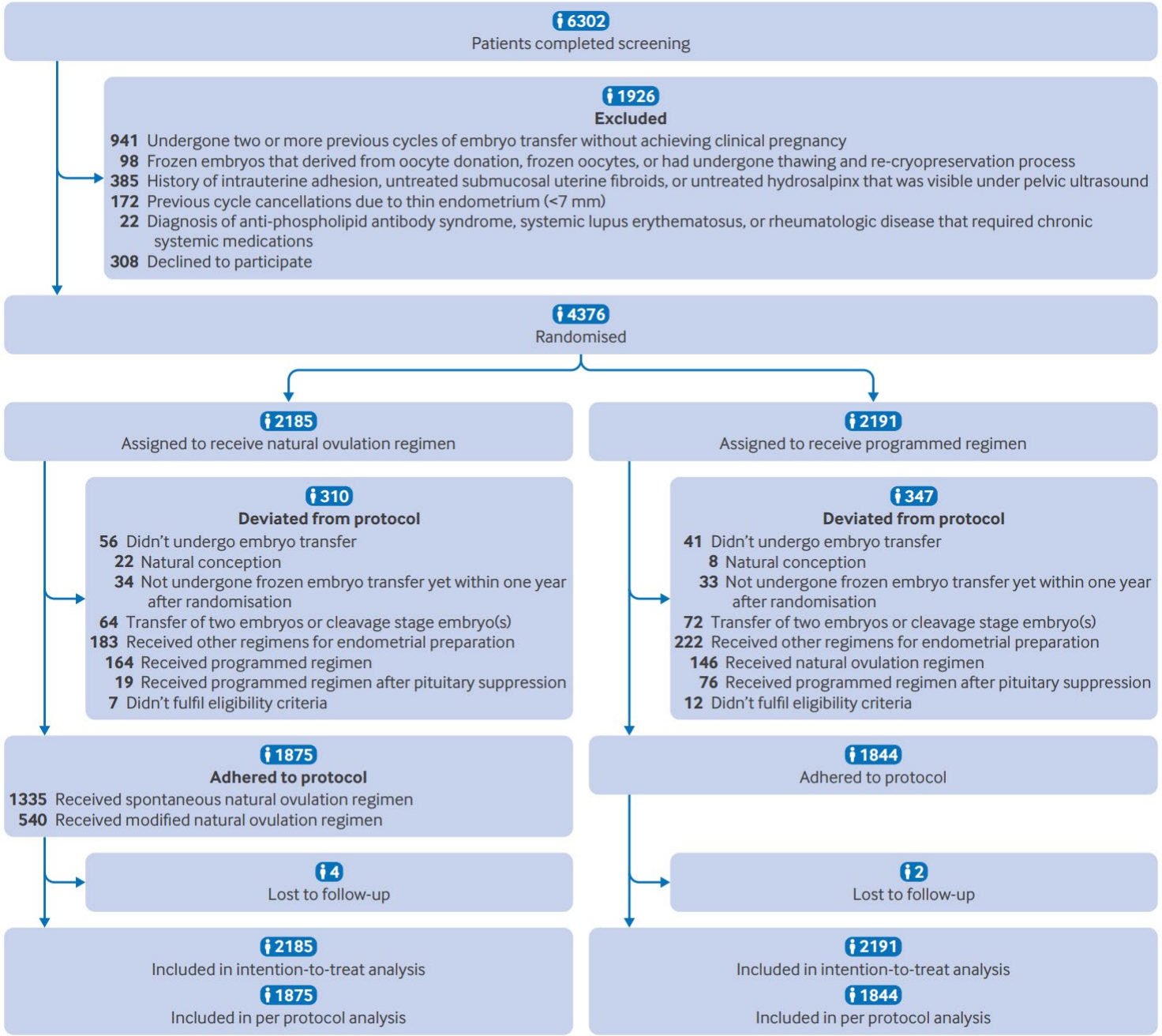


Fig 1 | CONSORT flow chart

- China
- Ovulatory 20-40 y.o.
- Autologous FET
- Powered for dual primary outcomes of live birth and pre-eclampsia
  - >80% power to detect 5% difference in LB and 3% difference in PEC at a significance level of 0.025
- Single blast transfer (~8% PGT)
- Embryos from frozen eggs, Recurrent implantation failure, and Uterine factor excluded
- M-NC and t-NC were used followed by luteal support with oral of vaginal progesterone
- Vaginal, oral, and/or IM progesterone in the programmed arm (unclear if P was measured)

