

# Rate of live birth in women of advanced maternal age who have used hormonal contraception versus those who have used only non-hormonal contraception

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## Background

- Return of fertility after discontinuation of oral contraceptives has been shown to be comparable to the general population after 12 months of discontinuation but data specific to women of advanced maternal age is lacking.
- Many women today use contraceptives to delay child-bearing for many reasons and some have concerns that fertility may be impaired in their future due to long-term use of contraceptives.
- To date, there have been no studies that examined fertility rates in women 35 years or older who used combined hormonal contraceptives versus non-hormonal contraceptives.
- A purely subjective observation was made that women who desire pregnancy later in life and have used combined hormonal contraceptives experienced higher birth rates than those who had used non-hormonal contraceptive methods.

## Objective

To determine if there is an increase in rates of pregnancy and live birth in women over the age of 35 who used combined estrogen and progesterone contraception vs those who have used non-hormonal barrier contraception.

## Methods

- A questionnaire was provided to women eliciting information about types of birth control used in the patient's past as well as parity, age at pregnancy, miscarriage and completed pregnancies, any disease process or surgeries that could affect fertility, and the need for fertility treatment to achieve pregnancy.
- Participants included women 35 years or older who presented to Women's Care OBGYN offices and patients admitted to the labor and delivery unit at Memorial Hospital.
- Use of hormonal contraceptive included the use of any form of contraceptive with the main method of action being that of the hormones in the formulation.
- Use of non-hormonal contraceptive included women who used the withdrawal method, condoms, fertility awareness, or other form of contraception not containing hormones.
- Results were achieved by using t-tests and chi-squared analysis.

### Patient Questionnaire

We are currently collecting information from patients about the use of contraception and fertility. Thank you for taking the time to fill out this questionnaire. Please do not write your name or any other identifying factors on this form as we plan to use only your responses in our study, i.e. no names, SSN, patient identification numbers etc. We will not be accessing your chart for any other information and will only be able to use the information you provide on this form. By filling out this form, you are consenting to be a part of our study and are agreeing to the use of the information you provide in our analysis.

1. What age did you first start your menstrual cycle? How often are/were your cycles? Were they regular every month? How many days did your periods last?
2. What age did you become sexually active?
3. Please provide information about the number of pregnancies and their outcomes below. For example: # of pregnancy, age, whether cesarean or vaginal delivery, any ectopic pregnancies or miscarriages, and full term or preterm delivery.

Pregnancy number (including current pregnancy)	Your age at delivery	Cesarean or vaginal?	Miscarriage or ectopic (if applicable)?	Full term or preterm?	Other complications?

4. What forms of birth control have you used in the past? This includes oral contraceptives, patches, Mirena, Kyleena, Skyla, Paragard, Nexplanon, Implanon, vaginal rings (Nuvaring), Depo Provera (Depo shot), condoms, diaphragm, natural family planning (fertility awareness), withdrawal method, or any other form of contraceptive/barrier methods.

Form of contraception	Date of use (starting year)	Duration of use

5. How long did you try to conceive with each pregnancy? Did you require any fertility treatment?

6. Please list any medical problems that you have.

7. What medications are you currently taking?

8. What, if any, surgeries have you had in the past?

9. Have you ever had a sexually transmitted disease?

10. Have you ever been diagnosed with pelvic inflammatory disease?

11. Have you ever been diagnosed with a ruptured appendix (ie appendicitis)?

12. Have you ever been diagnosed with uterine fibroids?

13. Have you gone through menopause, and if so, at what age?

Image 1. Questionnaire used to evaluate participants OBGYN history, pregnancies, outcomes, and risk factors.

## Results

Regarding the 125 women completing our questionnaires, 20 achieved their first live birth at the age of 35 or older and 70 of the 125 women had live births over the age of 35. Of the women completing the questionnaire, only 6 women had never used any form of hormonal birth control. There were no significant p values in the data set and no overall trends related to the use of hormonal vs nonhormonal contraceptive options in correlation to live births over age 35.

## Discussion

- Many studies have delineated the time of resumption of fertility rate after the use of combined oral contraceptives, but the question remains whether using these forms of contraception could potentially aid in fertility and fecundity in women who delay child-bearing.
- The use of combined estrogen and progesterone contraceptives did not increase birth rates among women aged 35 years or older.
- Furthermore, there was no significant difference between birth rates of women of any age who used combined hormonal contraceptives versus those who did not use any form of hormonal contraceptives.
- Of the 125 women completing the questionnaire, only 6 reported never using any form of hormonal contraception.
- Due to the nature of this study, there are limitations including the completion of the questionnaire as some patients did not answer each question although they did answer most of the questions required for the primary goal of the study. Other secondary outcomes could not be delineated from the acquired information.
- Our population was not large enough to show any significant value if present. There were no trends noted in the data leaning towards the possibility that the use of hormonal contraceptives increase the pregnancy rates and live birth in women over the age of 35. A larger population would be needed to have comparable groups in the hormonal arm vs the non-hormonal arm.

## Conclusion

- In conclusion, there was no significant difference in live birth rates between women who used any form of hormonal contraceptive and those who never used hormonal contraceptives.
- Gathering data through questionnaires proved to be one of the biggest challenges of this project.
- The patient population would need to be larger to confirm the acceptance of our null hypothesis considering there were only a total of 6 patients who had never taken any form of hormonal birth control.

## References

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