

Photo: Philip Wolmuth/Jordan



9

FERTILITY AWARENESS-BASED METHODS

1 Introduction

Fertility awareness-based methods are contraceptive methods based on an awareness of the start and end of the fertile time of a woman's menstrual cycle. The methods often include practising periodic abstinence – a method which provides a time barrier between spermatozoa and the ovum by avoiding sexual intercourse during the fertile phase of the menstrual cycle. Accordingly, this method depends upon the couple's ability *to identify* the fertile phase of each menstrual cycle, and their motivation and discipline *to practise abstinence* when required.

A significant proportion of couples find it difficult to predict or to identify accurately the onset and end of the fertile phase. They may also take chances when practising periodic abstinence, and break the rules. Accordingly, to be effective as a means of contraception, fertility awareness-based methods require:

- Appropriate counselling;
- Adequate teaching of the technique; *and*
- Supportive follow-up.

The results of some studies show very high failure rates, which fluctuate from 10 to 30 pregnancies per 100 users annually. Clients who find it difficult to use this method may wish to consider the use of another method.

The techniques used to identify the fertile phase of the menstrual cycle, and then to abstain from sexual intercourse, include:

- The basal body temperature (BBT) method.
- The cervical mucus or ovulation (Billings) method.
- The calendar or rhythm (Ogino-Klaus) method.
- The sympto-thermal method.
- The standard days method (SDM).

Fertility awareness-based methods can be used in combination with other contraceptive methods, whereby a couple use barrier methods only during the fertile phase of the cycle. Methods of ovulation prediction are valuable

in the management of infertility as well, in that couples who wish to achieve pregnancy can improve their chances of conception if they can recognize the fertile phase of the cycle.

Fertility awareness-based methods have the following advantages (summarised in Box 9.1):

- There are no physical side-effects.
- Couples have the opportunity to learn more about their sexual physiology and to gain a better understanding of their reproductive functions.
- The responsibility for family planning is shared by both partners, which may lead to increased communication and co-operation between them.
- After initial training and follow-up, many users are able to practise the method without additional assistance and at almost no cost.
- Thus, after initial training and follow-up, trained staff are not needed for service delivery.

Fertility awareness-based methods have the following disadvantages (summarised in Box 9.1):

- The method is highly dependent on the commitment and co-operation of both partners, which may be difficult to achieve.
- Use-effectiveness is lower than that of most other methods of contraception.
- A relatively long initial training is needed, which often requires a considerable amount of staff time. Thus some women may become pregnant while learning the technique.
- Daily monitoring and recording of signs of fertility may be bothersome to some women.
- Long periods of sexual abstinence may cause relationship difficulties and psychological stress.
- Women who have irregular cycles find the method difficult to use.
- Signs and symptoms used to predict fertility are highly variable during breast-feeding.

Box 9.1—Advantages and disadvantages of fertility awareness-based methods

<i>Advantages</i>	<i>Disadvantages</i>
No side-effects.	Needs co-operation and commitment.
Better understanding of sexual cycle. Shared responsibility.	Low effectiveness. Can fail during longish training period.
Once trained, no assistance needed.	Daily monitoring/recording can be a bother.
Once trained, negligible cost. Once trained, no health personnel needed.	Difficult if cycles are irregular. Unpredictable if breast-feeding.

1.1 General indications

Fertility awareness-based methods provide an alternative for couples who do not wish to use another, more effective method of contraception because of:

- Fear of side-effects.
- Religious or other cultural constraints.
- Difficult access to other methods.

1.2 Indications

None.

1.3 Conditions that require careful consideration

Some circumstances require particular consideration when advising a client on the possible use of fertility awareness-based methods as a means of contraception. These conditions include:

- A particular need for highly effective protection against pregnancy (e.g., it would represent a severe risk to maternal health).
- Inability to comply with sexual abstinence as required by the method.

1.4 Special situations

Some groups of clients present particular challenges to effective use of fertility awareness-based methods as a means of contraception.

Adolescents

Adolescent girls and women experience frequent anovulatory cycles, which can make learning and practising the techniques difficult. Moreover, young clients may find it particularly difficult to comply with abstinence when required.

