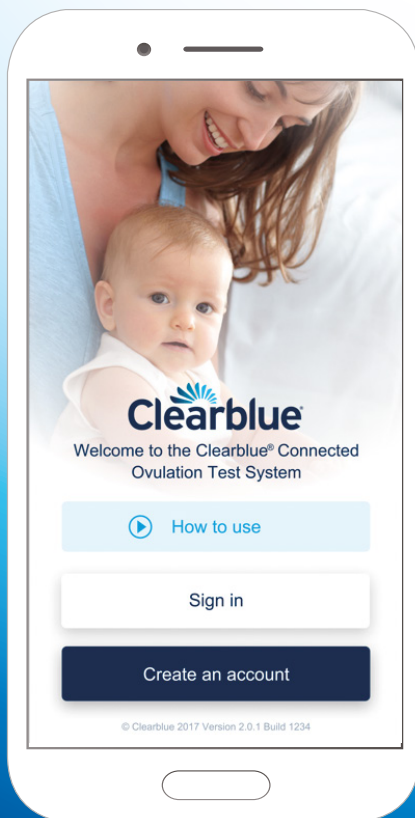


Clearblue[®]

CONNECTED Ovulation Test System

Maximises the chances of conception
in a way like never before^a



Professional Series
Ovulation



About Clearblue®

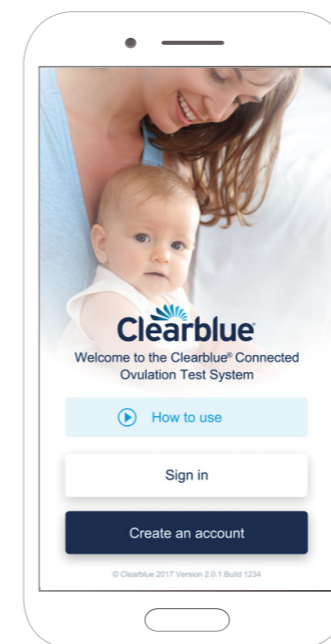
Clearblue is the world's number one selling brand in home pregnancy and fertility tests.^b Consumers trust the Clearblue brand because it delivers the accurate information they want. The Clearblue product range is built on a strong foundation of peer-reviewed science and consumer understanding. Clearblue is supported by over 30 years of expertise, quality and innovation in consumer diagnostics.

If you are a healthcare professional and wish to contact a member of the Clearblue support team about any product in the Clearblue range, please send an email to spdproductsupport@spdspark.com

Ovulation

Clearblue Connected Ovulation Test System

Maximises the chance of conception in a way like never before^a



The Clearblue Connected Ovulation Test System is the first and only dual-hormone ovulation test able to connect to a phone. It combines a unique system that tracks two key fertility hormones with the convenience of an app, providing women with the accuracy of an ovulation test synced to their phone, maximising their chances of conception in a way like never before.

Features of the Clearblue Connected Ovulation Test System:

- The ability to detect estrone-3-glucuronide (E3G), a principal urinary metabolite of estradiol¹ (rising levels of which are indicative of the onset of the fertile window),² and luteinising hormone (LH) (a surge of which precedes ovulation)^{2,3}
- Clearblue's most advanced ovulation test - over 99% accurate at detecting the LH surge - now with phone connectivity

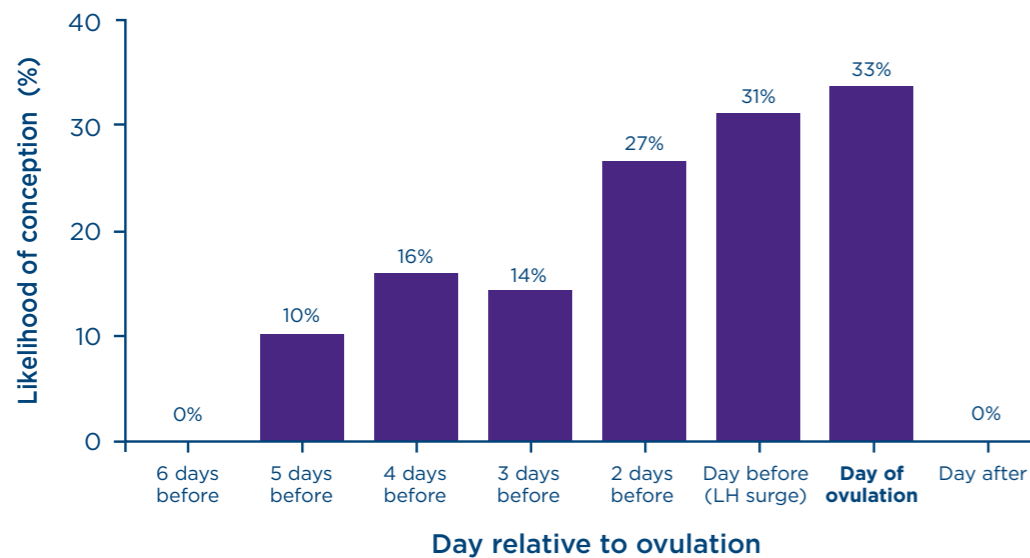
- Accurately adapts to a woman's personal menstrual cycle – in a study of 87 women, 4 or more fertile days were identified in 80% of cycles using actual cycle length^{4,5}
- Technology which synchronises test results to the app, when **Bluetooth®** is enabled
- Smart personalised reminders, based on the user's cycle
- The ability to enter information such as cycle length, bleeding, spotting and dates of intercourse
- Cycle comparison to enable easy tracking of fertility data and to facilitate discussion with healthcare professionals

