

## Turkish Society of Physiological Sciences 42<sup>nd</sup> National Physiology Congress

**RESULTS:** It was appeared as a result of analyses that waking up responses of spit cortisol level increase in game day and decrease the day after. It is seen in the samples taken in match day, cortisol levels of athletes increase 30 minutes before competition and decrease in the samples taken in half time. It is determined that the samples taken the day before match and the day after match are similar to each other. No significant difference is appeared statistically considering the different days ( $P>0.05$ ).

**CONCLUSIONS:** According to the findings, no significant difference was observed in the cortisol levels of waking up responses considering different days. Moreover, it was observed that athletes are able to control their stress levels particularly according to the samples taken match day.

### PC046

#### The Relationship Between Some Respiratory Functions and Maximal Oxygen Consumption in Prepubescent Girl Football Players

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**AIM:** The purpose of this study was to examine the relationship between various respiratory parameters and maximal oxygen consumption determined by YO-YO test in football trained girls.

**METHODS:** Twenty two girls who were engaged in football training (mean age:  $12.95 \pm 1.96$  years; mean height:  $151.20 \pm 9.35$  cm; mean weight:  $42.99 \pm 10.32$  kg) volunteered to participate in the study. All subjects had trained at least 90 minutes per day, 4-5 days a week and were members of the same team that gained success at the national level. Forced vital capacity (FVC), forced expiratory volume in one second (FEV1), maximum expiratory flow (PEF), forced expiratory flow rate medium (FEF25-75) and maximum voluntary ventilation (MVV) measurements were taken to determine the respiratory function using the Spirolab III spirometry (Medical International Research). Maximal oxygen consumption ( $VO_{2max}$ ) were calculated using the "(Distance x 0.0084) +36.4" formula where the distance was determined by YO-YO test. The study was approved by the Anadolu University Ethical Committee.

**RESULTS:** The mean values of distance and the  $VO_{2max}$  determined by YO-YO test were  $420.00 \pm 127.24$  (m) and  $39.98 \pm 1.10$  (ml.kg.min<sup>-1</sup>), respectively. Additionally, the mean values of FVC, FEV1, FEV1/FVC, PEF, FEF25-75 and MVV were  $2.97 \pm 0.60$  (L),  $2.42 \pm 0.66$  (L),  $82.46 \pm 14.19$  (%),  $3.68 \pm 1.31$  (L/sec),  $2.77 \pm 0.90$  (L/sec) and  $90.88 \pm 25.08$  (L), respectively. A statistically significant relationship was determined between the FVC values and YO-YO test distance and  $VO_{2max}$  ( $r = 0.662$  and  $r = 0.583$ ;  $p<0.01$ ). Furthermore, a statistically significant relationship was determined between the MVV values and YO-YO test distance and  $VO_{2max}$  ( $r = 0.520$  and  $r = 0.500$ ;  $p<0.05$ ).

**CONCLUSIONS:** The results of the present study are in concordance with studies that put forth the positive effects of exercise programs on the respiratory functions of individuals who have not yet completed their developments. On the other hand, because of the FVC, FEV1 and PEF variables have been shown to be associated with age, height and weight, this effect may be a natural consequence of the growth.

### PC047

#### Investigation of NRF-1 Genotypes and ACE Gene Polymorphism in Elite Athletes

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**AIM:** The present study aimed to investigate the genetic polymorphisms in Nuclear Respiratory Factor-1 (NRF-1) and angiotensin converting enzyme (ACE) in elite athletes who have diverse professions.

**METHODS:** 240 male athletes from diverse disciplines and 250 male controls were included in this study. Athletes were assigned into 4 groups ( $n=60$  in each) as "football", "basketball", and "volleyball" which are endurance sports, and "wrestling" which is a strength sport. Blood samples were obtained and stored at  $-20$  °C until the PCR analyses. Following the DNA extraction, NRF-1 and ACE gene regions were amplified by using the primers in the PCR. The acquired products were cleaved by the restriction enzymes MFE-1 and RSA and the polymorphisms for the mentioned genes were investigated by using the RFLP-PCR assay.

**RESULTS:** Of the athletes, ACE DD genotype was detected in 27.5% (66/240), ACE ID genotype in 32.9% (79/240), and ACE II genotype in 36.5% (88/240), whereas those three genotypes were found to significantly lower than the athletes in the control group ( $p<0.05$ ). In regard to the professions, a significant difference between footballers and wrestlers was determined for ACE DD and ACE ID genotypes ( $p<0.01$ ) while no statistical significance was found between volleyball and basketball players for ACE gene polymorphism ( $p>0.05$ ). We assume that this result may depend on that those two sports require higher physical performance than volleyball and basketball. Considering the NRF-1 gene polymorphism, a statistical significance was found in wrestlers, football and basketball players as compared to the controls ( $p<0.01$ ).

**CONCLUSIONS:** Our results suggest that the distributions of the ACE and NRF-1 genotypes may be used as a genetic factor for electing athletes in early ages.