

Abstract

This work describes the most studied mechanisms which could be classified as maternal effects. Here I focus on the effects of body weight, health status, intestinal microflora and age of the mother in model rodent organisms. I also present factors such as the position of the young in the uterus, population density, stress and especially maternal care, which accompanies this entire work. Each of these mechanisms can positively or negatively influence offspring fitness, depending on specific environmental conditions. Maternal behaviour is presented here in the form of research, which documents both epigenetic and genetic influences acting on its final form. Maternal care as an element of maternal behaviour shows a different measure between individuals, indicated by the frequency of licking and cleaning offsprings. By evaluation of maternal care, we can find in laboratory populations two stable phenotypes of individuals with different behavioural manifestations in terms of sexual behaviour, stress reaction, aggression or cognitive abilities. The discussion critically evaluates whether maternal care really affects reproductive success and whether it can therefore be considered an adaptive mechanism. According to the available information, low maternal care appears to be a more beneficial strategy in laboratory conditions, so it is a question for future research what are the other characteristic which maintains females with a high level of maternal care in population.

Keywords: epigenetics, genetics, maternal effect, maternal behaviour, maternal care, mouse, rat, sexual behaviour