The fertile window

There are only a limited number of days in each cycle when a woman can conceive, referred to as the fertile window. The duration of the fertile window is determined by the lifespan of the ovum and the viability of sperm in the days preceding ovulation. It is generally accepted that sperm can survive for up to 5 days in sperm-supportive mucus, and ova typically survive for 12–24 hours after ovulation.^{6–8}

The fertile window lasts for around 6 days, starting from approximately 5 days preceding ovulation until the day of ovulation (Figure One),⁸ and further studies have confirmed that timing intercourse to coincide with the fertile window increases a woman's chance of conceiving (Figure One).^{9,10}

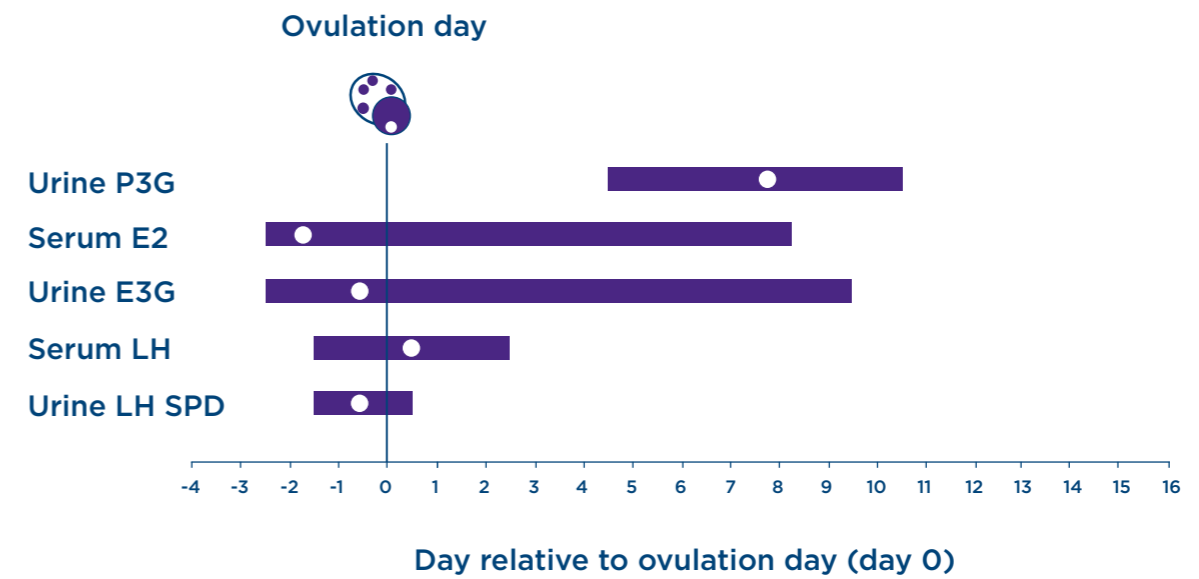
Figure One: Estimated likelihood of conception from intercourse on days of the menstrual cycle relative to the day of ovulation. Adapted from data by Wilcox AJ, *et al.* (1995).⁸ A study of 221 women who had a single act of intercourse in their cycle