Wei D, et al. BMJ 2026: No Live Birth Advantage with Corpus Luteum

Table 3 | Primary outcomes, live birth, birth weight, pregnancy, and pregnancy loss after frozen embryo transfer in participants assigned to receive a natural ovulation regimen or a programmed regimen. Data are number (%) or number/total number (%) unless otherwise specified

Outcomes	Regimen group		Absolute difference between groups (95% CI)*	Relative ratio (95% CI)	P value
	Natural ovulation (n=2185)	Programmed (n=2191)			
Primary outcomes					
Healthy live birth among all patients†	910 (41.6)	890 (40.6)	1.0 (−1.9 to 3.9)	1.03 (0.96 to 1.10)	0.49

Health live birth defined as a singleton liveborn infant delivered at 37 weeks of gestation or later with normal birth weight (2500-4000 g), and without major congenital anomalies

Current state of the evidence:

Likely No Live Birth Advantage with Corpus Luteum*

*Remains controversial

Corpus Luteum vs. Programmed: Obstetric Risk

	Number needed to harm via programmed FET	#studies	Evidence Grade
Large for gestational age	62.5 (41.7 to 125.0)	17	Moderate
Macrosomia	142.9 (83.3 to 500.0)	17	Low
Small for gestational age	1000.0 (166.7 to 250.0)	16	Low
Low birth weight	83.3 (55.6 to 200.0)	15	Moderate
Early pregnancy loss	25.0 (16.7 to 33.3)	10	Low
Gestational diabetes mellitus	Not calculable	20	Very low
Hypertensive disorders of pregnancy	45.5 (32.3 to 50.0)	20	Moderate
Pre-eclampsia	27.8 (18.9 to 52.6)	10	Moderate
Post-partum haemorrhage	19.2 (10.4 to 111.1)	9	Very low
Placenta previa	500.0 (250.0 to 1000.0	16	Moderate
Pre-term birth	66.7 (50.0 to 100.0)	21	Moderate
Very pre-term birth	250.0 (142.9 to 1000.0)	11	Moderate
Number needed to harm calculated as the reciprocal of the absolute risk difference reported in Zaat et al. (Zaat et al., 2023)			

Ata B, Devine K, Humaidan P, Mumusoglu S, Garcia-Velasco J, Wu I-H, Schwarze J, D'Hooghe T, Yarali T. Expert opinion on best practice in programmed frozen embryo transfers: a Delphi consensus. Under review.

Livebirth rate after one frozen embryo transfer in ovulatory women starting with natural, modified natural, or artificial endometrial preparation in Viet Nam: an open-label randomised controlled trial

Vu N A Ho, Toan D Pham, Nam T Nguyen, Rui Wang, Robert J Norman, Ben W Mol, Tuong M Ho, Lan N Vuong

Ho, V.N.A., et al. Lancet 2024.

Ho, V.N.A., et al. Lancet 2024:

No Difference in OB Risk, including hypertensive disorders of pregnancy (But not powered)

	Natural cycle strategy* (n=476)	Modified natural cycle strategy* (n=476)	Artificial cycle strategy* (n=476)	RR	
				Natural *vs* artificial cycle strategy	Modified natural *vs* artificial cycle strategy
Hypertensive disorders in pregnancy	10 (2%)	8 (2%)	12 (3%)	0·83 (0·35 to 1·93)	0·67 (0·26 to 1·61)
Hypertensive disorders in pregnancy per ongoing pregnancy	10/177 (6%)	8/164 (5%)	12/165 (7%)	0·78 (0·33 to 1·80)	0·67 (0·26 to 1·62)

Also no difference in birthweight, preterm birth, congenital abnormalities, stillbirth, NICU admission, gestational diabetes

RBMO

COMMENTARY

Search for optimal frozen embryo transfer endometrial preparation protocol continues despite a large randomized trial's findings

Hakan Yarali[1,*], Sezcan Mumusoglu[1], Sandro C Esteves[2,3], Paul Pirtea[4], Peter Humaidan[3,5]