Pre-menopausal women

Ovulation becomes erratic during the last few years of reproductive life. Anovular and irregular cycles may make it difficult for clients to assess signs and symptoms of fertility. However, such clients are more likely to be experienced with practising periodic abstinence, and so may find it easier to cope with these difficulties and to comply with longer periods of abstinence.

Post-partum women

After childbirth, the time when ovulation returns depends on whether or not the woman is breast-feeding. When ovulation resumes, the signs of fertility can be difficult to interpret and may lead to the need for prolonged abstinence. Any difficulty with sexual intercourse during the later stages of pregnancy might make such a period of abstinence seem longer.

1.5 Counselling and information

Use of fertility awareness-based methods for contraception is a responsibility that both partners must share. Proper counselling must be provided, ideally to both partners, when they are choosing the method, learning the technique and practising it. The counsellor should try to assess the likelihood that both partners will co-operate, especially if the male partner is not present during the counselling session. Discuss with the clients:

- The advantages and disadvantages of this technique, compared with other methods of contraception.
- The different ways to maximize the effectiveness of periodic abstinence, and the need to maintain a daily record of fertility signs.
- The need to complete the initial training, and to have regular follow-ups until confident of detecting signs of fertility.

- The need for strong commitment and strict adherence to such periods of sexual abstinence as required to maximize the effectiveness of this technique.
- The high failure rate of this method of contraception, especially when learning the technique, if other contraceptive precautions are not taken.
- The need to come back for consultation if there is any doubt in interpreting the signs and symptoms of fertility, or if the client misses a period.

1.6 Who can provide instructions about the method?

Health professionals, lay persons or experienced couples can teach the method, provided they have received adequate training.

1.7 Health assessment

Health assessment is not required before the use of fertility awareness-based methods. However, a woman's visit to a sexual and reproductive health (SRH)/family planning clinic to decide upon a method of contraception provides an opportunity for routine health screening.

1.8 Teaching the method

The success of fertility awareness-based methods depends upon the quality of the teaching provided to the clients, and upon their determination to make it work. The initial training should last until both partners are confident in their use of the method —a process that may take some 3 months, or longer. During this time, the clients should be seen by a service provider at least every month, and whenever they feel that they might have a problem.

Instructions should include:

- Elementary facts about reproductive physiology, with emphasis on the changes that occur during the menstrual cycle, and their timing and relationship to one another, so as to enable clients to identify the fertile phase.
- Instructions about how to use the technique selected to identify the fertile phase.
- Discussion of the timing of sexual intercourse.

1.9 Follow-up care

Once clients have learned the technique, there is no standard schedule for follow-up. However, clients should be encouraged to return whenever there is a problem, and to keep appointments for regular health examinations.

2 The basal body temperature (BBT) method

2.1 Definition

The basal body temperature (BBT) method is founded on the increase in body temperature that occurs shortly after ovulation, associated with the secretion of progesterone by the corpus luteum.

After ovulation, the body temperature rises 0.2-0.4°C (0.4-0.8°F), and remains high until the next menstruation. The couple are advised to refrain from sexual intercourse from the start of menstruation until the night of the third consecutive day of raised temperature following the onset of this rise in temperature (representing ovulation). This cannot be less than 9 days after the period has ended.

2.2 Indications

Couples who have decided to use periodic abstinence may find the BBT method appropriate if:

- The woman is reluctant to touch her genitals, as is required for the cervical mucus method.
- The couple is willing to abstain from sexual intercourse for the required time.
- The woman has irregular menstrual cycles, preventing meaningful use of the calendar method.

2.3 Counselling and information

In addition to matters outlined in section 1.5, the clients must be advised that long periods of abstinence will be required because sexual intercourse is restricted to the post-ovulatory phase of the menstrual cycle.

2.4 Instructions to clients

Taking the temperature

Advise clients to use an ovulation thermometer; this has an expanded narrow scale ranging from 35-39°C (96-100°F), so that the temperature is easier to read. If an ovulation thermometer is not available, a clinical thermometer (which has a scale with a wider range) may be used.