Accuracy of urinary hormones for detection of the fertile window

The levels of a number of serum and urinary hormones have been observed to rise and fall in relation to ovulation (Figure Two). The hormone estradiol is the major physiological determinant of the onset of the fertile window. Levels rise during the cycle, stimulating the secretion of sperm-supportive cervical mucus and triggering a surge in LH once levels reach a threshold (Figure Two).^{2,3,11} Levels of the principal urinary estradiol metabolite, E3G,¹ are observed to rise in urine substantially from ~3 days prior to ovulation until up to 5 days post-ovulation.^{2,3} The LH surge, occurring 3 to 4 days after the E3G rise, then causes the dominant follicle to rupture and release a mature ovum. The urinary LH surge is the most reliable indicator of impending ovulation, as ovulation typically occurs ~24 hours later and does not occur in its absence.^{2,3,12} Peak levels of LH do not always precede ovulation and thus cannot be used as a prospective marker for ovulation.^{2,3,12} Progesterone is observed to rise after ovulation and serves to both confirm ovulation and mark the end of the fertile window.^{2,3}

Figure Two. Reproductive hormone surges in relation to objective ovulation²



Median (white dot); bars: 5th–95th percentile. The hormonal surges in E3G, E2, P3G and urinary and serum LH were defined as the first rise above the best-fit line of previous days measurements.

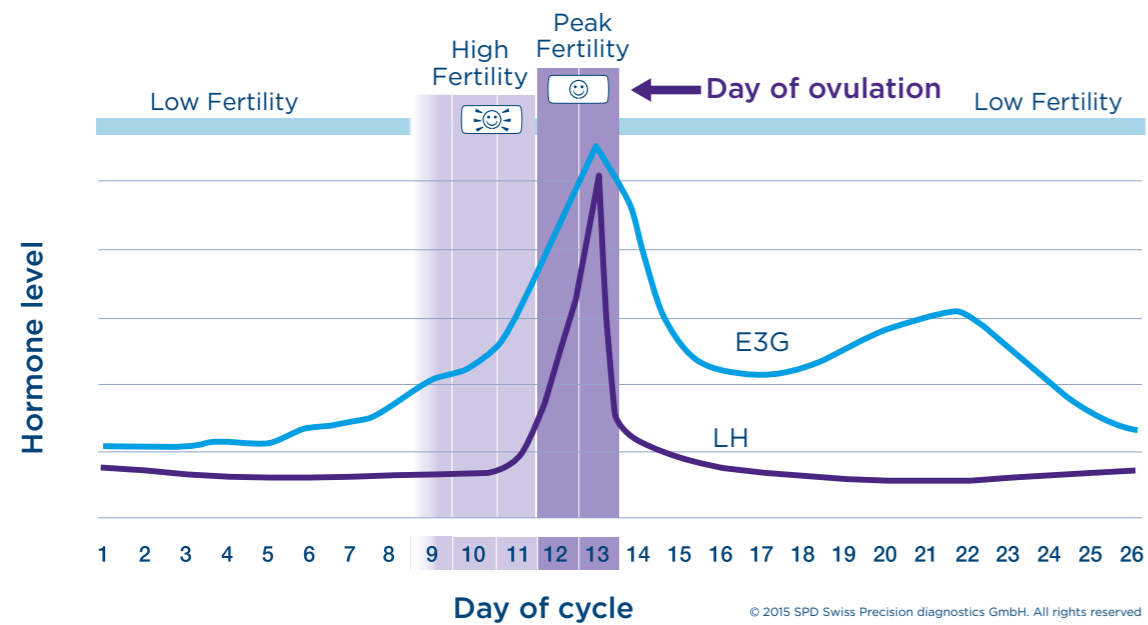
E2, estradiol; P3G, pregnanediol-3-glucuronide

The Clearblue Connected Ovulation Test System is highly accurate in detecting the fertile window

The Clearblue Connected Ovulation Test System utilises disposable urinary ovulation test sticks to detect E3G and LH. Using Bluetooth® technology, this information is synchronised with the Clearblue Connected Ovulation Test System app^c to provide women with accurate, scientifically based, personalised tracking with alerts of their fertile days (both High and Peak).

The Clearblue Connected Ovulation Test System is over 99% accurate at detecting the LH surge and adapts to a woman's personal menstrual cycle to typically identify 4 or more fertile days (Figure Three)⁵ - providing the user with more opportunities to plan intercourse and increase her chances of becoming pregnant sooner.^{4,5,10,13,d}

Figure Three: Example of typical levels of E3G and LH during a menstrual cycle, and days of High and Peak Fertility detected by the Clearblue Connected Ovulation Test System

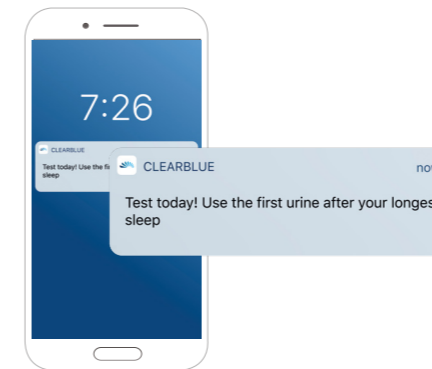


Each woman's cycles are unique and hormone levels differ; therefore, the number of fertile days identified can differ between women and between cycles. In a study of 87 women, the following was observed:^{4,5}

Number of days of High Fertility before Peak Fertility	Percentage of women*
0-4	66%
5-9	25%
10+	1%

*In 8% of women, no days of Peak Fertility were detected after days of High Fertility.

