

Fertility and the Menstrual Cycle

Continued Medical Education Activity



1

Welcome!

- ▶ Introductions
- ▶ Housekeeping
- ▶ Purpose:

This workshop will provide information relating to the menstrual cycle, fertility and fertility charting.

This will enable the health professional to assist their patients who are either trying to conceive, wanting to avoid conception, or gain insight into when to assess their patients gynaecological and fertility health, via tests and other investigations.



2

Overview

- ▶ About Natural Fertility NZ and NFNZ educators
- Quiz
- ▶ Introduction to fertility awareness
- ▶ Anatomy & physiology review
- ▶ The fertile window & cycle variation
- ▶ Sympto-Thermal method
- Refreshment Break
- ▶ Signs of Fertility
- ▶ Example charts and case studies
- ▶ Benefits for practitioner and patients
- ▶ Subfertility & Infertility
- ▶ Equality, Diversity and Cultural Sensitivity
- Review Quiz
- ▶ Questions
- ▶ Working with an educator
- ▶ Feedback



3

Natural Fertility NZ

- ▶ Who has heard of Natural Fertility NZ?

The organisation was founded in 1974 in the wake of worldwide advances in physiological and scientific knowledge about fertility and the menstrual cycle.

Rebranded in 2002 to better reflect the services we provide.

Registered Charity with the Charities Commission.

Our focus:

'To provide information and teaching about natural family planning and fertility awareness to individuals, couples and groups'



4

Natural Fertility NZ

- ▶ How does NFNZ increase fertility awareness among NZ women and couples?
 - ▶ By training and accrediting educators to teach:
 - ▶ Sympto-thermal Method for avoiding conception, conception and cycle awareness
 - ▶ Lactational Amenorrhea Method
 - ▶ Fertility while breastfeeding
 - ▶ Pubertal change and Sex education in schools
 - ▶ Fertility awareness in community groups
 - ▶ Continuing Medical Education to GP's, Nurses, and Midwives.
 - ▶ Overseen by a Medical Advisory Board




5

NFNZ Educators

- ▶ Educators have a health or education background
- ▶ Required to do ongoing education, and are regularly professionally reviewed
- ▶ Available nationwide
- ▶ Can see women and couples either in person or online
- ▶ Referrals are simple, direct your patient to the 'Educator Directory' on the Natural Fertility NZ website www.naturalfertility.co.nz
- ▶ Flyers are available for your practice

Educator Directory

Natural Fertility NZ have educators throughout New Zealand who are qualified to help you learn more about fertility. If there is not an educator near you, find an educator who also provides their services via Skype consult in the location menu below.

Filter by: Service Location





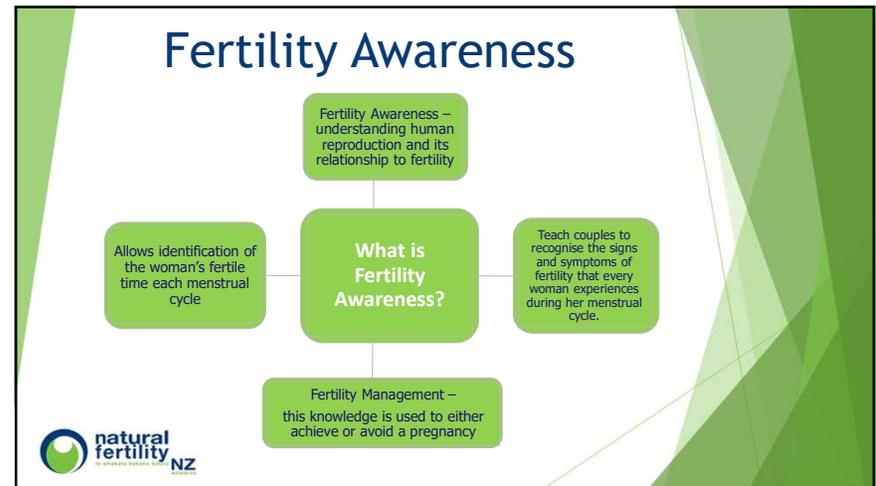
6

What is your current understanding?