PLOS Medicine

RESEARCH ARTICLE

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Xitong Liu[1☯], Wentao Li[2☯], Wen Wen[1☯], Ting Wang[1☯], Tao Wang[1☯], Ting Sun[1☯], Na Zhang[1], Dan Pan[1], Jinlin Xie[1], Xiaojuan Liu[1], He Cai[1], Xiaofang Li[1], Zan Shi[1], Rui Wang[1], Na Lu[1], Haiyan Bai[1], Rong Pan[1], Li Tian[1], Bin Meng[1], Xin Mu[1], Hongran Jia[1], Hanying Zhou[1], Xu Cao[3], Tianxing Liu[1], Pengfei Qu[4], Danmeng Liu[4], Ben W. Mol[5,6], Juanzi Shi[1*]

Liu X, et al. Plos 2025.

Liu X, et al. Plos 2025: **No Obstetric Risk Advantage with Corpus Luteum (not powered)**

Table 4. Maternal and perinatal outcomes (Intention-to-treat analysis).

Clinical outcomes	NC		HRT		Absolute difference/ mean difference (95% CI)[a]	Risk ratio (95% CI)[a]
	N	*N* (%)/mean (SD)	*N*	*N* (%)/mean (SD)		
Maternal hyperthyroidism*	248	6 (2.4)	201	4 (2.0)	0.4 (−2.3, 3.1)	1.22 (0.35, 4.25)
Maternal hypothyroidism*	248	31 (12.5)	201	19 (9.5)	3 (−2.7, 8.8)	1.32 (0.77, 2.27)
Polyhydramnios*	241	13 (5.4)	195	9 (4.6)	0.8 (−3.3, 4.9)	1.17 (0.51, 2.68)
Oligohydramnios*	241	5 (2.1)	195	7 (3.6)	−1.5 (−4.7, 1.7)	0.58 (0.19, 1.79)
Gestational diabetes mellitus	248	27 (10.9)	201	33 (16.4)	−5.5 (−12.0, 0.9)	0.66 (0.41, 1.06)
Hypertensive disorders of pregnancy	248	23 (9.3)	201	16 (8.0)	1.3 (−3.9, 6.5)	1.17 (0.63, 2.14)
Pregnancy-induced hypertension	248	15 (6.1)	201	12 (6.0)	0.1 (−4.3, 4.5)	1.01 (0.49, 2.11)
Pre-eclampsia	248	8 (3.2)	201	4 (2.0)	1.2 (−1.7, 4.2)	1.62 (0.50, 5.31)
Antepartum hemorrhage	242	35 (14.5)	195	45 (23.1)	−8.6 (−16, −1.2)	0.63 (0.42, 0.93)
Placenta previa	242	2 (0.8)	195	2 (1.0)	−0.2 (−2, 1.6)	0.81 (0.11, 5.67)
Placenta accreta	242	25 (10.3)	195	29 (14.9)	−4.5 (−10.8, 1.8)	0.69 (0.42, 1.15)
Unexplained	242	8 (3.3)	195	14 (7.2)	−3.9 (−8.1, 0.4)	0.46 (0.20, 1.08)
Postpartum anemia*	242	16 (6.6)	195	16 (8.2)	−1.6 (−6.6, 3.4)	0.81 (0.41, 1.57)
Preterm birth	248	22 (8.9)	201	25 (12.4)	−3.6 (−9.3, 2.2)	0.71 (0.41, 1.23)
Spontaneous	248	12 (4.8)	201	15 (7.5)	−2.6 (−7.1, 1.9)	0.65 (0.31, 1.35)
Medical reasons	248	10 (4.0)	201	10 (5.0)	−0.9 (−4.8, 2.9)	0.81 (0.34, 1.91)

Also no difference in birthweight, gestational age, congenital abnormalities, NICU admission

Natural ovulation versus programmed regimens before frozen embryo transfer in ovulatory women: multicentre, randomised clinical trial

