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# How Ogino Discovered Rhythm

by

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When Doctor Kyusaku Ogino (pronounced *Oh gee no*) of Niigata, Japan, began his prospective study in May 1919, women had little to go by to ascertain the fertile days of their cycles. Popular opinion, even medical text books, were practically advising that pregnancy can occur on any day of the cycle, right up to the next menstruation.

Contemporary studies in Germany, however, were excitedly proposing new theories about a fixed and limited time of fertility only once during the cycle. Unfortunately they disagreed. Ruge II concluded that ovulation occurs on days 7-14 of the cycle; Fraenkel, on days 14-16 (of regular 28 day cycles); Schroeder, on day 18.9 in average. So the spread was from the 7th to the 19th days and beyond, almost the entire cycle. Little of that helped couples who sought either to conceive or to avoid conception by natural ways.

Dr. Ogino decided to do research of his own at Niigata University Hospital, where he was on duty to perform gynecological operations. He sensed something amiss in the German studies; they counted days of the cycle from the previous menstruation to locate the day of ovulation and the fertile time. Maybe that was a mistake. A German missionary priest, Fr. Hubert Reinirkens, helped him with his German studies.

He selected 65 cases during his three year study of May, 1919 - November, 1922. He included only those women who claimed very regular or almost regular cycles. He did not mind whether the cycles were long or short, so long as they were quite regular. One of them had 45-day cycles, another 40 days; 27 had 30-day cycles, 11 had 28 days, 3 had 23 days, others were somewhere between. Dr. Ogino marked it all down.

The first thing he examined after incising the abdominal wall was the condition of the ovaries on both sides. Before disturbing them by traction, he inspected whether the one or the other ovary had a follicle which was not yet ovulated; and if so, what was its condition. If already ovulated, he observed the condition of the corpus luteum. He was aware that traction during the operation might alter the initial condition; ripening follicles might burst, and corpus luteums

(or if you will, *corpora lutea*) might become engorged with blood. Such changes, he knew, would falsify his data if he did not rely on an initial observation.

When he performed an indicated hysterectomy, he usually also excised the appendage on the side which contained the corpus luteum. Later he would give a histological examination under the microscope to both the corpus luteum and the endometrium of the uterus. By November 1922 he had recorded the data of 65 cases, and would now look for trends.

The corpus luteum, he ascertained, worked like a stop watch; its functioning took off at the ovulation signal and stopped automatically in 14-16 days if no pregnancy occurred. Menstruation would follow thereafter. He could give a systematic study to 24 corpus luteums in various stages of development. Very shortly after the ripened follicle had released its ovum (ovulation), the now erupted follicle changed into a corpus luteum. Its vascularization commenced immediately, and within four days, or at most four days and five hours after ovulation (his calculated observation), all the corpus luteums were fully developed. The data indicated that menstruation follows ovulation by 12-16 days in this sampling of 65 women. Well, almost. There were two exceptions.

And that is what Ogino published, very quietly, in a short paper in the *Hokuetsu Medical Journal* on February 20, 1923. Ovulation is related to the expected oncoming menstruation, he wrote, not to the previous menstruation as authorities have been theorizing. For the first time he mentioned 12-16 days before the next expected menstruation as the fixed time when ovulation occurs. Whether cycles were long or short, this fixed time of 12-16 days remains constant. That first brief article did not stir up a great deal of attention. He had not yet published his data. But the foundation of the "Ogino theory" is already in this paper.

One year later, in the February 1924 issue of the *Japan Gynecological Journal*, Vol. 19, No. 6, Dr. Ogino published his data and then drew his conclusions in clipped classical Japanese terminology. It is a long paper, with 92 pages of text, plus 5 pages with photographic reproductions. This time academia in Japan took notice. Within a year the Japan Gynecological Society awarded a prize to Dr. Ogino for this historic paper which was to end forever the dispute about the fertile time of a woman's cycle.

