

## The relation between time of intercourse and time of ovulation and their effect on Sex Determination

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**Abstract: Rational:** Natural sex selection methods have been applied for several decades, but their use and effectiveness are still a matter of debate. Sex selection could be needed for personal, social, or cultural reason. In most cases the principal medical indication for sex selection is to avoid giving birth to children with a sex-linked genetic disorder like Duchenne muscular dystrophy. **Objective:** Sex selection using (ART) Assisted Reproductive Technologies without doubt accurate and precise but unfortunately very expensive. So, this study was designed to assess the efficacy of timing of intercourse in relation to ovulation as a method to improve the chances of conceiving a girl or boy. **Subject and Methods:** A total of 100 women were recruited in this study during (2012-2015). Patients signed an informed consent explain the nature of the study. Compliance of timing of intercourse in relation to ovulation was determined by ovulation tests. Patients were grouped in tow groups; Group1:- timing of intercourse close to ovulation, Group2:- timing of intercourse away from ovulation, Data was tabulated and calculated using SPSS software ver15. **Results:** Our results showed 68% response rate to use of protocol of selection of male, and 64% response rate to use of protocol of selection of female. **Conclusion** This study concluded that; The use of the timing of intercourse in relation to ovulation are one of the many methods believed to influence whether a female or a male is conceived.

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**Keywords:** Gender selection, Timing of ovulation.

### 1. Introduction

Sex determination has been the subject of many human studies for long time, man has always wanted to select his children's sex, and this wish has given rise over the ages. Moreover, in some cases choice of sex is necessary for the prevention of sex-linked hereditary diseases. (Stolkowski, and Choukroun, 1981)

Sex is determined by the genetic elements of the sperm, but it is unclear that which factors decide whether a sperm carrying Y or X chromosome will fertilize the egg. It is believed that sperm carrying Y chromosome had higher motility and low resistant while sperm carrying X chromosome had less motility and more resistant. (Noorlander, et al., 2010)

In normal conditions the X- and Y-bearing sperm have equal probabilities of fertilizing the ovum. But Y spermatozoa had greater tolerance for alkaline PH and moved faster in this medium than the X spermatozoa. Y-bearing sperm are smaller than X spermatozoa. (Scott et al. 2003)

There are different methods for sex selection. One of these methods is controlling the time between intercourse and ovulation. Y-bearing spermatozoa are supposedly slightly lighter and faster but also more fragile and shorter-lived than X-bearing spermatozoa. (Scott. et al. 2003)

Intercourse close to ovulation would therefore favor boys. This theory was originally put forward by (Kleegman, 1966) and later popularized by (Shettles,

1970). As the time of ovulation grows nearer, it is well known that the quality and quantity of the cervical mucus changes. Studies have shown that the viability, longevity, and motility of the "X" and "Y" chromosome carrying sperm are affected differently by these mucus changes. The utilization of these variables to create a preconception sex selection bias is dependent upon the ability to accurately predict when ovulation is to occur. (Noorlander et al., 2010)

The selection for a male offspring requires that intercourse be performed as close to ovulation as possible. While, intercourse that occurs approximately three days prior to ovulation has a greater chance of conceiving a girl. (Hossain et al., 1998)

### Subject and Methods:

This study was initiated in 2012 and terminated in 2015 to test the effect of timing of intercourse in relation to ovulation as a method to improve the chances of conceiving a girl or boy. Sex of the baby after birth was taken as the primary outcome measure for analysis. A total of 100 women were recruited in this. Patients signed an informed consent explain the nature of the study.

Patients were grouped in tow groups; Group 1: Women supplied by timing of intercourse close to ovulation. about 24 hours within ovulation (N= 50). Group 2: Women supplied by timing of intercourse away from ovulation (N= 50).