Daimin Wei,[1,2,3,4] Yingying Qin,[1,2,3,4,5] Yun Sun,[6,7] Junhao Yan,[1,2,3,4] Han Zhao,[1,2,3,4] Yichun Guan,[8] Jichun Tan,[9] Ting Guo,[1,2,3,4] Ze Wang,[1,2,3,4] Fei Gong,[10] Cuifang Hao,[11] Xiang Ma,[12] Cuilian Zhang,[13] Aijun Zhang,[14] Ling Geng,[1,2,3,4] Mei Sun,[1,2,3,4] Xiufang Li,[1,2,3,4] Xiufeng Ling,[15] Qun Lu,[16] Hongchu Bao,[17] Lan Chao,[18] Wei Huang,[19] Qinghua Shi,[20] Junli Zhao,[21] Yao Lu,[6,7] Sheling Wu,[8] Shunji Zhang,[10] Jing Wang,[12] Meiling Guo,[11] Xiaoxi Sun,[22] Yanlin Ma,[23] Qiongfang Wu,[24] Yanping Li,[25] Xianghong Ou,[26] Zhou Fang,[27] Jiao Chen,[28] Guimin Hao,[29] Heping Zhang,[30] Richard S Legro,[31] Zi-Jiang Chen[1,2,3,4]; on behalf of the PnROVE Study Group

thebmj

Wei D, et al. BMJ 2026.

Wei D, et al. BMJ 2026: **Statistically significant reduction in pre-eclampsia with Corpus Lutem**

Table 3 | Primary outcomes, live birth, birth weight, pregnancy, and pregnancy loss after frozen embryo transfer in participants assigned to receive a natural ovulation regimen or a programmed regimen. Data are number (%) or number/total number (%) unless otherwise specified

Outcomes	Regimen group		Absolute difference between groups (95% CI)*	Relative ratio (95% CI)	P value
	Natural ovulation (n=2185)	Programmed (n=2191)			
Primary outcomes					
Healthy live birth among all patients†	910 (41.6)	890 (40.6)	1.0 (−1.9 to 3.9)	1.03 (0.96 to 1.10)	0.49
Pre-eclampsia among all patients	38 (1.7)	61 (2.8)	−1.0 (−1.9 to −0.2)	0.62 (0.42 to 0.93)	0.02
Pre-eclampsia among clinical pregnancies	38/1302 (2.9)	61/1326 (4.6)	−1.7 (−3.1 to −0.2)	0.63 (0.43 to 0.94)	0.02

Current state of the evidence:

Likely a small (~2% absolute) but statistically significant reduction in hypertensive disorders of pregnancy with Corpus Luteum

*Remains controversial

Expert Opinion

The choice of a programmed versus an ovulatory cycle should be a joint decision with the patient after careful discussion of advantages (predictability and flexibility) and disadvantages (increased risks of pregnancy-induced hypertension, post-partum haemorrhage, and large for gestational age approx. 1.5-fold) in programmed FET cycles.

This statement achieved 81.5% agreement among 27 experts

Ata B, Devine K, Humaidan P, Mumusoglu S, Garcia-Velasco J, Wu I-H, Schwarze J, D'Hooghe T, Yarali T. Expert opinion on best practice in programmed frozen embryo transfers: a Delphi consensus. Under review.

NatPro:

Natural vs. Programmed Cycles for FET

Baksh *et al. Trials* (2021) 22:660
https://doi.org/10.1186/s13063-021-05637-3

Trials

STUDY PROTOCOL Open Access

Natural vs. programmed cycles for frozen embryo transfer: study protocol for an investigator-initiated, randomized, controlled, multicenter clinical trial

Sheriza Baksh[1,2*], Anne Casper[2], Mindy S. Christianson[3], Kate Devine[4], Kevin J. Doody[5], Stephan Ehrhardt[1,2], Karl R. Hansen[6], Ruth B. Lathi[7], Fatmata Timbo[2], Rebecca Usadi[8], Wendy Vitek[9], David M. Shade[1,2], James Segars[3], Valerie L. Baker[3] and NatPro Study Group

Study Design

- Phase III, two-arm, parallel group, superiority, randomized controlled trial
- Multicenter
- Two parallel treatment groups
  - Modified natural cycle (corpus luteum present)
  - Programmed cycle (corpus luteum absent)