Quiz



7



8

Anatomy & Physiology

Pre-ovulatory Phase

- ▶ Day 1 of cycle
- ▶ Hormones
- ▶ Cervical Mucus
- ▶ Endometrium Lining

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9

Anatomy & Physiology

Ovulation to end of cycle

- ▶ Hormones
- ▶ Cervical Mucus
- ▶ Endometrium Lining
- ▶ Luteal Phase

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10

Anatomy & Physiology

The menstrual and ovarian cycle

- ▶ Can be tracked via observing fertile signs

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11

The Fertile Window

Study published in the British Medical Journal in 2000 demonstrated 4:

- ▶ The timing of the fertile window is **highly variable**, even among women who regard their menstrual cycle as regular.
- ▶ More than 70% of women are in their fertile window before day 10 or after day 17 of their cycle
- ▶ Amongst the study group, ovulation occurred as early as Day 8, and as late as Day 60 of the menstrual cycle.

What does this mean for patients trying to conceive?

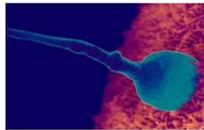
- ▶ The assumption that ovulation occurs between days 10-17 is not correct for all women
- ▶ The fertile window differs for each woman
- ▶ Understanding fertile signs, can enable her to identify her own fertile window, thereby shortening the time to conception.

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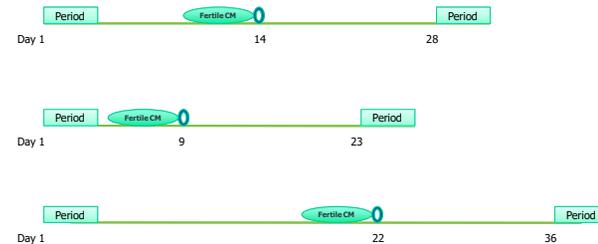
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The Fertile Window

- ▶ Spermatozoa survival is a maximum of 7 days¹
- ▶ Ovum survival is a maximum of 24 hours
- ▶ The 'fertile window' is a maximum of 6 days, ending on the day of ovulation¹⁻³
- ▶ The timing of the fertile window depends on the woman's cycle length and luteal phase length
- ▶ The prototype 28 day cycle is irrelevant for many women, with 'normal' menstrual cycles ranging from 21 to 35 days in length
- ▶ The prototype 14 day luteal length is irrelevant for many women as only a small percentage ovulate exactly 14 days before the onset of menses^{10,16}



Normal Cycle Variation



The Sympto-Thermal Method

The Sympto-Thermal method of contraception is **NOT** the Rhythm, Calendar or Billings method.

The STM is supported by international research and proven to be at least 99% effective by the WHO if it is taught by a qualified Fertility Educator and practised consistently and correctly.

The latest research from Germany shows an improved efficacy of 99.4% (Petra Frank-Hermann 2007).

The Sympto-Thermal Method

Fertility Awareness is based on the observation and charting of scientifically proven fertility signs (symptoms) or indicators that **determine whether or not a woman is fertile on any given day.**

The method that we use to track these changes is called the Sympto-Thermal method, which can be used as:

- ▶ A Contraceptive Method
- ▶ To time intercourse to maximise chances of conceiving
- ▶ Powerful tool for any woman to understand and appreciate her body, and to assess gynaecological health.

Benefits for those trying to conceive

- ▶ An understanding of their menstrual cycle
- ▶ Fertility Awareness: able to recognise the signs and symptoms of fertility and what they mean
- ▶ The ability to determine, every cycle, the few days it is possible for her to conceive
- ▶ Enables intercourse to be timed appropriately to maximise the chances of conception
- ▶ Recognition of peak fertility day enhances chances of pregnancy in couples



17

Refreshment Break

10 mins



18

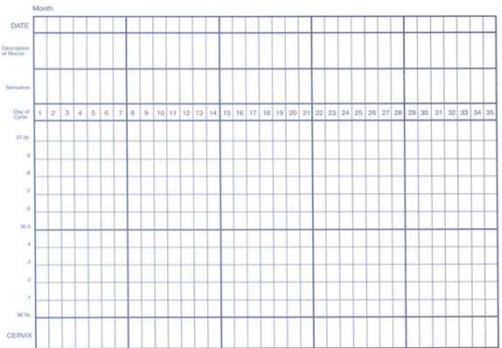
Signs of Fertility

- ▶ Signs of Fertility:
 - ▶ Cervical mucus changes
 - ▶ Temperature rise
 - ▶ Changes to the cervix
- ▶ Recorded on a paper chart
- ▶ A note on Apps & Devices




19

Sympto-thermal Chart




20

Recognising Signs of Fertility

What are these changes to cervical mucus, and what do they mean?



