

Nandrolone Decanoate associated with exercise training inhibit vascular endothelial growth factor (VEGF) mRNA expression in rat soleus muscle #56

Milena de Moura Paschoal, Rita de Cássia Marqueti, Uliana S. Stotzer, Heloísa S. Selistre-de-Araújo.

Department of Physiological Sciences, Federal University of São Carlos (USFCar)/SP, Brazil.

E-mail: mimpaschoal@gmail.com

Androgenic-anabolic steroids (AAS) have been used for both performance improvement and aesthetic reasons. It is well known that high doses of AAS induce serious adverse effects such as skeletal muscle injuries, including increase in the rate of muscle strains/ruptures. Vascular endothelial growth factor (VEGF) is a key factor in angiogenesis induction on both physiological and pathological conditions. The aim of this study was to investigate VEGF mRNA expression in rat soleus muscle after jumping training associated with AAS administration. Wistar rats were grouped into: sedentary (S); trained without AAS (T); sedentary nandrolone decanoate (ND)-treated (AAS); and trained with AAS (AAST). The trained groups carried out jumps in water at 32°C.: 4 series of 10 jumps each, with a 30-second interval among series, for 7 weeks, with 50-80% overload of the animal corporal mass. The AAS (Decadurabolin® - 5mg/kg) was injected subcutaneously in the animal's back twice a week. Real-time PCR analyses showed that training significantly increased VEGF mRNA expression in comparison with the S and AAS groups. When exercise training was associated with nandrolone decanoate, the VEGF mRNA expression was inhibited compared with T group. The inhibition of VEGF expression by AAS administration can decrease angiogenesis in skeletal muscle. These results suggest that the AAS may be strongly prejudicial to muscle remodeling and performance.

Key words: androgenic-anabolic steroids; skeletal muscle; vascular endothelial growth factor; jumping exercise.

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