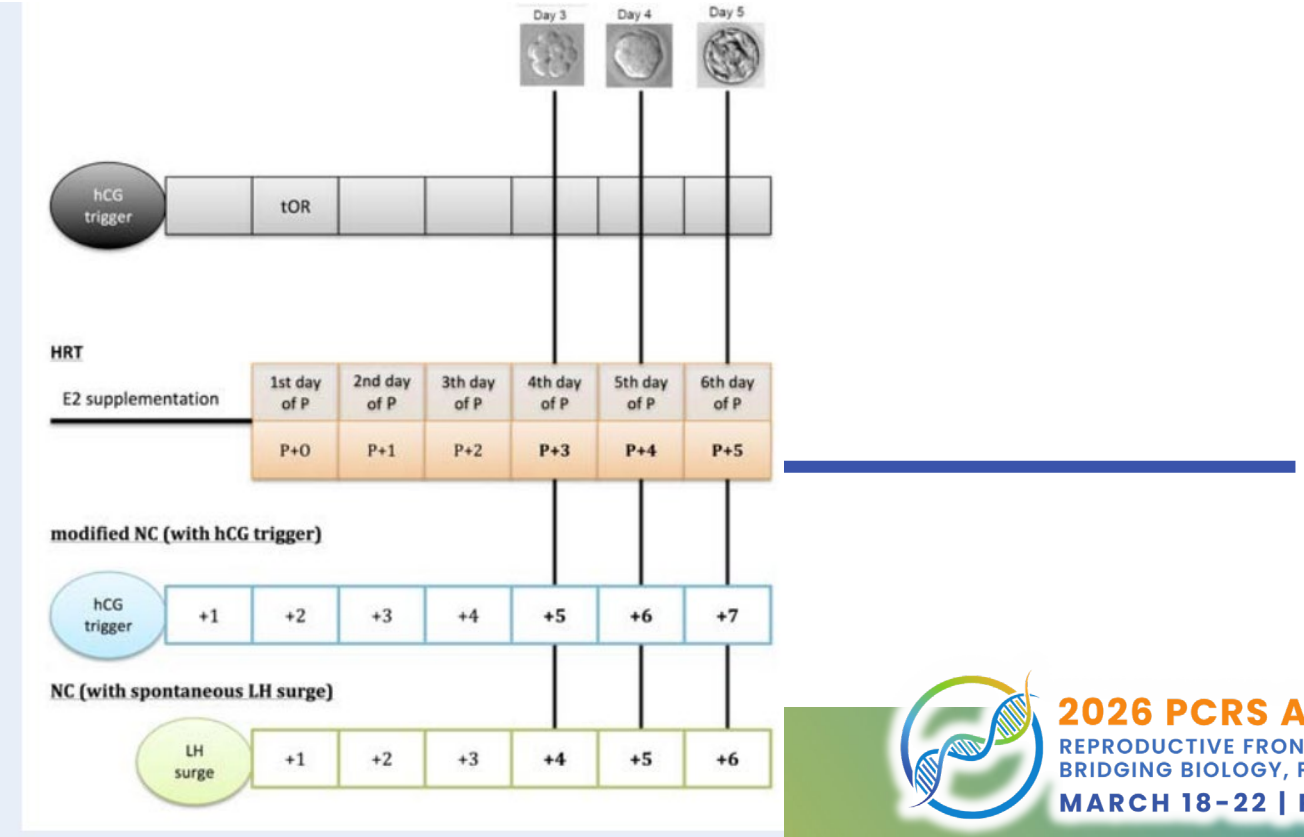
www.natprostudy.org

NATPRO

Multi-center, parallel-group, randomized controlled trial of modified natural verses programmed cycles for frozen embryo transfers and their association with preeclampsia and live births.

M-NC Logistics

- 2023 survey study of US Fertility Clinics: 17% unable to offer FET due to scheduling/staffing difficulties[1]
- Greater scheduling flexibility and fewer monitoring visits with programmed[2]



