

Fetal cardiorespiratory changes during spontaneous prelabor uterine contractions in sheep

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Fetal cardiorespiratory changes during spontaneous prelabor uterine contractions (called contractures) were studied in 12 chronically catheterized fetal sheep at 120 to 143 days' gestation. During contractures the carcass blood flow increased significantly from 27 ± 2 (SEM) to 32 ± 3 ml/min/100 gm. There were no significant changes in combined ventricular output or in blood flow to the umbilical circulation, brain, heart, adrenal glands, gut, kidney, and lung. Fetal arterial blood pressure increased from 57 ± 2 to 62 ± 1 mm Hg ($p < 0.001$) during contractions. There were no significant changes in fetal heart rate. In the fetal femoral artery during contractures the oxygen content decreased from 6.1 ± 0.2 to 5.4 ± 0.2 ml/dl of blood ($p < 0.001$), and carbon dioxide tension increased significantly from 44 ± 0.4 to 45 ± 0.4 mm Hg ($p < 0.001$). The pH did not change. The increase in carcass blood flow during contractures suggests that there was an increase in fetal skeletal muscular activity