

The Relationship between Extremely High Levels of Testosterone in Blood and Chronic Diseases and Attention Disorders: A Study of Different Population Groups

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Abstract : Testosterone levels can impact physical and mental health, with abnormal levels potentially leading to chronic diseases and attention disorders. Further exploration is needed to understand how extremely high testosterone levels affect different population groups. The primary aim of this study is to examine the impact of extremely high levels of testosterone in the blood on chronic diseases and attention disorders. The specific objectives are as follows: i. to compare testosterone levels in athletes and non-athletes, ii. to analyze the association between extremely high testosterone levels and the incidence of chronic diseases, iii. to evaluate the impact of testosterone on attention in hyperactive and typical students. This research was conducted as a cross-sectional study using advanced statistical and technological methods. The study population included male students from boys' schools and male athletes from sports clubs in Shiraz, Iran. Random sampling was performed from 10 schools and 5 sports clubs. The total sample size was 300 participants divided into three groups: 100 professional athletes from sports clubs, 100 non-athletes with no physical activity from boys' schools, 100 students (50 hyperactive and 50 typical) from boys' schools. Testosterone levels were measured using Liquid Chromatography-Mass Spectrometry (LC-MS/MS). This method provides high accuracy in determining hormone concentrations in blood. Data were analyzed using statistical tests, including ANOVA and linear regression, to examine differences and correlations. Professional athletes had significantly higher testosterone levels compared to non-athletes. This increase was associated with improved physical performance and a reduced risk of chronic diseases. Non-athletes with no physical activity generally exhibited lower testosterone levels, which were linked to a higher risk of diabetes and cardiovascular diseases. Hyperactive students had higher testosterone levels, which may be associated with attention disorders and impulsive behaviors. Typical students showed balanced testosterone levels, correlating with better cognitive performance and increased attention. The findings of this study indicate that extremely high levels of testosterone can have varying effects on physical and mental health. While athletes benefit from higher testosterone levels, such levels in hyperactive students may lead to attention disorders and unstable behaviors. The use of LC-MS/MS for precise testosterone measurement is a valuable tool for analyzing these effects. These results emphasize the importance of regulating physical activity and managing hormone levels to promote health.

Keywords : attention disorders, chronic diseases, different population groups, extremely high testosterone levels

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