

Female hormone estrogen:

The ovaries secrete two classes of hormones: estrogens and progestins; estradiol is the most important of the estrogens, and progesterone is the dominant progestin. In the nonpregnant female, essentially all of the estrogen compounds are secreted from the ovaries, with only minute amounts being synthesized in the adrenal cortex. Nearly all of the progesterone in nonpregnant females is produced in the corpus luteum; only small amounts are formed in the mature follicle during the day immediately before ovulation.

Functions of Estrogen Estrogens cause growth and proliferation of the cells of the female sex organs and other tissues associated with reproduction.

Estrogen Stimulates the Growth and Development of the Uterus and External Female Sex Organs. At puberty, the levels of estrogen rise rapidly, causing rapid growth in the ovaries, fallopian tubes, uterus, vagina, and external genitalia. The lining of the uterus, the endometrium, becomes thickened under the effect of estrogen, as discussed later.

Estrogens Stimulate Development of Stroma Tissue of the Breasts, Growth of an Extensive Ductile System, and Deposition of Fat in the Breasts. Estrogens initiate growth of the breasts and of the milk-producing apparatus. They are also responsible for the characteristic growth and external appearance of the mature female breast. However, they do not complete the job of converting the breasts into milk-producing organs.

Estrogen Causes Growth of the Skeleton by Stimulating Osteoblastic Activity. At puberty, the effect on the osteoblast causes a period of rapid growth in the long bones, although this “growth spurt” lasts only a few years because of the effect of estrogen to cause closure of the epiphyses of the bones. Longitudinal growth occurs only at the epiphyses, so once they are closed additional lengthening of the bones cannot take place.

Estrogen Has a Weak Effect to Increase Total Body Protein and Metabolic Rate. It promotes deposition of fat in the subcutaneous tissue, particularly in the breasts, hips, and thighs.