

# Timed maternal melatonin treatment reverses circadian disruption of the fetal adrenal clock imposed by exposure to constant light

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Surprisingly, in our modern 24/7 society, there is scant information on the impact of developmental chronodisruption like the one experienced by shift worker pregnant women on fetal and postnatal physiology. There are important differences between the maternal and fetal circadian systems; for instance, the suprachiasmatic nucleus is the master clock in the mother but not in the fetus. Despite this, several tissues/organs display circadian oscillations in the fetus. Our hypothesis is that the maternal plasma melatonin rhythm drives the fetal circadian system, which in turn relies this information to other fetal tissues through corticosterone rhythmic signaling. The present data show that suppression of the maternal plasma melatonin circadian rhythm, secondary to exposure of pregnant rats to constant light along the second half of gestation, had several effects on fetal development. First, it induced intrauterine growth retardation. Second, in the fetal adrenal in vivo it markedly affect