Instruct the clients to:

- Keep the thermometer near the bed within hand's reach.
- Shake the thermometer to lower the mercury below 35°C (96°F) at night before going to bed. Avoid touching the bulb end. Before the woman's temperature is taken in the morning, check the thermometer again to make sure that it reads below 35°C (96°F). If necessary, shake the thermometer again; preferably this should be done by the male partner or someone else because this action may raise the shaker's temperature and produce a false reading.
- Take the temperature immediately after waking up, before getting out of bed or doing anything such as having a hot or cold drink. If the woman is working on a night shift, take the temperature during the day or in the evening after at least 3 hours of rest.
- Take the temperature at the same time each day during a particular menstrual cycle, as far as possible.
- Take the temperature by the oral, rectal or vaginal route. Rectal and vaginal routes are more reliable, but the oral route is adequate if used correctly.
 - *Oral route:* Place the bulb of the thermometer under the tongue, with lips closed for 5 minutes before reading.
 - *Rectal route:* Use a rectal thermometer. Smear a little KY or petroleum jelly on the bulb and gently insert the thermometer into the rectum for about 2.5 cm while lying down on one side with the knees drawn up. Keep the thermometer inside the rectum for 3 minutes before reading.
 - *Vaginal route:* Insert the thermometer gently into the vagina for about 4.5 cm and leave it for 3 minutes before reading.
- Always use the same route and the same thermometer throughout a menstrual cycle. Always keep a spare thermometer. If a thermometer breaks, use another one but make a note on the chart.
- After removing the thermometer, take the reading and record it on the chart. If the mercury stops between two marks of the thermometer

(e.g., between 36.6°C and 36.7°C) record the lower temperature (i.e., 36.6°C).

- Rinse the thermometer clean, using cool water, and return it to its usual storage place. **Never use hot water to clean the thermometer.**

Recording the temperature on the chart

Provide the clients with a special temperature chart (see Figures 9.1, 9.2 and 9.3). The calendar date is written at top of the chart. The days of the menstrual cycle are marked on the horizontal axis at the bottom of the chart. The temperature is printed on the vertical axis at the left of the chart. The chart should have 5 mm squares as a minimum. The first day of menstruation is day 1 of the menstrual cycle. Instruct the clients to:

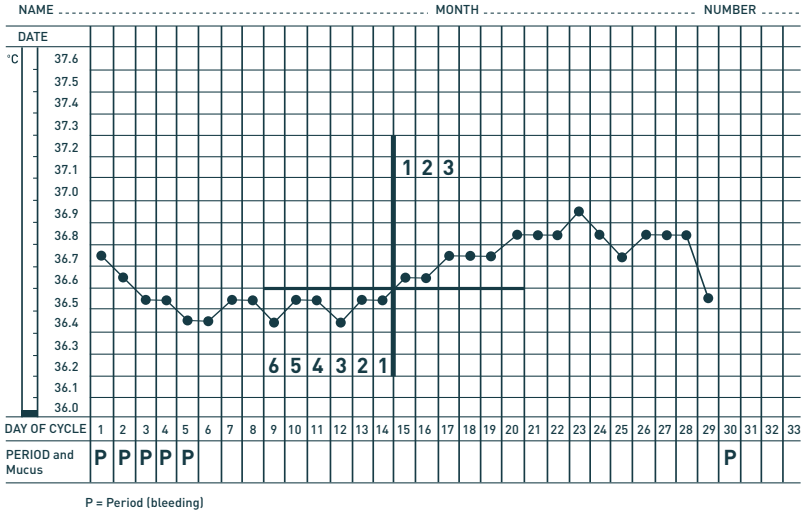
- Place a dot in the centre of the relevant square that corresponds to the temperature and the day of the menstrual cycle.
- Join up the dots progressively with a continuous line from the first to the last day of the cycle.
- Start a new chart on the first day of every menstrual cycle.
- Make a note of anything which may affect the BBT against the day of the menstrual cycle on which it occurs. (See below for factors which may affect the BBT.)

Interpreting the chart

An ovulatory cycle is generally characterized by a biphasic temperature chart. The temperature remains at a lower level before the time of ovulation. It rises shortly after ovulation, with a shift of about 0.2-0.4°C (0.4-0.8°F) or more, and remains higher until just before (or at the onset of) the next menstrual cycle.

Great care is required when interpreting the charts. Temperature levels can vary from cycle to cycle in the same woman. Furthermore, the BBT may rise in different ways: acutely, slowly, in a stepwise pattern, preceded by a sharp drop or, less frequently, in a sawtooth pattern. Figures 9.1, 9.2 and 9.3 show examples of these different types.