**Study Procedure:**

**1- Ovulation Prediction Tests:**

All participants were trained for self-examination and before becoming pregnant, they were asked to monitor from four to six menstrual cycles to be able to predict the moment of ovulation as accurately as possible. This was done by registering basal body temperature, consistency of cervical mucus, cervical position, oss diameter and cervix texture. Home-use ovulation prediction tests based on urinary LH surge (Clearblue; Unipath, Bedford, UK) were used to accurately gauge these observations (**Grenache and Gronowski, 2003**). Ovulation was assumed to take place one day after the start of the LH surge. Couples were advised to have regular intercourse, but to refrain from having intercourse in the period of ONE day of ovulation for whom interested in male baby and THREE days before ovulation for whom interested in female baby. (**Shettles, 1970**).

**2- Pregnancy Follow Up:**

Pregnancy was detected chemically, and then recognized clinically using ultrasound, aborted cases were recorded, while continued followed up in interval of 1 month visit until delivery.

**3- Data Analysis:**

Data was tabulated and calculated, Chi-squared test was adopted according to (**Sokal and Rohlf, 1994**). Then all calculations were reviewed using SPSS software ver15.

**Results:**

In this study the affect of timing of intercourse in relation to ovulation on sex selection was used and assessed. and contains 100 participants, 50 participants were interested in a male baby at the end of study, the result was 34 male offspring and 16 female offspring with the success rate about 68%. While, the other 50 participants where the time of intercourse away from the time of ovulation on 50 patient the result was 18 male offspring and 32 female offspring with the success rate about 64%.

**Table (1): Mean and S.D of age according to the outcome of patients in the study groups.**

	Age	Sexual intercourse close to time of ovulation	Sexual intercourse away from time of ovulation	p. value
Abortion	A	0	0	N.A
	B	0	0	N.A
	C	0	0	N.A
	Total	0	0	N.A
Male	A	14	6	0.03*
	B	20	12	0.05*
	C	0	0	N.A
	Total	34	18	0.01*
Female	A	8	18	0.02*
	B	0	10	0.01*
	C	8	4	0.03*
	Total	16	32	0.01*

{A=age from 20-25, B= age from 25-30, C= age from 30-35}

**Table (2): % of outcome patients in the study groups (close to and away from intercourse).**

Group		Outcome		Total	P.value
		Female	Male		
Close To	Count	16	34	50	0.001**
	%	32%	68%	100.0%	
Away From	Count	32	18	50	
	%	64%	36%	100.0%	
Total	Count	48	52	100	
	%	48.0%	52.0%	100.0%	

#### 4. Discussion

This study investigated the efficacy of the affect of timing of intercourse in relation to ovulation on sex selection

One of the methods of sex selection is the PH environment of the vagina. It has been commonly theorized that different pHs would affect the viability and motility of the differing sperm populations directly impacting the sex of the offspring. Some claimed that more male offspring were conceived if the cervical fluids were alkaline and that female offspring were selected when cervical mucus is acidic. These claims supported by anecdotal recommendations which include the timing of coitus in relation to ovulation when the pH of the female reproductive tract shifts from acidic to alkaline to influence the sex of the offspring (**Muehleis & Long 1976**). As the timing of ovulation grows nearer, it is well known that the quality and quantity of the cervical mucus changes. Studies have shown that the viability, longevity, and motility of the X and Y chromosome carrying sperms are affected differently by these mucus changes. (**Scott 2003**). Intercourse that occurs at or near the time of ovulation will, more likely than not, result in male offspring, but if the intercourse that results in conception occurs two or three days before ovulation, when the secretions are more acidic, then the chances for female offspring would be enhanced (**Shetteles, 1970**). The other study at 1985 was made on the effect of time of intercourse in relation to time of ovulation on type of offspring of the baby and the result was there is no effect or change (**Mathews et al. 2008**) which in contradiction with our results. The mechanisms of The effect of timing may be explained by a small size difference between X- and Y-gametes (**Geraedts, 1997**).

This study concluded that; The use of the timing of intercourse in relation to ovulation are one of the many methods believed to influence whether a female or a male is conceived.

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