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SCIENTIFIC RHYTHM

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For more than fifty years, efforts have been made to determine the fertile time during the human menstrual cycle. Various methods and techniques have been used in an attempt to pinpoint this fertile time, both as an aid to the infertile couple, and for those trying to practice intelligent periodic continence.

In July, 1964, a clinical study was undertaken to evaluate and compare three of the most practical, patient conducted, tests to determine the fertile time. The tests used were Basal Body Temperature, cervical glucose test, and Spinnbarkeit. A new enzymatic oral test was also included for clinical evaluation in conjunction with the other tests. Since this oral test is still in the experimental stage, the details cannot be given at this time.

One hundred and eleven women cooperated in this study for varying numbers of cycles. This is a report on 536 menstrual cycles from these 111 women.

In groups of 10 or less, these women were given 1½ to 2 hours of precise instruction in performing these tests and the proper method of recording their results. (Note sample chart.) Questions were requested and answered. All materials, including Basal Body thermometers were provided.

In summary, the instructions were as follows:

- 1) Basal Body Temperature: Upon awakening and before arising take the oral or rectal temperature for a full five minutes by the clock and record. Note in the comments anything that may affect the temperature on any day in the cycle, such as infection, interrupted sleep, alcohol ingestion, etc.
- 2) Oral Test: In the morning, before brushing the teeth or eating, check the saliva with the material provided and record.
- 3) Cervical Glucose Test: Before retiring insert the Fertility Testor with the attached glucose sensitive tape into the posterior fornix.

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Record any color change from pink to light blue as one (1) and pink to dark blue as two (2).

- 4) Spinnbarkeit: After removing the plunger of the Testor from the barrel, touch the tip of the barrel to the cervical mucus on the tape, and slowly separate the two pieces. (See sketch 1) Note the distance of stretch and record as 1 for $\frac{1}{4}$ inch, 2 for $\frac{1}{2}$ inch, and 3 for $\frac{3}{4}$ inch or more.

The completed chart was returned on the first day of menses. Upon receipt, the chart was evaluated, and any comments, further instruction, and appropriate tapes for the next cycle were provided. In order to maintain close supervision, clinical personnel, well versed in the procedures and their interpretation, were available at all times to answer questions and solve any problems encountered by the participants.

For the cervical glucose test, all the women were given tape of the same sensitivity to start. When the chart of the first cycle was returned, they were given more of the same tape if their results had been good. If they had a weak or no color change in the tape, they were given a more sensitive tape that would detect a lower concentration of glucose for their next cycle. If false positive tape reactions were noted during the cycle, they were given less sensitive tape for the next cycle.

The oral test, because it is still in the experimental stage, had many variations in formula. This variation decreased the effectiveness.

All the women were asked to record the frequency and type of intercourse. Many were reluctant to record this, and it was not insisted upon. There were, however, 1700 marital acts during the 421 cycles that did record intercourse. *It was stressed in the instruction that if pregnancy was to be avoided, no intercourse should take place until four days after the fertile period as determined by any or all the tests.*

Most of the women in this study are highly fertile with 447 conceptions and 401 births in this group of 111. There were five primary or secondary sterility cases included. The husbands of these sterility patients had normal sperm counts and motility, and all the women had normal utero-salpingograms.

These statistics are given with absolute figures for each test in each cycle. Negative results represent uninterpretable readings because of absence of positive tests or an excess of false positive tests.

The general statistical breakdown of the four methods in 536 cycles were as follows:

	Positive Results	Negative Results	%
Temperature	386	150	71.9%
Spinnbarkeit	442	94	82.4%
Fertility Testor (cervical glucose)	348	188	65.0%
Oral Test	287	249	53.6%

Results broken down by cycle.

Cycle	Women	Temperature	Spinnbarkeit	Fertility Testor	Oral Test	Positive Results	Negative Results	%
Cycle 1.	111 Women	87	94	69	57	78	24	78.4%
		87	94	69	57	84	17	84.7%
		87	94	69	57	62	42	62.2%
		87	94	69	57	51	54	51.3%
Cycle 2.	102 Women	67	89	73	52	35	13	65.7%
		67	89	73	52	87	13	87.2%
		67	89	73	52	71	29	71.6%
		67	89	73	52	51	50	51.1%
Cycle 3.	81 Women	65	70	53	48	16	11	80.2%
		65	70	53	48	86	11	86.4%
		65	70	53	48	65	28	65.4%
		65	70	53	48	59	33	59.3%
Cycle 4.	66 Women	44	52	41	38	22	14	66.7%
		44	52	41	38	78	14	78.8%
		44	52	41	38	62	25	62.2%
		44	52	41	38	57	28	57.6%
Cycle 5.	52 Women	33	41	34	32	19	11	63.4%
		33	41	34	32	78	11	78.8%
		33	41	34	32	65	18	65.4%
		33	41	34	32	61	20	61.6%
Cycle 6.	43 Women	29	37	30	23	14	6	67.4%
		29	37	30	23	86	6	86.2%
		29	37	30	23	69	13	69.7%
		29	37	30	23	53	20	53.4%

Cycle	Women	Positive Results	Negative Results	%
Cycle 7.	39 Women			
	BBT	30	9	77.8%
	Spinn.	30	9	77.8%
	F. T.	21	18	53.8%
	Oral Test	19	20	48.7%
Cycle 8.	25 Women			
	BBT	18	7	72%
	Spinn.	18	7	72%
	F. T.	15	10	60%
	Oral Test	11	14	44%
Cycle 9.	12 Women			
	BBT	9	3	75%
	Spinn.	8	4	66.7%
	F. T.	7	5	57.2%
	Oral Test	4	8	33.3%
Cycle 10.	5 Women			
	BBT	4	1	80%
	Spinn.	3	2	60%
	F. T.	5	0	100%
	Oral Test	3	2	60%

The importance of performing more than one test can be demonstrated with the following evidence.

