

THE INFLUENCE OF ACTN3 GENOTYPE ON THE CHANGES OF ANAEROBIC TRESHOLD AND Yo- Yo INTERMITTENT ENDURANCE TEST LEVEL 2 OF SOCCER PLAYERS AGED 15-17 YEARS

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AIMS

Determination of:

1. ACTN3 genotype
2. Anaerobic threshold and speed of running and total distance covered with Yo-Yo IE2.
3. The influence of ACTN3 genotype on the changes of anaerobic threshold and Yo-Yo intermittent endurance test level 2

of soccer players aged 15-17 years.

MATERIAL AND METHODS

46 soccer players, aged 15-17 years, were included in this study. During a training and competition process of 4 months, three times (at the beginning- P_1 , in the middle- P_2 and after the finishing of this process- P_3), we measured: ACTN3 genotype from abstracted genomic DNA (RR, XX and RX variant); anaerobic threshold (AnT, km/h) with Conconi protocol on treadmill and maximal treadmill speed (km/h); speed of running (km/h) and total distance covered (m) with Yo-Yo intermittent endurance test level 2 on field (Yo-Yo IE2). We used descriptive statistics, ANOVA and multiple regression analysis ($p < 0.05$).

RESULTS

Figure 1. Frequency distribution of α -aktin-3 (ACTN3)R577X genotype of 46 soccer players aged 15-17 years

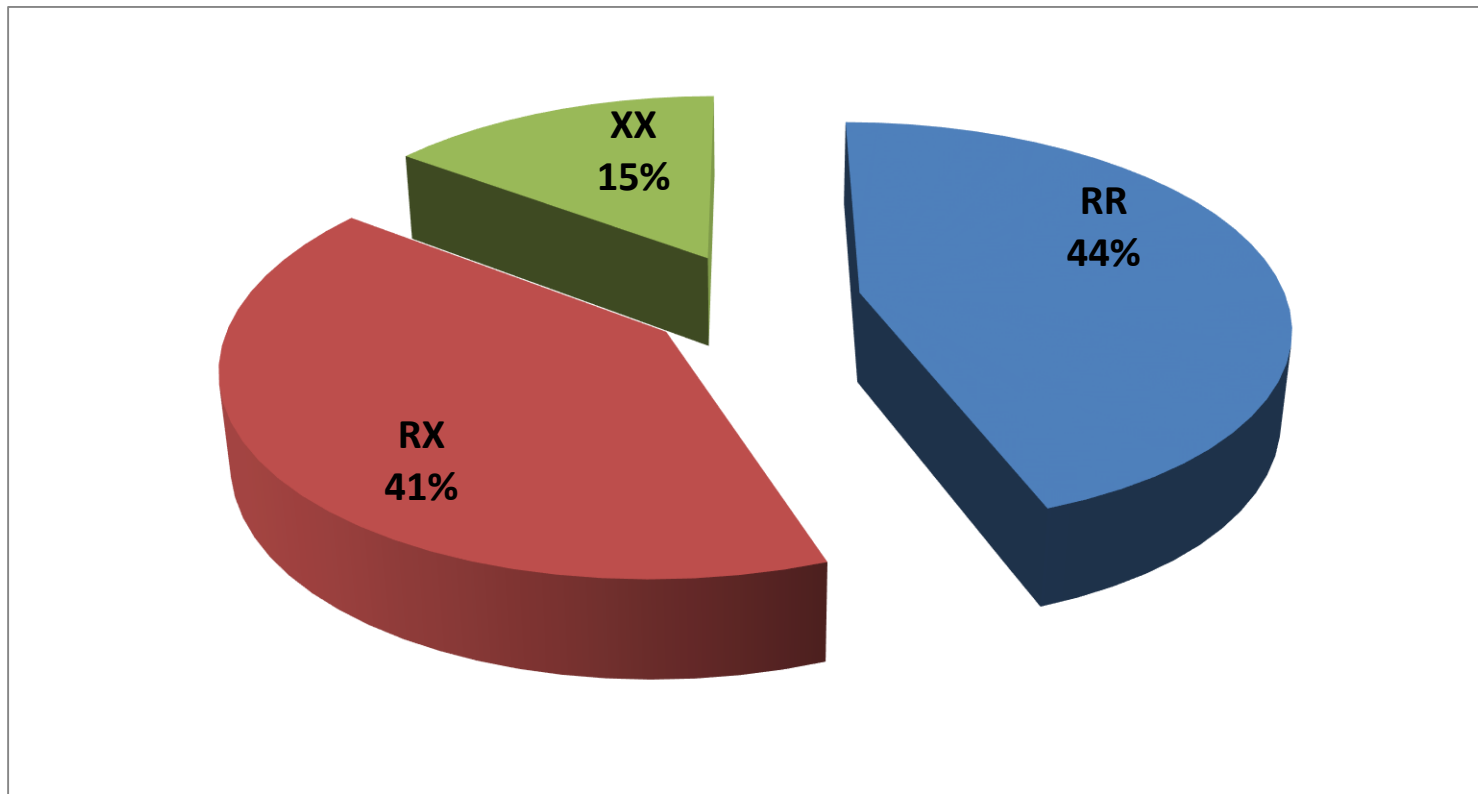
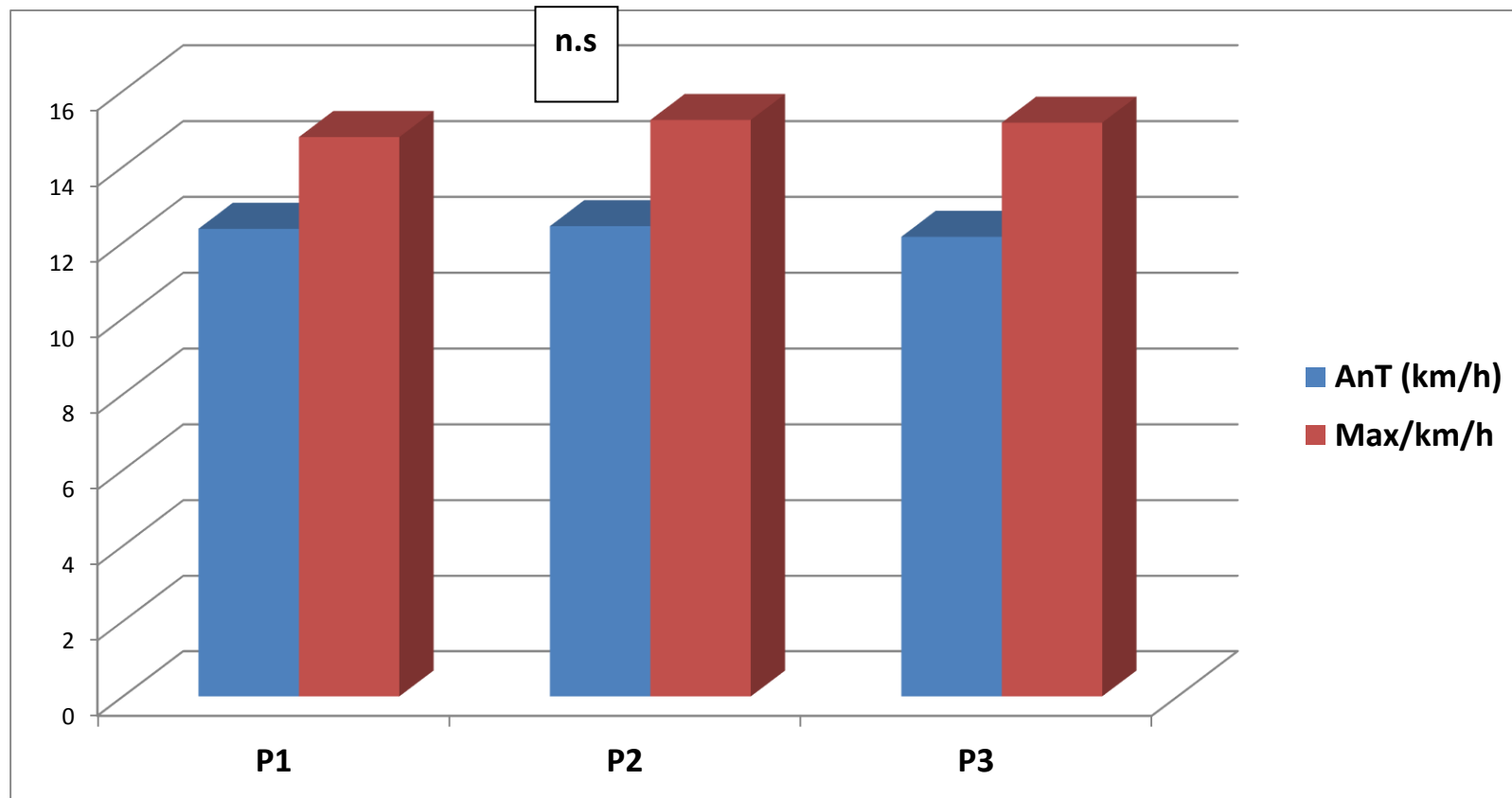