Cervical Mucus

- ▶ Recognised since the 1860's as an important indicator of fertility
- ▶ Produced by mucosal cells which line the crypts of the cervical canal
- ▶ Can be easily observed and felt at the vulva
 - ▶ We ask our clients to wipe or dab the vaginal opening with toilet paper before urinating. Some clients choose to check with their fingers.
 - ▶ They then take note of any cervical mucus that is seen (ie: colour, texture and amount)
- ▶ The changes to cervical mucus across the menstrual cycle can be observed, and provide a very accurate indicator of a woman's fertile time.

Cervical Mucus - infertile

- ▶ For most of the menstrual cycle, when oestrogen levels are low, the cervix produces a thick, highly viscous mucus.
 - ▶ Made from a complex network of cross-linked glycoproteins
 - ▶ Provides a very effective barrier to spermatozoa, as they are not able to move through this type of mucus, and are prevented from reaching the uterine cavity
 - ▶ Sperm will only survive in this type of mucus for a couple of hours
- ▶ This mucus is infertile, and a woman observing this type of mucus will find that it is typically opaque, sticky or tacky, and minimal in volume.

Cervical Mucus - fertile

- ▶ In the pre-ovulatory phase of the menstrual cycle, the developing follicle secretes ever increasing amounts of oestradiol.
 - ▶ Under the influence of oestradiol, the mucus made by the cervical glands becomes watery and copious
 - ▶ Highly receptive to spermatozoa
 - ▶ The microstructure of the mucus changes, and is now orientate along the direction of the cervical canal, channelling the spermatozoa through the cervix towards the uterine cavity
- ▶ A woman observing this fertile, oestrogenic mucus will notice that it can be clear, watery, slippery, stretchy and of increased volume.
- ▶ This mucus is only present a few days preceding ovulation.



Fertile Cervical Mucus - Function

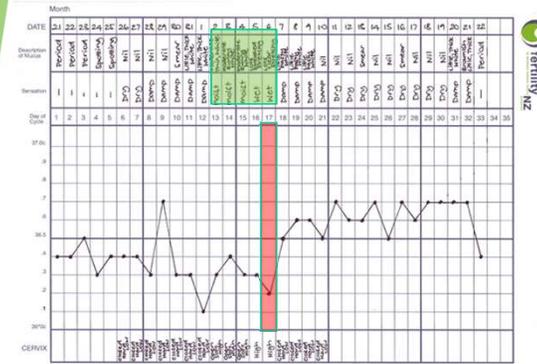


- ▶ Rescues spermatozoa from the hostile vaginal environment
- ▶ Filters out morphologically abnormal spermatozoa
- ▶ Storage reservoir
- ▶ Nurture and support spermatozoa biochemically



25

Example Chart



26

Research

Mucus observations in the fertile window: a better predictor of conception than timing of intercourse

Bigelow J et al. *Human Reproduction* Vol.19, No.4 pp. 889-892, 2004

- ▶ 'Within the fertile window, the type of mucus observed on the day of intercourse is more predictive of conception than the timing of ovulation'

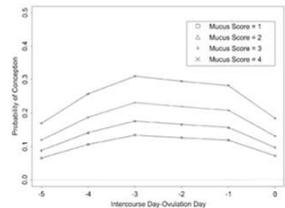


Figure 1. Estimated probability of pregnancy with a single act of intercourse in the fertile interval conditional on mucus observations.

J.L. Bigelow et al.