Figure 9.3 Chart showing a stepwise rise in basal body temperature related to ovulation demonstrated by the “3 over 6” rule.



To identify the beginning of the infertile phase of the cycle, give the client the following instructions:

- Ignore the temperatures of the first 4 days of the cycle, and any later temperatures which are obviously raised by an incidental disturbance.
- The infertile phase starts when 3 consecutive temperatures which are higher than the previous 6 consecutive ones have been recorded: this is called the “3 over 6” rule.

Timing of sexual intercourse

From day 1 of the menstrual cycle, sexual intercourse can resume no earlier than the night of the third day of consecutive daily temperatures which are above the level of the previous 6 (“3 over 6”). It is then safe to have intercourse until the start of the next menstrual period.

Factors affecting basal body temperature

The following circumstances may raise, or appear to raise, body temperature:

- Temperature taken at a different time from the usual one.
- Temperature taken when basal conditions (immediately on waking or after at least 3 hours of rest, without taking a hot drink) are not met.
- Illness.
- A disturbed night's sleep.
- A change in environmental temperature.
- Emotional stress.
- Intake of alcohol.

The BBT method is not widely used on its own. More commonly, it is used as part of the sympto-thermal method.

3 The cervical mucus (Billings') method

3.1 Definition

The cervical mucus method is based on recognizing and interpreting cyclic changes in cervical mucus that occur in response to changing oestrogen levels.

During a menstrual cycle a woman may experience different sensations at the opening of the vagina, and changes in the characteristics of the cervical mucus. Couples who practise this technique can have sexual intercourse on some days during both pre-ovulatory and post-ovulatory phases of the menstrual cycle, because the infertile phase in both parts of the cycle can be identified by monitoring the cervical mucus pattern.

Pre-ovulatory phase

- The menstrual period is followed by dry days. The cervical mucus is thick and sticky and forms a plug blocking the cervical canal, and there is a sensation of dryness in the vagina. There is no visible mucus at this stage.
- As the levels of circulating oestrogen increase, mucus appears in the vagina. At first it is scanty, and the woman has a sensation of moistness

or stickiness at the vulva. The mucus appears thick, sticky, cloudy or opaque, and is not elastic.

- As oestrogen levels continue to rise with approaching ovulation, the mucus becomes more profuse and feels slippery and lubricative, giving rise to a sensation of wetness at the vulva. It appears thin, white and transparent, and is extremely elastic. It may be similar to raw egg white. This type of mucus indicates fertility.
- The last day of this watery mucus is called the peak mucus day.

Post-ovulatory phase

- The slippery sensation is lost and there is a relatively abrupt return to stickiness, followed by dryness at the vulva.

3.2 Indications

The cervical mucus method may be appropriate for couples who have decided to use a fertility awareness-based method, but find it difficult to abstain from sexual intercourse for the long periods of time required by the BBT method. The woman must be willing to touch her genitals to assess the state of her cervical mucus.

3.3 Conditions that require careful consideration

In addition to those outlined in section 1.3, certain conditions must be taken into account when considering use of this method:

- The presence of any vaginal or cervical infection, which may affect the ability to recognize the mucus pattern.
- Breast-feeding, which can decrease and change the quantity and quality of the mucus.

3.4 Counselling and information

As well as the issues noted in section 1.5, clients should be informed about:

- The need for the woman to touch her genitals to identify changes in the mucus. Some women may be able adequately to assess the characteristics of the mucus by relying on sensation without having to touch the genitals; this is an ability which may be developed with experience.

- The need for abstinence during the entire first month of learning the technique, so as to avoid confusion of cervical mucus with seminal fluid or vaginal secretions following sexual stimulation.

