Effects of variations in neurotrophic 5-HT on development

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Abstract

The aim of this study was to disentangle the neurotrophic influence of 5-HT in development. To this end, heterozygous male offspring of 5-HTT KO and WT rats were subjected to a fostering paradigm. Development was subsequently assessed in terms of maternal care, eye opening, weight, reflex development, olfactory discrimination and open field behaviour. There were distinct differences in maternal care depending on genotype; WT care was characterised by increased grooming while KO care was characterised by increased nursing. During infancy, pups of 5-HTT KO origin under WT care were the swiftest to open their eyes and pups of 5-HTT KO origin under KO care were the heaviest, though no other developmental differences were detected. During adolescence and adulthood, all animals under genotype congruent care were the heaviest and in case of 5-HTT KO origin under KO care also the least anxious. These findings indicate that variations in maternal care styles have differing developmental outcomes depending on the placental 5-HT levels of the offspring.

Keywords: 5-HT, 5-HTT, maternal care, fostering, development, placenta