Table 1. Classification of mucus symptoms from vaginal discharge

Mucus score	Feeling	Appearance
1	Dry, rough and itchy or nothing felt	Nothing seen
2	Damp	Nothing seen
3	Damp	Mucus is thick, creamy, whitish, yellowish, or sticky
4	Wet, slippery, smooth	Mucus is transparent, like raw egg white, stretchy/elastic, liquid, watery, or reddish

27

Research

Reduced fertilisation rates in older men when cervical mucus is suboptimal
Dunson DB, Bigelow JL, Colombo B. *Obstet Gynecol* 2005;105:788-793

- ▶ Examined the relationship between cervical mucus and the lowered fertility for men in their late 30's and early 40's
- ▶ They discovered that:
 - ▶ The effect of male age on fecundability can be minimised by timing intercourse on days with optimal cervical mucus



28

Case Studies



33

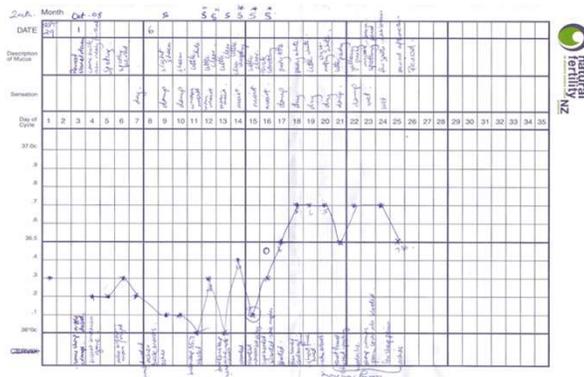
Luteal Phase Deficiency (LPD)

- ▶ A normal luteal phase is 10-16 days in length
- ▶ A luteal phase of <10 days is considered sub-fertile. This can be a major issue for women trying to conceive
- ▶ Commonly seen in breastfeeding women with returning fertility and women with returning fertility after ceasing chemical contraception. In both cases Luteal Phase will return to normal in 3-6 cycles except for Depo Provera which can be 18 months.
- ▶ Hyperprolactinemia and hypothyroidism can cause LPD
- ▶ Extreme exercise can cause LPD and it has been observed in recreational runners



34

Short Luteal Phase



35

Stress

Stress is known to have an adverse influence on the hypothalamic-pituitary control of ovarian function, therefore, it can disturb the peri and pre ovulatory phases of the menstrual cycle.

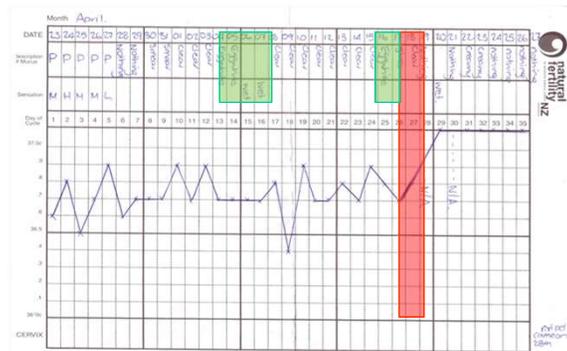
Stress case study:

- ▶ 21 year old female
- ▶ Fairly regular cycles
- ▶ Ovulating between days 15 and 19 of her cycle
- ▶ Luteal length of approximately 12 -13 days
- ▶ During this particular cycle, she'd had an extremely stressful month resulting in delayed ovulation



36

Typical 'stress' chart



37

Hormonal Imbalance / PCOS

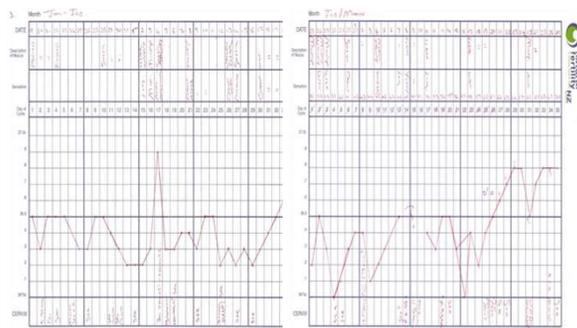
Case study:

- ▶ 28 year old female
- ▶ Healthy and of normal weight
- ▶ Had been on the Estelle contraceptive pill for 13 years and came off with the intention of conceiving
- ▶ Developed oligomenorrhea, each post pill cycle progressively getting longer
 - ▶ First cycle - 47 days
 - ▶ Second cycle - 73 days
 - ▶ Third cycle - over 3 months (most recent - on next slide)



38

Hormonal imbalance / PCOS



39

Timing of Intercourse

For most couples, the correct timing of intercourse in relation to the fertile window is all that is required to conceive.

