



ARCTIC HEALTH

*An information portal to issues affecting the health and well-being
of our planet's northernmost inhabitants*

Maternal transfer of photoperiodic information in Siberian hamsters. IV. Peripubertal reproductive development in the absence of maternal photoperiodic signals during gestation.

<https://arctichealth.org/en/permalink/ahliterature65218>

Author: T H Horton
S A Stachecki
M H Stetson

Author Affiliation: Physiology and Anatomy Program, School of Life and Health Sciences, University of Delaware, Newark 19716.

Source: Biol Reprod. 1990 Mar;42(3):441-9

Date: Mar-1990

Language: English

Publication Type: Article

Keywords: Animals
Comparative Study
Cricetinae
Female
Light
Maternal-Fetal Exchange - physiology
Periodicity
Pineal Gland - physiology - surgery
Pregnancy
Pregnancy, Animal - physiology
Research Support, Non-U.S. Gov't
Research Support, U.S. Gov't, Non-P.H.S.
Research Support, U.S. Gov't, P.H.S.

Abstract: Peripubertal reproductive development of Siberian hamsters is influenced by photoperiodic information received during gestation; the maternal pineal is important for this process. We observed that in the absence of the maternal pineal, the fetus appears to receive no information about gestational photoperiods. This is not the equivalent of receipt of a long-day signal by the fetus. Pinealectomized and sham-operated pregnant females were exposed to photoperiods of 12L:12D, 14L:10D, 16L:8D, or constant light (LL); young were reared from birth to 28 days of age in LL or 14L:10D. Regardless of the gestational photoperiod, LL-reared male young born to pinealectomized dams had smaller testes than LL-reared young of pineal-intact dams exposed to 16L:8D while pregnant. Thus, pinealectomy did not result in transmission of a long-day signal, nor did young born of pinealectomized dams receive short- or intermediate-day signals. Unlike young of pineal-intact females exposed to 12L:12D or 14L:10D while pregnant, young born of pinealectomized dams had small testes when reared in 14L:10D, irrespective of gestational photoperiod. Uterine weights of female young presented similar patterns of responses. In a second experiment, adult females were entrained to 12L:12D, 14L:10D, or 16L:8D for 3 wk prior to pinealectomy to determine if the effect of maternal pinealectomy would be altered. Entrainment to the new photoperiod prior to surgery did not alter the effects of maternal pinealectomy.

PubMed ID: 2340330 [View in PubMed](#) 