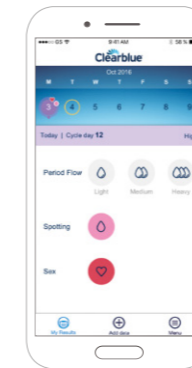
Features of the Clearblue Connected Ovulation Test System



Ability to set personalised alerts to notify the user of appropriate days to use urinary testing sticks.



Connects to the user's phone using Bluetooth® technology for synchronisation of data.^c



Ability to add data on menstrual cycle dates, bleeding, spotting and dates of sexual intercourse.



Clear display of test results and menstrual calendar displays, showing a summary of data for current and previous menstrual cycles.

Using the Clearblue Connected Ovulation Test System

In the first cycle of use, the Clearblue Connected Ovulation Test System will calculate the days when the user should use the urinary ovulation test sticks based on the cycle length she has entered into the app. In subsequent cycles, the app will use her actual cycle length from collected data (unless she overrides it) to determine test days. After performing a test, the result will be ready to read on the test stick holder after 5 minutes and will automatically synchronise with the connected app, providing Bluetooth® is enabled on the user's phone, the phone is close to the holder and the app is open.

The Clearblue Connected Ovulation Test System uses a unique adaptive algorithm

A clear circle or the words 'Low Fertility' will be shown on the test stick holder and app, respectively, when levels of hormones are below the personalised algorithm levels. The connected app will advise the user that it is unlikely that intercourse at this time will result in pregnancy. The user will be alerted by the app to test again the following day.



Trend analysis is applied to the E3G measurements to identify the first day of the sustained rise in E3G above baseline – upon which a flashing smiley face and 'High Fertility' will be shown. The user is advised that intercourse on a 'High Fertility' day will increase her chance of becoming pregnant, and that 'High Fertility' will be displayed until an LH surge is detected. The user will be alerted by the app to test again the following day.

As many women have low levels of LH in their urine, the algorithm used by the Clearblue Connected Ovulation Test System sets a personalised threshold level by measuring changes in hormone levels from baseline. 'Peak Fertility' and a non-flashing smiley face are displayed when the LH surge is detected and will be displayed constantly for 48 hours. The user is advised that intercourse on this day and the following day will maximise her chance of getting pregnant, and that she should not test again during this cycle.



How the Clearblue Connected Ovulation Test System can help women

An estimated one in two couples may not be planning intercourse to coincide with their fertile period when trying to conceive.¹⁴ There are only a limited number of days per cycle when conception can occur, and thus it is important that women time intercourse with their fertile days to maximise their chance of conception.^{9,10}

Women in the developed world are increasingly delaying pregnancy,¹⁵ but when they do decide the time is right to become pregnant they wish to do so quickly, leading to frustration, anxiety and stress if they fail to do so.^{15,16} Thus, correct timing of intercourse is important for these women, particularly as fertility declines with age; for example, a fertile 30-year-old woman has a 20% chance of conceiving each month, which declines to <5% for a 40-year-old woman.¹⁷

Many women have poor recall of their menstrual cycle history, even relating to their most recent cycle,¹⁸ and inaccurately predict their ovulation day. In a cohort of 102 women seeking conception, only 13% correctly predicted their ovulation day, despite 62% having previously used home ovulation tests.¹⁴ Based on these predictions, just 54.9% would have targeted intercourse to a time within their fertile window, and only 26% would have targeted their Peak Fertility days.¹⁴

The use of digital home-based ovulation tests has been shown to empower women with an increased understanding of their menstrual cycle.¹⁹⁻²¹ Many women report that their use enabled effective planning of intercourse, offering them emotional support and making them feel less stressed when trying to conceive.¹⁹ Randomised controlled clinical trials have also reported that the use of digital home-based ovulation tests does not cause stress in women trying to conceive.^{20,22}

The Clearblue Connected Ovulation Test System provides women seeking to conceive with a valuable, user-friendly, easily accessible tool to help them improve their fertility awareness and maximise their chance of conception.^{18,21}

