# The Difference of Menstrual Cycle Profile and Urinary Luteinizing Hormone Changes In Polycystic Ovary Syndrome And Healthy Women

**Authors :** Ning Li, Jiacheng Zhang, Zheng Yang, Sylvia Kang

**Abstract :** Introduction: Polycystic ovary syndrome (PCOS) is a common physiological symptom in women of reproductive age. Women with PCOS may have infrequent or prolonged menstrual periods and excess male hormone (androgen) levels. Mira analyzes the cycle profiles and the luteinizing hormone (LH) changes in urine, closely related to the fertility level of healthy women and PCOS women. From the difference between the two groups, Mira helps to understand the physiological state of PCOS women and their hormonal changes in the menstrual cycle. Methods: In this study, data from 1496 cycles and information from 342 women belonging to two groups (181 PCOS and 161 Healthy) were collected and analyzed. Women test their luteinizing hormone (LH) in urine daily with Mira fertility test wand and Mira analyzer, from the day after the menstruation to the starting day of the next menstruation. All the collected data meets Mira's user agreement and users' identification was removed. The cycle length, LH peak, and other cycle information of the PCOS group were compared with the Healthy group. Results: The average cycle length of PCOS women is 41 days and of the Healthy women is 33 days. 91.4% of cycle length is within 40 days for the Healthy group, while it decreases to 71.9% for the PCOS group. This means PCOS women have a longer menstrual cycle and more variation during the cycle. With more variation, the ovulation prediction becomes more difficult for the PCOS group. The deviation between the LH surge day and the predicted ovulation day, calculated by the starting day of the next menstruation minus 14 days, is greater in the PCOS group compared with the Healthy group. Also, 46.96% of PCOS women have an irregular cycle, and only 19.25% of healthy women show an irregular cycle. Conclusion: PCOS women have longer menstrual cycles and more variation during the menstrual cycles. The traditional ovulation prediction is not suitable for PCOS women.

**Keywords :** menstrual cycle, PCOS, urinary luteinizing hormone, Mira