



A COMPARISON STUDY ABOUT THE
ACTUAL LEVEL OF HEART RATE AND
OXYGEN MONITORING DURING
CARDIORESPIRATORY FITNESS TEST IN
CHILDREN AND YOUTH FOOTBALLERS.



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Introduction

- ▶ Modern association football (soccer) is characterized by highly dynamic and acyclical game movements, interspersed with frequent bouts of high-speed movements and a number of high variability of actions, players' motor, and mental preparation as well as technical-tactical skills monitoring all these actions using time-motion analysis (TMA).

Introduction

- ▶ The number of studies on match running performance has exponentially increased over the current decade in youth football (soccer) populations, providing information that could aid the development of physical conditioning programs. Most of the professional football academies are seeking to optimize the early detection and physical development of their young football players according to age and playing position

Aims

- ▶ There are a few studies about the heart rate monitoring and oxygen status with regard to youth in sport during different physical performance in games and practices. For this reason, a comparison study about -the actual level of heart rate and oxygen monitoring during cardiorespiratory fitness test in children and youth footballers living in Tirana, Albania.

Methods

- ▶ In total 88 children (U11- N=28; U13- N=29 and U15- N=31) youth footballers were tested for cardiorespiratory fitness (Shuttle Run 20 m test). Heart rate status and oxygen were monitoring before beginning the test, at the moment that they were finished the test and 5 min at rest after finishing the test.

Results

| Descriptive Statistics | | | |
|------------------------|------------|-------|----------------|
| Team | | Mean | Std. Deviation |
| U11 | Total_Laps | 37.86 | 13.945 |
| | Level | 5.14 | 1.464 |
| | Level_Laps | 4.14 | 2.34 |
| U13 | Total_Laps | 59.67 | 17.122 |
| | Level | 7.25 | 1.765 |
| | Level_Laps | 5.5 | 2.97 |
| U15 | Total_Laps | 50.38 | 15.479 |
| | Level | 6.38 | 1.758 |
| | Level_Laps | 4.85 | 2.035 |

| Team | | N | Minimum | Maximum | Mean | Std. Deviation |
|------|-------------|----|---------|---------|--------|----------------|
| U11 | Body_Height | 28 | 1.3 | 1.6 | 1.412 | 0.0681 |
| | Body_Weight | 28 | 28.4 | 57.1 | 37.178 | 6.4179 |
| | Waist | 28 | 51 | 81 | 63.111 | 7.5791 |
| U13 | Body_Height | 29 | 0 | 1.7 | 1.473 | 0.3138 |
| | Body_Weight | 29 | 25.4 | 70 | 44.396 | 8.9901 |
| | Waist | 29 | 56 | 84 | 68.664 | 6.8466 |

| Team | U11 | | U13 | | U15 | |
|---------------------|-------|----------------|-------|----------------|-------|----------------|
| | Mean | Std. Deviation | Mean | Std. Deviation | Mean | Std. Deviation |
| HeartRate_pre | 96.3 | 7.6 | 94.7 | 14.4 | 99.3 | 17.1 |
| HeartRate_after | 145.6 | 16.6 | 162.8 | 26.9 | 162.9 | 22.0 |
| HeartRate_after5min | 106.0 | 7.4 | 109.6 | 11.4 | 120.6 | 15.1 |
| O2_pre | 98.7 | 0.5 | 97.5 | 2.5 | 96.7 | 3.7 |
| O2_after | 96.9 | 2.7 | 96.0 | 3.4 | 93.4 | 13.8 |
| O2_after5min | 98.4 | 11.1 | 97.2 | 3.2 | 96.9 | 2.8 |

Conclusion

- ▶ ANOVA test found no significant difference with regard to oxygen monitoring between 3 age groups while statistical significant difference was found between groups with regard to heart rate monitoring. These data will help coaches firstly to monitor the health of athletes and secondly this data are valuable to assess cardiac performance in this age of athletes

▶ Thank you