BBT alone — indicated ovulation in 21 cycles.

Spinnbarkeit alone — indicated fertility in 24 cycles.

Fertility Testor alone — indicated fertility in 10 cycles.

Oral Test alone — indicated fertility in 6 cycles.

By combining all four tests there were 519 good results out of 536 cycles for an effective percentage of 96.8%.

Of 17 cycles that gave no results with any test, there were 4 sterility cycles that probably did not ovulate. There were 3 cycles that were the first postpartum cycle and ovulation probably had not resumed since the birth of the last baby. Three cycles were from women over 41 years of age who probably had an anovulatory cycle. One cycle was a nursing mother who probably did not ovulate. This leaves just 6 unexplainable cycles that gave no results with any tests of the 536 cycles studied. An adjusted percentage of effectiveness would then be 98.9%.

Many of the women in this study have said that when the program was first presented to them, that they thought it would be difficult, and time consuming. Time is a most precious commodity to these busy highly fertile women with large families. However, they found after a few days of testing it became a habit, and required a total time of only ten minutes a day.

Another interesting observation in this study were 27 cycles that showed apparent double ovulations, as indicated by double peaks of Spinnbarkeit and double peaks of vaginal glucose. Double dips in Basal Body Temperature were apparent in some of these cycles. In all these cycles the Basal Temperature shift occurred after second ovulation. Two of these women had fraternal twins.

There were 14 pregnancies that occurred during the study. Two pregnancies occurred in women who were trying to become pregnant. They both were secondary sterility problems with one previous pregnancy each. Both conceived in the fourth cycle studied, by having intercourse during the fertile time, as indicated by the tests.

Of the twelve undesired pregnancies two occurred during cycles of inadequate testing, so it is impossible to say when they ovulated. One became pregnant even though she used a diaphragm and, or spermicidal cream with each intercourse. Intercourse with contraceptives was performed during the fertile phase, as indicated by concurrent positive tests. This patient miscarried.

The other nine pregnancies can be broken down as follows:

Intercourse	Positive Spinn.	Positive Cervical Glucose	Oral	Temp. Shift
1) Day 6	Days 7, 8, 9,	Days 7, 8, 9	_____	Day 11
2) Day 17 & 18	_____	_____	_____	Day 18
3) Day 30 & 34	Day 30, 32 & 33, 34	_____	_____	Day 35
4) Day 19, 20, 21 & 23	Day 19 & 20	_____	_____	Day 23
5) Day 8	12, 13, 14, 15 & 16	15	15	Day 14
6) Day 18	12, 13, 15, 16 & 19, 20	19 & 20	_____	Day 18
7) Day 6	11, 12, 13, 14	11, 12, 13, 14	11, 12, 13, 14	Not interpretable
8) Day 37, 38 & 42	_____	_____	_____	Day 43
9) Day 22	20	23	24	Day 20

Please note that pregnancy always occurred with intercourse before or during the fertile phase. Also notice that pregnancy occurred with an isolated intercourse as early as day six (6), and as late as day thirty-seven (37) for the first intercourse during that cycle.

When Dr. Groden's article appeared in this publication stating that ovulation always occurred on day fourteen (14) of the cycle following Estrogen-progestin combination from day fifteen (15) to twenty-four (24) of the previous cycle, it was decided to try to duplicate this work on five patients. Five women with records showing late ovulation and prolonged cycles were chosen. None had shown evidence of a fertile phase by any of the four tests when they were started on the Estrogen-progestin combination on day fifteen (15). No evidence of ovulation occurred during that cycle at all, except the elevated temperature after the Estrogen-progestin combination was started.

During the following cycle all five women tested daily, but were told not to start the Estrogen-progestin combination till day 29 and take it till day 29. Three of the women showed clinical evidence of the maximum of their fertile time on day 17; one on day 18; and one on day 19. It becomes evident that if they had started the Estrogen-progestin combination on day 15 as recommended, ovulation would have been inhibited during that cycle.

It is my opinion that I, and all those who may benefit from this article owe a large debt of gratitude to these devoted women who performed these tests so diligently. With their loyalty and cooperation in this study is expanding monthly and will be reported.

The conclusions to be drawn from this study are that the fertile time can be determined in practically any woman, regardless of irregularity of menses; and pregnancy can be avoided by confining intercourse to the sterile postovulatory phase.

As a result of this study, I as a physician, cannot recommend anything less than all three tests, to the woman who wishes to avoid pregnancy by using natural methods.

