



# BIOZHENA TECHNOLOGY OVERVIEW

Written for people who know women's health

bioZhená's electrochemical sensor of the ectocervix is a smart tissue biosensor for women's reproductive self-help, which records menstrual cycle vital sign data for OBGYN, PRIMARY CARE, RE and other healthcare providers' use when needed. These are our two core products: the Ovulona™ for women and the Ovulograph™ for women's healthcare providers.

The menstrual cyclic profile signatures are recorded at home in a once-daily quick and easy (~20 seconds) measurement session for fertility awareness with the daily fertility status indicated in plain English. The menstrual profiles are descriptive of reproductive cycling (aka folliculogenesis) and relate to women's well-being – somewhat like how ECG recordings pertain to the health of the heart, albeit not so "granular".

**bioZhená** **What Is Folliculogenesis?**  
**The biological foundation of a woman's well-being.**

**Hypothalamus-Pituitary-Gonad Feedback Loop(F)**  
 Hypothalamus, Pituitary gland, FSH and LH, Estrogen and progesterone negative feedback, Uterus, Ovary, Estrogen, Progesterone, Endometrium.

**Ovulation**  
 HYPOTHALAMUS, PITUITARY GLAND, MATURE OVUM, OVULATION, FSH (DECREASING), LH, ESTROGEN FEEDBACK, ESTROGEN.

**Ovulona™**  
 Data From Home To Healthcare Providers  
 From patients' Ovulona™ units to a physician's Ovulograph™ - when needed.

**Menstrual cyclic profiles for the women's doctors – like EKG for the doctors caring for the heart.**

For better view go to <https://biozhená.files.wordpress.com/2018/03/wealth-of-info-elucidation-silent-3-slides-animated-ed.pps>  
 Opens also by clicking on the image. Navigate the slides with the up- and down-arrow keys. The other images are also clickable.

There is no technology like our Folliculogenesis-In-Vivo™, which tracks the end-organ effects of brain - ovary interactions; it works with cycles challenged by asynchrony of brain and ovarian pacemakers, which hinders ovulation. Folliculogenesis is not merely a process involving hormonal signals – it is a process of integration of all neuroendocrinological inputs, which the cervix monitors. And the Ovulona (and prospectively the telemetric Halo™ cervical ring) monitors the cervix.

Based on pilot study results, the ovulographic™ monitoring of folliculogenesis in vivo is believed to capture the fine-tuning impact on folliculogenesis of the direct neural control via ovarian and uterine innervation and the acute effects of local (autocrine and paracrine) modulatory actions. Those effects cause a significant number of menstrual cycles to be categorized as challenged by lack of brain-ovary pacemaker synchronization, which asynchrony cannot be detected by the systemic peripheral variables such as the BBT temperature or the urinary levels of hormones monitored by the commercially available home-use technologies.

To sum up: In addition to the long-term regulation of ovarian function by certain hormones, there are the fine-tuning control mechanisms by the various neurotransmitter systems that modulate the effects of the gonadotropins on ovulation and on the capacity of the ovaries to secrete the steroid hormones. It is therefore essential to monitor the overall interactions between the brain and the reproductive tract.

The prototyped and pilot studies-tested Ovulona monitor with FDA clearance anticipates and then DETECTS ovulation. It tracks the menstrual cycle mechanism via the end-organ effect of the brain-ovary feedback loop on the uterine cervix. Numerous benefits ensue in addition to noninvasive sex-life management.

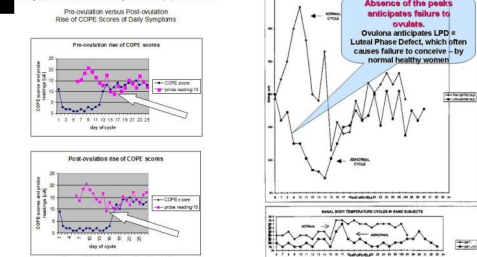
Startup version of the Ovulona cervical sensor has FDA clearance



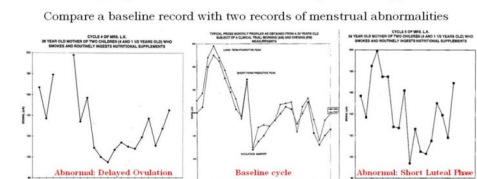
- will help funding the next generation telemetric cervical ring - semi-permanently worn and sending data to user's display device, as shown in next slide

Advance the slide by clicking on it or navigate using keyboard's down-arrow key

Ovulographic Correlation of Folliculogenesis and Symptomatic Data



**Ovulograph™ for menstrual cycle diagnosis**



Baseline cyclic profile of a healthy 30-years old non-smoker woman (who, as a baseline subject is not taking any medication or contraception) shown here between two cyclic profiles of a smoking mother. The baseline profile was taken twice a day, morning and evening, and the All and PII records show not only the reproducibility but also how the post-ovulation follicular waves develop between the morning and evening hours. The smoker's consecutive profiles are similar to the baseline but exhibit a significant differences. Cycle 4 record captured a delayed ovulation and short luteal phase. Cycle 5 shows also a short luteal phase, an abnormally the luteal phase should be about 14 days long, give or take a day or two).

The Ovulograph links the call. The metric of ovulation is direct to human ovum

**'Improve the methods and criteria used to assess ovulatory dysfunction'**

Our electronic technology platform is bound to revolutionize women's healthcare with diagnostic tools for women and their doctors & payers.

The bioZhená Corporation mission: <https://biozhená.wordpress.com/biozhenas-mission-a-health-tool-for-every-woman/>

Our technology provides for non-interventional reproductive management, aiding conception and natural birth control without artificial pseudo-hormones, automatically detecting pregnancy as soon as conception occurs, whether planned or accidental. The home-use device provides for fetal gender pre-selection by timing conceptive intercourse with respect to ovulation.

After appropriate clinical trials, the Ovulona will provide [early warning of cervical cancer and other STDs](#) as a built-in screen performed innocuously and concurrently with the primary measurement of fertility status. Done in the privacy of one's home, this will avoid the problems of the Pap smear test (including high cost, reliability issues causing anxiety, uncomfortable, missed by many women).

The same hardware used in pregnancy will improve management of birthing, including prematurity - a major benefit for public health. Only SaaS (Software as a Service) software will change for this and any other application - a significant profitability factor.

To start, the trying-to-conceive women will benefit from the unprecedented ability to indicate in plain English the fertile window as FERTILE DAY 1, 2, and 3 = OVULATION. Delayed or completely missing ovulation is also detected. And, after clinical testing, another indication: CONCEPTION! - when the [Ovulona automatically detects pregnancy](#) instantly and more reliably than any home pregnancy test - and the smart sensor will automatically assess the birth EDD date (based on the date of the conceptive intercourse).

The Ovulona tracks the menstrual cycle folliculogenesis mechanism via the end-organ effect of the brain-ovary feedback interactions on the uterine cervix. Numerous benefits ensue in addition to noninvasive sex-life management.

**Ovulona** will be transformed into telemetric cervical ring  
Women and their doctors will have a choice

Cervical health screened concurrently with fertility status  
- user alerted when problem detected in several consecutive cycles

HydeDelLamater Understanding Human Sexuality, 6e. Copyright © 1997. The McGraw-Hill Companies, Inc. All Rights Reserved.