

NAME: YONREN NITA ORITSESEUNDEDE

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Cyclic Change In Cervix

The mucus change 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 the maximum at mid-cycle precedes the rise in basal temperature by 1 to 3 days. At this time the mucus is very elastic, showing maximum spinnbarkeit and sperm will penetrate readily. The secretion of cervical mucus is stimulated by oestrogen and inhibited by progesterone. If the mucus is spread on a slide and left to dry it shows a 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. Progesterone exerts an inhibitory effect on the crystals as on mucus itself.

Cyclic Change In Breasts

Each month, women go through changes in the hormones that make up the normal menstrual cycle. The hormone estrogen is produced by the ovaries in the first half of the menstrual cycle. It stimulates the growth of milk ducts in the breasts. The

increasing level of estrogen leads to ovulation halfway through the cycle. Next, the hormone progesterone takes over in the second half of the cycle. It stimulates the formation of the milk glands. These hormones are believed to be responsible for the cyclical changes that many women feel in their breasts just before menstruation. These include swelling, pain, and soreness. During menstruation, many women also have changes in breast texture. Their breasts may feel very lumpy.

Changes In The Cardiovascular System

The cardiovascular system consists of the heart, the blood vessels (veins and arteries), and the blood that circulates around the body. It is the transport system that supplies oxygen and nutritive substances absorbed from the gastrointestinal tract to all the cells, tissues and organs of the body, enabling them to generate the energy they need to perform their functions. It also returns carbon dioxide, the waste product of respiration, to the lungs, where it is breathed out. The chemical processes that go on in the body generate many waste products, which the blood transports to the kidneys and liver, where they are removed. Other functions of the cardiovascular system include the regulation of body temperature, and the circulation and delivery of hormones and other agents that regulate body functions. There are several significant changes in this complex system during pregnancy.

Respiratory Changes

During pregnancy, the amount of air moved in and out of the lungs increases by nearly 50% due to two factors:

- each breath contains a larger volume of air
- the rate of breathing (breaths per minute) increases slightly.

During pregnancy, many women find they get short of breath (cannot breathe as deeply as usual). This is because the growing baby crowds the mother's lungs and she has less room to breathe. But if a woman is also weak and tired, or if she is short of breath all of the time, she should be checked for signs of sickness, heart problems, anaemia or poor diet. Get medical advice if you think she may have any of these problems.

Skin Changes

Changes in the woman's hormones, and mechanical stretching of her growing abdomen and breasts, are responsible for several changes in the skin during pregnancy.

1, Linea nigra

This dark line may appear between the umbilicus (belly-button) and the symphysis pubis (pubic bone); in some pregnant women it may extend as high as the sternum (the bone between the breasts). It is a hormone-induced excess production of brown material (pigment) in the skin cells in this area. After delivery,

the line begins to fade, though it may never completely disappear.

2, Mask of pregnancy (chloasma)

Some women produce a brownish pigmentation of the skin over the face and forehead, known as the 'mask of pregnancy' (or chloasma). It gives a bronze look. It begins about the 16th week of pregnancy and gradually increases, but it usually fades after delivery. You will learn more about it in Study Session 8.

3, Stretch marks

As the woman's weight increases, stretching of the skin occurs over areas of maximal growth the abdomen, thighs and breasts. Pink or brownish stretch marks may appear in some women, which can be quite dramatic. They usually fade after delivery, although they never completely disappear.

4, Sweat glands

Activity of the sweat glands throughout the body usually increases during pregnancy, which causes the woman to perspire (sweat) more profusely than usual, particularly in hot weather or during physical work.

Changes In The Gastrointestinal System In Pregnancy

As you may remember from your high school biology, food and fluids enter the **gastrointestinal system** in the mouth, pass through the oesophagus, stomach and intestines, and solid waste exits at the anus. This very long tube from mouth to anus is often called the 'gut'. Proteins, fats and carbohydrates in our diet are broken down (digested) in the gut into units small enough to be absorbed from the intestines into nearby blood vessels. It is also the route by which nutritious substances, such as vitamins and minerals, enter the body.

During pregnancy, the muscles in the walls of the gastrointestinal system relax slightly, and the rate at which food is squeezed out of the stomach and along the intestines is slowed down.

The Heart

A number of changes happen to the heart and are unique to pregnancy. Increasing intra-abdominal contents displace the heart upward with some forward rotation. As a result the anterior posterior diameter and the cardiothoracic ratio are increased. The overall dimensions of the heart are increased during pregnancy as a result of increased diastolic heart volume without any change in the ventricular wall thickness. Systolic ejection murmurs are common in pregnancy while diastolic

murmurs are less frequent. The systolic murmurs are usually the result of the hyperdynamic circulation.

Electrocardiogram changes have been reported during pregnancy.

Transient ST and T changes are common in pregnancy, SRQ waves and inverted T waves in lead III. Left axis deviation of the QRS complex has been reported also in pregnancy.

Blood Pressure

A slight decrease in the systolic arterial blood pressure and a significant decrease in the diastolic pressure have been observed to occur in normal pregnancy. This decrease becomes evident in the late first trimester and continues throughout most of the second trimester. The lowest values are noted in mid pregnancy and there after the blood pressure returns toward non-pregnant levels before term. The degree of change in the blood pressure parameters has been found to be affected by parity, smoking, preexisting hypertension, maternal age and ethnic background. In the typical normal pregnancy the mean arterial pressure (diastolic plus $\frac{1}{3}$ of the difference between systolic and diastolic) is less than 85 mm of mercury. Studies have found that when the mean arterial blood pressure in the mid second trimester is higher than 90 mm of mercury, there is increased perinatal mortality and morbidity.