In his presentation, Dr. Ogino showed how he had first tested the data according to the conventional German system. This made no sense. When counting days beginning from the foregoing menstruation, ovulation appeared to occur at random. Next he did the opposite: he counted backwards from the expected menstruation. He lined up the 65 cases with the days of the "expected" next menstruations in an even column on the right side of the chart; then he counted the days backwards to locate for each case the condition of the follicle before ovulation, or of the corpus luteum after ovulation. Suddenly things fell into place snugly. There was not a single non-ovulated follicle in the 11 days before menstruation. What he found there was 31 corpus luteums, all post-ovulation.

On days 12-16 before the expected menstruation, some women had already ovulated, others not yet. There were 5 empty circles for those not yet ovulated

and 8 filled circles for those already ovulated. The data thus indicated that days 12-16 before the expected menstruation was the fixed period when ovulation occurred. It was a tremendous discovery.

Previous to 16 days before the expected menstruation, 19 empty circles indicated follicles not yet ovulated. That should have been 21, but two circles were filled in, already ovulated before their "expected" time. Ogino dealt with these exceptions as a doctor: "To my regret, as I could not examine the organization of the *corpora lutea* and the endometrium, I can't explain the exceptions based on a histological study. But I guess the next menstruation will come a few days earlier than the expected time in these two cases. I think the 2 exceptions in 65 cases can be admitted, considering the character of the expected menstruation" (page 55). He subsequently added 53 cases to his study, and they again fell into place to confirm his theory.

The basic work had now been finished to formulate the Ogino method for natural family planning:

- 1) Days 1-11 before menstruation are infertile. (The ovulated ovum degenerates within 24 hours if not yet fertilized).
- 2) Days 12-16 before menstruation are potentially fertile.
- 3) Days 17-19 before menstruation are potentially fertile, because sperm may survive for 3 days before ovulation.
- 4) Days 20 and earlier before menstruation are usually infertile, but potentially fertile in rare cases.

Conclusion: Women, therefore, can reckon as their fertile time the 19th to 12th days before their expected menstruation, a span of 8 days.

Thus the Ogino calendar method, also called rhythm, fell into place. Ogino published paper after paper in Japan where his reputation was now firmly established - 26 main papers by 1928. But the rest of the world knew nothing as yet about his revolutionary findings.

Then, in 1928, Ogino visited Germany, and published an article titled "Ogino, Ovulationstermin und Konzeptionstermin" in the journal *Zentralblatt fuer Gynaekologie*, No. 8, 1930. In it he gave a detailed account of his data and findings, and then critiqued the theories of Ruge II, Fraenkel, Schroeder, and others. Perhaps indelicately, he even included *their* data, and interpreted it with *his* theory. Among their 557 cases, voila! over 97% (542) fit neatly into his theory. And he surmised that if the data input had been more precise, the results might have been even better (p. 469).

The article was well written, was convincing, and in the long run displaced all the previous studies and their conclusions. Not long thereafter Professors Schroeder, Grosser, Fraenkel, and Knaus sent him letters of congratulations and thanks, which he gratefully kept as remembrances. By 1933 Dr. Knaus admitted that the Ogino theory had priority over his own (this from his son Hiroshi).

But of what use is this Ogino discovery, by means of which a woman can understand her finished cycle backwards, whereas she must live her next cycle forwards? Very much indeed. For example, the wisdom of Ogino, plus modern advances, are now capsulized for instant and convenient use by women in an

electronic device. A tenacious Japanese inventor succeeded several years ago in designing an integrated circuit which combines Ogino, temperature, and other cycle data, stores this into its six month memory, and automatically displays the fertile time of the current cycle on the liquid crystal display window. Its trade name is L Sophia. What remains for the women to do is take the morning temperature for 2-3 minutes. The fertile days of the current cycle then appear on the display window as the cycle progresses, and subsequently disappear when the fertile time is over. 50,000 women in Japan have purchased the device to date.

The newer methods of natural family planning, by means of which women rely on the temperature shift, the mucus signs, the condition of the cervix, or a combination of these and other indications, are far easier to follow and more exact than the Ogino calendar method. New electronic devices make it even easier, but are not absolutely necessary. All the natural methods of finding the fertile time of the cycle, however, have as their central point of departure the work of Dr. Kyusaku Ogino done at Niigata University Hospital in 1923. He was the first to provide the scientific data which shows that ovulation precedes menstruation by 12-16 days.

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