



DR. NICKY KEAY

Commentary and advice by Forth Chief Medical Officer and Endocrinologist Dr Nicky Keay BA, MA (Cantab), MB, BChir, MRCP

FORM SCORE

Cycle starting
16/03/2021



Your Forth Ovarian Responsiveness Metric (FORM) is 53% This figure combines all your blood results to evaluate how your hormone network scored for this menstrual cycle Your FORM is indicative of a moderately reduced ovarian response The ovarian response of women over 40 tends to decline and eventually ceases at menopause.

FORM scores tend to be lower if levels of Progesterone and Oestradiol are depressed while FSH and LH are elevated, particularly around day 21 This is consistent with your reduced likelihood of ovulation during this cycle

Blood tests alone do not confirm the perimenopause, but evidence of reduced ovarian response, in conjunction with perimenopausal symptoms, is suggestive, particularly if a trend is observed over subsequent cycles

As behaviours can influence hormones, have a look at your advice below.

After implementing these suggestions, repeating the Female Hormone Mapping test for a future cycle is advisable in order to gain a deeper understanding of your female hormone networks This will help establish an ongoing trend and timing of when to start reviewing options, such as HRT, for menopausal symptoms For further in-depth discussion, book an appointment with Dr Nicky Keay.

CYCLE LENGTH

27 Days

Your predicted cycle length of 27 days is close to the population average of 29 days.

LH SURGE

Day 13

A surge in LH (Luteinising Hormone) triggers ovulation. Based on your blood results, your LH surge most likely occurred around day 13. For your cycle length, this was near the expected time, resulting in a normal follicular phase (from start of menstruation up to ovulation).

YOUR PERSONALISED CURVES

Female hormones vary in a characteristic pattern over the menstrual cycle. Curves, representing your personal hormone fluctuations over this cycle, have been mathematically modelled to fit your hormone results from both tests, together with the information you provided about the length of your previous cycles.

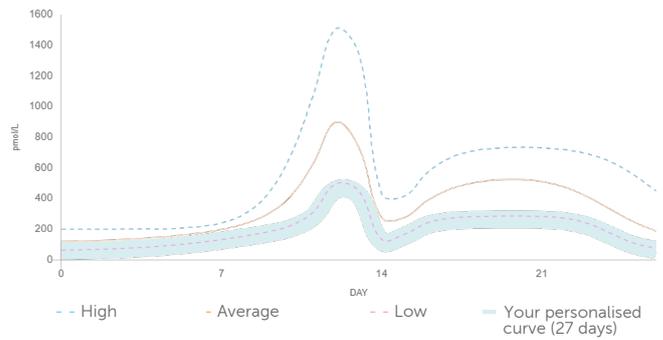
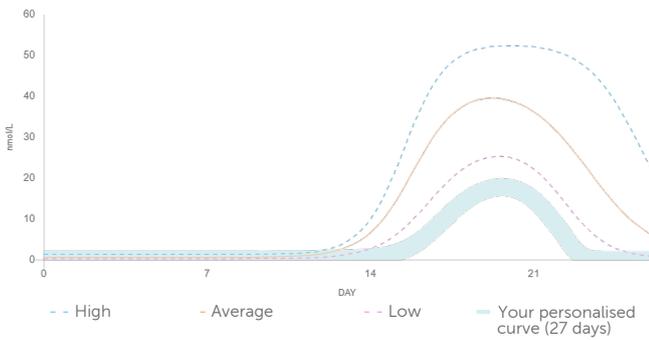
Your personalised curve for each hormone is shown in blue, with background curves indicating the normal range, where the orange curve is average, dotted pink is low and dotted blue is high.

OVARIAN HORMONES

Progesterone and Oestradiol (the most active form of Oestrogen) are response hormones, produced by the ovaries. These circulate in the bloodstream, producing effects around the body that may be associated with symptoms experienced over the menstrual cycle.

