

## **ANABOLIC ANDROGENIC STEROIDS INFLUENCE THE EXPRESSION OF BRAIN NERVE GROWTH FACTOR IN THE RAT**

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Anabolic androgenic steroids (AAS) are synthetic androgen-like compounds which are abused in sport communities despite their reported side effects. Nerve growth factor (NGF) influences the proliferation, differentiation, survival and death of neuronal cells. In addition to its established functions for cell survival, NGF, as well as other neurotrophins, also mediates higher brain activities such as learning and memory. Changes in NGF expression levels have thus been implicated in neurodegenerative disorders, such as Alzheimer's disease, that are characterized by progressive loss of memory and deterioration of higher cognitive functions. Here we have studied the effect of AAS on NGF and its receptors (TrkA and p75). Two AAS were tested in the adult male Wistar rat: nandrolone and stanozolol. Doses of 5 mg/kg were given 5 times/week for 4 weeks. Controls rats received vehicle (sesame oil). NGF protein content was measured by ELISA in the hippocampus and basal forebrain. In the same areas, TrkA and p75 expression was analyzed by Western blot. Results have shown that both AAS significantly (Dunnett test) increased hippocampal NGF content, while reduced the content of this neurotrophin in the basal forebrain. TrkA expression in the hippocampus was not affected by the two AAS. On the contrary, in this limbic region a significant reduction in the expression of p75 was observed after either nandrolone or stanozolol treatment. Finally, no effects were produced by the two anabolic steroids in the basal forebrain expression of both TrkA and p75 receptors. On these bases it could be proposed that chronic use of AAS is followed by selective disturbances in the NGF distribution within the CNS. This effect, which could have pathological consequences, may arise from a failure in the normal retrograde transport of NGF.

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