

Abstract:

This thesis focuses on the synchronizing effect of obesity in mothers on ontogenesis of the circadian system in their offspring during gestation and postnatal life. Additionally, the work summarizes its impact on health of offspring in adulthood. During postnatal life, the central clock oscillator (SCN) is synchronized with external conditions through alternating period of light and darkness, but during prenatal ontogenesis of the main oscillator and peripheral oscillators, the SCN is synchronized with maternal signals, both behavioral, metabolic and hormonal. In the event of disruption of the maternal circadian and metabolic systems due to obesity, the circadian clocks of the offspring are incorrectly synchronized during gestation and breastfeeding, which may have a long-term effect on their health later during postnatal life. Maternal obesity is considered the main trigger for obesity occurring later.