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Small sided recreational football and immunology: The effects on immune system

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Background: Any exercise program must be enjoyable so that it can be successfully incorporated into person's lifestyle. Football is associated with high energy expenditure. If used as tool for physical conditioning, the small-sided games of football are very helpful in eliciting heart rate up to around 90-95% of maximal heart rate. Exercise can cause a change in the consistency of serum immunoglobulin (IgA, IgM, and IgG) levels and secretion of the some hormones. Intense physical training led to increased serum cortisol and IgA, IgM, IgG in active and inactive people. On the other hand short moderate training caused serum IgA and IgM decrease significantly without variation in levels of IgG. Present study investigated how 16 weeks of six a side supervised recreational football affected serum immunoglobulin and white blood cells in untrained males.

Methods: Twenty seven male students from King Fahd university of Petroleum & Minerals (KFUPM) with mean age 18.75 yrs were randomized into intervention (n=12) and control group (n=15). Three subjects from control group didn't report for post-test. Intervention group played recreational football for 16 weeks. Football sessions were conducted on 40x30m outdoor artificial pitch. Training sessions were organized twice a week. Each session was divided into two halves of 15 minutes with 5 minute recovery. Heart rate in intervention group was monitored during all football sessions using Polar FT7. Control group subjects followed their regular routine. Analysis of Covariance (ANCOVA) was employed to find difference between two groups after 16 weeks of football. Level of significance was set at .05

Results & Discussion: One way ANCOVA revealed significant increase in total white blood cell count ($P=0.001$), eosinophil ($P=0.006$) and basophil ($P=0.005$), while no significant improvement was observed in Neutrophil ($P=0.797$), lymphocytes ($P=0.820$), IgA ($P=.158$), IgG ($P=.077$) and IgM ($P=.655$). Monocytes and eosinophil counts decreased significantly whereas basophil counts increased significantly post football training. Sixteen weeks of supervised recreation football training was effective in increasing total WBC count in untrained males. Our training was vigorous in nature as indicated by high average heart rate during the training sessions. Further, recreation football could not affect serum immunoglobulin significantly but there was some substantive increase in IgG levels. The long and vigorous training makes the immune system weak while short and mild strengthen it.

Biography

Rakesh Tomar is currently working as a Faculty at King Fahd University of Petroleum & Minerals, Saudi Arabia. He has completed his PhD in Physical Education at Lakshmbai National Institute of Physical Education (LNPE), India. He has authored several publications in various journals. His publications reflect his research interests in exercise physiology, health and fitness. He is also an Associate Editor of *The International Journal of Health, Wellness and Society*, Editorial Board Member of Athens Journal of Sports. He is serving as a Board Member for Asian Society of Kinesiology, Korea. He was Principal Investigator in five funded scholarly project and Co-investigator in two fully funded research projects. He has chaired scientific sessions at international conferences. He has been invited as Keynote Speaker, Invited Speaker, and Guest Speaker at international conferences.

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