Abstract
This study aimed to verify how a severe increase in running volume induced new alterations in several physiological and performance indicators, in previously well-trained subjects in endurance running. Three subjects running 10-12 km.day-1, increased running volume to 35.8 ± 6.2 km . day-1. The following parameters were assessed: VO2max, Running Economy, Ventilatory Threshold (VT), Squat Jump (SJ), Counter Movement Jump (CMJ), 15" Repeated Jump (15" RJ), and Body mass. Absolute VO2max didn’t change (4.6 ± 0.17 to 4.6 ± 0.2 L . min-1). Relative VO2max improved clearly (61.7 ± 2.5 to 66.7 ± 2.4 ml . kg-1 . min-1). Oxygen consumption at 16 km . h-1 showed a slight decrease (42.8 ± 3.3 to 41.5 ± 2.5 ml . kg-1 . min-1) decreasing markedly when related to VO2max (69.4 ± 4.6 to 62.2 ± 3.1%). Energetic cost at VT increased differently among subjects (53.5 ± 4.6 to 56.5 ± 3.8 ml . kg-1 . min-1); when related to VO2max VT decrease in two subjects. The velocity attained at VT remained the same (18 km.h-1). Body mass was sharply reduced (72.6 ± 6.4 kg to 69.2 ± 5.5 kg). Jump performance decreased 7.7% for SJ (33.8 ± 2.8 to 31.3 ± 2.9 cm), 10.4% for CMJ (35.6 ± 2.4 to 31.9 ± 0.9 cm), and 17.7% for 15¿ RJ (25.6 ± 1.4 for 21.1 ± 2.5 W. kg-1). The dramatic increasing in running volume induced new physiological and motor alterations in well trained subjects.

Keywords
Endurance training, VO2max, running economy, ventilatory threshold, SJ, CMJ.