1. Lee et al, JARG 2023
2. Mackens et al, HR 2017

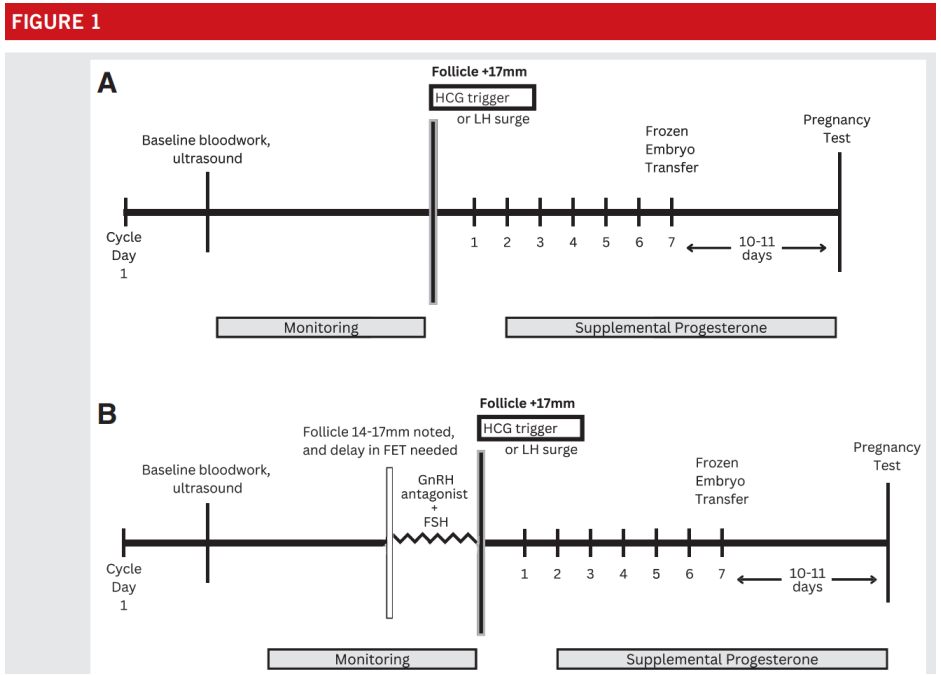
Offering Natural Cycle FET: 27 Experts

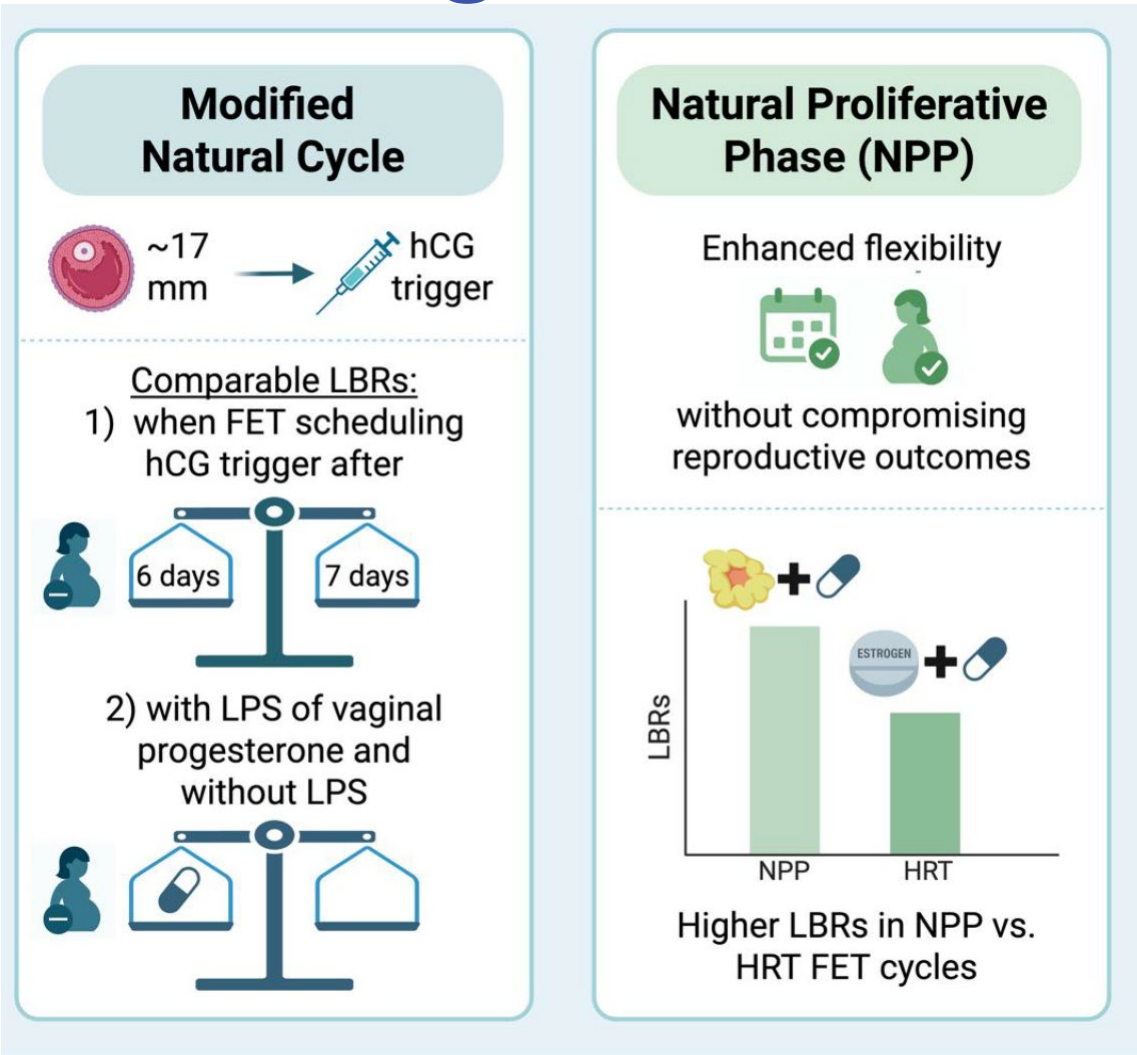
Statement	Agreement
HRT–FET, t-NC–FET, and m-NC–FET likely yield comparable live birth rates	73%
The HRT–FET protocol offers greater flexibility for scheduling the timing of embryo transfer compared to t-NC–FET. The need for clinic visits and endocrine monitoring is also reduced in the HRT protocol	82%
m-NC is more flexible compared to t-NC for timing of FET, and the number of clinic visits is likely to be lower in m-NC. Protocol modifications have been published that may allow for scheduling flexibility in m-NC–FET	93%