Benefit of the Clearblue Connected Ovulation Test System over other apps

Many calendar-based fertility apps are inaccurate

There are approximately 100 apps available to women to facilitate tracking their menstrual cycles and fertile window, to assist in either conceiving or avoiding pregnancy.²³ These apps use a variety of methods, or combination of methods, to determine the fertile window. Most apps rely on women entering menstrual cycle dates, basal body temperature (BBT), and/or cervical mucus characteristics. Some apps also enable the user to enter LH ovulation test results, or allow the use of connectable thermometers for direct input of BBT data.¹⁸

Many of the available fertility apps have been found to provide women with inaccurate information:

- It is well documented that calendar methods, which form the basis of many available apps, are unreliable for the identification of the fertile window due to intra-cycle variability in both cycle length and ovulation day²⁴⁻²⁸
- Studies have reported that calendar-based ovulation prediction correlates with LH surge detection in less than 40% of cycles, with approximately 40% or more predicted fertile days falling outside of the 6-day fertile window^{25,26}
- A review found only 19% of free menstrual cycle apps (available at the time of the study) were accurate, based on whether the menstrual cycle predictions were founded on ≥ 3 previous cycles, ovulation (when included) was predicted at 13–15 days prior to the next cycle, and no misinformation was included²⁷
- Another study found that out of 55 cycle tracking apps, the highest probability of predicting the day of ovulation by any app was 21% when the inputted cycle length was 28 days and ovulation occurred on day 16²⁴

The Clearblue Connected Ovulation Test System is based on sound science and is over 99% accurate at detecting the LH surge

The technology used in the Clearblue Connected Ovulation Test System is supported by publications in peer-reviewed scientific/medical journals.

- Clearblue has published data on the accuracy of E3G and LH testing to predict the fertile window^{2,3,12} and the accuracy of the fertility hormone assays used in the Clearblue Connected Ovulation Test System to detect the fertile window²⁹⁻³²

The Clearblue Connected Ovulation Test System has been clinically validated

The technology used in the Clearblue Connected Ovulation Test System is supported by published clinical studies.

- Clearblue has published data on the ability of ovulation testing to increase the chance of conception and reduce the time it takes to conceive^{5,13}
- Clearblue ovulation tests utilise the only LH assay clinically validated by comparison with ultrasound, showing 97% agreement with ultrasound observed timing of ovulation²⁹

Thus, users of the Clearblue Connected Ovulation Test System can be confident that they are receiving an accurate result with real-life clinical studies to support the methodology. In contrast, many other available apps use estimation-based methods.

Limitations

- There are no products available that can guarantee success in becoming pregnant
- The Clearblue Connected Ovulation Test System is not intended for contraceptive use or for women who do not have menstrual cycles
- Certain medical conditions and medications can give misleading results; for example if a woman is pregnant, or has recently been pregnant, has reached the menopause, has impaired liver or kidney function, has polycystic ovarian syndrome, is taking fertility drugs containing LH or human chorionic gonadotrophin or is taking antibiotics containing tetracyclines

- Some fertility treatments such as clomiphene citrate may give misleading High Fertility results. Peak Fertility results should be unaffected
- Women should be advised to discuss unexpected results with their healthcare professional
- If a woman has recently been pregnant she should wait until she has had 2 cycles before testing
- If a woman has recently stopped using hormonal contraception, her cycles may be irregular so she should wait until she has had 2 cycles before testing
- Women should be advised to check with their healthcare professional if they are taking any medication or have any medical condition before planning a pregnancy
- The Clearblue Connected Ovulation Test System may not be suitable for all women with a medically diagnosed fertility problem

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Clearblue Connected Ovulation Test System:

Unique – the first and only dual-hormone ovulation test that connects to the user’s phone

Personalised – typically identifies 4 or more fertile days⁵

Accurate – over 99% accurate at detecting the LH surge

Tracking made easy – provides personalised reminders, digital results and cycle comparisons

Interactive – dates of intercourse and levels of menstrual bleeding can be entered and stored for inter-cycle comparison

Trustworthy – from Clearblue, the world’s number one selling brand in home pregnancy and fertility tests^b

^a Tracks two hormones and connects to phone.

^b Based on international sales in nearly 20 countries compiled using independent market research data.

^c When Bluetooth® is switched on.

^d vs not using a method to identify fertile days.

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Compatible with most iPhones® and Android™ phones equipped with Bluetooth 4.0/BLE. To find out more about compatibility, check out www.clearblue.com.



For more information about the Clearblue® Connected Ovulation Test System,
please visit our websites:

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