

Estrogen and progesterone levels in the days following menstruation.

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Introduction

The menstrual cycle is a complex and tightly regulated process involving fluctuations in hormone levels, primarily estrogen and progesterone. Understanding these hormonal changes, especially in the days following menstruation, is crucial for women's health and well-being. In this article, we will explore the dynamic interplay between estrogen and progesterone during this phase of the menstrual cycle and how it affects the female body. The majority of women with dysfunctional uterine bleeding ovulate and have normal cyclical changes in gonadotropins, oestrogen and progesterone. To investigate whether the hormonal milieu at tissue level is different in these women, we measured the endometrial concentration of oestrogen and progesterone receptors at various stages of the menstrual cycle in women with normal menstrual loss (≤ 80 ml/cycle, $n = 40$) and dysfunctional uterine bleeding (> 80 ml/cycle, $n = 44$) [1].

Menstrual blood loss was measured using the alkaline haematin method. Receptor levels were measured in nuclear and cytosol extracts of endometrium using solid phase immunoassays, based on monoclonal antibodies against receptor protein, which measure the bound and unbound fractions of the receptors. We found endometrial oestrogen ($P < 0.01$) and progesterone ($P < 0.05$) receptor levels were higher in the late secretory phase in women with dysfunctional uterine bleeding compared with women with normal menstrual loss [2].

The menstrual cycle consists of several phases, with each phase characterized by specific hormonal changes and physiological events. The menstrual cycle begins with menstruation, typically lasting 3-7 days. During this phase, the uterine lining is shed, resulting in the expulsion of blood and tissue from the uterus. Estrogen and progesterone levels are at their lowest during menstruation. Following menstruation, the body enters the follicular phase. This phase can vary in duration but usually lasts around 10-14 days. It is characterized by the development of follicles in the ovaries, each containing an immature egg. Estrogen levels begin to rise during this phase, stimulating the thickening of the uterine lining in preparation for potential pregnancy [3].

Ovulation marks the midpoint of the menstrual cycle, occurring around day 14 in a typical 28-day cycle. It is triggered by a surge in luteinizing hormone (LH), which causes the mature follicle to release an egg. Estrogen levels peak just before ovulation, facilitating the release of the egg into the fallopian tube. During

this phase, the ruptured follicle transforms into the corpus luteum, which produces progesterone. Progesterone levels rise, reaching their peak about a week after ovulation. This hormone prepares the uterine lining for potential implantation of a fertilized egg. In the days immediately following menstruation, estrogen and progesterone levels are relatively low compared to other phases of the menstrual cycle. This phase is often referred to as the early follicular phase. Here's what happens to these hormones during this time, During the early follicular phase, estrogen levels begin to gradually rise but are still relatively low compared to later phases of the cycle. This modest increase in estrogen plays a role in stimulating the development of follicles in the ovaries. It also helps initiate the thickening of the uterine lining in preparation for potential pregnancy later in the cycle. Progesterone levels remain low during the early follicular phase. It is primarily produced during the luteal phase, following ovulation. The absence of significant progesterone during this time allows the uterine lining to remain thin and receptive to further growth as the menstrual cycle progresses [4].

The low estrogen and progesterone levels in the days following menstruation are associated with certain physiological effects and implications. Women may experience relatively stable moods during this phase, as hormonal fluctuations are minimal compared to other phases of the menstrual cycle. Some women may notice a temporary decrease in libido during the early follicular phase due to lower hormone levels. Estrogen levels gradually increase, which can lead to a gradual thickening of the uterine lining. As a result, the menstrual flow tends to be lighter and less intense toward the end of the early follicular phase. For women tracking their fertility, the days following menstruation are generally considered less fertile. However, it's essential to remember that accurate fertility tracking often requires a more comprehensive understanding of the entire menstrual cycle [5].

Conclusion

Estrogen and progesterone levels in the days following menstruation are relatively low, marking the early follicular phase of the menstrual cycle. These hormonal changes play a crucial role in preparing the body for the potential events of the upcoming cycle, including the development of follicles and the gradual thickening of the uterine lining. Understanding these hormonal dynamics is essential for women's reproductive health and fertility awareness.

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Received: 18-Aug-2023, Manuscript No. AAGGS-23-112657; Editor assigned: 21-Aug-2023, PreQC No. AAGGS-23-112657(PQ); Reviewed: 04-Sep-2023, QC No. AAGGS-23-112657; Revised: 06-Sep-2023, Manuscript No. AAGGS-23-112657(R); Published: 12-Sep-2023, DOI:10.35841/2591-7994-7.5.163

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