Progesterone

Oestrogen



Day **14** **1**
Low

Day **22** **8**
Low

Day **14** **130**
Low

Day **22** **241**
Low

Your personalised Progesterone curve is low. Your peak Progesterone level was estimated to be 18 nmol/L. This suggests that ovulation might not have occurred this cycle, as a level of 30 nmol/L is typically indicative of completed ovulation. This might result in an earlier bleed at the beginning of the next cycle. Whilst a single anovulatory cycle may not be a concern, it would be advisable to perform a repeat test. As you are over 45, anovulatory cycles can be an indicator of perimenopause. To understand how your Progesterone levels affect how you feel and what to do, have a look at your day 22 advice section.

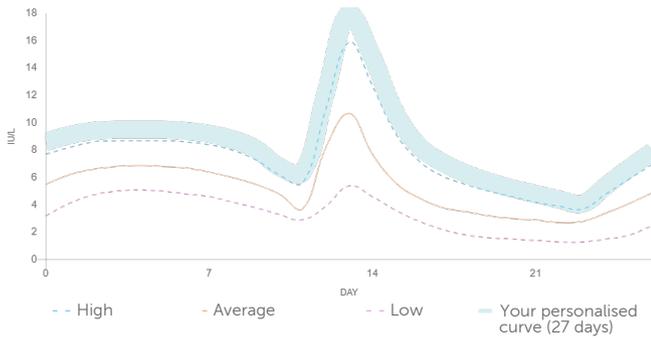
Your personalised Oestradiol curve is low, which, together with low Progesterone, may be expected, given your age, and will push down your FORM score. This could be a transitory event, so it would be advisable to repeat the test, after implementing the personal advice suggested below. This result may be suggestive of a lighter bleed at the beginning of the next cycle. To understand how your Oestradiol levels affect how you feel and what to do, have a look at your advice section, with particular reference to day 14.

OVULATION **Less Likely**

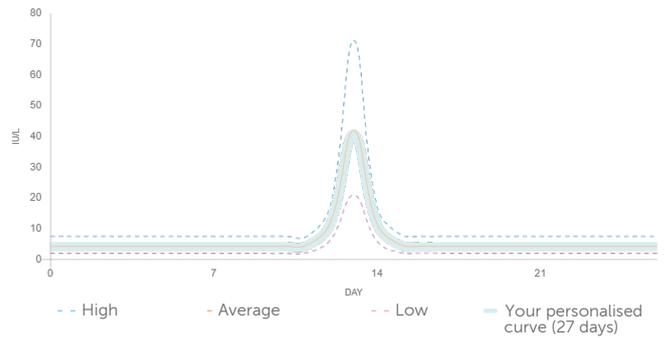
CONTROL HORMONES

FSH (Follicle Stimulating Hormone) and LH (Luteinising Hormone) are the control hormones produced by the anterior pituitary gland. These hormones travel in the bloodstream and control the production of the ovarian response hormones, Progesterone and Oestradiol. If they are suppressed, then the ovarian hormones are also likely to be low. The control hormones naturally rise later in life, as ovarian responsiveness declines.

FSH



LH



Day	14	12 Moderately high	Day	22	5 High
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Day	14	10 Mid range	Day	22	7 Moderately high
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FSH (Follicle Stimulating Hormone) steadily increases during the follicular phase, stimulating the development of the follicle prior to ovulation. Your personalised FSH curve is high. This indicates that your pituitary gland is having to provide a stronger FSH signal to encourage your ovaries to continue producing the ovarian response hormones. This may be expected, given your age, and will push down your FORM score. This could be a transitory event, so it would be advisable to repeat the test, after implementing the personal advice suggested below.

LH (Luteinising Hormone) remains low for most of the cycle, but surges sharply to trigger ovulation and the subsequent development of the corpus luteum, which, in turn produces Progesterone. Your personalised LH curve is mid range. This indicates that your pituitary gland is providing an LH signal to your ovaries that is within the normal range of variation. Although your LH result was in range, ovulation might not have occurred this cycle. This could be a transitory event, so it would be advisable to repeat the test, after implementing the personal advice suggested below.