3.5 Instructions to clients

Checking and recording the cervical mucus pattern

Provide the client with a chart to record the cervical mucus pattern. It may be convenient to use a chart on which both the BBT and the mucus pattern can be recorded in a simple way (see Figure 9.4). Instruct the client to:

- Record the sensation of either dryness, moistness or wetness felt at the opening of the vagina. Observe the mucus pattern at convenient times (e.g., when going to the toilet) *at least* twice a day, with the first check in the morning and the last check in the evening.
- Check for the presence of mucus by wiping the vagina with a paper tissue or by using a finger.
- Collect mucus, when present, on a paper tissue or on the fingertip.
- Note its colour as white, cloudy or clear, and its physical characteristics as thin and lubricative, or thick and viscid.
- Check for elasticity by opening the paper tissue or the fingers on which mucus has been collected. If the threads of mucus stretch easily between the leaves of the paper tissue or the fingers without breaking, it is highly elastic (see Figure 9.5).
- Record the daily changes in the mucus and the sensations felt in the vagina on the chart every night. This may be done by coded letters such as D for dry and M for mucus. Symbols, coloured pencils or coloured stamps may also be used. In addition, a word or two to describe the mucus (such as thick, sticky, clear, thin, slippery, etc.) should be written.
- Mark the last day of slippery mucus, which is the peak mucus day, by a cross, and the following three days as days 1, 2, and 3. The peak mucus day can only be recognized retrospectively, when the mucus is no longer slippery and elastic in comparison with the mucus of the previous day.
- If slippery mucus reappears after a peak mucus day has been recorded, disregard the earlier peak mucus recording on the chart. Record instead the second peak, which will be the correct peak mucus day.

Timing of sexual intercourse

Sexual intercourse is permitted:

- Immediately following menstruation until the first sign of cervical mucus.
- On the evening of the fourth day after the peak mucus day and until menstruation starts.

Recommend that the client restrict sexual intercourse to alternate days during the pre-mucus infertile phase (before cervical mucus appears), because seminal fluid and increased vaginal secretions due to sexual stimulation make it difficult to interpret cervical mucus status.

Sexual intercourse should be avoided:

- From the first day that cervical mucus is observed after menstruation until the end of the fourth day after the peak mucus day.
- At any time if the client has any doubt about the mucus pattern.

Factors affecting the cervical mucus pattern

- Vaginal or cervical infection.
- Vaginal secretions due to sexual stimulation.
- Drugs used for colds or sinusitis, which may also dry the cervical mucus.
- Physical or emotional stress.
- Breast-feeding.

3.6 The modified mucus method

Some programmes use a modified mucus method (MMM). The rules of this modified method are less restrictive than the original mucus method and differ in respect of the following points:

- The MMM allows sexual intercourse on appropriate days during the first month of use, whereas the original method does not.
- In women who have regular menstrual cycles, the MMM allows sexual intercourse on pre-mucus days when thick mucus is present, contrary to the original method.

- With the MMM, sexual intercourse is permitted on the third day after the peak mucus day, in contrast to the fourth day in the original method.

4 The calendar or rhythm (Ogino-Knaus) method

4.1 Definition

The calendar or rhythm method is reportedly the most widely used of all fertility awareness-based methods. It involves numerical calculations based on previous menstrual cycles to estimate the fertile period. It has a high failure rate because it relies on past information to predict the length of future cycles, a prediction which has limited accuracy.

4.2 Indications

Women who have reasonably regular cycles may find it more convenient to use this method than other fertility awareness-based methods since it does not require daily monitoring of fertility signs.

4.3 Conditions that require careful consideration

In addition to those noted in section 1.3, the following circumstances require particular attention if considering use of this method:

- Irregular cycles.
- Breast-feeding.

4.4 Counselling and information

In addition to the issues noted in section 1.5, inform clients that, in order to predict the length of future cycles, they will need a record of at least 6 consecutive cycles. While this information is being gathered, they can use non-hormonal methods of contraception (hormonal methods would alter the woman's cycles).

4.5 Instructions to clients

The client should be instructed to:

- Record the number of days in 6 consecutive menstrual cycles, recording the first day of menstruation as the first day of each cycle.

- Calculate the *first* fertile day by subtracting 18 from the *shortest* cycle, i.e.:

$$\text{First fertile day} = \text{shortest cycle} - 18.$$

- Calculate the *last* fertile day by subtracting 11 from the longest cycle, i.e.:

$$\text{Last fertile day} = \text{longest cycle} - 11.$$

- Sexual intercourse should not take place during the fertile phase. For example, if the last six cycles were 28, 26, 29, 27, 29 and 27 days long:

$$\text{The first day of the fertile phase} = 26 - 18 = 8;$$

$$\text{The last day of the fertile phase} = 29 - 11 = 18.$$

- Accordingly, **avoid sexual intercourse from days 8 to 18 of the menstrual cycle (both days inclusive).**

5. The sympto-thermal method

5.1 Definition

The sympto-thermal method (STM) combines various periodic abstinence techniques, especially cervical mucus changes, the calendar method and BBT. The use of multiple techniques is more accurate than a single method for identification of the fertile phase of the menstrual cycle, so that the days of required abstinence can be kept to a minimum.

