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ANSWER

The adaptations during pregnancy that a woman's body undergoes to accommodate the growing embryo or fetus. These physiologic changes are entirely normal, and include behavioral (brain), cardiovascular (heart and blood vessel), hematologic (blood), metabolic, renal (kidney), posture, and respiratory (breathing) changes. Increases in blood sugar, breathing, and cardiac output are all expected changes that allow a pregnant woman's body to facilitate the proper growth and development of the embryo or fetus during the pregnancy. The pregnant woman and

the placenta also produce many other hormones that have a broad range of effects during the pregnancy.

- **HORMONAL ADAPTATION**

Pregnant women experience numerous adjustments in their endocrine system that help support the developing fetus. The fetal-placental unit secretes steroid hormones and proteins that alter the function of various maternal endocrine glands. Sometimes, the changes in certain hormone levels and their effects on their target organs can lead to gestational diabetes and gestational hypertension.

- **BREASTS SIZE**

A woman's breasts grow during pregnancy, usually 1 to 2 cup sizes[citation needed] and potentially several cup sizes. A woman who wore a C cup bra prior to her pregnancy may need to buy an F cup or larger bra while nursing. A woman's torso also grows and her bra band size may increase one or two sizes. An average of 80% of women wear the wrong bra size, and mothers who are preparing to nurse can benefit from a professional bra fitting from a lactation consultant. Once the baby is born up to about 50–73 hours after birth, the mother will experience her breasts filling with milk (sometimes referred to as “the milk coming in”). Once lactation begins, the woman's breasts swell significantly and can feel achy, lumpy and heavy (which is referred to as engorgement).

- **CARDIOVASCULAR**

The heart adapts to the increased cardiac demand that occurs during pregnancy in many ways.

Cardiac output (Lit./Min.): 6.26

Stroke Volume (ML.): 75

Heart Rate (Per min.): 85

Blood Pressure: Unaffected

Cardiac output increases throughout early pregnancy, and peaks in the third trimester, usually to 30-50% above baseline. Estrogen mediates this rise in cardiac output by increasing the pre-load and stroke volume, mainly via a higher overall blood volume (which increases by 40–50%). The heart rate increases, but generally not above 100 beats/ minute. Total systematic vascular resistance decreases by 20% secondary to the vasodilatory effect of progesterone. Overall, the systolic and diastolic blood pressure drops 10–15 mm Hg in the first trimester and then returns to baseline in the second half of pregnancy. All of these cardiovascular adaptations can lead to common complaints, such as palpitations, decreased exercise tolerance, and dizziness.

- **RENAL AND LOWER REPRODUCTIVE TRACT**

Progesterone causes many changes to the genitourinary system. A pregnant woman may experience an increase in the size of the kidneys and ureter due to the increase blood volume and vasculature. Later in pregnancy, the woman might develop physiological hydronephrosis and hydroureter, which are normal. Progesterone causes vasodilatation and increased blood flow to the kidneys, and as a result glomerular filtration rate (GFR) commonly increases by 50%, returning to normal around 20 weeks postpartum. The increased GFR increases the excretion of protein, albumin, and glucose. The increased GFR leads to increased urinary output, which the woman may experience as increased urinary frequency. Progesterone also causes decreased

motility of the ureters, which can lead to stasis of the urine and hence an increased risk of urinary tract infection. Pregnancy alters the vaginal microbiota with a reduction in species/genus diversity. Physiological hydronephrosis may appear from six weeks.