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# CYCLIC CHANGES IN CERVIX AND BREAST

## CERVIX

The mucus changes rhythmically throughout the cycle in response to ovarian function between the post menstrual and the mid cycle phase the quantity of mucus increases ten times and maximum at mid cycle precedes the rice in basal temperature by 1 to 3 days. At the time the mucus is very elastic showing maximum spinnbarkeit and sperm will penetrate readily. The secretion of cervical mucus stimulated oestrogen and inhibited by progesterone ,if the mucus is spread on a slide and left to dry it shows crystal pattern which is maximal about ovulation; at other times of the cycle ,in pregnancy or after the menopause ,crystallization is reduced or absent. This crystallization has been described as resembling fern or palm leaves. Projesteron exerts an inhibitory effect on the crystals as on the crystals as on the mucus itself.

 The mucus was a more sensitive indicator of oestrogen activity than the vaginal epithelium . the change from ferning smear at mid cycle to a non ferning cellular smear pre mensrually indicated a functioning corpus leteum.

## BREAST

The volumes and spin-lattice (T1) relaxation times of breast tissues and parenchymal water content were measured non-invasively by magnetic resonance imaging (MRI) in eight healthy women during four to eight consecutive menstrual cycles. Total breast volume, and parenchymal volume, T1 relaxation time and water content were lowest between days 6 and 15. Between days 16 and 28, parenchymal volume, T1 relaxation time and water content rose sharply by 38.9%, 15.1% and 24.5%, respectively, and peaked after day 25. Within 5 days of the onset of menses, parenchymal volume fell sharply by 30.3%, while water content declined by 17.5%. Rising parenchymal volume in the second half of the menstrual cycle is not solely due to increased tissue water content and provides in vivo evidence for both growth and increased tissue fluid at this time.

# HORMONAL REGULATION OF THE MENSTRUAL CYCLE

The menstrual cycle is regulated by a complex hormonal system with positive and negative feedback mechanisms and changes in sensitivity of peripheral tissues. Four concepts appear to be fundamental: regular, pulsatile secretion of LHR is necessary to the functioning of the system; regulation is to a great extent effected by the pituitary gland in response to changes in ovarian steroid levels; changes in ovarian steroid levels are due to regulatory changes in receptivity to pituitary hormones, as well as to variations in enzyme activities; at the periphery, changes in hormonal impacts are accompanied by modifications of receptivity to steroid hormones.The menstrual cycle is the most evident manifestation of an extremely complex phenomenon which concerns not only reproduction, but the general health of the individual. In the light of the most recent clinical acquisitions, the menstrual cycle can be described as follows: 1) regular, pulsatile secretion by the hypothalamus of luteinizing hormone-releasing hormone (LH-RH), which, in turn, liberates follicle stimulating hormone (FSH) and luteinizing hormone (LH); 2) the FSH makes possible the ovarian action of LH, which, in turn, permits the synthesis of estradiol; 3) negative feedback of estradiol and inhibin on the hypophysis cerebri; 4) ovulation is caused by a peak level of LH, but is dependent on progesterone levels; 5) synthesis of progesterone by the corpus luteum; 6) negative biofeedback of progesterone at the hypothalamic level; and 7) at the endometrial level increase in the number of estradiol receptors during the follicular phase and decrease of cytoplasmatic progesterone receptors during the luteal phase. The discovery of the mechanism of the menstrual cycle has helped women with hypothalamic disorders by using a pump releasing LH-RH in a pulsatile fashion.