5.2 Indications

This method may be appropriate for clients who have decided to practise periodic abstinence as their method of contraception and would like to achieve the highest degree of protection offered in conjunction with shorter periods of abstinence.

5.3 Counselling and information

In addition to the issues outlined in section 1.5, inform the clients that they may need longer training than when a single technique is being learned.

5.4 Instructions to clients

Instructions on the individual techniques are given in sections 2.4, 3.5 and 4.5. When used in combination, give the following instructions in relation to the time of sexual intercourse:

- *Identify the onset of the fertile period*, when sexual intercourse should stop, by means of the cervical mucus method and/or calendar calculations. When using the cervical mucus method, sexual intercourse should take place on alternate days (see the discussion of the timing of sexual intercourse in section 3.5), and the onset of the fertile period is determined by the first appearance of mucus, when sexual intercourse should stop. Women who have difficulty in identifying the first mucus may find it convenient to use the calendar method, which allows couples to have intercourse every day before the established onset of the fertile period. Here, that day is calculated by subtracting 18 from the number of days in the shortest of the last 6 previous menstrual cycles. For example, if the shortest cycle was 27 days long, abstinence should be observed from day 9 ($27 - 18 = 9$) of the menstrual cycle. If mucus appears before day 9 of the cycle, sexual intercourse should cease then.
- *Estimate the end of the fertile period*, when it is safe to resume sexual intercourse, by use of the BBT and/or cervical mucus methods. Sexual intercourse can take place as soon as 3 consecutive daily temperatures have been higher than the previous 6. When using the cervical mucus method, sexual intercourse can be resumed on the fourth day after the peak mucus day. When both techniques are used, sexual intercourse can be resumed when both techniques have indicated that it is safe.

6 The standard days method (SDM)

6.1 Definition

The SDM is based on the fact that a woman can become pregnant only during certain days in each menstrual cycle (the egg is fertilizable for approximately 1 day after ovulation, and sperm lose their fertilizing capability some 4-5 days after ejaculation). A woman who has a regular menstrual cycle of between 26 and 32 days in length will usually ovulate between day 13 and day 17 of her cycle. Avoidance of unprotected intercourse from day 8 through day 19 (both days inclusive) of her menstrual cycle should therefore allow enough time for the gametes to lose their capacity to fertilize or to be fertilized.

Because the standard formula to define the fertile period is already theoretically established, users of the SDM do not need to keep records of cycle lengths or to do any calculations.

6.2 Indications

Couples who have decided to use periodic abstinence for contraceptive purposes may find the SDM appropriate if:

- The couple is unwilling or unable to make or to record the observations needed to be able to implement the other techniques (e.g., the woman is reluctant to touch her genitals, as is required for the cervical mucus method).
- The couple is willing to abstain from sexual intercourse, or to use another method of contraception (e.g., condoms), for 12 days in the middle of the menstrual cycle.

6.3 Instructions to clients

The woman is given a set of beads as a necklace ('CycleBeads'). Each bead represents a day of the menstrual cycle and she can keep track of where she is in the cycle by moving a tight-fitting black rubber ring along the beads. The beads have different colours: the red bead marks the day the menstrual period begins. The brown beads mark the days when the woman is unlikely to be fertile and the white beads mark the days when the woman is likely to be fertile (see Figure 9.6). Instruct the client to:

- Put the black ring on the red bead on the first day of her menstrual period.
- Move the black ring forward, one bead each day.
- Abstain from sexual intercourse or use another method of contraception (e.g., condoms) when the black ring is on any of the white beads.

Figure 9.6 CycleBeads



CycleBeads can also help to monitor cycle length. If the woman starts her period before she moves the ring to the dark brown bead, her cycle is less than 26 days. If she moves the ring to that last bead before the red one, and her period does not start by the next day, her cycle is longer than 32 days. If either of these occur more than once in twelve months, she should consider another method because the SDM will not be as effective for her as for women with cycles within the 26-32 day range.