Case study:

- ▶ Jacqui and Pete trying to conceive
- ▶ Jacqui is 36, her chances of conception are half what they were when she was in her mid 20's
- ▶ Her cycles are around 35 days
- ▶ They have heard that ovulation is around Day 14
 - ▶ Month after month they focus intercourse around this time, and by day 17 they have had enough, so they take a break.
- ▶ Lets look at her chart...



40

Benefits to practitioner

- ▶ Allows appropriate timing of the infertility workup
- ▶ Provides a tool to assess a woman's gynaecological and fertility health
 - ▶ Abnormal bleeding
 - ▶ Unusual pelvic pain
 - ▶ Anovulation, delayed ovulation, and oligomenorrhea
 - ▶ Insufficient progesterone levels
 - ▶ Luteal phase deficiency
 - ▶ Infertile cervical mucus
 - ▶ Occurrence of early miscarriages
 - ▶ Thyroid issues
- ▶ Helps to tailor further investigations and treatment, and expediate the process
- ▶ Aids in the correct timing of tests
- ▶ Avoids unnecessary and expensive testing



45

Sub-fertility & Stress

- ▶ Sub-fertility can be an intensely emotional experience
- ▶ Couples can feel completely powerless
- ▶ Fertility awareness allows couples to reclaim some of that control
- ▶ Common perception that charting can add to a couples stress:
 - ▶ Some cases this is true
 - ▶ Based on clinical experience, the vast majority react positively
 - ▶ Couples are often advised to have frequent sex throughout the menstrual cycle to ensure they hit the fertile time - but this can create even more stress than charting does
 - ▶ Male partners can develop problems with getting or maintain an erections or not ejaculating due to the stress
 - ▶ If a couple know when they are fertile, intercourse once or twice in that time is sufficient to maximise their chances of conception



46

Infertility

- ▶ Affects about 1 in 5 couples in New Zealand
- ▶ A couple is regarded as infertile when they have not conceived after 12 months of regular unprotected intercourse
- ▶ Couples who are trying to conceive are typically advised to keep trying for 12 months before any investigations are started if the woman is under 35 years, and six months if over 35 years.
- ▶ A recent study suggests that for couples who use fertility awareness to time intercourse appropriately, this threshold can be lowered to 6 months (Gnoth et al):

Gnoth C et al. *Human Reproduction* Vol.18, No.9 pp. 1959-1966, 2003

Table 1. Cumulative probability of conception (CPC) for all couples and the truly fertile subgroup of women who finally conceived

Patient group	No. of cycle			
	1	3	6	12
All couples ^a	0.38 (0.026)	0.68 (0.026)	0.81 (0.022)	0.92 (0.017)
Truly fertile couples ^b	0.42 (0.028)	0.75 (0.025)	0.88 (0.018)	0.98 (0.009)

Values in parentheses are SEM.

^an = 340; six couples excluded due to inaccurate time to pregnancy.

^bn = 304 couples; six couples excluded due to inaccurate time to pregnancy.

- 346 couples used fertility-focused intercourse to aid conception
- 80% of couples conceived in the first six cycles
- Only 10% had not conceived within twelve cycles

47

Equality, Diversity & Cultural Sensitivity

- ▶ NFNZ educators have been trained to treat all of their clients with respect, and incorporate the principles of The Treaty of Waitangi & Te Tiriti O Waitangi in their respective practices.
 - ▶ We do not discriminate based on age, sex, ethnicity, or religion.
 - ▶ Our use of the term woman throughout is in reference to biological females as it pertains to reproductive health
 - ▶ We refrain from using food to describe bodily functions (like egg white to describe mucus)



48

Working with an NFNZ Educator



49

The Process

- ▶ Patients can self refer by going to www.naturalfertility.co.nz and clicking on 'Find an Educator'
- ▶ Consultations are one on one, private and confidential, partners are welcome and encouraged to attend
- ▶ Generally 3 appointment package (\$250 - \$300)
 - ▶ Appointment 1 - taught how to recognise and record their fertile signs on a chart
 - ▶ Appointment 2 & 3 - the charts are reviewed (ovulation, fertile mucus and luteal length), and fertile window marked out.
 - ▶ Package includes 1 year of follow up
 - ▶ Grants may be available
- ▶ The educator can prepare a report outlining any findings warranting further investigation



50

Open Question Time



51

Evaluation & Feedback



52

