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the Stepwise Regression yielded a model for the runners, $VO_{2\max} = 1.245 a\text{-}vO_{2\text{ diffmax}} + 0.769 Q_{\max} - 0.603 Wt. - 0.0004$ ($r < .01$). To compare the runners with the students, O_2 transport capacity was responsible for the change in $VO_{2\max}$ with training, which were consistent with the cross-sectional studies. However, both O_2 transport and utilization capacities were critical in determining $VO_{2\max}$ for the runners if the Regression procedure was used as the experimental model. According to the model, the $a\text{-}vO_{2\text{ diffmax}}$ had the greatest contribution in determining runner's $VO_{2\max}$. Therefore, whether oxidative capacity in skeletal muscle is a limiting factor for $VO_{2\max}$ depends on the experimental model. Since no limiting factors were correlated to $VO_{2\max}$ and no regression model was yielded for the students, it seems that endurance training changes the relationship between $VO_{2\max}$ and its limiting factors. The relationship between $VO_{2\max}$ and its limiting factors seems specific to populations varied with conditioning. The primary limiting factors for $VO_{2\max}$ may be changeable according to the length of training.

Effects of Bee Pollen on Maximum Oxygen Consumption ($VO_{2\max}$), Blood Parameters, and Recovery Time of Endurance Athletes

Erdal Zorba and Hacale Mollaogullari, Mugla University, Ýbrahim Erdemir, Trakya University, Ferman Konukman, Central Washington University, and Ilker Yilmaz, Anadolu University

Many dietary ergogenic aids are being used by athletes to have optimal performance amongst them bee pollen research has showed that it had positive effects on body functions and certain illness when used as a nutritional supplement (Williams, 1995), for muscular endurance and strength of athletes (Chen et al., 1986), muscular strength of rats (Shuyun, 1989), and maximum oxygen consumption ($VO_{2\max}$) of adolescent swimmers (Maughan & Evans, 1982). Yet there have also been studies that have provided conflicting results and did not support the effects of bee pollen on perceived exertion of athletes (Woodhouse et al., 1987) and, white blood cell count, hemoglobin concentration in rats (Liebelt & Calcagnetti, 1999). Endurance type of sports activities requires high O_2 supply. High maximal aerobic power ($VO_{2\max}$) is one of the important determining factors for a good athletic performance in many team sports (Bompa, 1999; Potteiger, 2000). Therefore, the purpose of this study was to determine the effects of bee pollen on $VO_{2\max}$, blood parameters (serum cholesterol, serum glucose, serum triglyceride, HDL-C (High-Density Lipoprotein Cholesterol), LDL (Low-Density Lipoprotein), total protein (Albumin and Globulin), WBC, RBC, HGB and recovery time of endurance athletes. Participants were recruited from athletes who performed endurance type of exercise on a regular basis in a collegiate track team. Twelve voluntarily male participants ages between 21–26 participated into study. Participants were randomly assigned as a treatment group ($N = 6$) and a control group ($N = 6$). Treatment group received 15 gr. Bee pollen and control group received a placebo only. For statistical evaluation, pre and posttests measurements were taken in both groups for blood samples, heart rate, and body fat. In addition, Bruce protocol was applied on a treadmill to determine $VO_{2\max}$. The

data were analyzed by the Wilcoxon signed rank test. Alpha was set at $p < .05$. Results from this study show that the treatment group had a significant effect on weight ($z = -1.99$), serum glucose ($z = -2.21$), serum triglyceride ($z = -2.03$), RBC ($z = -1.99$) as well as the recovery time of 15 s ($z = -1.99$), 30 s ($z = -2.23$) and 45 s ($z = -1.99$) at level $p < .05$. On the other hand, there were no significant differences found in control group pre- and posttest parameters. This study is limited to the characteristics of the participants, intervention, tests, and the measurements applied. Therefore, further studies should address the effects bee pollen on different gender, physical activity, and parameters.

GRANTS

The Influence of Project SKILL on the Motor Skill Development of Young Disadvantaged Hispanic Children

Jacqueline D. Goodway and Richard Suminski, The Ohio State University, and Alberto Ruiz, Texas A&M University-Kingsville*

Healthy People 2010 has indicated that Hispanic and low-income populations need to be targeted for additional support and intervention as they demonstrate significant needs both as children and adults. Hispanic's of all ages exhibit higher rates of obesity and diabetes compared to other populations. Moreover, poverty has been found to be a strong predictor of poor health and decreased physical activity. Therefore, young Hispanic children from low-income families are very much in need of special intervention services to offset patterns of inactivity and poor health that are often established in the early years. The purpose of this study was to examine the influence of a 12-week, school-based motor skill program (Successful Kinesthetic Instruction for Lifelong Learning: SKILL) on the fundamental motor skills of young disadvantaged Hispanic children. Participants consisted of 104 children with a mean age of 54.24 months ($SD = 3.85$) enrolled in a compensatory preschool program for disadvantaged children. Three classes of preschool children were assigned to a SKILL ($n = 58$) group and a Comparison ($n = 46$) group. All children were evaluated on the Test of Gross Motor Development prior to and following the SKILL program yielding a Gross Motor Development Quotient (GMDQ) score, a locomotor subscale score, and an object control subscale score. The children in the SKILL group received the SKILL program consisting of two 45-min sessions of motor skill instruction per week over a 12-week period. Prior to the intervention, examination of the GMDQ scores revealed a mean score of 71.43 ($SD = 14.02$) for the SKILL group and 80.26 ($SD = 13.39$) for the Comparison group indicating that the groups of children were developmentally delayed. Following the intervention, an analysis of variance (ANOVA) with repeated measures on the GMDQ scores revealed a significant Group by Time interaction, $F(1, 102) = 272.34$, $p = .000$, $\eta^2 = .73$, indicating that the SKILL group improved more than the Comparison group from pretest to posttest. A post hoc univariate ANOVA showed that the SKILL group had significantly better GMDQ scores than the Comparison group at the posttest, $F(1, 102) = 138.35$, $p = .000$. Post hoc paired sample t tests revealed that the SKILL group