Neonatal capsaicin treatment impairs functional properties of primary olfactory afferents in the rat

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Long-lasting influences of neonatal capsaicin treatment on functional properties of the olfactory nerve were studied in 30-day-old rats by determining excitability thresholds of nerve fibres by means of orthodromic field potentials elicited in the main olfactory bulb, as well as by analyzing the pattern of the low-frequency component of the bulbar electroencephalogram. In addition, body, brain and olfactory bulbar weights were measured. Neonatal capsaicin resulted in reduced excitability of primary olfactory afferents and reduced wave amplitude of the bulbar electroencephalogram. Capsaicin treated animals had reduced body, brain and bulbar weights, the latter being the most affected. The result indicates that capsaicin given early in life leads to altered transmission properties of olfactory nerve fibres at later age, suggesting that olfactory afferents are sensitive to the neurotoxic action of capsaicin as occurs in other chemosensory afferent systems.