Ata B, Devine K, Humaidan P, Mumusoglu S, Garcia-Velasco J, Wu I-H, Schwarze J, D'Hooghe T, Yarali T. **A Delphi consensus on true natural cycle frozen embryo transfer, modified natural cycle frozen embryo transfer and mild ovarian stimulation frozen embryo transfer, under review.**

Modifications to Ease Scheduling of mNC

- Smaller foll size (e.g. 13mm)[1]
- Ant/FSH[2]
- 'Natural Proliferative Phase'[3]





1. Alonso-Mayo et al., 2024 2. Borazjani et al., 2025. 3. Mendes Godinho et al, 2024 4. Erden et al, HR update 2026

After a Good Prognosis FET fails?

SEMINAL CONTRIBUTIONS

Check for updates

Outcomes after frozen embryo transfer failure: changing the protocol does not improve live birth

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Chae-Kim et al. FNS 2026

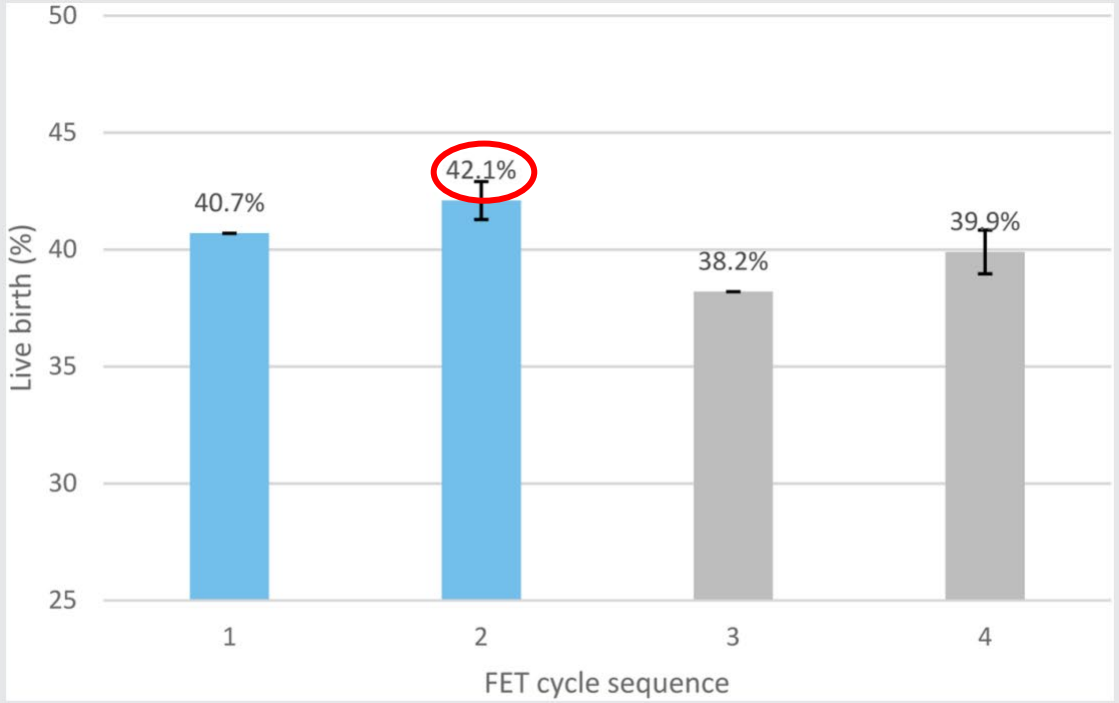
After a Good Prognosis FET fails?