LINKING YOUR HORMONES TO HOW YOU FEEL

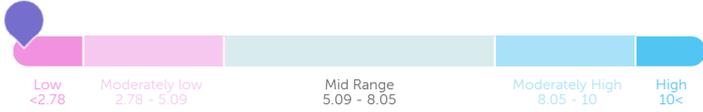
Female hormones vary significantly during a menstrual cycle. The ovarian hormones Oestradiol and Progesterone bind to receptors that trigger changes throughout your body. These have direct effects on physical and mental wellbeing, experienced over the menstrual cycle. The biological effects of these hormones will depend on your personal levels over the menstrual cycle and your personal response to these.

PERSONALISED RANGES

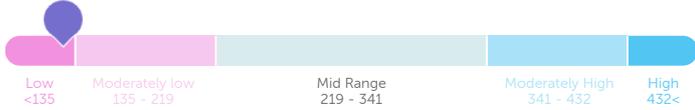
Each hormone level is shown in the context of your personalised range for the day in your cycle when you took your test. These personalised ranges have been calculated using machine learning techniques which adapt laboratory-measured ranges to take account of your personal predicted cycle length.

Day 14

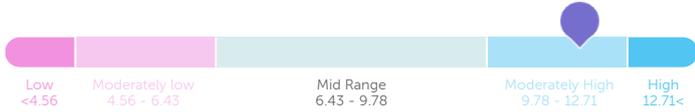
PROGESTERONE (1 NMOL/L)



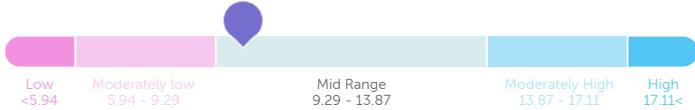
OESTRADIOL (130 PMOL/L)



FSH (12 IU/L)

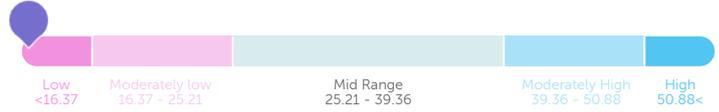


LH (10 IU/L)

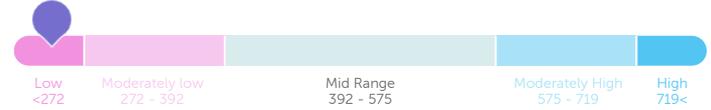


Day 22

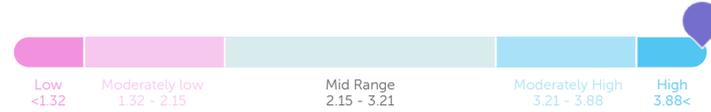
PROGESTERONE (8 NMOL/L)



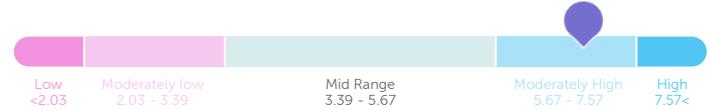
OESTRADIOL (241 PMOL/L)



FSH (5 IU/L)



LH (7 IU/L)



PERSONAL ADVICE

Take time to review your personalised advice on each of the five areas of wellbeing, for the two stages in your menstrual cycle

During Follicular phase

Oestradiol, being the predominant ovarian hormone during the follicular phase, influences how you feel in the first part of your cycle. Your personalised Oestradiol curve is low. You reported less disruptive Mood, Freshness and Symptoms. But you reported problems with Sleep and Hunger Urges.

Day 14

HUNGER

1/5

Hunger urges are less common in the follicular phase. These can be mitigated by ensuring that you spread your nutrition consistently throughout the day, particularly slow-release, complex carbohydrates. This strategy will help your body maintain more stable blood glucose levels.

