THE EFFECTS OF DETRAINING ON LOWER FORCE AND MAXIMUM AEROBIC POWER IN PRE-PUBESCENT FOOTBALL ATHLETES

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Introduction

Detraining results in the loss of cardiovascular and metabolic characteristics and consequently results in the reduction of VO2max and muscular strength (Coyle, 1994, Evangelista & Brum, 1999). For most researchers the VO2max is an indicator of greater fidelity in the characterization of aerobic power of an individual, as well as their level of fitness (1,2,3,4,5,6). Because detraining in young athletes has received little attention, is important to discuss this area. In adults, training-induced increases in muscle strength and VO2max appear to decline during detraining about and in the same rate as they increase during training. To date, only one study (Blimkie et al., 1989) looked at the effects of 8 weeks of detraining in prepubertal boys following 20 weeks of resistance training. The training-induced strength gains regressed towards the growth-adjusted control level during the detraining period, suggesting that alike with adults, training adaptations are reversible (Blimkie et al., 1989). The aim of this study was to know the effect of detraining in a period of 34 days on the Maximum Aerobic Power (MAP) and Lower Force (LF), in pre-pubescent children football players.

Methods

Eight pre-pubescent male football players (age 12.75 ± 0.71years; weight 41.46 ± 6.66 kg; height 1,51 ± 0.06 cm; BMI 19,30 ± 3,59) were assessed before and after 5 weeks of a detraining period. A *Modified Balke* maximal protocol using ergo-spirometry procedures (*Cosmed® K4b²*) was selected to determine VO2max and the Ventilatory Anaerobic Threshold (VAT) as estimates for the aerobic capacity. To access the LF a *Coutermovement Jump* (CMJ) was made in the *Ergojump®*. Data comparisons were set to determine the relationships between the parameters resulting from testing.

Results

Parâmetros	Minimum	Maximum	x	SD
VO_{2max} (ml.min^{-1})	2308	4437	3334,88	747,81
VO_{2max} 2 (ml.min^{-1})	2246	4201	3172,88	710,64
VO_{2max}/kg (ml.kg.min^{-1})	58,38	77,02	69,27	5,41
VO_{2max}/kg 2 (ml.kg.min^{-1})	53,32	70,76	63,22	4,95
R_{max}	1,20	1,97	1,40	0,24
R_{max} 2	1,13	1,55	1,33	0,16
VE_{max} (ml.min^{-1})	74,4	135,60	108,05	23,16
VE_{max} 2 (ml.min^{-1})	86,0	139,50	112,61	20,21
HR_{max} (bat.min^{-1})	175	205	195,50	10,16
HR_{max} 2 (bat.min^{-1})	179	219	197,50	12,62
Lower Force	30,4	40,1	34,163	3,2967
Lower Force 2	28,2	40,3	32,600	3,9785

Table 1 – Results from the 2 moments of testing .

Parâmetros	Sig.	t	Sig. (2-tailed)
VO_{2max} (ml.min^{-1})	0,005	1,222	0,261
VO_{2max}/kg (ml.kg.min^{-1})	**0,029**	**4,735**	**0,002**
R_{max}	0,936	0,721	0,494
VE_{max} (ml.min^{-1})	0,050	-0,766	0,469
HR_{max} (bat.min^{-1})	0,854	-0,337	0,746
Lower Force	0,019	1,814	0,113

Table 2 – Comparison between the groups (T-Test).

The MAP (VO2max/kg) show a significant difference from the pre *vs* post detraining period (69,27 ± 5,41 ml.kg.min^{-1} *vs* 63,22 ± 4,95 ml.kg.min^{-1}, p=0,002) however the LF doesn't report significant changes.

Discussion/Conclusions

The results suggest that 5 weeks of detraining decrease the MAP (VO2max/kg) of pre-pubescent football players although not significant changes were report on the LS parameter.

References

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