Figure 2. The changes of AnT and maximal speed of treadmill running of soccer players, aged 15-17 years, during a training and competition process.



n.s - no significances ($p < 0.05$)

Tabel 1. The changes of speed of running (km/h) and total distance covered (m) with Yo-Yo intermittent endurance test level 2 on field (Yo-Yo IE2) of soccer players, aged 15-17 years, during a training and competition process.

	Speed of running (km/h)	Total distance (m)
P₁	14.86	1454.73
P₂	15.22	1606.31
P₃	15.36	1675.78
p<0.05	n.s.	n.s.

CONCLUSIONS AND DISCUSSION

- Generally, frequency distribution of α -ACTIN-3 (ACTN3) R577X genotype is in accordance with the data from the literature for frequency distribution of this genotype in professional soccer players (48,3% RR, 36,7% RX and 15% XX – Santiago et al, 2008).
- Insignificant change of AnT during training and competition process suggests that there is no serious progress in aerobic capacities of players, aged 15-17 years. The most data from the literature show that increasing of soccer performance is connected with significant increasing of AnT – ***There is a need of a new strategy of increasing the AnT in training process of these players.***
- Although there was an increase of speed of running and total distance covered with Yo-Yo EI2 during the training and competition process, the

insignificancy of this increase suggests that there was no serious progress in aerobic capacities of players, aged 15-17 years.

- ***Our results did not show a significant influence of ACTN3 genotype on the changes of anaerobic threshold and Yo-Yo intermittent endurance test level 2***