Pregnancy outcomes after changing the frozen embryo transfer protocol among patients who failed an initial programmed or natural cycle. Adjusted analysis included patient age, body mass index, primary infertility diagnosis, and use of PGT.

	Programmed first failed cycle						Natural first failed cycle					
	Repeat programmed cycle		Natural cycle				Repeat natural cycle		Programmed cycle			
Outcome	N (%)	RR (95% CI)	N (%)	RR (95% CI)	Adjusted RR (95% CI)	*P*	N (%)	RR (95% CI)	N (%)	RR (95% CI)	Adjusted RR (95% CI)	P
Clinical pregnancy	4,039 (49.7)	Ref	1,102 (50.0)	1.00 (0.95, 1.05)	0.99 (0.95, 1.04)	0.79	2,522 (46.7)	Ref	1,083 (48.7)	1.05 (0.99, 1.10)	1.06 (1.00, 1.11)	0.04
Live birth	3,296 (40.7)	Ref	925 (42.1)	1.03 (0.97, 1.09)	1.02 (0.97, 1.08)	0.42	2,054 (38.2)	Ref	883 (39.9)	1.05 (0.99, 1.12)	1.06 (1.00, 1.13)	0.05
Pregnancy loss	685 (17.0)	Ref	162 (14.7)	0.88 (0.75, 1.04)	0.89 (0.75, 1.04)	0.15	413 (16.4)	Ref	185 (17.1)	1.03 (0.88, 1.22)	1.02 (0.86, 1.20)	0.85

Note: CI = confidence interval; N = total population size; RR = risk ratio.

Chae-Kim. Outcomes after embryo transfer change. Fertil Steril 2026.



Live birth for the four groups studied, on the basis of unadjusted data. On the x-axis, group 1: both cycles programmed (referent); group 2: natural cycle after failed programmed cycle. Groups 1 and 2 are color coded *blue* to represent that the initial frozen embryo transfer cycle was a programmed cycle. On the x-axis, group 3: both cycles natural (referent); group 4: programmed cycle after failed natural cycle. Groups 3 and 4 are color coded *gray* to represent that the initial frozen embryo transfer cycle was a natural cycle.

Chae-Kim. Outcomes after embryo transfer change. Fertil Steril 2026.

- Multicenter, USFertility clinics
- ~9K total repeat single high quality blast FET 2012-22
- Adjusted for: patient age, body mass index, primary infertility diagnosis, and PGT

Conclusions

- Preponderance of evidence suggest similar live birth outcomes between programmed FET vs. FET in the presence of CL
- CL seems to be slightly but significantly protective against gestational hypertensive disorders of pregnancy
- Modifications to Natural cycle FET may increase convenience without compromising outcomes
- Changing FET protocols post cycle failure was not associated with improved live birth relative to repeating the same protocol-type

Thank you! USFertility (USF) / SGFertility (SGF) / NIH: Mentors, Colleagues, Trainees, Research Coordinators, Study Participants; *FET Delphi Consensus Co-Authors**

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*Under Review:
-Expert opinion on best practice in programmed frozen embryo transfers: a Delphi consensus
-A Delphi consensus on true natural cycle frozen embryo transfer, modified natural cycle frozen embryo transfer and mild ovarian stimulation frozen embryo transfer

Q&A