

MIGRATION APPARENTLY NOT RESPONSIBLE FOR INCREASE IN ADULT SNB MOTONEURONS FOLLOWING SHORT-TERM TREATMENT WITH TESTOSTERONE

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The spinal nucleus of the bulbocavernosus (SNB) is a sexually dimorphic nucleus that innervates perineal muscles important in copulation and contains more motoneurons in males than in females. Sexual dimorphism in the gerbil SNB is achieved by a postnatal increase in motoneurons in the male and is androgen dependent. The number of SNB motoneurons in males castrated at postnatal day (PND) 25 increases within 2 days when animals are treated with testosterone propionate (TP) as adults.

This research examined whether the increase in SNB motoneurons in TP-treated PND25 castrates results from migration of existing motoneurons from the ventral horn to the SNB. Male gerbils castrated at PND25 were injected daily with TP or vehicle alone (control) as adults (~PND100). Coincident with the first treatment, a fluorescent retrograde tract tracer, Fluorogold (FG), was injected into the bulbocavernosus of each animal. Spinal cords were collected after 2 days of treatment and FG-labeled SNB motoneurons counted and their positions in a 25-square grid noted. Seminal vesicles and perineal muscles were also collected and weighed for comparison between treatment groups. FG-labeled motoneurons were seen in the SNB and ventral horn in both treatment groups. Both the number of motoneurons and their location in the grid were similar between the treatment groups. These results suggest that migration of existing motoneurons from the ventral horn to the SNB is not the source of new motoneurons appearing in the SNB of TP-treated animals. This project was funded by a grant from the Dr. George W. Bagby Research Fund.