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EFFECT OF EXTREME ENVIRONMENTAL CONDITIONS ON PHYSICAL ACTIVITY PATTERNS OF SOCCER PLAYERS
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Soccer teams may sometimes be obliged to play under different environmental conditions. Activity patterns of players differ under different environmental conditions. In this study, we aimed to evaluate the effect of weather conditions on the physical activity patterns of soccer players during a match.

Purpose: The purpose of this study was to evaluate the effect of weather conditions on the physical activity patterns of soccer players during a match.

Methods: A total of 10 soccer players participated in the study. The players were divided into two groups: one group played in hot and humid conditions, while the other group played in cold and humid conditions. The physical activity patterns of the players were measured using wearable sensors.

Results: The physical activity patterns of the players were significantly different between the two conditions. The players in the hot and humid condition showed a decrease in heart rate and an increase in speed during the match. The players in the cold and humid condition showed an increase in heart rate and a decrease in speed during the match.

Conclusion: The physical activity patterns of soccer players are significantly affected by environmental conditions. More research is needed to better understand the effects of different environmental conditions on the physical activity patterns of soccer players.
HORMONAL AND NEUROENDOCRINE RESPONSES AND TRAINING ADAPTATIONS FOLLOWING 8-WEEKS OF PRE-SEASONAL PREPARATION PERIOD IN YOUNG HIGH-LEVEL SOCCER PLAYERS

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Introduction: Various hormonal responses to training-stress are measured for examining training adaptations particularly in adults’ athletes. However, little information is available regarding hormonal and neuroendocrine responses to intense pre-seasonal preparation training in young athletes, in particular among soccer-players. The purpose therefore of the present study was to examine neuroendocrine and selected hormonal responses and their association with physiological adaptations to 8-weeks of pre-seasonal preparation training in young high-level male soccer-players.

Methods:
All anthropometric measurements, physical fitness components and neuroendocrine and hormonal responses of eighteen (n = 18) well-trained players were evaluated in three occasions: at base-line, immediately prior to the initiation of preparation period (pre-conditioning) and 48-hours following the completion of the 8-weeks’ training program (post-conditioning).

Results: Total IGF-1, growth hormone (GH), plasma testosterone (T) and cortisol (C) and T/C ratio were not different between assessments but plasma prolactin (PIT) (p = 0.001) was significantly lower at post-training period. Body weight (p = 0.349), BMI (p = 0.266), resting systolic (p = 0.230) and diastolic (p = 0.527) blood pressure and sit and reach flexibility (p = 0.61) were not different among measures but HRI(max) (p = 0.014) was significantly lower at post-conditioning evaluation. Body fat percentage (%) (p = 0.0005) was lower and aerobic capacity (p = 0.0005), leg explosiveness (p = 0.0005), and muscular endurance (min-sit-ups (p = 0.001) and 1 min-push-ups (p = 0.029)) were improved by the end of preparation period. There was a significant negative correlation between endurance capacity and resting plasma PIF levels. No correlation was observed between plasma IGF-1, GH, T, C and the other fitness components, which were all examined separately.

Discussion: The present study suggests that although the overload pre-seasonal training program improved soccer-specific fitness components of young high-level soccer players, several selected hormonal responses (e.g. total IGF-1, GH, plasma T and C and T/C ratio) were not influenced by the pre-seasonal training program with the exception of the reduction in resting plasma PIF concentration. Consequently, the study may be reflected an increase in brain serotonin system adaptations and/or tolerance to intense soccer pre-seasonal training. The present study provides preliminary evidence for using resting levels of plasma PIF as an indicator for training adaptations to pre-seasonal preparation period in young sub-elite soccer players.

AGE-RELATED DEVELOPMENT OF BIOLOGICAL- AND PERFORMANCE INDICES OF AUSTRIAN SOCCER PLAYERS

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Introduction: Soccer is characterized by numerous sprint bursts interspersed by brief recovery periods over an extended period of time (60-90 minutes) activating both, the aerobic and the anaerobic energy systems. This study was intended to examine the age-related development of aerobic endurance and sprint velocity of seven age-related sub-groups of adolescent soccer players ranging from 7-18 yrs in comparison to elite players of the Senior League.

Methods: The sample included 105 soccer players (at least 11 players were tested in every sub-group). Biological development of height, body mass and body mass index were measured and two tests of functional capacity: Aerobic fitness: 20-m multistage shuttle run (20 SRT) and sprint running abilities (sub-intervals and total time of a 30 m dash measured electronically) were administered. Estimated relative maximum of oxygen uptake (rel. VO2max) was predicted from age and maximum speed of the 20 SRT.

Results: Anthropometric data, sprint abilities and endurance performance improved continuously with increasing age. However, the performance improvement in speed and endurance capabilities was only significant in terms having an age difference of 3 and more years. The only exception in this respect was detected is between the players being 14 yrs old and those being 16 yrs old were a significant gap in performance indices existed probably due to the growth spurt. It is remarkable however, that there are no significant differences between the teams of the under 16- and under 18 year old soccer players, and players of the male elite team in aerobic performance and sprint abilities. Surprisingly, there was a highly significant correlation between endurance performance and quickness of the tested players leading to the result that those players who had higher developed aerobic endurance performance also were the fastest players.