

Relationship among Anthropometric Indices & Motor Nerve Conduction Velocity of Radial & Ulnar Nerves in Aerobic Trained Athletes

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Abstract

The purpose of this study was to investigate the relationship among anthropometric indices (upper extremity lengths and circumferences) and motor nerve conduction velocity (MNCV) of radial & ulnar nerve (bilateral side) in aerobic trained athletes (long distance runners & cyclists). A total of 50 male long distance runners & cyclists with an average age, height and weight of 23±2 years, 172.8±5.8 cm and 70.05±4.2 Kg respectively, volunteered to participate in this study. Each subject's MNCV was measured with the help of computerized equipment called "NEUROPERFECT" (Medicaid Systems, India) and the data was analyzed using Mean ±SD and Pearson correlation. Results shows that MNCV of right radial and left radial was negatively and significantly related with right upper arm length ($r=0.40$ $p < 0.01$) and left upper arm length ($r=0.37$ $p < 0.05$). But a positive and significant relationship of MNCV of right ulnar and left ulnar was found between right upper arm circumference ($r=0.33$ $p < 0.05$) and left upper arm circumference ($r=0.36$ $p < 0.05$). Thus, it is concluded that the positive relationship of MNCV of radial and ulnar nerve in aerobic trained athletes may be the result of their long term training adaptations which may be further related to their pattern of movement requirement.

Key Words: Long Distance Runners, Cyclists

Introduction

Theorists have pointed to the contribution of neurological system to the performance of the athletes of different sports due to the requirement of different motor actions (*Payne & Morrow, 1993*). The findings of nerve conduction velocity may give explanations for poor performance of the athletes due to poor muscle coordination and/or weakness of muscle actions (*Wilbourn, 1990*). It is more meaningful and interesting to observe the relationship of anthropometric indices and motor nerve conduction velocity in upper extremities of aerobic trained athlete like long distance runners

& cyclists, who need to control their movement patterns accurately and maintained pace or speed during the performance and this requires neural adaptation in them. In theory, changes in MNCV may be an indicator of improved neural adaptations in athletes due to their exercise training program. *Halar et al (1985)* pointed out that the influence of physical activity is not the same for all types of exercise and that not all nerves may be affected in the same way. *Campbell et al (1981)* reported that the motor nerve conduction velocity is also influenced by other variables like body segment lengths/breadths and circumferences/girths. Longer nerves