Day 14

SLEEP

2/5

Disrupted sleep is less directly linked to hormone levels in the follicular phase. It may be helpful to focus on your bedtime routine, known as sleep hygiene. This might include reading a book, taking a milk drink, avoiding screens etc.

Day 14

MOOD

3/5

Your positive work/life balance would have supported hormone function during your follicular phase for this cycle.

Day 14

SYMPTOMS

3/5

Your strategies for dealing with menstrual symptoms were effective in your follicular phase for this cycle.

Day 14

FRESHNESS

4/5

You achieved the right balance of activity and rest to maintain good energy levels in your follicular phase for this cycle.

PERSONAL ADVICE

Take time to review your personalised advice on each of the five areas of wellbeing, for the two stages in your menstrual cycle

During Luteal phase

Progesterone, being the predominant ovarian hormone during the luteal phase, influences how you feel in the latter part of your cycle. Your personalised Progesterone curve, being low for this cycle, may be associated with less disruption during the luteal phase. This is consistent with reported less trouble with Sleep, Hunger Urges and Symptoms. However you reported problematic Mood and Freshness.

Day 22

FRESHNESS

1/5

To improve your freshness, take a careful look at your personal balance of activity, nutrition and rest.

Day 22

MOOD

2/5

Low mood can occur in the luteal phase. If this is disrupting your quality of life, increasing your activity levels, eating a healthy diet and managing stress (yoga, meditation) can help. Beneficial complementary therapies that are supported by scientific evidence include calcium, vitamin D, Vitex agnus-castus (a herb known as chasteberry), saffron or Ginkgo biloba.

Day 22

HUNGER

3/5

You prevented hunger urges by balancing your nutrition with your energy requirements in your luteal phase for this cycle.

Day 22

SLEEP

4/5

Regular sleeping patterns indicate that you implemented effective sleep hygiene in your luteal phase for this cycle.

Day 22

SYMPTOMS

5/5

You successfully managed any menstrual problems in your luteal phase for this cycle.

NEXT STEPS

Advice and commentary by endocrinology expert Dr Nicky Keay

Anovulatory cycles and/or moderately reduced ovarian responsiveness indicated by your FORM score is in keeping with the normal physiological process that occurs from 40 years of age in the lead up to menopause (average age 51 years, range 45-55 years). This occurs at a variable rate, so monitoring your hormone networks is advisable, alongside implementing these action points for your exercise levels, nutrition and sleep.



Exercise: doing strength training and some multidirectional exercise is important for body composition and bone health.



Nutrition: ensure a good quality diet with sufficient slow-release complex carbohydrate to meet your energy demands. Protein is important to maintain muscle strength. Vitamin D supplementation (eg daily 1,000IU) is advisable for wellbeing, bone, muscle and immune function.



Sleep: ensure you have an effective sleep hygiene routine in place for good quality sleep of at least 8 hours.



Look out for perimenopausal symptoms. Change in your menstrual cycle: cycles can become erratic in timing and nature; sometimes long or short cycle lengths, with heavy or light bleeding. Other symptoms include issues with body temperature regulation: hot flush which can disturb sleep; random joint and muscle discomfort and/or pain, not related to injury; changeable mood: low mood, anxiety and anger; lack of mental sharpness, tendency to feeling fatigued; vaginal dryness and low libido.



For further information see websites of Royal College of Obstetrics and Gynaecologists NICE guidelines and British Menopause Society.

It is informative to repeat Female Hormone Mapping. Monitoring your menstrual cycle hormones over cycles every 3 to 6 months can help you make informed choices to be at your personal best over your menstrual cycle journey.

REFERENCES

[Machine learning for individualised medicine](#) "Mihaela van der Schaar, Chapter 10 of the 2018 Annual Report of the Chief Medical Officer. Health 2040– Better Health Within Reach.

Van de Schoot, R., Depaoli, S., King, R. et al. Bayesian statistics and modelling. *Nat Rev Methods Primers* 1,1 (2021). <https://doi.org/10.1038/s43586-020-00001-2>